Milestone 2 - Software System

Dr Ahmed Maghawry (ahmed.maghawry@giu-uni.de)
Mohamed Moussa (mohamed.samy-moussa@giu-uni.de)

1 Overview

This milestone focuses on the detailed software architecture and its diagrams, building on the work completed in Milestone 1. The objective is to define the architectural styles, present a high-level system design, and provide detailed UML diagrams and behavior modeling through sequence or use case diagrams. The work in this milestone directly complements the conceptual design and requirements analysis from Milestone 1.

Goals:

- Define the architectural styles and justify their selection.
- Develop a high-level system architecture diagram.
- Create detailed UML diagrams to represent the system's structure and interactions.
- Model system behavior with a sequence or use case diagram.
- Integrate and outline the relationship between Milestone 1 and Milestone 2.

2. Preprocessing

Architectural Styles and Justification

Chosen Style: Identify and explain the selected architectural style(s) for the system (e.g., Layered, Microservices, Event-Driven).

Justification: Provide reasons for choosing this style based on the system's functional and non-functional requirements.

Trade-offs: Discuss alternative styles considered and their trade-offs.

High-Level Architecture Diagram

Purpose: Present a bird's-eye view of the system's structure, highlighting components and their interactions.

Content:

Components and modules with their responsibilities.

Communication flows between components and external systems.

Integration of APIs, databases, or third-party services.

3. UML Diagram

- Purpose: Provide a detailed visualization of the system's structure or relationships.
- Selected Diagram:
  - **Class Diagram:**
    - Show key classes, attributes, methods, and relationships (inheritance, associations, etc.).
    - Represent the static structure of the system.

  OR

  - **Component Diagram:**
    - Depict the subsystems and their interactions, emphasizing modularity and cohesion.

4. Sequence Diagram or Use Case Diagram

Purpose: Model system behavior or functional scope.

Option 1: Sequence Diagram

Show dynamic interactions for a specific use case.

Highlight communication between components, external systems, and actors.

Option 2: Use Case Diagram

Represent actors and the system's functional scope.

Define primary and secondary use cases based on Milestone 1 requirements.

5. Integration with Milestone 1

Highlight how Milestone 2 builds upon the work in Milestone 1:
Requirements Analysis: How the architectural design satisfies functional and non-functional requirements.
Conceptual Design: How the selected architectural styles and diagrams enhance the previously identified system components.
DDD or BPMN: Mention any refinements or extensions made in the domain design or process workflows.

6. Submission

File Format:
The final submission must be in PDF format and should combine both Milestone 1 and Milestone 2 into a **single document**. Clearly separate the two milestones with proper headings and maintain a logical flow.

File Naming Convention:
Use the following format for naming your submission file:
TeamName_ProjectTitle_Milestones1_2.pdf

Submission Link
Submit the final PDF through the following form:
Submission Form Link

Deadline
Ensure the document is submitted before **7th of December 11:59 PM** . **Late submissions will not be evaluated**