Exercise - Requirements Specification

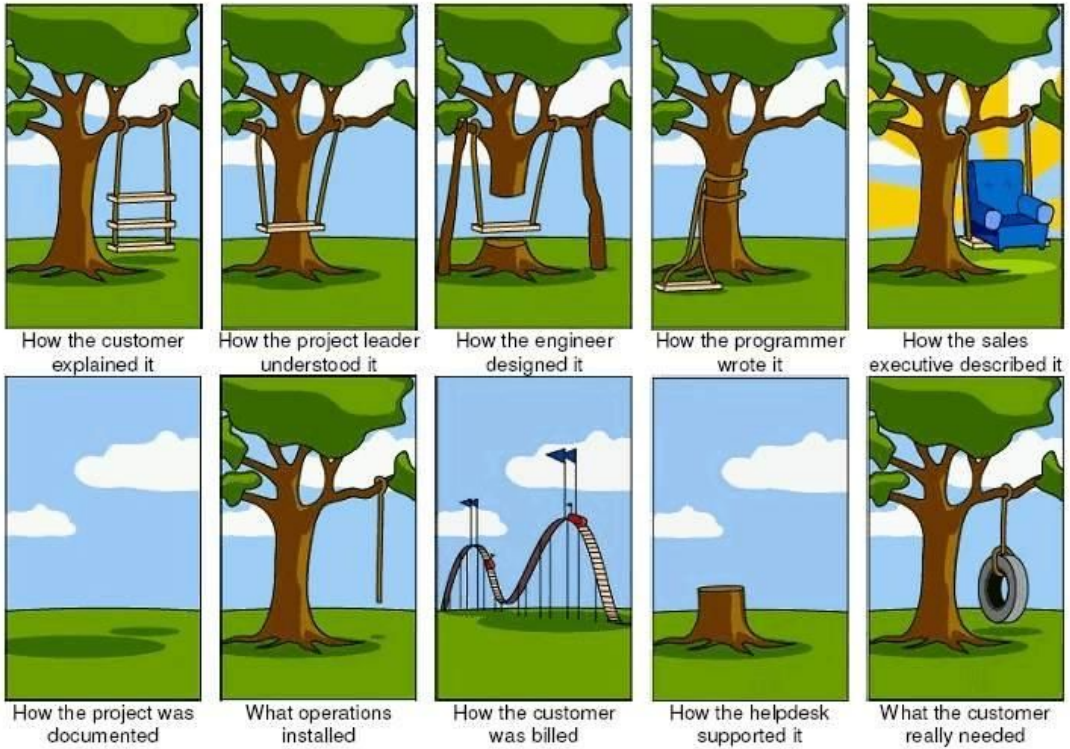
- **Objective:** Evaluate the use of AI as a support tool in Requirements Engineering using User Stories and Behaviour Driven Development.
- **Research Question:** Can LLMs support Requirements Specification? What are the challenges and benefits of using them?
    - Hypothetical Scenario: Considering the widespread adoption of AIs, how can a professor use LLMs to support the teaching of Software Engineering, specifically in the topic of Requirements Specification?

Summary

1. Requirements Specification Review
2. Activity Statement
    a. Example of a Scenario
    b. Google Chat Generative (Gemini)

3. Practical Activity
    a. Group Division
    b. Basic Information Collection
    c. Application of the Latin Square
        i. User Story Construction
        ii. Use of LLM
    d. Questionnaire
4. Final Considerations

1. Requirements Specification Review



1. Requirements Specification Review

1 Introduction
- 1.1 Objective
- 1.2 Scoupe
- 1.3 Definitions, Acronyms, e Abbreviations
- 1.4 References
- 1.5 Overview

2 General Description
- 2.1 Interface Requirements
- 2.2 Functional Requirements
- 2.3 Use Case Modeling
- 2.4 Use Case Descriptions
- 2.5 Non-Functional Requirements
- 2.6 User Characteristics
- 2.7 Constraints
- 2.8 Assumptions and Dependencies

Font: FERNANDES, Filipe. Initial template for software requirements specification document. Software Engineering I. Federal Institute of Southeast Minas Gerais – Manhuaçu Campus, [2025].

2. Activity Statement

DESCRIPTION
AS I: <Persona>
I WANT TO: <Goal>
SO THAT: <Reason>

USE CASES (Main or Alternative Flow)
GIVEN THAT: <precondition>
AND … AND … <precondition(s)>
WHEN: <actions>
THEN: <postcondition(s)>

DESCRIPTION
AS A: Customer
I WANT TO: Access my account
SO THAT: I can manage my finances

USE CASE (Main Flow)
GIVEN THAT: I have credentials
AND: I entered them correctly
WHEN: I press the button
THEN: Account balance appears

Smart, John Ferguson, and Jan Molak. BDD in Action: Behavior-driven development for the whole software lifecycle. Simon and Schuster, 2023.
Chelimsky, David, et al. "The RSpec book: Behaviour driven development with Rspec." Cucumber, and Friends, Pragmatic Bookshelf 3.25 (2010): 183-225.
Binamungu, Leonard Peter, and Salome Maro. "Behaviour driven development: A systematic mapping study." Journal of Systems and Software 203 (2023): 111749.
Solis, Carlos, and Xiaofeng Wang. "A study of the characteristics of behaviour driven development." 2011 37th EUROMICRO conference on software engineering and advanced applications. IEEE, 2011.

2. Task Example

2.1. EduFlow

Build a **User Story** with 2 **Use Cases**, including one **Main Flow** and one **Alternative Flow** for the **EduFlow** application described below.

EduFlow is an online platform that recommends personalized learning content and paths for professionals, based on their progress and interests. The system uses artificial intelligence to suggest courses, articles, and practical challenges, encouraging continuous and adaptive learning. Companies can also use the platform to monitor their teams' development, create internal training programs, and assess employees' skill progression.

Possible features: Personalized learning path, gamification, performance evaluation, integration with external courses.

2. Task Example

2.2. EduFlow: Descrition

USER STORY 01: Personalized Recommendation for Professional Development
AS A: Professional seeking continuous learning
I WANT TO: Receive personalized recommendations for courses and content
SO THAT: I can improve my skills and advance in my career

2. Task Example

2.3. EduFlow: Main Flow

USE CASE 01: Receive Learning Recommendations
GIVEN THAT: The user has a registered profile on the platform
AND: The user has completed some courses and marked interests
AND: The user has a history of interactions
AND: The user has taken assessments
WHEN: The user accesses the platform's home page
THEN: The system displays a list of recommended courses
AND: The system suggests learning paths based on their profile
AND: The system presents practical challenges aligned with their preferences

2. Task Example

2.4. EduFlow: Alternative Flow

USE CASE 02: User Without Prior History
GIVEN THAT: The user has a registered profile on the platform
AND: The user has not taken any courses or selected interests
WHEN: The user accesses the platform's home page
THEN: The system prompts the user to select areas of interest
AND: The system suggests a placement test for more accurate recommendations
AND: The system displays popular courses within general categories

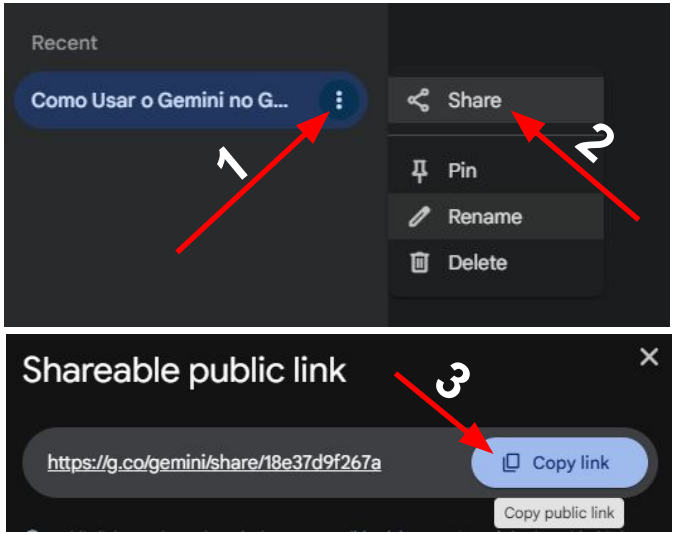
2. Task Example

2.5. Chat Generative (Gemini)

How to Use Gemini

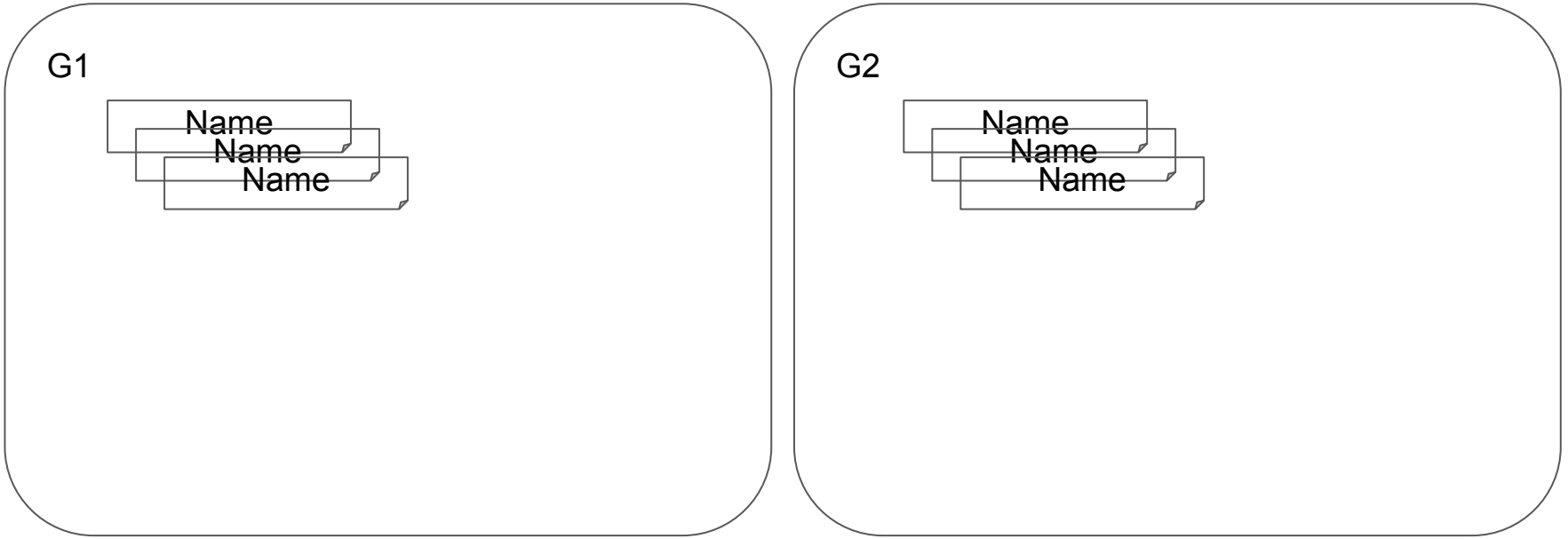
- Go to https://gemini.google.com/app
- Log in with Gmail.
- Keep default configurations.
- Type a question and press Enter.
- Get instant answers and continue the conversation.

How to Share a Chat



3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)



3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)
2. Gathering Basic Information

3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)
2. Gathering Basic Information
3. Latin Square

Time	G1	G2
00 - 20	T01 Sem LLM	T01 Com LLM
20 - 40	T02 Com LLM	T02 Sem LLM

3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)
2. Gathering Basic Information
3. Latin Square (Task 01 - TechFix)

Time	G1	G2
00 - 20	T01 Sem LLM	T01 Com LLM
20 - 40	T02 Com LLM	T02 Sem LLM

3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)
2. Gathering Basic Information
3. Latin Square (Task 02 - GreenMarket)

Time	G1	G2
00 - 20	T01 Sem LLM	T01 Com LLM
20 - 40	T02 Com LLM	T02 Sem LLM

3. Practical Activity

1. Division of participants into 2 groups (G1 and G2)
2. Gathering Basic Information
3. Latin Square
4. Questionnaire

4. Final Considerations

Open Forum

FeedBack (Optional)

THANKs