****

**Software Design Description**

**Project Name**

**Team X**

**Name Surname, Student ID**

**Name Surname, Student ID**

**Name Surname, Student ID**

**Name Surname, Student ID**

**Name Surname, Student ID**

**Name Surname, Student ID**

Bilkent University

Department of Information Systems and Technologies

08.01.2025

Change History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **File Name** | **Document Type** | **Deliverable** | **Version** | **Submission Date** |
| Deliverable\_4.docx | MS Word 2013 | 4 | 0.1 | - |
| Deliverable\_4\_2.docx | MS Word 2013 | 4 | 0.2 | - |
| TeamX\_SDD\_FR1 | MS Word 2013 | 4 | 1 | 08.01.2025 |
|  |  |  |  |  |

Project Team

|  |  |  |
| --- | --- | --- |
| **Name, Surname** | **Student Id Number** | **e-mail** |
| Umut Hüseyinoğlu | 12345678 | uhus@bilkent.edu.tr |
|  |  | Use the email that you regularly check! |
|  |  |  |
|  |  |  |
|  |  |  |

Project Details

|  |  |
| --- | --- |
| **Project Name** | **Project Name** |
| **Software Name** | **Software (Product) Name, if the same with the project name, repeat it** |
| **Company Name** | **(if there is a sponsor company and it is applicable, otherwise state “No sponsor company”)** |
| **Academic Advisor** | **Instructor Name, with full title** |
| **Github URL** | **Github URL** |
| **WEB page** | **(if applicable, if not leave it empty)** |

Individual Contributions Overview

|  |  |
| --- | --- |
| **Name, Surname** | **Summary of Contributions to the SDD Document** |
| Umut Hüseyinoğlu | Main responsible of the Document Formatting  Contributed to Executive Summary, Requirements and System Model  Main responsible of all UML diagrams |
|  |  |
|  |  |
|  |  |

Executive Summary

Text, maximum 1 page, no images.

This section provides a brief overview of your SDD, and your major findings and most important things that your Executive should notice / read.

Table of Contents

**Page Number**

The table of contents should be automatically created by MS Word.

List of Tables

**Page Number**

The list of tables (if any) should be automatically created by MS Word.

List of Figures

**Page Number**

The list of figures (if any) should be automatically created by MS Word.

Abbreviations

|  |  |
| --- | --- |
| NPV | Net Present Value |
| SDD | Software Design Description |
| SRS  WBS | Software Requirements Specification  Work Breakdown Structure |
| *Abbreviations need to be alphabetically ordered* |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# Scope

Your whole document’s paragraph text should be with font face Cambria, font size 12pt, line spacing of 1.5, paragraphs justified.

Briefly describe the scope of the design activities (both architectural and detailed design activities) and the Software Design Description (SDD) document with relation to the software product you are developing.

# Analysis Model & Planning

1. **Functional Requirements**
2. Include an updated (latest) version of your Use Case Diagram from Software Requirements Specification (SRS) v2. Include the latest version if you have made changes, additions, or deletions. Do **not include** the Use Case descriptions. Clearly show which Use Cases will be implemented in the 1st, 2nd and 3rd increments.
3. Include an updated (latest) list of your detailed Functional Requirements. Include the latest version if you have made changes, additions, or deletions.
4. **Non-Functional Requirements**

Include your Non-Functional Requirements from SRS v2. Include the latest version if you have made changes, additions, or deletions.

1. **Software Increments**

Include your Software Increment descriptions from Software Project Management Plan (SPMP) v2. Include the latest version if you have made changes, additions, or deletions. Also, include the effort for each increment such as installation of a database or common services for several use cases.

1. **Frameworks, Libraries, Services, Databases and APIs**

Explain how your software will use these. Make sure to explain when you plan to integrate with these your software. For example, if you are going to use Amazon Web Services, is it going to be included in the 1st increment?

Table 1 Table captions need to be on top of the table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Info** | **Project A** | **Project B** | **Project C** | **Project D** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |



Figure 1 Figure captions need to be below the figure

If you need to use lists in your SDD document please follow the following formatting rules.

For unordered lists:

* Level 1
* Level 1
  + Level 2
  + Level 2
    - Level 3
    - Level 3
  + Level 2
* Level 1

For ordered lists:

1. Level 1
2. Level 1
   1. Level 2
   2. Level 2
      1. Level 3
      2. Level 3
   3. Level 2
3. Level 1

# High-Level (Architecture) Design

1. **Selected Architecture**

Identify which Architecture(s) you have decided to use for the development of your software. Justify your selection by associating it with the Non-Functional requirements and goals of your software from Section 2.2. Clearly discuss the advantages and disadvantages of the selected architecture(s) and how they are going to affect your development process.

1. **Logical View**

Draw a Block Diagram of your software architecture.

Provide the EER diagram of your database from SRS v2. Include the latest version if you have made changes, additions, or deletions to the EER diagram.

1. **Process View**

For the 1st Increment Use-Cases, draw UML Communication diagram and explain “Use Case Realization” of each one.

1. **Physical View**

Draw UML Deployment Diagram of your software system.

1. **Design Quality**

Explain for each Non-Functional Requirement that you specified in Section 2.2, how your design will meet, and how you are going to verify & validate them.

# Low Level Design

**Only** for the 1st Increment Use-Cases, include your pseudo code and explain it in detail. Provide all and any diagrams (e.g. UML activity, UML sequence, UML class) as appropriate in order to display these designs.

If you are going to provide a design level UML Class diagram make sure that your class diagram will include:

* Methods with parameters
* Methods with visibility
* Methods with return types
* Attributes with (primitive) types
* Attributes with multiplicities – collections
* Attributes with visibilities

Etc.

If you are not going to follow the Object Oriented development approach, research and find the diagrams that would describe your design decisions and make sure that you are going to provide these diagrams at the design level and not on the analysis level.

# Discussions

This is the part where you discuss the problems you have experienced while preparing the SDD.

In this document you will discuss the following subheadings within the perspective of SDD and while you were preparing it and the activities you conducted for its preparation. If some of these subheadings are not applicable, just specify why they are not applicable.

## Limitations and Constraints

List any limitations and constraints you experienced while preparing the SDD.

## Health and Safety Issues

List any health and safety issues you experienced while preparing the SDD.

## Legal Issues

List any legal issues you experienced while preparing the SDD.

## Economic Issues and Constraints

List any economic issues and constraints you experienced while preparing the SDD.

## Sustainability

List any sustainability related activities you undertake while preparing the SDD.

## Ethical Issues

List any ethical issues you experienced while preparing the SDD.

## Multidisciplinary Collaboration

List any multidisciplinary collaboration you realized while preparing the SDD.

# References

|  |  |
| --- | --- |
| [1] | A Guide to the Project Management Body of Knowledge, Project Management Institute, 2021. |
| [2] | J. Pinto, Project Management: Achieving Competitive Advantage, 5 / Golbal ed., Pearson, 2019. |
| [3] | "IEEE Standard for Information Technology—Systems Design—Software Design Descriptions, IEEE Std 1016-2009," IEEE, 2009. |
| [4] | Chouseinoglou, Sevgi, Genç, Uçar and Yıldırım, "Initial Plan of Team 24," 2024. |
| [5] | Chouseinoglou, Sevgi, Genç, Uçar and Yıldırım, "Software Requirements Specification of Team 24," 2024. |
| [6] | Chouseinoglou, Sevgi, Genç, Uçar and Yıldırım, "Software Project Management Plan of Team 24," 2024. |