

Software Architecture Design Project

PART 2 (ASSIGNMENT 3)



Introduction

The architecture design project has two parts.

- **Part 1 (Assignment 1)** asks you to propose a high-level design of a domain specific application.
- **Part 2 (Assignment 3)** requires you to develop a complete reference architecture document by adding more details to your design.

Please note that you are Not expected to implement the application that you design, however, you can use different tools and technologies to provide diagrams and model different views of the system.



Goal (Assignment 3)

Provide a complete reference architecture for the domain specific application you selected for Assignment 1.

Expectations

In assignment 1 you defined the requirements and scope of your selected application and provided a high-level design for that system showing how the main entities and actors of the system interact with each other.

In this assignment we take one step further to add more technical details to the design of the application and complete the reference architecture.

Instructions (cont.)

- 1) Provide the **Logical View** and the **Process view** of the system.
- 2) Identify the **architecture style** and **patterns** that are commonly used in the application domain of your system and modify them based on your system requirements.
 - Document the architecture style and patterns that will be used for your system implementation.
 - Specify which containers/components of the system correspond to the layers/parts of the selected architecture style and pattern. For example, if you select MVC define which containers or components will be in the model, view or controller layers.

Instructions (cont.)

3) Specify different **elements of the system architecture** (such as **containers, components, interfaces** and **connectors**) and carry the proposed reference architecture to a level of depth and detail where low-level designers/developers can do the following by reading your reference architecture:

- Design modules or classes for each of your defined components
- Design the details of the interface and the “call” mechanism (which may be a class itself)
- Take your data component (or database schema) and layout the tables in a relational database or layout the file structure
- Take your UI components to design the UI window.

Instructions

- 4) Tie your reference architecture together with at least three main scenarios (a **normal**, an **error**, a **special point of variation**)
- 5) Provide enough description of your design rationale so that questions like **security**, **performance**, **reliability**, **availability** and **scalability** can be understood by reading your reference architecture document.

Submissions

Architecture design document (reference architecture) in a single pdf file.

This document includes both parts 1 (assignment 1) and 2 (assignment 3). Create a new section titled Part 2 in your reference architecture for this submission. If you had to make any changes to the part 1, create a section named "*part 1 revision*" and list the changes you made with rationale – however, any changes made on part 1 will not update your grade for assignment 1).

- On the cover page provide the list of team members and their roles/contribution to the project.

A video presentation (15-20 minutes)

Explain the reference architecture and your design rationales. The video does not need to provide all the details and should not read through the architecture design document. Provide the presentation such that a technical stakeholder would be able to understand your design by watching the video.

- Each member of the team should present a part of the video.

Important Note

- You should design your own graphs/diagrams for both the video presentation and the reference architecture.
- Don't copy/paste content from any resource and make sure to list the references that you use for the project.
- This is a Teamwork and you are expected to work with the same assigned team.
- Only one person on behalf of the team submits the files to D2L.

Rubric

Complete logical view (**10 points**), complete process view (**10 points**)

Architecture style and patterns identified with corresponding components of the system. (**15 points**)

Components, (**5 points**) Connectors (**5 points**), rationale (**5 points**), interface (**5 points**)

Data component/data base schema (**5 points**), UI components/ at least a UI window prototype (**5 points**)

Normal, error, special point of variation 5 points each (**15 points**)

Description of design rationale and addressing security, performance, reliability, availability and Scalability (**10 points**)

Video presentation (maximum 20 minutes) (**5 points**)

Providing adequate detail, proper formatting of the document and organizing the information (**5 Points**)