

|    |                                                           |
|----|-----------------------------------------------------------|
| 1  | @Entity                                                   |
| 2  | @Table(name = "categories")                               |
| 3  | public class Category implements java.io.Serializable {   |
| 4  |                                                           |
| 5  | private static final long serialVersionUID = 1L;          |
| 6  |                                                           |
| 7  | @Id                                                       |
| 8  | @GeneratedValue                                           |
| 9  | private Long id;                                          |
| 10 |                                                           |
| 11 | private String categoryName;                              |
| 12 |                                                           |
| 13 | @OneToOne(mappedBy = "productCategory")                   |
| 14 | private Product categoryProduct;                          |
| 15 |                                                           |
| 16 | public Category() {                                       |
| 17 | // Used by JPA.                                           |
| 18 | }                                                         |
| 19 |                                                           |
| 20 | public void setId(Long id) {                              |
| 21 | this.id = id;                                             |
| 22 | }                                                         |
| 23 |                                                           |
| 24 | public Long getId() {                                     |
| 25 | return id;                                                |
| 26 | }                                                         |
| 27 |                                                           |
| 28 | public String getCategoryName() {                         |
| 29 | return this.categoryName;                                 |
| 30 | }                                                         |
| 31 |                                                           |
| 32 | public void setCategoryName(String categoryName) {        |
| 33 | this.categoryName = categoryName;                         |
| 34 | }                                                         |
| 35 |                                                           |
| 36 | public Product getCategoryProduct() {                     |
| 37 | return this.categoryProduct;                              |
| 38 | }                                                         |
| 39 |                                                           |
| 40 | public void setCategoryProduct(Product categoryProduct) { |
| 41 | this.categoryProduct = categoryProduct;                   |
| 42 | }                                                         |
| 43 | }                                                         |

|    |                                                                     |
|----|---------------------------------------------------------------------|
| 44 | public class CategoryRepository implements ServletContextListener { |
|----|---------------------------------------------------------------------|

|    |                                                                                       |
|----|---------------------------------------------------------------------------------------|
| 45 |                                                                                       |
| 46 | @PersistenceUnit(unitName = "store-pu")                                               |
| 47 | private EntityManagerFactory emf;                                                     |
| 48 |                                                                                       |
| 49 | private EntityManager em;                                                             |
| 50 |                                                                                       |
| 51 | public CategoryRepository() {                                                         |
| 52 | emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu");      |
| 53 | System.out.println("[SERVLET-TEST-INFO]: CategoryRepository Constructor");            |
| 54 | }                                                                                     |
| 55 |                                                                                       |
| 56 | @Override                                                                             |
| 57 | public void contextDestroyed(ServletContextEvent sce) {                               |
| 58 | if (emf.isOpen()) {                                                                   |
| 59 | emf.close();                                                                          |
| 60 | }                                                                                     |
| 61 | }                                                                                     |
| 62 |                                                                                       |
| 63 | @Override                                                                             |
| 64 | public void contextInitialized(ServletContextEvent sce) {                             |
| 65 | ServletContext context = sce.getServletContext();                                     |
| 66 | context.setAttribute("categoryRepository", this);                                     |
| 67 | System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado! CategoryRepository"); |
| 68 | }                                                                                     |
| 69 |                                                                                       |
| 70 | public final EntityManager entityManager() {                                          |
| 71 | if (em == null    !em.isOpen()) {                                                     |
| 72 | em = emf.createEntityManager();                                                       |
| 73 | }                                                                                     |
| 74 | return em;                                                                            |
| 75 | }                                                                                     |
| 76 |                                                                                       |
| 77 | public void persistOrMerge(Serializable entity, Serializable id) {                    |
| 78 | em = entityManager();                                                                 |
| 79 |                                                                                       |
| 80 | if (entity == null) {                                                                 |
| 81 | throw new IllegalArgumentException("entity");                                         |
| 82 | }                                                                                     |
| 83 | try {                                                                                 |
| 84 | em.getTransaction().begin();                                                          |
| 85 | if (id == null) {                                                                     |
| 86 | em.persist(entity);                                                                   |
| 87 | } else {                                                                              |
| 88 | em.merge(entity);                                                                     |
| 89 | }                                                                                     |
| 90 | em.getTransaction().commit();                                                         |
| 91 | } finally {                                                                           |
| 92 | em.close();                                                                           |

|     |                                                                               |
|-----|-------------------------------------------------------------------------------|
| 93  | }                                                                             |
| 94  | }                                                                             |
| 95  |                                                                               |
| 96  | <b>public</b> Category findCategoryById(Long id) {                            |
| 97  | em = entityManager();                                                         |
| 98  | <b>return</b> em.find(Category.class, id);                                    |
| 99  | }                                                                             |
| 100 |                                                                               |
| 101 | <b>public</b> List findAllCategories() {                                      |
| 102 | em = entityManager();                                                         |
| 103 | Query q = em.createQuery("select c from Category c");                         |
| 104 | <b>return</b> q.getResultList();                                              |
| 105 | }                                                                             |
| 106 |                                                                               |
| 107 | <b>public</b> List findAllDistinctCategories() {                              |
| 108 | em = entityManager();                                                         |
| 109 | Query q = em.createQuery("select DISTINCT (c.categoryName) from Category c"); |
| 110 | <b>return</b> q.getResultList();                                              |
| 111 | }                                                                             |
| 112 |                                                                               |
| 113 | <b>public</b> Category newCategory() {                                        |
| 114 | Category c = <b>new</b> Category();                                           |
| 115 | persistOrMerge(c, c.getId());                                                 |
| 116 | <b>return</b> c;                                                              |
| 117 | }                                                                             |
| 118 | }                                                                             |

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|     |                                                                                |
|-----|--------------------------------------------------------------------------------|
| 119 | <b>public interface</b> ControllerAction {                                     |
| 120 |                                                                                |
| 121 | <b>void</b> execute(HttpServletRequest request, HttpServletResponse response); |
| 122 | }                                                                              |

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|     |                                                                                                        |
|-----|--------------------------------------------------------------------------------------------------------|
| 123 | <b>public class</b> ControllerServlet <b>extends</b> HttpServlet {                                     |
| 124 |                                                                                                        |
| 125 | <b>private static final long</b> serialVersionUID = 1L;                                                |
| 126 | <b>private</b> Map<String, ControllerAction> actions = <b>new</b> HashMap<String, ControllerAction>(); |
| 127 | <b>private static final</b> String ACTION_IDENTIFIER = "action";                                       |
| 128 |                                                                                                        |
| 129 | <b>public void</b> init() {                                                                            |
| 130 | actions.put("goToHome", <b>new</b> GoToAction("home.jsp"));                                            |
| 131 | actions.put("goToCatalog", <b>new</b> GoToAction("catalog.jsp"));                                      |
| 132 | actions.put("goToCheckout", <b>new</b> GoToAction("checkout.jsp"));                                    |
| 133 | //#if defined(DisplayByCategory)                                                                       |
| 134 | actions.put("goToCatalogShowByCategory", <b>new</b> GoToAction("catalogByCategory.jsp"));              |

|     |                                                                                                                                             |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------|
| 135 | //#endif                                                                                                                                    |
| 136 | //#if defined(DisplayWhatIsNew)                                                                                                             |
| 137 | actions.put("goToCatalogShowByNearestDate", new<br>GoToAction("catalogByNearestDate.jsp"));                                                 |
| 138 | //#endif                                                                                                                                    |
| 139 | actions.put("goToSeller", new GoToAction("seller.jsp"));                                                                                    |
| 140 | //#if defined(Paypal)                                                                                                                       |
| 141 | actions.put("goToPaypal", new GoToAction("paypal.jsp"));                                                                                    |
| 142 | //#endif                                                                                                                                    |
| 143 | actions.put("goToPayment", new GoToAction("payment.jsp"));                                                                                  |
| 144 | //#if defined(Bankslip)                                                                                                                     |
| 145 | actions.put("goToBankSlip", new GoToAction("bankslip.jsp"));                                                                                |
| 146 | //#endif                                                                                                                                    |
| 147 | actions.put("goToResponse", new GoToAction("response.jsp"));                                                                                |
| 148 |                                                                                                                                             |
| 149 | actions.put("verifyCatalogForm", new VerifyCatalogFormAction());                                                                            |
| 150 | actions.put("verifySellerForm", new VerifySellerFormAction());                                                                              |
| 151 | actions.put("verifyCheckoutForm", new VerifyCheckoutFormAction());                                                                          |
| 152 |                                                                                                                                             |
| 153 | actions.put("processSellerForm", new ProcessSellerFormAction());                                                                            |
| 154 | actions.put("processCheckoutForm", new ProcessCheckoutFormAction());                                                                        |
| 155 | }                                                                                                                                           |
| 156 |                                                                                                                                             |
| 157 | <b>public void</b> processAction(HttpServletRequest request, HttpServletResponse response)<br><b>throws</b> ServletException, IOException { |
| 158 |                                                                                                                                             |
| 159 | String actionRequestParameter = request.getParameter(ACTION_IDENTIFIER);                                                                    |
| 160 |                                                                                                                                             |
| 161 | <b>if</b> (null == actionRequestParameter) {                                                                                                |
| 162 | actionRequestParameter = "goToHome";                                                                                                        |
| 163 | }                                                                                                                                           |
| 164 |                                                                                                                                             |
| 165 | ControllerAction command = (ControllerAction) actions.get(actionRequestParameter);                                                          |
| 166 |                                                                                                                                             |
| 167 | <b>if</b> (null == command) {                                                                                                               |
| 168 | <b>throw new</b> IllegalArgumentException("No command for form action: " +<br>actionRequestParameter);                                      |
| 169 | }                                                                                                                                           |
| 170 | command.execute(request, response);                                                                                                         |
| 171 | }                                                                                                                                           |
| 172 |                                                                                                                                             |
| 173 | <b>public void</b> doPost(HttpServletRequest request, HttpServletResponse response) <b>throws</b><br>ServletException, IOException {        |
| 174 | processAction(request, response);                                                                                                           |
| 175 | }                                                                                                                                           |
| 176 |                                                                                                                                             |
| 177 | <b>public void</b> doGet(HttpServletRequest request, HttpServletResponse response) <b>throws</b><br>ServletException, IOException {         |
| 178 | processAction(request, response);                                                                                                           |
| 179 | }                                                                                                                                           |
| 180 | }                                                                                                                                           |

|     |                                                                                       |
|-----|---------------------------------------------------------------------------------------|
| 181 | @Entity                                                                               |
| 182 | @Table(name = "customers")                                                            |
| 183 | public class Customer implements Serializable {                                       |
| 184 |                                                                                       |
| 185 | private static final long serialVersionUID = 1L;                                      |
| 186 |                                                                                       |
| 187 | @Id                                                                                   |
| 188 | @GeneratedValue                                                                       |
| 189 | private Long id;                                                                      |
| 190 |                                                                                       |
| 191 | private String name;                                                                  |
| 192 |                                                                                       |
| 193 | public void setName(String name) {                                                    |
| 194 | this.name = name;                                                                     |
| 195 | }                                                                                     |
| 196 |                                                                                       |
| 197 | private String address;                                                               |
| 198 |                                                                                       |
| 199 | private String email;                                                                 |
| 200 |                                                                                       |
| 201 | @OneToMany(targetEntity = Order.class, mappedBy = "customer", fetch = FetchType.LAZY) |
| 202 | private List<Order> orders;                                                           |
| 203 |                                                                                       |
| 204 | public Customer() {                                                                   |
| 205 | // JPA                                                                                |
| 206 | }                                                                                     |
| 207 |                                                                                       |
| 208 | public Long getId() {                                                                 |
| 209 | return id;                                                                            |
| 210 | }                                                                                     |
| 211 |                                                                                       |
| 212 | public String getName() {                                                             |
| 213 | return name;                                                                          |
| 214 | }                                                                                     |
| 215 |                                                                                       |
| 216 | public void setAddress(String address) {                                              |
| 217 | this.address = address;                                                               |
| 218 | }                                                                                     |
| 219 |                                                                                       |
| 220 | public String getAddress() {                                                          |
| 221 | return address;                                                                       |
| 222 | }                                                                                     |
| 223 |                                                                                       |
| 224 | public void setOrders(List<Order> orders) {                                           |
| 225 | this.orders = orders;                                                                 |
| 226 | }                                                                                     |
| 227 |                                                                                       |

|     |                                             |
|-----|---------------------------------------------|
| 228 | <b>public</b> List<Order> getOrders() {     |
| 229 | <b>return</b> orders;                       |
| 230 | }                                           |
| 231 |                                             |
| 232 | <b>public void</b> setEmail(String email) { |
| 233 | <b>this</b> .email = email;                 |
| 234 | }                                           |
| 235 |                                             |
| 236 | <b>public</b> String getEmail() {           |
| 237 | <b>return</b> email;                        |
| 238 | }                                           |
| 239 | }                                           |

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|     |                                                                                       |
|-----|---------------------------------------------------------------------------------------|
| 240 | <b>public class</b> CustomerRepository <b>implements</b> ServletContextListener {     |
| 241 |                                                                                       |
| 242 | @PersistenceUnit(unitName = "store-pu")                                               |
| 243 | <b>private</b> EntityManagerFactory emf;                                              |
| 244 |                                                                                       |
| 245 | <b>private</b> EntityManager em;                                                      |
| 246 |                                                                                       |
| 247 | <b>public</b> CustomerRepository() {                                                  |
| 248 | emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu");      |
| 249 | System.out.println("[SERVLET-TEST-INFO]: CustomerRepository Constructor");            |
| 250 | }                                                                                     |
| 251 |                                                                                       |
| 252 | @Override                                                                             |
| 253 | <b>public void</b> contextDestroyed(ServletContextEvent sce) {                        |
| 254 | <b>if</b> (emf.isOpen()) {                                                            |
| 255 | emf.close();                                                                          |
| 256 | }                                                                                     |
| 257 | }                                                                                     |
| 258 |                                                                                       |
| 259 | @Override                                                                             |
| 260 | <b>public void</b> contextInitialized(ServletContextEvent sce) {                      |
| 261 | ServletContext context = sce.getServletContext();                                     |
| 262 | context.setAttribute("customerRepository", <b>this</b> );                             |
| 263 | System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado! CustomerRepository"); |
| 264 | }                                                                                     |
| 265 |                                                                                       |
| 266 | <b>public final</b> EntityManager entityManager() {                                   |
| 267 | <b>if</b> (em == <b>null</b>    !em.isOpen()) {                                       |
| 268 | em = emf.createEntityManager();                                                       |
| 269 | }                                                                                     |
| 270 | <b>return</b> em;                                                                     |
| 271 | }                                                                                     |
| 272 |                                                                                       |

|     |                                                                           |
|-----|---------------------------------------------------------------------------|
| 273 | <b>public void</b> persistOrMerge(Serializable entity, Serializable id) { |
| 274 | em = entityManager();                                                     |
| 275 |                                                                           |
| 276 | <b>if</b> (entity == <b>null</b> ) {                                      |
| 277 | <b>throw new</b> IllegalArgumentException("entity");                      |
| 278 | }                                                                         |
| 279 | <b>try</b> {                                                              |
| 280 | em.getTransaction().begin();                                              |
| 281 | <b>if</b> (id == <b>null</b> ) {                                          |
| 282 | em.persist(entity);                                                       |
| 283 | } <b>else</b> {                                                           |
| 284 | em.merge(entity);                                                         |
| 285 | }                                                                         |
| 286 | em.getTransaction().commit();                                             |
| 287 | } <b>finally</b> {                                                        |
| 288 | em.close();                                                               |
| 289 | }                                                                         |
| 290 | }                                                                         |
| 291 |                                                                           |
| 292 | <b>public</b> Customer findCustomerById(Long id) {                        |
| 293 | em = entityManager();                                                     |
| 294 | <b>return</b> em.find(Customer.class, id);                                |
| 295 | }                                                                         |
| 296 |                                                                           |
| 297 | <b>public</b> List findAllCustomers() {                                   |
| 298 | em = entityManager();                                                     |
| 299 | Query q = em.createQuery("select c from Customer c");                     |
| 300 | <b>return</b> q.getResultList();                                          |
| 301 | }                                                                         |
| 302 |                                                                           |
| 303 | <b>public</b> Customer newCustomer() {                                    |
| 304 | Customer c = <b>new</b> Customer();                                       |
| 305 | persistOrMerge(c, c.getId());                                             |
| 306 | <b>return</b> c;                                                          |
| 307 | }                                                                         |
| 308 | }                                                                         |

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|     |                                                                     |
|-----|---------------------------------------------------------------------|
| 309 | <b>public class</b> GoToAction <b>implements</b> ControllerAction { |
| 310 |                                                                     |
| 311 | <b>private</b> String jspFileName;                                  |
| 312 |                                                                     |
| 313 | <b>public</b> GoToAction(String jspFileName) {                      |
| 314 | <b>this</b> .setJspFileName(jspFileName);                           |
| 315 | }                                                                   |
| 316 |                                                                     |
| 317 | @Override                                                           |

|     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 318 | <b>public void</b> execute(HttpServletRequest request, HttpServletResponse response) { |
| 319 | ServletContext context = request.getSession().getServletContext();                     |
| 320 |                                                                                        |
| 321 | <b>try</b> {                                                                           |
| 322 |                                                                                        |
| 323 | context.getRequestDispatcher("/") + jspFileName).forward(request, response);           |
| 324 | } <b>catch</b> (Exception e) {                                                         |
| 325 | e.printStackTrace();                                                                   |
| 326 | }                                                                                      |
| 327 | }                                                                                      |
| 328 |                                                                                        |
| 329 | <b>public void</b> setJspFileName(String jspFileName) {                                |
| 330 | <b>this.jspFileName</b> = jspFileName;                                                 |
| 331 | }                                                                                      |
| 332 |                                                                                        |
| 333 | <b>public</b> String getJspFileName() {                                                |
| 334 | <b>return jspFileName</b> ;                                                            |
| 335 | }                                                                                      |
| 336 | }                                                                                      |

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|     |                                                                                          |
|-----|------------------------------------------------------------------------------------------|
| 337 | <b>public abstract class</b> ModelAction {                                               |
| 338 |                                                                                          |
| 339 | <b>public</b> Object execute(HttpServletRequest request, HttpServletResponse response) { |
| 340 | setPersistenceRepository(request);                                                       |
| 341 | getRequestParameters(request);                                                           |
| 342 | <b>return</b> newEntity();                                                               |
| 343 | }                                                                                        |
| 344 |                                                                                          |
| 345 | Object newEntity() {                                                                     |
| 346 | Object o = createEntity();                                                               |
| 347 | setEntityAssociations(o);                                                                |
| 348 |                                                                                          |
| 349 | <b>return</b> o;                                                                         |
| 350 | }                                                                                        |
| 351 |                                                                                          |
| 352 | <b>abstract</b> Object createEntity();                                                   |
| 353 |                                                                                          |
| 354 | <b>abstract void</b> getRequestParameters(HttpServletRequest request);                   |
| 355 |                                                                                          |
| 356 | <b>abstract void</b> setPersistenceRepository(HttpServletRequest request);               |
| 357 |                                                                                          |
| 358 | <b>abstract void</b> setEntityAssociations(Object o);                                    |
| 359 | }                                                                                        |

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|     |                                                                                              |
|-----|----------------------------------------------------------------------------------------------|
| 360 | <b>public class</b> NewCategoryAction <b>extends</b> ModelAction {                           |
| 361 |                                                                                              |
| 362 | Object <b>params</b> [];                                                                     |
| 363 | <b>private</b> CategoryRepository <b>categoryRepository</b> ;                                |
| 364 |                                                                                              |
| 365 | @Override                                                                                    |
| 366 | <b>public void</b> setPersistenceRepository(HttpServletRequest request) {                    |
| 367 | ServletContext context = request.getSession().getServletContext();                           |
| 368 | <b>categoryRepository</b> = (CategoryRepository) context.getAttribute("categoryRepository"); |
| 369 | }                                                                                            |
| 370 |                                                                                              |
| 371 | @Override                                                                                    |
| 372 | <b>public</b> Object createEntity() {                                                        |
| 373 | Category c = <b>categoryRepository</b> .newCategory();                                       |
| 374 | setEntityAssociations(c);                                                                    |
| 375 | <b>categoryRepository</b> .persistOrMerge(c, c.getId());                                     |
| 376 | <b>return</b> c;                                                                             |
| 377 | }                                                                                            |
| 378 |                                                                                              |
| 379 | @Override                                                                                    |
| 380 | <b>public void</b> setEntityAssociations(Object o) {                                         |
| 381 | ((Category) o).setCategoryName((String) <b>params</b> [0]);                                  |
| 382 | }                                                                                            |
| 383 |                                                                                              |
| 384 | @Override                                                                                    |
| 385 | <b>public void</b> getRequestParameters(HttpServletRequest request) {                        |
| 386 | <b>params</b> = <b>new</b> Object[1];                                                        |
| 387 | <b>params</b> [0] = request.getParameter("CategoryName");                                    |
| 388 | }                                                                                            |
| 389 | }                                                                                            |

|     |                                                                           |
|-----|---------------------------------------------------------------------------|
| 390 | <b>public class</b> NewCustomerAction <b>extends</b> ModelAction {        |
| 391 |                                                                           |
| 392 | Object <b>params</b> [];                                                  |
| 393 | <b>private</b> CustomerRepository <b>customerRepository</b> ;             |
| 394 |                                                                           |
| 395 | @Override                                                                 |
| 396 | <b>public void</b> setPersistenceRepository(HttpServletRequest request) { |
| 397 | ServletContext context = request.getSession().getServletContext();        |
| 398 | <b>customerRepository</b> = (CustomerRepository)                          |
| 399 | context.getAttribute("customerRepository");                               |
| 400 | }                                                                         |
| 401 | @Override                                                                 |
| 402 | <b>public</b> Object createEntity() {                                     |
| 403 | Customer c = <b>customerRepository</b> .newCustomer();                    |
| 404 | setEntityAssociations(c);                                                 |

|     |                                                                       |
|-----|-----------------------------------------------------------------------|
| 405 | <b>return</b> c;                                                      |
| 406 | }                                                                     |
| 407 |                                                                       |
| 408 | @Override                                                             |
| 409 | <b>public void</b> setEntityAssociations(Object o) {                  |
| 410 | ((Customer) o).setName((String) params[0]);                           |
| 411 | ((Customer) o).setAddress((String) params[1]);                        |
| 412 | ((Customer) o).setEmail((String) params[2]);                          |
| 413 | }                                                                     |
| 414 |                                                                       |
| 415 | @Override                                                             |
| 416 | <b>public void</b> getRequestParameters(HttpServletRequest request) { |
| 417 | params = <b>new</b> Object[3];                                        |
| 418 | params[0] = request.getParameter("CustomerName");                     |
| 419 | params[1] = request.getParameter("CustomerAddress");                  |
| 420 | params[2] = request.getParameter("CustomerMail");                     |
| 421 | }                                                                     |
| 422 | }                                                                     |

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|     |                                                                              |
|-----|------------------------------------------------------------------------------|
| 423 | <b>public class</b> NewOrderAction <b>extends</b> ModelAction {              |
| 424 |                                                                              |
| 425 | Object params[];                                                             |
| 426 | <b>private</b> OrderRepository orderRepository;                              |
| 427 |                                                                              |
| 428 | @Override                                                                    |
| 429 | <b>public void</b> setPersistenceRepository(HttpServletRequest request) {    |
| 430 | ServletContext context = request.getSession().getServletContext();           |
| 431 | orderRepository = (OrderRepository) context.getAttribute("orderRepository"); |
| 432 | }                                                                            |
| 433 |                                                                              |
| 434 | @Override                                                                    |
| 435 | <b>public</b> Object createEntity() {                                        |
| 436 | Order o = orderRepository.newOrder();                                        |
| 437 | setEntityAssociations(o);                                                    |
| 438 | orderRepository.persistOrMerge(o, o.getId());                                |
| 439 | <b>return</b> o;                                                             |
| 440 | }                                                                            |
| 441 |                                                                              |
| 442 | @Override                                                                    |
| 443 | <b>public void</b> setEntityAssociations(Object o) {                         |
| 444 | ((Order) o).setCustomer((Customer) params[0]);                               |
| 445 | ((Order) o).setProducts((List<Product>) params[1]);                          |
| 446 | }                                                                            |
| 447 |                                                                              |
| 448 | @Override                                                                    |
| 449 | <b>public void</b> getRequestParameters(HttpServletRequest request) {        |

|     |                                                            |
|-----|------------------------------------------------------------|
| 450 | <code>params = new Object[2];</code>                       |
| 451 | <code>params[0] = request.getAttribute("customer");</code> |
| 452 | <code>params[1] = request.getAttribute("products");</code> |
| 453 | <code>}</code>                                             |
| 454 | <code>}</code>                                             |

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|     |                                                                                                 |
|-----|-------------------------------------------------------------------------------------------------|
| 455 | <code>public class NewPaymentAction extends ModelAction {</code>                                |
| 456 |                                                                                                 |
| 457 | <code>Object params[];</code>                                                                   |
| 458 | <code>private PaymentRepository paymentRepository;</code>                                       |
| 459 |                                                                                                 |
| 460 | <code>@Override</code>                                                                          |
| 461 | <code>public void setPersistenceRepository(HttpServletRequest request) {</code>                 |
| 462 | <code>ServletContext context = request.getSession().getServletContext();</code>                 |
| 463 | <code>paymentRepository = (PaymentRepository) context.getAttribute("paymentRepository");</code> |
| 464 | <code>}</code>                                                                                  |
| 465 |                                                                                                 |
| 466 | <code>@Override</code>                                                                          |
| 467 | <code>public Object createEntity() {</code>                                                     |
| 468 | <code>Payment object = paymentRepository.newPayment();</code>                                   |
| 469 | <code>setEntityAssociations(object);</code>                                                     |
| 470 | <code>paymentRepository.persistOrMerge(object, object.getId());</code>                          |
| 471 | <code>return object;</code>                                                                     |
| 472 | <code>}</code>                                                                                  |
| 473 |                                                                                                 |
| 474 | <code>@Override</code>                                                                          |
| 475 | <code>public void setEntityAssociations(Object payment) {</code>                                |
| 476 | <code>((Payment) payment).setPaymentStatus("NOT YET PAID");</code>                              |
| 477 | <code>((Payment) payment).setPaymentOrder((Order) params[0]);</code>                            |
| 478 | <code>((Payment) payment).setPaymentType((String) params[1]);</code>                            |
| 479 | <code>}</code>                                                                                  |
| 480 |                                                                                                 |
| 481 | <code>@Override</code>                                                                          |
| 482 | <code>public void getRequestParameters(HttpServletRequest request) {</code>                     |
| 483 | <code>params = new Object[2];</code>                                                            |
| 484 | <code>params[0] = request.getAttribute("order");</code>                                         |
| 485 | <code>params[1] = request.getParameter("paymentType");</code>                                   |
| 486 | <code>}</code>                                                                                  |
| 487 | <code>}</code>                                                                                  |

12

|     |                                                                  |
|-----|------------------------------------------------------------------|
| 488 | <code>public class NewProductAction extends ModelAction {</code> |
| 489 |                                                                  |
| 490 | <code>private ProductRepository productRepository;</code>        |
| 491 | <code>Object params[];</code>                                    |

|     |                                                                                    |
|-----|------------------------------------------------------------------------------------|
| 492 |                                                                                    |
| 493 | @Override                                                                          |
| 494 | public void setPersistenceRepository(HttpServletRequest request) {                 |
| 495 | ServletContext context = request.getSession().getServletContext();                 |
| 496 | productRepository = (ProductRepository) context.getAttribute("productRepository"); |
| 497 | }                                                                                  |
| 498 |                                                                                    |
| 499 | @Override                                                                          |
| 500 | public Object createEntity() {                                                     |
| 501 | Product p = productRepository.newProduct();                                        |
| 502 | setEntityAssociations(p);                                                          |
| 503 | productRepository.persistOrMerge(p, p.getId());                                    |
| 504 | return p;                                                                          |
| 505 | }                                                                                  |
| 506 |                                                                                    |
| 507 | @Override                                                                          |
| 508 | public void setEntityAssociations(Object product) {                                |
| 509 | ((Product) product).setProductName((String) params[0]);                            |
| 510 | ((Product) product).setProductDescription((String) params[1]);                     |
| 511 |                                                                                    |
| 512 | Double price;                                                                      |
| 513 | if (params[2] == null) {                                                           |
| 514 | price = Double.valueOf("0");                                                       |
| 515 | } else {                                                                           |
| 516 | price = Double.valueOf((String) params[2]);                                        |
| 517 | }                                                                                  |
| 518 | ((Product) product).setProductPrice(price);                                        |
| 519 | // #if defined(DisplayWhatIsNew)                                                   |
| 520 | ((Product) product).setProductInsertDate(new Date());                              |
| 521 | // #endif                                                                          |
| 522 | }                                                                                  |
| 523 |                                                                                    |
| 524 | @Override                                                                          |
| 525 | public void getRequestParameters(HttpServletRequest request) {                     |
| 526 | params = new Object[3];                                                            |
| 527 | params[0] = request.getParameter("ProductName");                                   |
| 528 | params[1] = request.getParameter("ProductDescription");                            |
| 529 | params[2] = request.getParameter("ProductPrice");                                  |
| 530 | }                                                                                  |
| 531 | }                                                                                  |

13

|     |                                                    |
|-----|----------------------------------------------------|
| 532 | public class NewSellerAction extends ModelAction { |
| 533 |                                                    |
| 534 | SellerRepository sellerRepository;                 |
| 535 | Object params[];                                   |
| 536 |                                                    |

|     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 537 | @Override                                                                              |
| 538 | <b>public</b> Object createEntity() {                                                  |
| 539 | Seller s = <b>sellerRepository</b> .newSeller();                                       |
| 540 | setEntityAssociations(s);                                                              |
| 541 | <b>sellerRepository</b> .persistOrMerge(s, s.getId());                                 |
| 542 | <b>return</b> s;                                                                       |
| 543 | }                                                                                      |
| 544 |                                                                                        |
| 545 | @Override                                                                              |
| 546 | <b>public void</b> setEntityAssociations(Object seller) {                              |
| 547 | ((Seller) seller).setName((String) <b>params</b> [0]);                                 |
| 548 | ((Seller) seller).setAddress((String) <b>params</b> [1]);                              |
| 549 | ((Seller) seller).setEmail((String) <b>params</b> [2]);                                |
| 550 | }                                                                                      |
| 551 |                                                                                        |
| 552 | @Override                                                                              |
| 553 | <b>public void</b> setPersistenceRepository(HttpServletRequest request) {              |
| 554 | ServletContext context = request.getSession().getServletContext();                     |
| 555 | <b>sellerRepository</b> = (SellerRepository) context.getAttribute("sellerRepository"); |
| 556 | }                                                                                      |
| 557 |                                                                                        |
| 558 | @Override                                                                              |
| 559 | <b>public void</b> getRequestParameters(HttpServletRequest request) {                  |
| 560 | <b>params</b> = <b>new</b> Object[3];                                                  |
| 561 | <b>params</b> [0] = request.getParameter("SellerName");                                |
| 562 | <b>params</b> [1] = request.getParameter("SellerAddress");                             |
| 563 | <b>params</b> [2] = request.getParameter("SellerMail");                                |
| 564 | }                                                                                      |
| 565 | }                                                                                      |

14

|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| 566 | @Entity                                                                                                       |
| 567 | @Table(name = "orders")                                                                                       |
| 568 | <b>public class</b> Order <b>implements</b> Serializable {                                                    |
| 569 |                                                                                                               |
| 570 | <b>private static final long</b> <b>serialVersionUID</b> = 1L;                                                |
| 571 |                                                                                                               |
| 572 | @Id                                                                                                           |
| 573 | @GeneratedValue                                                                                               |
| 574 | <b>private</b> Long <b>id</b> ;                                                                               |
| 575 |                                                                                                               |
| 576 | @ManyToOne(targetEntity = Customer. <b>class</b> , fetch = FetchType. <b>LAZY</b> )                           |
| 577 | <b>private</b> Customer <b>customer</b> ;                                                                     |
| 578 |                                                                                                               |
| 579 | @OneToMany(targetEntity = Product. <b>class</b> , mappedBy = "productOrder", fetch = FetchType. <b>LAZY</b> ) |
| 580 | @Column(name = "orderProducts")                                                                               |
| 581 | <b>private</b> List<Product> <b>products</b> ;                                                                |

|     |                                                     |
|-----|-----------------------------------------------------|
| 582 |                                                     |
| 583 | @OneToOne(mappedBy = "paymentOrder")                |
| 584 | private Payment orderPayment;                       |
| 585 |                                                     |
| 586 | public Order() {                                    |
| 587 | // JPA                                              |
| 588 | }                                                   |
| 589 |                                                     |
| 590 | public Order(Customer c) {                          |
| 591 | customer = c;                                       |
| 592 | }                                                   |
| 593 |                                                     |
| 594 | public void setId(Long id) {                        |
| 595 | this.id = id;                                       |
| 596 | }                                                   |
| 597 |                                                     |
| 598 | public Long getId() {                               |
| 599 | return id;                                          |
| 600 | }                                                   |
| 601 |                                                     |
| 602 | public void setCustomer(Customer client) {          |
| 603 | this.customer = client;                             |
| 604 | }                                                   |
| 605 |                                                     |
| 606 | public Customer getClient() {                       |
| 607 | return customer;                                    |
| 608 | }                                                   |
| 609 |                                                     |
| 610 | public void setProducts(List<Product> products) {   |
| 611 | this.products = products;                           |
| 612 | }                                                   |
| 613 |                                                     |
| 614 | public List<Product> getProducts() {                |
| 615 | return products;                                    |
| 616 | }                                                   |
| 617 |                                                     |
| 618 | public Payment getOrderPayment() {                  |
| 619 | return this.orderPayment;                           |
| 620 | }                                                   |
| 621 |                                                     |
| 622 | public void setOrderPayment(Payment orderPayment) { |
| 623 | this.orderPayment = orderPayment;                   |
| 624 | }                                                   |
| 625 | }                                                   |

|     |                                                                  |
|-----|------------------------------------------------------------------|
| 626 | public class OrderRepository implements ServletContextListener { |
|-----|------------------------------------------------------------------|

|     |                                                                                    |
|-----|------------------------------------------------------------------------------------|
| 627 |                                                                                    |
| 628 | @PersistenceUnit(unitName = "store-pu")                                            |
| 629 | private EntityManagerFactory emf;                                                  |
| 630 |                                                                                    |
| 631 | private EntityManager em;                                                          |
| 632 |                                                                                    |
| 633 | public OrderRepository() {                                                         |
| 634 | emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu");   |
| 635 | System.out.println("[SERVLET-TEST-INFO]: OrderRepository Constructor");            |
| 636 | }                                                                                  |
| 637 |                                                                                    |
| 638 | @Override                                                                          |
| 639 | public void contextDestroyed(ServletContextEvent sce) {                            |
| 640 | if (emf.isOpen()) {                                                                |
| 641 | emf.close();                                                                       |
| 642 | }                                                                                  |
| 643 | }                                                                                  |
| 644 |                                                                                    |
| 645 | @Override                                                                          |
| 646 | public void contextInitialized(ServletContextEvent sce) {                          |
| 647 | ServletContext context = sce.getServletContext();                                  |
| 648 | context.setAttribute("orderRepository", this);                                     |
| 649 | System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado! OrderRepository"); |
| 650 | }                                                                                  |
| 651 |                                                                                    |
| 652 | public final EntityManager entityManager() {                                       |
| 653 | if (em == null    !em.isOpen()) {                                                  |
| 654 | em = emf.createEntityManager();                                                    |
| 655 | }                                                                                  |
| 656 | return em;                                                                         |
| 657 | }                                                                                  |
| 658 |                                                                                    |
| 659 | public void persistOrMerge(Serializable entity, Serializable id) {                 |
| 660 | em = entityManager();                                                              |
| 661 |                                                                                    |
| 662 | if (entity == null) {                                                              |
| 663 | throw new IllegalArgumentException("entity");                                      |
| 664 | }                                                                                  |
| 665 | try {                                                                              |
| 666 | em.getTransaction().begin();                                                       |
| 667 | if (id == null) {                                                                  |
| 668 | em.persist(entity);                                                                |
| 669 | } else {                                                                           |
| 670 | em.merge(entity);                                                                  |
| 671 | }                                                                                  |
| 672 | em.getTransaction().commit();                                                      |
| 673 | } finally {                                                                        |
| 674 | em.close();                                                                        |
| 675 | }                                                                                  |

|     |                                                    |
|-----|----------------------------------------------------|
| 676 | }                                                  |
| 677 |                                                    |
| 678 | public Order findById(Long id) {                   |
| 679 | em = entityManager();                              |
| 680 | return em.find(Order.class, id);                   |
| 681 | }                                                  |
| 682 |                                                    |
| 683 | public List<Order> findAllOrders() {               |
| 684 | em = entityManager();                              |
| 685 | Query q = em.createQuery("select o from Order o"); |
| 686 | return q.getResultList();                          |
| 687 | }                                                  |
| 688 |                                                    |
| 689 | public Order newOrder() {                          |
| 690 | Order o = new Order();                             |
| 691 | persistOrMerge(o, o.getId());                      |
| 692 |                                                    |
| 693 | return o;                                          |
| 694 | }                                                  |
| 695 | }                                                  |

16

|     |                                                        |
|-----|--------------------------------------------------------|
| 696 | @Entity                                                |
| 697 | @Table(name = "payments")                              |
| 698 | public class Payment implements java.io.Serializable { |
| 699 |                                                        |
| 700 | private static final long serialVersionUID = 1L;       |
| 701 |                                                        |
| 702 | @Id                                                    |
| 703 | @GeneratedValue                                        |
| 704 | private Long id;                                       |
| 705 |                                                        |
| 706 | private String paymentType;                            |
| 707 |                                                        |
| 708 | @OneToOne                                              |
| 709 | private Order paymentOrder;                            |
| 710 |                                                        |
| 711 | private String paymentStatus;                          |
| 712 |                                                        |
| 713 | public Payment() {                                     |
| 714 | // Used by JPA.                                        |
| 715 | }                                                      |
| 716 |                                                        |
| 717 | public void setId(Long id) {                           |
| 718 | this.id = id;                                          |
| 719 | }                                                      |
| 720 |                                                        |

|     |                                                             |
|-----|-------------------------------------------------------------|
| 721 | <b>public</b> Long getId() {                                |
| 722 | <b>return</b> id;                                           |
| 723 | }                                                           |
| 724 |                                                             |
| 725 | <b>public</b> String getPaymentStatus() {                   |
| 726 | <b>return</b> this.paymentStatus;                           |
| 727 | }                                                           |
| 728 |                                                             |
| 729 | <b>public void</b> setPaymentStatus(String paymentStatus) { |
| 730 | this.paymentStatus = paymentStatus;                         |
| 731 | }                                                           |
| 732 |                                                             |
| 733 | <b>public</b> Order getPaymentOrder() {                     |
| 734 | <b>return</b> this.paymentOrder;                            |
| 735 | }                                                           |
| 736 |                                                             |
| 737 | <b>public void</b> setPaymentOrder(Order paymentOrder) {    |
| 738 | this.paymentOrder = paymentOrder;                           |
| 739 | }                                                           |
| 740 |                                                             |
| 741 | <b>public void</b> setPaymentType(String paymentType) {     |
| 742 | this.paymentType = paymentType;                             |
| 743 | }                                                           |
| 744 |                                                             |
| 745 | <b>public</b> String getPaymentType() {                     |
| 746 | <b>return</b> paymentType;                                  |
| 747 | }                                                           |
| 748 | }                                                           |

17

|     |                                                                                  |
|-----|----------------------------------------------------------------------------------|
| 749 | <b>public class</b> PaymentRepository <b>implements</b> ServletContextListener { |
| 750 |                                                                                  |
| 751 | @PersistenceUnit(unitName = "store-pu")                                          |
| 752 | <b>private</b> EntityManagerFactory emf;                                         |
| 753 |                                                                                  |
| 754 | <b>private</b> EntityManager em;                                                 |
| 755 |                                                                                  |
| 756 | <b>public</b> PaymentRepository() {                                              |
| 757 | emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu"); |
| 758 | System.out.println("[SERVLET-TEST-INFO]: PaymentRepository Constructor");        |
| 759 | }                                                                                |
| 760 |                                                                                  |
| 761 | @Override                                                                        |
| 762 | <b>public void</b> contextDestroyed(ServletContextEvent sce) {                   |
| 763 | <b>if</b> (emf.isOpen()) {                                                       |
| 764 | emf.close();                                                                     |
| 765 | }                                                                                |

|     |                                                                                      |
|-----|--------------------------------------------------------------------------------------|
| 766 | }                                                                                    |
| 767 |                                                                                      |
| 768 | @Override                                                                            |
| 769 | public void contextInitialized(ServletContextEvent sce) {                            |
| 770 | ServletContext context = sce.getServletContext();                                    |
| 771 | context.setAttribute("paymentRepository", this);                                     |
| 772 | System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado! PaymentRepository"); |
| 773 | }                                                                                    |
| 774 |                                                                                      |
| 775 | public final EntityManager entityManager() {                                         |
| 776 | if (em == null    !em.isOpen()) {                                                    |
| 777 | em = emf.createEntityManager();                                                      |
| 778 | }                                                                                    |
| 779 | return em;                                                                           |
| 780 | }                                                                                    |
| 781 |                                                                                      |
| 782 | public void persistOrMerge(Serializable entity, Serializable id) {                   |
| 783 | em = entityManager();                                                                |
| 784 |                                                                                      |
| 785 | if (entity == null) {                                                                |
| 786 | throw new IllegalArgumentException("entity");                                        |
| 787 | }                                                                                    |
| 788 | try {                                                                                |
| 789 | em.getTransaction().begin();                                                         |
| 790 | if (id == null) {                                                                    |
| 791 | em.persist(entity);                                                                  |
| 792 | } else {                                                                             |
| 793 | em.merge(entity);                                                                    |
| 794 | }                                                                                    |
| 795 | em.getTransaction().commit();                                                        |
| 796 | } finally {                                                                          |
| 797 | em.close();                                                                          |
| 798 | }                                                                                    |
| 799 | }                                                                                    |
| 800 |                                                                                      |
| 801 | public Payment findPaymentById(Long id) {                                            |
| 802 | em = entityManager();                                                                |
| 803 | return em.find(Payment.class, id);                                                   |
| 804 | }                                                                                    |
| 805 |                                                                                      |
| 806 | public List findAllPayments() {                                                      |
| 807 | em = entityManager();                                                                |
| 808 | Query q = em.createQuery("select obj from Payment obj");                             |
| 809 | return q.getResultList();                                                            |
| 810 | }                                                                                    |
| 811 |                                                                                      |
| 812 | public Payment newPayment() {                                                        |
| 813 | Payment object = new Payment();                                                      |
| 814 |                                                                                      |

|     |                                         |
|-----|-----------------------------------------|
| 815 | persistOrMerge(object, object.getId()); |
| 816 | return object;                          |
| 817 | }                                       |
| 818 | }                                       |

18

|     |                                                                                                    |
|-----|----------------------------------------------------------------------------------------------------|
| 819 | public class ProcessCheckoutFormAction implements ControllerAction {                               |
| 820 |                                                                                                    |
| 821 | @Override                                                                                          |
| 822 | public void execute(HttpServletRequest request, HttpServletResponse response) {                    |
| 823 | ControllerAction paymentAction = null;                                                             |
| 824 | createEntities(request, response);                                                                 |
| 825 |                                                                                                    |
| 826 | String paymentType = request.getParameter("PaymentType");                                          |
| 827 |                                                                                                    |
| 828 | paymentAction = selectPaymentMethod(paymentAction, paymentType);                                   |
| 829 |                                                                                                    |
| 830 | paymentAction.execute(request, response);                                                          |
| 831 | }                                                                                                  |
| 832 |                                                                                                    |
| 833 | private ControllerAction selectPaymentMethod(ControllerAction paymentAction, String paymentType) { |
| 834 | if (paymentType.equals("Default")) {                                                               |
| 835 | paymentAction = new GoToAction("payment.jsp");                                                     |
| 836 | }                                                                                                  |
| 837 | //#if defined(Bankslip)                                                                            |
| 838 | if (paymentType.equals("Bankslip")) {                                                              |
| 839 | paymentAction = new GoToAction("bankslip.jsp");                                                    |
| 840 | }                                                                                                  |
| 841 | //#endif                                                                                           |
| 842 | //#if defined(Paypal)                                                                              |
| 843 | if (paymentType.equals("Paypal")) {                                                                |
| 844 | paymentAction = new GoToAction("paypal.jsp");                                                      |
| 845 | }                                                                                                  |
| 846 | //#endif                                                                                           |
| 847 | return paymentAction;                                                                              |
| 848 | }                                                                                                  |
| 849 |                                                                                                    |
| 850 | private void createEntities(HttpServletRequest request, HttpServletResponse response) {            |
| 851 | NewCustomerAction newCustomerAction = new NewCustomerAction();                                     |
| 852 | Customer c = (Customer) newCustomerAction.execute(request, response);                              |
| 853 |                                                                                                    |
| 854 | request.setAttribute("customer", c);                                                               |
| 855 | request.setAttribute("products", request.getSession().getAttribute("products"));                   |
| 856 |                                                                                                    |
| 857 | NewOrderAction newOrderAction = new NewOrderAction();                                              |
| 858 | Order o = (Order) newOrderAction.execute(request, response);                                       |
| 859 | request.setAttribute("order", o);                                                                  |

|     |                                                                    |
|-----|--------------------------------------------------------------------|
| 860 |                                                                    |
| 861 | NewPaymentAction newPaymentAction = <b>new</b> NewPaymentAction(); |
| 862 | newPaymentAction.execute(request, response);                       |
| 863 | }                                                                  |
| 864 | }                                                                  |

19

|     |                                                                                                  |
|-----|--------------------------------------------------------------------------------------------------|
| 865 | <b>public class</b> ProcessSellerFormAction <b>implements</b> ControllerAction {                 |
| 866 |                                                                                                  |
| 867 | @Override                                                                                        |
| 868 | <b>public void</b> execute(HttpServletRequest request, HttpServletResponse response) {           |
| 869 | <b>try</b> {                                                                                     |
| 870 |                                                                                                  |
| 871 | Product p = createProduct(request, response);                                                    |
| 872 | setProductAssociations(request, response, p);                                                    |
| 873 | updateEntity(request, p);                                                                        |
| 874 | forward(request, response);                                                                      |
| 875 |                                                                                                  |
| 876 | } <b>catch</b> (Exception e) {                                                                   |
| 877 | e.printStackTrace();                                                                             |
| 878 | }                                                                                                |
| 879 | }                                                                                                |
| 880 |                                                                                                  |
| 881 | <b>private</b> Product createProduct(HttpServletRequest request, HttpServletResponse response) { |
| 882 | NewProductAction newProductAction = <b>new</b> NewProductAction();                               |
| 883 | Product p = (Product) newProductAction.execute(request, response);                               |
| 884 | <b>return</b> p;                                                                                 |
| 885 | }                                                                                                |
| 886 |                                                                                                  |
| 887 | <b>private void</b> forward(HttpServletRequest request, HttpServletResponse response) {          |
| 888 | <b>try</b> {                                                                                     |
| 889 | request.setAttribute("message", "<br /> Product inserted with success");                         |
| 890 |                                                                                                  |
| 891 | GoToAction responseAction = <b>new</b> GoToAction("response.jsp");                               |
| 892 | responseAction.execute(request, response);                                                       |
| 893 | } <b>catch</b> (Exception e) {                                                                   |
| 894 | e.printStackTrace();                                                                             |
| 895 | }                                                                                                |
| 896 | }                                                                                                |
| 897 |                                                                                                  |
| 898 | <b>private void</b> updateEntity(HttpServletRequest request, Product p) {                        |
| 899 | ServletContext context = request.getSession().getServletContext();                               |
| 900 | ProductRepository productRepository = (ProductRepository)                                        |
| 901 | context.getAttribute("productRepository");                                                       |
| 902 | productRepository.persistOrMerge(p, p.getId());                                                  |
| 903 | }                                                                                                |
| 904 |                                                                                                  |
| 905 | <b>private void</b> setProductAssociations(HttpServletRequest request, HttpServletResponse       |
| 906 | response, Product p) {                                                                           |

|     |                                                                                                        |
|-----|--------------------------------------------------------------------------------------------------------|
| 905 | setProductSeller(request, response, p);                                                                |
| 906 | setProductCategory(request, response, p);                                                              |
| 907 | }                                                                                                      |
| 908 |                                                                                                        |
| 909 | private void setProductCategory(HttpServletRequest request, HttpServletResponse response, Product p) { |
| 910 | NewCategoryAction newCategoryAction = new NewCategoryAction();                                         |
| 911 | Category c = (Category) newCategoryAction.execute(request, response);                                  |
| 912 | p.setProductCategory(c);                                                                               |
| 913 | }                                                                                                      |
| 914 |                                                                                                        |
| 915 | private void setProductSeller(HttpServletRequest request, HttpServletResponse response, Product p) {   |
| 916 | NewSellerAction newSellerAction = new NewSellerAction();                                               |
| 917 | Seller s = (Seller) newSellerAction.execute(request, response);                                        |
| 918 | p.setProductSeller(s);                                                                                 |
| 919 | }                                                                                                      |
| 920 | }                                                                                                      |

20

|     |                                                                |
|-----|----------------------------------------------------------------|
| 921 | @Entity                                                        |
| 922 | @Table(name = "products")                                      |
| 923 | public class Product implements Serializable {                 |
| 924 |                                                                |
| 925 | private static final long serialVersionUID = 1L;               |
| 926 |                                                                |
| 927 | @Id                                                            |
| 928 | @GeneratedValue                                                |
| 929 | private Long id;                                               |
| 930 |                                                                |
| 931 | private String productName;                                    |
| 932 |                                                                |
| 933 | private String productDescription;                             |
| 934 |                                                                |
| 935 | private Double productPrice;                                   |
| 936 |                                                                |
| 937 | @ManyToOne(targetEntity = Order.class, fetch = FetchType.LAZY) |
| 938 | private Order productOrder;                                    |
| 939 |                                                                |
| 940 | @OneToOne                                                      |
| 941 | private Seller productSeller;                                  |
| 942 |                                                                |
| 943 | @OneToOne                                                      |
| 944 | private Category productCategory;                              |
| 945 | //#if defined(DisplayWhatIsNew)                                |
| 946 | private Date productInsertDate;                                |
| 947 |                                                                |
| 948 | //#endif                                                       |
| 949 |                                                                |

|     |                                                                             |
|-----|-----------------------------------------------------------------------------|
| 950 | <code>public Product() {</code>                                             |
| 951 | <code>    // JPA</code>                                                     |
| 952 | <code>}</code>                                                              |
| 953 |                                                                             |
| 954 | <code>public Long getId() {</code>                                          |
| 955 | <code>    return id;</code>                                                 |
| 956 | <code>}</code>                                                              |
| 957 |                                                                             |
| 958 | <code>public void setId(Long id) {</code>                                   |
| 959 | <code>    this.id = id;</code>                                              |
| 960 | <code>}</code>                                                              |
| 961 |                                                                             |
| 962 | <code>public void setProductName(String productName) {</code>               |
| 963 | <code>    this.productName = productName;</code>                            |
| 964 | <code>}</code>                                                              |
| 965 |                                                                             |
| 966 | <code>public String getProductName() {</code>                               |
| 967 | <code>    return productName;</code>                                        |
| 968 | <code>}</code>                                                              |
| 969 |                                                                             |
| 970 | <code>public void setProductDescription(String productDescription) {</code> |
| 971 | <code>    this.productDescription = productDescription;</code>              |
| 972 | <code>}</code>                                                              |
| 973 |                                                                             |
| 974 | <code>public String getProductDescription() {</code>                        |
| 975 | <code>    return productDescription;</code>                                 |
| 976 | <code>}</code>                                                              |
| 977 |                                                                             |
| 978 | <code>public void setProductPrice(Double productPrice) {</code>             |
| 979 | <code>    this.productPrice = productPrice;</code>                          |
| 980 | <code>}</code>                                                              |
| 981 |                                                                             |
| 982 | <code>public Double getProductPrice() {</code>                              |
| 983 | <code>    return productPrice;</code>                                       |
| 984 | <code>}</code>                                                              |
| 985 |                                                                             |
| 986 | <code>public void setProductOrder(Order productOrder) {</code>              |
| 987 | <code>    this.productOrder = productOrder;</code>                          |
| 988 | <code>}</code>                                                              |
| 989 |                                                                             |
| 990 | <code>public Order getProductOrder() {</code>                               |
| 991 | <code>    return productOrder;</code>                                       |
| 992 | <code>}</code>                                                              |
| 993 |                                                                             |
| 994 | <code>public void setProductSeller(Seller productSeller) {</code>           |
| 995 | <code>    this.productSeller = productSeller;</code>                        |
| 996 | <code>}</code>                                                              |
| 997 |                                                                             |
| 998 | <code>public Seller getProductSeller() {</code>                             |

|     |                                                                         |
|-----|-------------------------------------------------------------------------|
| 999 | <code>return productSeller;</code>                                      |
| 100 | <code>}</code>                                                          |
| 100 |                                                                         |
| 100 | <code>///<code>#if defined(DisplayWhatIsNew)</code></code>              |
| 100 | <code>public void setProductInsertDate(Date productInsertDate) {</code> |
| 100 | <code>    this.productInsertDate = productInsertDate;</code>            |
| 100 | <code>}</code>                                                          |
| 100 |                                                                         |
| 100 | <code>public Date getProductInsertDate() {</code>                       |
| 100 | <code>    return productInsertDate;</code>                              |
| 100 | <code>}</code>                                                          |
| 101 |                                                                         |
| 101 | <code>///<code>#endif</code></code>                                     |
| 101 | <code>public void setProductCategory(Category productCategory) {</code> |
| 101 | <code>    this.productCategory = productCategory;</code>                |
| 101 | <code>}</code>                                                          |
| 101 |                                                                         |
| 101 | <code>public Category getProductCategory() {</code>                     |
| 101 | <code>    return productCategory;</code>                                |
| 101 | <code>}</code>                                                          |
| 101 | <code>}</code>                                                          |

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|     |                                                                                                       |
|-----|-------------------------------------------------------------------------------------------------------|
| 102 | <code>public class ProductRepository implements ServletContextListener {</code>                       |
| 102 |                                                                                                       |
| 102 | <code>    @PersistenceUnit(unitName = "store-pu")</code>                                              |
| 102 | <code>    private EntityManagerFactory emf;</code>                                                    |
| 102 |                                                                                                       |
| 102 | <code>    private EntityManager em;</code>                                                            |
| 102 |                                                                                                       |
| 102 | <code>    public ProductRepository() {</code>                                                         |
| 102 | <code>        emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu");</code> |
| 102 | <code>        System.out.println("[SERVLET-TEST-INFO]: ProductRepository Constructor");</code>        |
| 103 | <code>    }</code>                                                                                    |
| 103 |                                                                                                       |
| 103 | <code>    @Override</code>                                                                            |
| 103 | <code>    public void contextDestroyed(ServletContextEvent sce) {</code>                              |
| 103 | <code>        if (emf.isOpen()) {</code>                                                              |
| 103 | <code>            emf.close();</code>                                                                 |
| 103 | <code>        }</code>                                                                                |
| 103 | <code>    }</code>                                                                                    |
| 103 |                                                                                                       |
| 103 | <code>    @Override</code>                                                                            |
| 104 | <code>    public void contextInitialized(ServletContextEvent sce) {</code>                            |
| 104 | <code>        ServletContext context = sce.getServletContext();</code>                                |
| 104 | <code>        context.setAttribute("productRepository", this);</code>                                 |
| 104 | <code>        System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado!</code>                  |
| 104 | <code>        ProductRepository");</code>                                                             |
| 104 | <code>    }</code>                                                                                    |
| 104 |                                                                                                       |

|     |                                                                                                   |
|-----|---------------------------------------------------------------------------------------------------|
| 104 | <code>public final EntityManager entityManager() {</code>                                         |
| 104 | <code>    if (em == null    !em.isOpen()) {</code>                                                |
| 104 | <code>        em = emf.createEntityManager();</code>                                              |
| 104 | <code>    }</code>                                                                                |
| 105 | <code>    return em;</code>                                                                       |
| 105 | <code>}</code>                                                                                    |
| 105 | <code></code>                                                                                     |
| 105 | <code>public void persistOrMerge(Serializable entity, Serializable id) {</code>                   |
| 105 | <code>    em = entityManager();</code>                                                            |
| 105 | <code></code>                                                                                     |
| 105 | <code>    if (entity == null) {</code>                                                            |
| 105 | <code>        throw new IllegalArgumentException("entity");</code>                                |
| 105 | <code>    }</code>                                                                                |
| 105 | <code>    try {</code>                                                                            |
| 106 | <code>        em.getTransaction().begin();</code>                                                 |
| 106 | <code>        if (id == null) {</code>                                                            |
| 106 | <code>            em.persist(entity);</code>                                                      |
| 106 | <code>        } else {</code>                                                                     |
| 106 | <code>            em.merge(entity);</code>                                                        |
| 106 | <code>        }</code>                                                                            |
| 106 | <code>        em.getTransaction().commit();</code>                                                |
| 106 | <code>    } finally {</code>                                                                      |
| 106 | <code>        em.close();</code>                                                                  |
| 106 | <code>    }</code>                                                                                |
| 107 | <code>}</code>                                                                                    |
| 107 | <code></code>                                                                                     |
| 107 | <code>public Product newProduct() {</code>                                                        |
| 107 | <code>    Product p = new Product();</code>                                                       |
| 107 | <code>    persistOrMerge(p, p.getId());</code>                                                    |
| 107 | <code>    return p;</code>                                                                        |
| 107 | <code>}</code>                                                                                    |
| 107 | <code></code>                                                                                     |
| 107 | <code>public Product findProductById(Long id) {</code>                                            |
| 107 | <code>    em = entityManager();</code>                                                            |
| 108 | <code>    return em.find(Product.class, id);</code>                                               |
| 108 | <code>}</code>                                                                                    |
| 108 | <code></code>                                                                                     |
| 108 | <code>public List findAllProducts() {</code>                                                      |
| 108 | <code>    em = entityManager();</code>                                                            |
| 108 | <code>    Query q = em.createQuery("select p from Product p");</code>                             |
| 108 | <code>    return q.getResultList();</code>                                                        |
| 108 | <code>}</code>                                                                                    |
| 108 | <code></code>                                                                                     |
| 108 | <code>public List findAllProductsAvailable() {</code>                                             |
| 109 | <code>    em = entityManager();</code>                                                            |
| 109 | <code>    Query q = em.createQuery("select p from Product p where p.productOrder = NULL");</code> |
| 109 | <code>    return q.getResultList();</code>                                                        |
| 109 | <code>}</code>                                                                                    |
| 109 | <code></code>                                                                                     |

|     |                                                                                   |
|-----|-----------------------------------------------------------------------------------|
| 109 | //#if defined(DisplayWhatIsNew)                                                   |
| 109 | public List findAllProductsAvailableByNearestDate() {                             |
| 109 | em = entityManager();                                                             |
| 109 | Query q = em.createQuery("select p from Product p where p.productOrder = NULL     |
| 109 | ORDER BY p.productInsertDate DESC");                                              |
| 109 | return q.getResultList();                                                         |
| 110 | }                                                                                 |
| 110 | //#endif                                                                          |
| 110 |                                                                                   |
| 110 | //#if defined(DisplayByCategory)                                                  |
| 110 | public List findAllProductsByCategory(String category) {                          |
| 110 | em = entityManager();                                                             |
| 110 | Query q = em.createQuery("select p from Product p where p.productOrder = NULL AND |
| 110 | p.productCategory.categoryName=:cat");                                            |
| 110 | q.setParameter("cat", category);                                                  |
| 110 | return q.getResultList();                                                         |
| 110 | }                                                                                 |
| 111 | //#endif                                                                          |
| 111 | }                                                                                 |

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|     |                                                  |
|-----|--------------------------------------------------|
| 111 | @Entity                                          |
| 111 | @Table(name = "sellers")                         |
| 111 | public class Seller implements Serializable {    |
| 111 |                                                  |
| 111 | private static final long serialVersionUID = 1L; |
| 111 |                                                  |
| 111 | @Id                                              |
| 111 | @GeneratedValue                                  |
| 112 | private Long id;                                 |
| 112 |                                                  |
| 112 | private String name;                             |
| 112 |                                                  |
| 112 | private String address;                          |
| 112 |                                                  |
| 112 | private String email;                            |
| 112 |                                                  |
| 112 | @OneToOne(mappedBy = "productSeller")            |
| 112 | private Product product;                         |
| 113 |                                                  |
| 113 | public Seller() {                                |
| 113 | // JPA                                           |
| 113 | }                                                |
| 113 |                                                  |
| 113 | public Long getId() {                            |
| 113 | return id;                                       |
| 113 | }                                                |
| 113 |                                                  |
| 113 | public void setId(Long id) {                     |

|     |                                                            |
|-----|------------------------------------------------------------|
| 114 | <code>        this.id = id;</code>                         |
| 114 | <code>    }</code>                                         |
| 114 |                                                            |
| 114 | <code>    public String getName() {</code>                 |
| 114 | <code>        return name;</code>                          |
| 114 | <code>    }</code>                                         |
| 114 |                                                            |
| 114 | <code>    public void setName(String name) {</code>        |
| 114 | <code>        this.name = name;</code>                     |
| 114 | <code>    }</code>                                         |
| 115 |                                                            |
| 115 | <code>    public void setEmail(String email) {</code>      |
| 115 | <code>        this.email = email;</code>                   |
| 115 | <code>    }</code>                                         |
| 115 |                                                            |
| 115 | <code>    public String getEmail() {</code>                |
| 115 | <code>        return email;</code>                         |
| 115 | <code>    }</code>                                         |
| 115 |                                                            |
| 115 | <code>    public void setAddress(String address) {</code>  |
| 116 | <code>        this.address = address;</code>               |
| 116 | <code>    }</code>                                         |
| 116 |                                                            |
| 116 | <code>    public String getAddress() {</code>              |
| 116 | <code>        return address;</code>                       |
| 116 | <code>    }</code>                                         |
| 116 |                                                            |
| 116 | <code>    public void setProduct(Product product) {</code> |
| 116 | <code>        this.product = product;</code>               |
| 116 | <code>    }</code>                                         |
| 117 |                                                            |
| 117 | <code>    public Product getProduct() {</code>             |
| 117 | <code>        return product;</code>                       |
| 117 | <code>    }</code>                                         |
| 117 | <code>}</code>                                             |

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|     |                                                                                                       |
|-----|-------------------------------------------------------------------------------------------------------|
| 117 | <code>public class SellerRepository implements ServletContextListener {</code>                        |
| 117 |                                                                                                       |
| 117 | <code>    @PersistenceUnit(unitName = "store-pu")</code>                                              |
| 117 | <code>    private EntityManagerFactory emf;</code>                                                    |
| 117 |                                                                                                       |
| 118 | <code>    private EntityManager em;</code>                                                            |
| 118 |                                                                                                       |
| 118 | <code>    public SellerRepository() {</code>                                                          |
| 118 | <code>        emf = (EntityManagerFactory) Persistence.createEntityManagerFactory("store-pu");</code> |
| 118 | <code>        System.out.println("[SERVLET-TEST-INFO]: SellerRepository Constructor");</code>         |

|     |                                                                                     |
|-----|-------------------------------------------------------------------------------------|
| 118 | }                                                                                   |
| 118 |                                                                                     |
| 118 | @Override                                                                           |
| 118 | public void contextDestroyed(ServletContextEvent sce) {                             |
| 118 | if (emf.isOpen()) {                                                                 |
| 119 | emf.close();                                                                        |
| 119 | }                                                                                   |
| 119 | }                                                                                   |
| 119 |                                                                                     |
| 119 | @Override                                                                           |
| 119 | public void contextInitialized(ServletContextEvent sce) {                           |
| 119 | ServletContext context = sce.getServletContext();                                   |
| 119 | context.setAttribute("sellerRepository", this);                                     |
| 119 | System.out.println("[SERVLET-TEST-INFO]: Contexto inicializado! SellerRepository"); |
| 119 | }                                                                                   |
| 120 |                                                                                     |
| 120 | public final EntityManager entityManager() {                                        |
| 120 | if (em == null    !em.isOpen()) {                                                   |
| 120 | em = emf.createEntityManager();                                                     |
| 120 | }                                                                                   |
| 120 | return em;                                                                          |
| 120 | }                                                                                   |
| 120 |                                                                                     |
| 120 | public void persistOrMerge(Serializable entity, Serializable id) {                  |
| 120 | em = entityManager();                                                               |
| 121 |                                                                                     |
| 121 | if (entity == null) {                                                               |
| 121 | throw new IllegalArgumentException("entity");                                       |
| 121 | }                                                                                   |
| 121 | try {                                                                               |
| 121 | em.getTransaction().begin();                                                        |
| 121 | if (id == null) {                                                                   |
| 121 | em.persist(entity);                                                                 |
| 121 | } else {                                                                            |
| 121 | em.merge(entity);                                                                   |
| 122 | }                                                                                   |
| 122 | em.getTransaction().commit();                                                       |
| 122 | } finally {                                                                         |
| 122 | em.close();                                                                         |
| 122 | }                                                                                   |
| 122 | }                                                                                   |
| 122 |                                                                                     |
| 122 | public Seller findSellerById(Long id) {                                             |
| 122 | em = entityManager();                                                               |
| 122 | return em.find(Seller.class, id);                                                   |
| 123 | }                                                                                   |
| 123 |                                                                                     |
| 123 | public Seller findSellerByEmail(String sellerEmail) {                               |
| 123 | em = entityManager();                                                               |

|     |                                                                                    |
|-----|------------------------------------------------------------------------------------|
| 123 | <b>return</b> (Seller) em.createQuery("select s from Seller s where s.email = '" + |
| 123 | sellerEmail + "'").getSingleResult();                                              |
| 123 | }                                                                                  |
| 123 |                                                                                    |
| 123 | <b>public</b> List<Seller> findAllSellers() {                                      |
| 123 | em = entityManager();                                                              |
| 123 | Query q = em.createQuery("select s from Seller s");                                |
| 124 | <b>return</b> q.getResultList();                                                   |
| 124 | }                                                                                  |
| 124 |                                                                                    |
| 124 | <b>public</b> Seller newSeller() {                                                 |
| 124 | Seller s = <b>new</b> Seller();                                                    |
| 124 | persistOrMerge(s, s.getId());                                                      |
| 124 | <b>return</b> s;                                                                   |
| 124 | }                                                                                  |
| 124 | }                                                                                  |

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|     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 124 | <b>public class</b> VerifyCatalogFormAction <b>implements</b> ControllerAction {       |
| 125 |                                                                                        |
| 125 | @Override                                                                              |
| 125 | <b>public void</b> execute(HttpServletRequest request, HttpServletResponse response) { |
| 125 | String[] productsIds = request.getParameterValues("productsIds");                      |
| 125 |                                                                                        |
| 125 | <b>if</b> (productsIds == <b>null</b> ) {                                              |
| 125 | request.setAttribute("message", "<br /> ERROR: You must select at least a              |
| 125 | product!");                                                                            |
| 125 |                                                                                        |
| 125 | GoToAction responseAction = <b>new</b> GoToAction("response.jsp");                     |
| 125 | responseAction.execute(request, response);                                             |
| 126 | }                                                                                      |
| 126 |                                                                                        |
| 126 | <b>else</b> {                                                                          |
| 126 | getProductList(request, productsIds);                                                  |
| 126 |                                                                                        |
| 126 | GoToAction checkoutAction = <b>new</b> GoToAction("checkout.jsp");                     |
| 126 | checkoutAction.execute(request, response);                                             |
| 126 | }                                                                                      |
| 126 | }                                                                                      |
| 126 |                                                                                        |
| 127 | <b>private void</b> getProductList(HttpServletRequest request, String[] productsIds) { |
| 127 | ServletContext context = request.getSession().getServletContext();                     |
| 127 | ProductRepository productRepository = (ProductRepository)                              |
| 127 | context.getAttribute("productRepository");                                             |
| 127 |                                                                                        |
| 127 | List<Product> products = <b>new</b> ArrayList();                                       |
| 127 |                                                                                        |
| 127 | <b>for</b> (String productId : productsIds) {                                          |
| 127 | products.add(productRepository.findProductById((Long.valueOf(productId))));            |

|     |                                             |
|-----|---------------------------------------------|
| 127 | }                                           |
| 127 |                                             |
| 128 | HttpSession session = request.getSession(); |
| 128 | session.setAttribute("products", products); |
| 128 | }                                           |
| 128 | }                                           |

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|     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 128 | <b>public class</b> VerifyCheckoutFormAction <b>implements</b> ControllerAction {      |
| 128 |                                                                                        |
| 128 | @Override                                                                              |
| 128 | <b>public void</b> execute(HttpServletRequest request, HttpServletResponse response) { |
| 128 | List params = getRequestParameters(request);                                           |
| 128 | Boolean emptyFields = <b>false</b> ;                                                   |
| 129 |                                                                                        |
| 129 | <b>for</b> (Object param : params) {                                                   |
| 129 | <b>if</b> (param == <b>null</b>    param.equals("")) {                                 |
| 129 | emptyFields = <b>true</b> ;                                                            |
| 129 | }                                                                                      |
| 129 | }                                                                                      |
| 129 |                                                                                        |
| 129 | <b>if</b> (emptyFields) {                                                              |
| 129 | request.setAttribute("message", "Form with blank fields! Complete your                 |
| 129 | form first!");                                                                         |
| 129 | GoToAction responseAction = <b>new</b> GoToAction("response.jsp");                     |
| 130 | responseAction.execute(request, response);                                             |
| 130 | } <b>else</b> {                                                                        |
| 130 | ProcessCheckoutFormAction checkoutFormAction = <b>new</b>                              |
| 130 | ProcessCheckoutFormAction();                                                           |
| 130 | checkoutFormAction.execute(request, response);                                         |
| 130 | }                                                                                      |
| 130 | }                                                                                      |
| 130 |                                                                                        |
| 130 | <b>private</b> List getRequestParameters(HttpServletRequest request) {                 |
| 130 | List params = <b>new</b> ArrayList();                                                  |
| 130 | addParameters(request, params);                                                        |
| 131 | <b>return</b> params;                                                                  |
| 131 | }                                                                                      |
| 131 |                                                                                        |
| 131 | <b>private void</b> addParameters(HttpServletRequest request, List params) {           |
| 131 | params.add(request.getParameter("CustomerName"));                                      |
| 131 | params.add(request.getParameter("CustomerAddress"));                                   |
| 131 | params.add(request.getParameter("CustomerMail"));                                      |
| 131 | params.add(request.getParameter("paymentType"));                                       |
| 131 | }                                                                                      |
| 131 | }                                                                                      |

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|     |                                                                                        |
|-----|----------------------------------------------------------------------------------------|
| 132 | <b>public class</b> VerifySellerFormAction <b>implements</b> ControllerAction {        |
| 132 |                                                                                        |
| 132 | @Override                                                                              |
| 132 | <b>public void</b> execute(HttpServletRequest request, HttpServletResponse response) { |
| 132 | List params = getRequestParameters(request);                                           |
| 132 | Boolean emptyFields = <b>false</b> ;                                                   |
| 132 |                                                                                        |
| 132 | <b>for</b> (Object param : params) {                                                   |
| 132 | <b>if</b> (param == <b>null</b>    param.equals("")) {                                 |
| 132 | emptyFields = <b>true</b> ;                                                            |
| 133 | }                                                                                      |
| 133 | }                                                                                      |
| 133 |                                                                                        |
| 133 | <b>if</b> (emptyFields) {                                                              |
| 133 | request.setAttribute("message", "Form with blank fields! Complete your form first!");  |
| 133 | GoToAction responseAction = <b>new</b> GoToAction("response.jsp");                     |
| 133 | responseAction.execute(request, response);                                             |
| 133 | } <b>else</b> {                                                                        |
| 133 | ProcessSellerFormAction sellerFormAction = <b>new</b> ProcessSellerFormAction();       |
| 133 | sellerFormAction.execute(request, response);                                           |
| 134 | }                                                                                      |
| 134 | }                                                                                      |
| 134 |                                                                                        |
| 134 | <b>private</b> List getRequestParameters(HttpServletRequest request) {                 |
| 134 | List params = <b>new</b> ArrayList();                                                  |
| 134 | addParameters(request, params);                                                        |
| 134 | <b>return</b> params;                                                                  |
| 134 | }                                                                                      |
| 134 |                                                                                        |
| 134 | <b>private void</b> addParameters(HttpServletRequest request, List params) {           |
| 135 | params.add(request.getParameter("CategoryName"));                                      |
| 135 | params.add(request.getParameter("SellerName"));                                        |
| 135 | params.add(request.getParameter("SellerAddress"));                                     |
| 135 | params.add(request.getParameter("SellerMail"));                                        |
| 135 | params.add(request.getParameter("ProductName"));                                       |
| 135 | params.add(request.getParameter("ProductDescription"));                                |
| 135 | params.add(request.getParameter("ProductPrice"));                                      |
| 135 | }                                                                                      |
| 135 | }                                                                                      |