<Project Name>

Software Design Specification

<Date>

<Group Members>

Prepared for

CSE3044 Software Engineering Term Project

Table of Contents

[1. Introduction 2](#_Toc69216509)

[1.1. Purpose 2](#_Toc69216510)

[1.2. Statement of scope 2](#_Toc69216511)

[1.3. Software context 2](#_Toc69216512)

[1.4. Major constraints 2](#_Toc69216513)

[1.5. Definitions 2](#_Toc69216514)

[1.6. Acronyms and Abbreviations 2](#_Toc69216515)

[1.7. References 2](#_Toc69216516)

[2. Design Consideration 2](#_Toc69216517)

[2.1. Design Assumptions and Dependencies 2](#_Toc69216518)

[2.2. General Constraints 3](#_Toc69216519)

[2.3. System Environment 3](#_Toc69216520)

[2.4. Development Methods 3](#_Toc69216521)

[3. Architectural and component-level design 3](#_Toc69216522)

[3.1. System Structure 4](#_Toc69216523)

[3.1.1. Architecture diagram 4](#_Toc69216524)

[3.2. Description for Component n 4](#_Toc69216525)

[3.2.1. Processing narrative (PSPEC) for component n 4](#_Toc69216526)

[3.2.2. Component n interface description. 4](#_Toc69216527)

[3.2.3. Component n processing detail 4](#_Toc69216528)

[3.3. Dynamic Behavior for Component n 4](#_Toc69216529)

[3.3.1. Interaction Diagrams 4](#_Toc69216530)

[4. Restrictions, limitations, and constraints 5](#_Toc69216531)

[5. Conclusion 5](#_Toc69216532)

Section 1 is repeated from the Software Requirements Specification Document. This section provides background information about the project.)

# Introduction

This section provides an overview of the entire requirement document. This document describes all data, functional and behavioral requirements for software.

## Purpose

Overall goals and software objectives are described.

## Statement of scope

A description of the software is presented. Major inputs, processing functionality and outputs are described without regards to implementation detail. Rank the major processing functionality from the developer's point of view. Use a simple ranking system such as: essential, desirable and future requirements. This should represent what you think your team can accomplish in the time frame of a semester. The essential requirements, you are sure you can complete. The desirable requirements you hope to complete but are not sure about. The future requirements, you have strong doubts about. Strive to balance the desires of your client with the reality of the time it takes to develop a SW product.

## Software context

The software is placed in a business or product line context. Strategic issues relevant to context are discussed. The intent is for the reader to understand the 'big picture'.

## Major constraints

Any business or product line constraints that will impact the manner in which the software is to be specified, designed, implemented or tested are noted here.

## Definitions

## Acronyms and Abbreviations

## References

# Design Consideration

This section describes many of the issues which need to be addressed or resolved before attempting to devise a complete design solution.

## Design Assumptions and Dependencies

Describe any assumptions or dependencies regarding the software and its use. These may concern such issues as:

* Related software or hardware
* Operating systems
* End-user characteristics
* Possible and/or probable changes in functionality

## General Constraints

Describe any global limitations or constraints that have a significant impact on the design of the system's software (and describe the associated impact). Such constraints may be imposed by any of the following (the list is not exhaustive):

* Hardware or software environment
* End-user environment
* Availability or volatility of resources
* Standards compliance
* Interoperability requirements
* Interface/protocol requirements
* Data repository and distribution requirements
* Security requirements (or other such regulations)
* Memory and other capacity limitations
* Performance requirements
* Network communications
* Verification and validation requirements (testing)
* Other means of addressing quality goals
* Other requirements described in the requirements specification

## System Environment

List collection of hardware and software tools a system developer uses to build software systems.

## Development Methods

Briefly describe the method or approach used for this software design. If one or more formal/published methods were adopted or adapted, then include a reference to a more detailed description of these methods. If several methods were seriously considered, then each such method should be mentioned, along with a brief explanation of why all or part of it was used or not used.

# Architectural and component-level design

A description of the program architecture is presented.

## System Structure

A detailed description the system structure chosen for the application is presented.

### Architecture diagram

A pictorial representation, using a UML component diagram, of the architecture is presented.

## Description for Component n

A detailed description of each software component contained within the architecture is presented. Section 3.2 is repeated for each of n components.

### Processing narrative (PSPEC) for component n

A processing narrative for component n is presented. It should describe the responsibilities of the component.

### Component n interface description.

A detailed description of the input and output interfaces for the component is presented.

### Component n processing detail

A detailed algorithmic description for each component is presented.

**3.2.3.1 Design Class hierarchy for component n**

**3.2.3.2 Restrictions/limitations for component n**

**3.2.3.3 Performance issues for component n**

**3.2.3.4 Design constraints for component n**

**3.2.3.5 Processing detail for each operation of component n**

## Dynamic Behavior for Component n

A description of the interaction of the classes is presented.

### Interaction Diagrams

A sequence diagram, for each use case the component realizes, is presented.

# Restrictions, limitations, and constraints

Special design issues which impact the design or implementation of the software are noted here.

# Conclusion