Project Development (PRE)

System Specification

Unit 6

Purpose

- Documents your in-depth analysis of the project
  - Describes the functional requirements
  - Describes the non-functional requirements
  - Gives a first estimate of quantities (resources) your system will need
  - Describes the system architecture and interfaces
  - Describes the acceptance criteria

Outline

- Initial situation and goal
- Functional requirements
- Non-functional requirements
- Quantity structure
- System architecture and interfaces
- Acceptance criteria

Initial Situation – Content

- Describes the application domain in detail
  - The “field” in which your system will be integrated
  - The terminology used in your application domain
- Describes the business processes in the application domain
- Re-describes the goal in a great detail

Functional Requirements

- Use case diagrams for an overview
- Structured description of use cases
- Characteristic information
- GUIs
- Scenarios
- Workflows

Use Case Diagrams

- Cluster requirements into useful blocks
- Each block is preceded by a use case diagram
- Use case diagrams are accompanied by a short description

Characteristic Information

- Link to business process
- Goal
- Precondition
- Postcondition
- Involved roles
- Triggering event

GUIs, Scenarios, and Workflows

- GUI to call the use case
- Scenario for the standard use (happy path, good case)
- GUI for the standard use
- Scenario for the non-standard use (corner case)
- GUI for the non-standard use
- Structured description of the work flow by an activity diagram

Non-Functional Requirements

- Requirements which can't be mapped to a specific feature
  - Usability
  - Efficiency
  - Maintainability
  - Security
  - Legal constraints

Usability

- Be specific
- Address your target group
- WRONG: The usability must be intuitive
- RIGHT: The metaphor of a class register, which is very familiar to our target group will be used as a central user interface element

Efficiency

- Be specific
- WRONG: Runtime and memory efficiency must be hight
- RIGHT: The system must respond to this query within 0.5 seconds

Maintainability

- Will your system have to be maintained by another group in the future?
- Will it have to be functionality added?

Security

- Are there any specific requirements concerning
  - Confidentiality
  - Data integrity
  - Availability

Legal Constraints

- Standards to be fulfilled
- Domain specific regulations available?

Quantity Structure

- Which quantities are to be expected?
  - Records in a master table
  - Records per day
  - Number of vertices of a model
  - Amount of data to be transferred
  - …

System Architecture and Interfaces

- Which big players are involved in your system?
  - Servers / Services
  - Clients
- How do they relate and communicate?
- Which players are around your system and how do they relate to your system?

Acceptance Criteria

- Which criteria have to be fulfilled to accept the system
- Based on the scenarios of the use cases