SYSTEM DESIGN SPECIFICATION

FOR

<PROJECT: NAME OF THE APP>

Prepared by

< Student surname, initials and student no>

SYSTEM DESIGN DOCUMENT

Overview
The System Design Document describes the system requirements, operating environment, system and subsystem architecture, files and database design, input formats, output layouts, human-machine interfaces, detailed design, processing logic, and external interfaces.

NOTE: Please insert proper table of contents. Cover page indicating group information is also required.

1   INTRODUCTION

1.1   Purpose

This section provides a brief description of the Systems Design Document's purpose.

1.2   Project Aims and Objectives

This section provides a description of the project Objectives

2   SYSTEM ARCHITECTURE

This section briefly outlines the system software and hardware architecture design of the system. System architecture diagram should be shown to enhance the understanding of the reader.

2.1   System Hardware Architecture

In this section, describe the overall system hardware and organization.
- Include a list of all required hardware components (with a brief description of each item)
- If appropriate, use subsections to address each subsystem.

2.2   System Software Architecture

In this section, you need to describe the overall system software and organization. You also need to show how your typical **software** system will interact with its users, external systems, data sources, and services.
- List and describe the software modules and their function.
- Describe all software required to support the system, and
- Specify the physical location of all software systems.
- Identify required database platforms, compilers, utilities, operating systems, and communications software.

2.3 Internal Communications Architecture (Network Architecture)

In this section, describe the overall communications within the system; for example, LANs, buses, etc. Include the communications architecture(s) being implemented. Provide a diagram depicting the communications path(s) between the system and subsystem modules. If appropriate, **use subsections to address each architecture being employed.**

3 DATABASE DESIGN (DESIGN CLASS DIAGRAM)

This section indicates the interaction between objects.

4 USER INTERFACE

This section provides the detailed design of the system and subsystem inputs and outputs relative to the user. Provide a description of each user class or role associated with the system. A user class is distinguished by the ways in which users interact with the proposed system or situation. Factors that distinguish a user class include common responsibilities, skill levels, work activities, and modes of interaction with the system. In this context, a user is anyone who interacts with the proposed system, including operational users, data entry personnel, system operators, operational support personnel, system maintainers, and trainers. For each user class, provide estimates of the total number of users anticipated, a maximum number of concurrent users, and the number of external users. Any additional information may be added to this section and may be organized according to whatever structure best presents the operator input and output designs.

4.1 Inputs

This section is a description of the input media used by the user for providing information to the system, For example, data entry screens, optical character readers, bar scanners, etc. If appropriate, the input record types, file structures, and database structures provided in Section 3, File and Database Design, may be referenced. Include data element definitions, or refer to the data dictionary.

Provide the layout of all input data screens or graphical user interfaces (GUIs) (for example, windows). **Provide a graphic representation of each interface**. Define all data elements associated with each screen or GUI, or reference the data dictionary.

This section should contain edit criteria for the data elements, including specific values, range of values, mandatory/optional, alphanumeric values, and length. Also address data entry controls (Validations) to prevent edit bypassing.

Discuss the miscellaneous messages associated with user inputs, including the following:

- Copies of different form(s) if the input data are keyed or scanned for data entry from printed forms
- Description of any access restrictions or security considerations

4.2   Outputs (Reports)

This section describes of the system output design relative to the users; show a mapping to the high-level data flows described in Section 1.2.1. System outputs include reports, data display screens and GUIs, query results, etc. The output files are described in Section 3 and may be referenced in this section. The following should be provided, if appropriate:

- Identification of codes and names for reports and data display screens
- Description of report and screen contents (provide a graphic representation of each layout and define all data elements associated with the layout or reference the data dictionary)
- Description of the purpose of the output, including identification of the primary users
- Report distribution requirements, if any (include frequency for periodic reports)
- Description of any access restrictions or security considerations

5   EXTERNAL INTERFACES

External systems are any systems that are not within the scope of the system under development, regardless whether the other systems are managed by the State or another agency. In this section, describe the electronic interface(s) between this system and each of the other systems, emphasizing the point of view of the system being developed.

5.1   Interface Architecture

- In this section, describe the interface(s) between the system being developed and other systems; for example, batch transfers, queries, etc. Include the interface architecture(s) being implemented, such as wide area networks, gateways, etc. Provide a diagram depicting the communications path(s) between this system and each of the other systems, this **graphical representation of the connectivity between systems**, must also show the direction of data flow

5.2   Interface Detailed Design

For each system that provides information exchange with the system under development, there is a requirement for rules governing the interface. This section should provide enough detailed information about the interface requirements to correctly format, transmit, and/or

receive data across the interface. Include the following information in the detailed design for each interface (as appropriate):

- The **data format requirements**; if there is a need to reformat data before they are transmitted or after incoming data is received, tools and/or methods for the reformat process should be defined
- **Specifications for hand-shaking protocols between the two systems**; include the content and format of the information to be included in the hand-shake messages, the timing for exchanging these messages, and the steps to be taken when errors are identified
- **Format(s) for error reports** exchanged between the systems; should address the disposition of error reports; for example, retained in a file, sent to a printer, flag/alarm sent to the operator, etc.

6   SYSTEM INTEGRITY CONTROLS

This section should further explain about **mechanisms** and **procedures** that are built into the system to safeguard the **system** and the **information** within. Such explanation may include the following minimum levels of control:

- Input control
- Access control
- Complex update control
- Verification processes for additions, deletions, or updates of critical data
- Ability to identify all audit information by user identification, network terminal identification, date, time, and data accessed or changed.
- Backup and recovery of the system data
- Output control

7   CONCLUSION