Contents

I. Document Change Log

Date	Version	Description	Author
10/19/2025	1.0	Created document	Truong Do Vuong
10/21/2025	1.1	Added Functional/NonFunctional Requirements	Truong Do Vuong
10/24/2025	1.2	Rewrite Requirements, added FDD	Truong Do Vuong
10/26/2025	1.3	Added Class diagram	Hoang Van Hung
10/27/2025	1.4	Added UseCase diagram	Nguyen Tran Viet Nhat
10/28/2025	1.5	Added UseCases Detail descriptions	Nguyen Tran Viet Nhat
10/28/2025	1.6	Added UI-Design	Truong Do Vuong
10/28/2025	1.7	Added DataFlow diagram level 0,1	Le Huynh Anh Khoi
10/29/2025	1.8	Added Database Design	Hoang Van Hung

Software Design Document of Student Management System

Group 1

Version 1.7

October 29, 2025

II. Introduction

1 Purpose

This Software Design Document (SDD) describes the architecture, high-level design decisions, and major components of the *Student Management System* (SMS). The SDD translates the functional and non-functional requirements into a concrete software architecture and design that can be implement and verify later-on. It is intended for:

- Software developers responsible for implementing the SMS.
- Testers who will verify design compliance.
- System administrators and deployers responsible for hosting and maintaining the system.
- Lecturer of the course "SOFTWARE ENGINEERING" (because this is a group project is belong to the course's).

2 Scope

The Student Management System (SMS) provides an administrative web application for managing student records, financials, authentication and role-based access for `Student` and `Administrator`, and an admin dashboard for data management and announcements. Major capabilities covered by this design include:

1. **Student Registration and Profile Management:** registration using CitizenID (StudentID = CitizenID), issuance of temporary default password (DOB in MMDDYYYY), profile viewing and updates.
2. **Fee and Financial Management:** consolidated financial view, line-item fees, transaction summaries and a payment workflow that supports partial/full payments.
3. **User Authentication and Roles:** username/password authentication, password recovery via registered email, and role-based access (Student vs Administrator).

4. **Administration Tools:** admin dashboard with table selector, CRUD operations for system tables.

5. **Notifications and Announcements:** posting announcements by admins and notification display for students.

The scope of this document is limited to the software design for the features above as required for a small-scale, educational deployment (local / free-tier hosting). Performance and scalability are modest targets appropriate to a learning environment (see Non-Functional Requirements for constraints).

3 Overview of this Document

This SDD is organized to guide the implementation from architecture to component-level design:

Chapter 1 — Introduction: Purpose, scope, audience and document overview.

Chapter 2 — System Architecture: High-level architecture diagrams, deployment: Dataflow, Class diagram.

Chapter 3 — Database Design: Data schema

Chapter 4 — UI / Interaction Design: Web interface and interaction flows for Students and Administrators.

III. System Architecture

1 Dataflow Diagram Overview

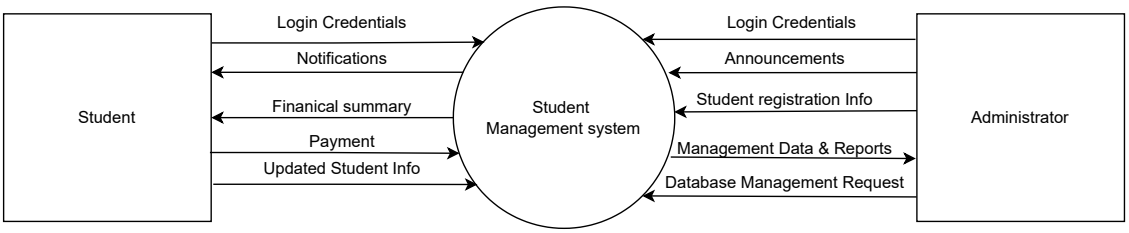


Figure III.1: Data Flow Diagrams Level 0

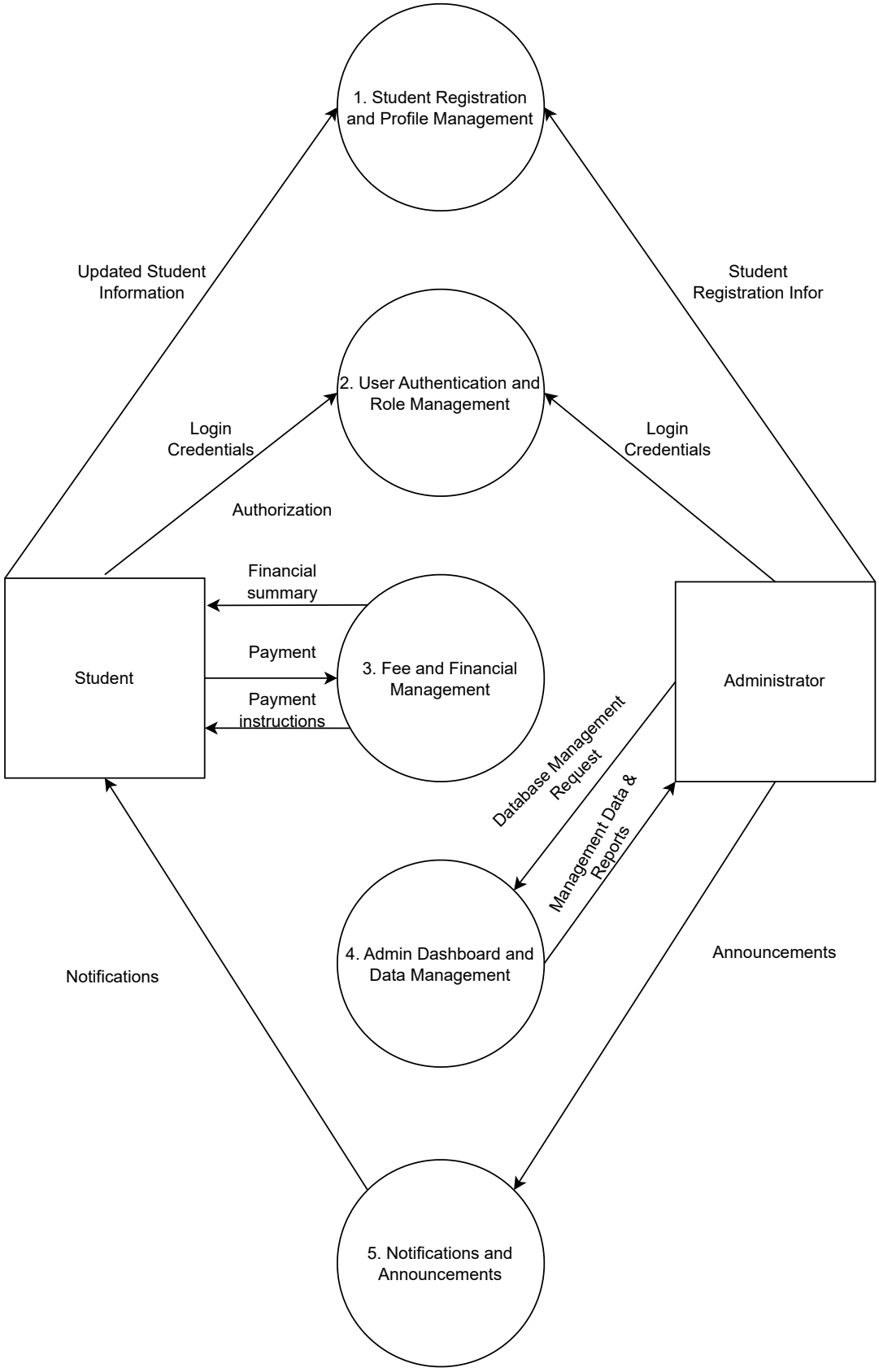
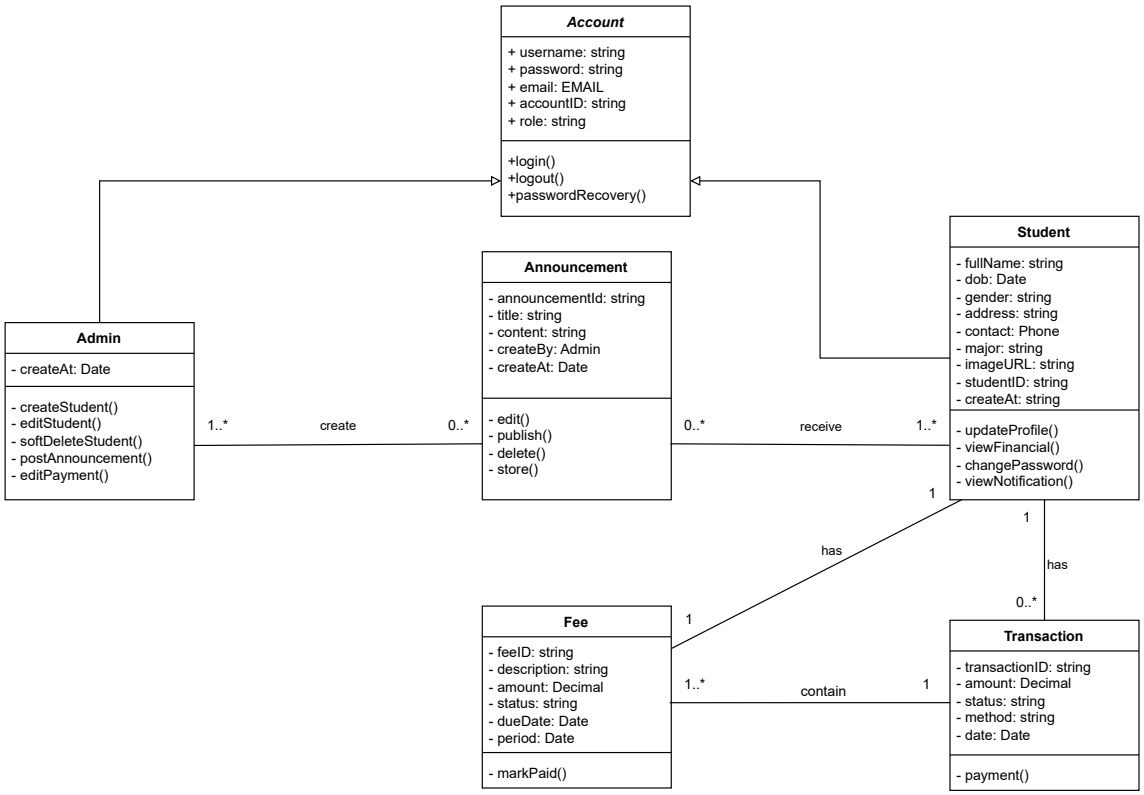


Figure III.2: Data Flow Diagrams Level 1

2 Class Diagram Overview



IV. DataBase Design

1 Diagram Overview

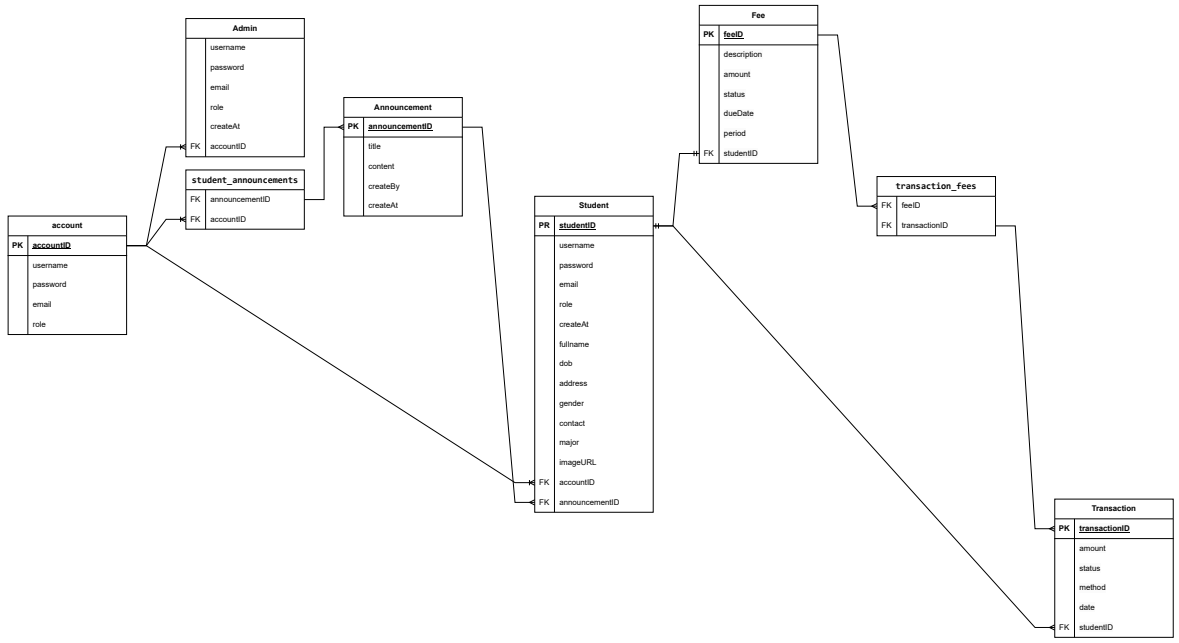


Figure IV.1: Database Design

V. User Interface Design

1 Diagem Overview

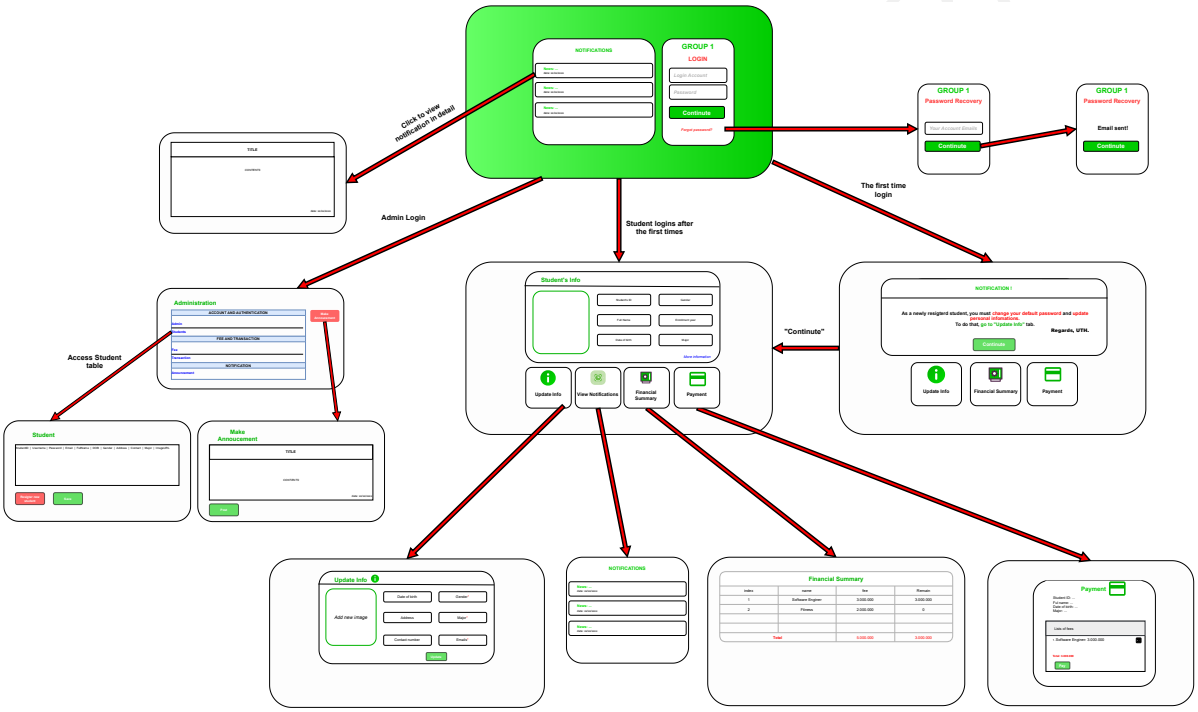


Figure V.1: Web Interface Design