Software design document

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1. **Introduction**

The project is to create a residential billing system for all in campus students of the University of Eswatini. The system should be able to make campus application for residence available for every student, provide accurate financial record pertaining students bills, safely store data for future access and be accessed by authorized personal only.

This design document presents the designs used or intended to be used in implementing the project.

* 1. Purpose

The purpose of this document is to present a detailed description of the designs of the Residential Billing System, created for the University of Eswatini. Firstly, this document is intended for the programmer of the group, to use the designs as guideline to implement the project. Equally, this document is also for the group instructor, Mr E.Dube, as it fulfils one of the requirements of the project. Lastly, this document could be of use to the group when they want to upgrade or modify the present design of the billing system.

* 1. Scope

This document gives a detailed description of the software architecture of the billing system. It also displays some of the use cases that had been transformed into sequential and activity diagrams. The class diagrams show how the programmer would implement the specific models.

* 1. References
  2. Overview

1. Design Considerations
   1. Assumptions

The user of the billing system is aware of the basic operations of a computer and web pages.

The user also understands the standard terms used for the operation.

* 1. Constraints

The system is built to be accessible only through the university’s website. The system is implemented using Java and JSP technologies.

* 1. System Environment

The web based billing system is designed to work on all operating systems. The system is accessible through any desktop, laptop and cellphone connected to the internet. It is accessible at all times.

* 1. Design Methodology

The system is designed with flexibility for further development and/or modification. The system is divided into manageable processes that are grouped to sub-modules and modules that are built with abstraction.

1. ARCHITECTURE
   1. System Design

Below is a block diagram that shows the principal parts of the system and their interactions.

**User**

**User**

**User**

**User**

**Residential File**

**Other**

**Rooms information**

**Number of days stayed**

**Students information**

**SYSTEM INTERFACE**

3.2. System decomposition

3.2.1. Functional decomposition tree

4. Data design

4.1. Data description

5. Component design

5.1 Login

The diagram below shows the flow chart for logging in.

USER

User dashboard page

Try to login again

Enter Student ID and Password

Rejected

Approved

Administration login

Admin

Admin dashboard

Try to login again

Enter password

Rejected

Approved

User's Dashboard page

Book room

Room details

Student profile

User dashboard

Try to login again

Login

Administrator dashboard

Manage students

Student registration

Try to login again

Login

Manage room

Add room

Room

Admin dashboard