Software Engineering 2

Structure of a Design Document

Purpose of the DD

- Means of communication
  - Requirements analysts ⟷ Architects ⟷ Developers
- Baseline for implementation activities
- Traceability: mapping between requirements and components
- Baseline for integration and Quality Assurance
  - Identification of the order of implementation
  - Identification of the integration strategy (bottom-up vs top-down)
  - Supports verification and validation
- Refines the plan and previous estimations
  - size, cost, schedule

Reference structure for DD

(See the R&DD document)

POLITECNICO
MILANO 1863

1 Introduction
  Scope
  Definitions, acronyms, abbreviations
  Reference documents
  Overview

2 Architectural Design
  Overview: high-level components
     and interactions
  Component view
  Deployment view
  Component interfaces
  Runtime view
  Selected architectural styles
     and patterns
  Other design decisions

Reviews the domain and product, **summary of main architectural styles/choices** (e.g., N-tier / microservices, …)

Describes contents and structure of the remainder of the DD

Informal view (free style notation), major interfaces

Components + interfaces:
component diagrams, composite structure, class diagrams
(detailed view)

Infrastructure: deployment diagram(s) including non-logical elements (e.g., load balancer, firewall)

Details for each interface (name, signature, returned objects)

Dynamics of the interactions: sequence diagrams (realization of use cases)

Reference structure for DD

(See the R&DD document)

3 User Interface Design

4 Requirements traceability

5 Implementation, Integration
  and test Plan

6 Effort Spent

7 References

Overview of UIs, possibly mockups, may refine what's in the RASD (if present)

Mapping between requirements and design elements

Order in which you plan to implement subsystems and components as well as plan of the integration and test of the integration

Homework

- Review the DD available on Webeep, direct link
  - https://webeep.polimi.it/pluginfile.php/1302807/mod_folder/content/0/ProjectToBeReviewed/DD.pdf
  - It refers to the assignment described in this document: https://webeep.polimi.it/pluginfile.php/1302807/mod_folder/content/0/ProjectToBeReviewed/Assignment_RDD_2023-2024.pdf

- Answer to the questionnaire here (one submission per group):
  - https://forms.office.com/e/1U5NqdVNkR
  - Groups: up to 3 students (same groups for the RASD questionnaire)
  - We will assign up to 1 point to clear and convincing answers

- **Deadline: November 19th at 23.59 (Rome time)**

- Answers will be used as basis for discussion during the lab of November 20th (Prof. Camilli and Di Nitto) and of November 21st (Prof. Rossi)

Homework — important note (repeat)

- Focus more on content rather than structure

- Content that is fully AI-generated will not be accepted and will receive a score of zero points.
  - Value your reasoning and expressive capabilities.
  - You are the ones who will build machines, not vice versa!

- The groups formed to submit this form should be the same as those for the RASD homework.