



Software Report

School Management System

Version 1.0

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Date:

Approved by:

CONTENTS

1. Executive Summary	3
2. System Overview	3
2.1 Purpose	3
2.2 Scope	3
3. Technical Specifications	4
3.1 System Architecture	4
3.2 Deployment	4
4. Functional Requirements Implementation	5
5. Non-Functional Requirements Achievement	5
6. User Interface Overview	6
6.1 Loading screen	6
6.2 Secure login interface	7
6.3 Home dashboard with navigation	8
6.4 Principal management screens (Current Principle/view/edit)	9
6.5 Teacher management screens (view/edit)	11
6.6 Student management screens (view/edit)	12
6.7 Admin registration interface	13
7. Development Process	13
7.1 SDLC Timeline	13
7.2 Key Diagrams	14
7.2.1 Entity-Relationship (ER) Diagram	14
7.2.2 Data Flow Diagrams (Level 0)	15
7.2.3 Data Flow Diagrams (Level 1)	16
7.2.4 Use Case Diagram	17
8. Testing Results	17
9. Challenges and Solutions	18
10. Conclusion and Future Work	18
11. Appendix	18

1. EXECUTIVE SUMMARY

This report documents the development and implementation of the School Management System (SMS), a standalone desktop application designed to streamline administrative operations in educational institutions. The system provides comprehensive tools for managing student records, teacher data, and principal information with secure role-based access control.

2. SYSTEM OVERVIEW

2.1 PURPOSE

The SMS was developed to:

- Digitize and centralize school administration processes
- Provide efficient management of student, teacher, and principal records
- Generate reports in multiple formats
- Ensure data security through role-based authentication

2.2 SCOPE

The system currently supports

- Student enrollment and grade management
- Teacher record maintenance
- Principal information management
- Report generation (PDF)

Future expansions may include:

- Mobile/web access
- Parent/student self-service portals

3. TECHNICAL SPECIFICATIONS

3.1 SYSTEM ARCHITECTURE

Type:

- Standalone desktop application

Frontend:

- Java Swing GUI

Backend:

- Java

Database:

- MySQL 8.0+

IDE:

- NetBeans

3.2 DEPLOYMENT

Supported platforms:

- Windows & Linux

Requires Java Runtime Environment (JRE)

4. FUNCTIONAL REQUIREMENTS IMPLEMENTATION

The system successfully implements all high-priority functional requirements:

Requirement ID	Achievement Status
NFR1 (500+ users)	Verified in stress testing
NFR2 (<2 sec response)	Achieved for core operations

5. NON-FUNCTIONAL REQUIREMENTS ACHIEVEMENT

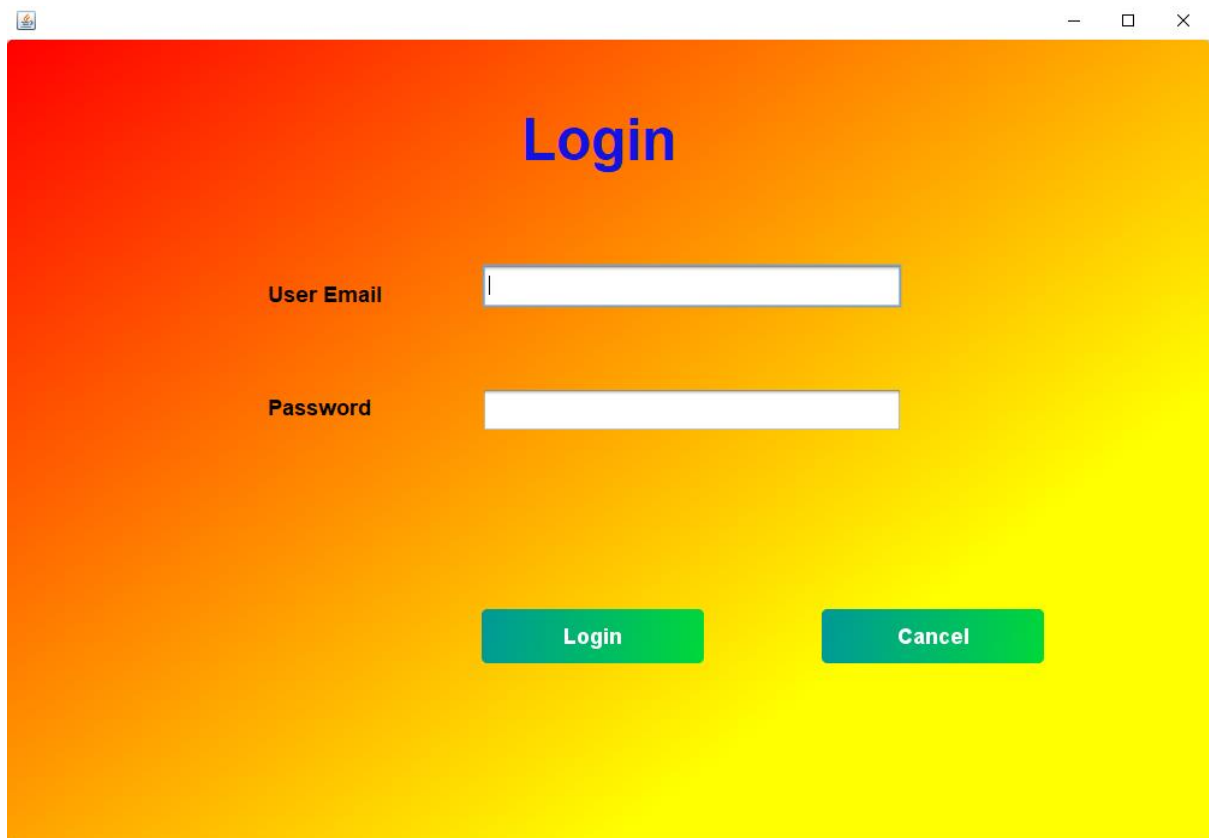
Requirement ID	Implementation Status	Notes
FR1 (Secure login)	Fully implemented	Admin-only access with credential verification
FR2 (Student CRUD)	Fully implemented	Complete student record management
FR4 (Reports)	Fully implemented	PDF generation

6. USER INTERFACE OVERVIEW

6.1 LOADING SCREEN



6.2 SECURE LOGIN INTERFACE



The image shows a secure login interface window. The window has a title bar with a small icon on the left and standard window controls (minimize, maximize, close) on the right. The background of the window is a gradient from red on the left to yellow on the right. The word "Login" is displayed in a large, bold, blue font at the top center. Below the title, there are two input fields. The first is labeled "User Email" and the second is labeled "Password". Both labels are in a bold, black font. The input fields are white with a thin black border. At the bottom of the window, there are two buttons: "Login" and "Cancel". Both buttons are green with a gradient and have white text. The "Login" button is on the left and the "Cancel" button is on the right.

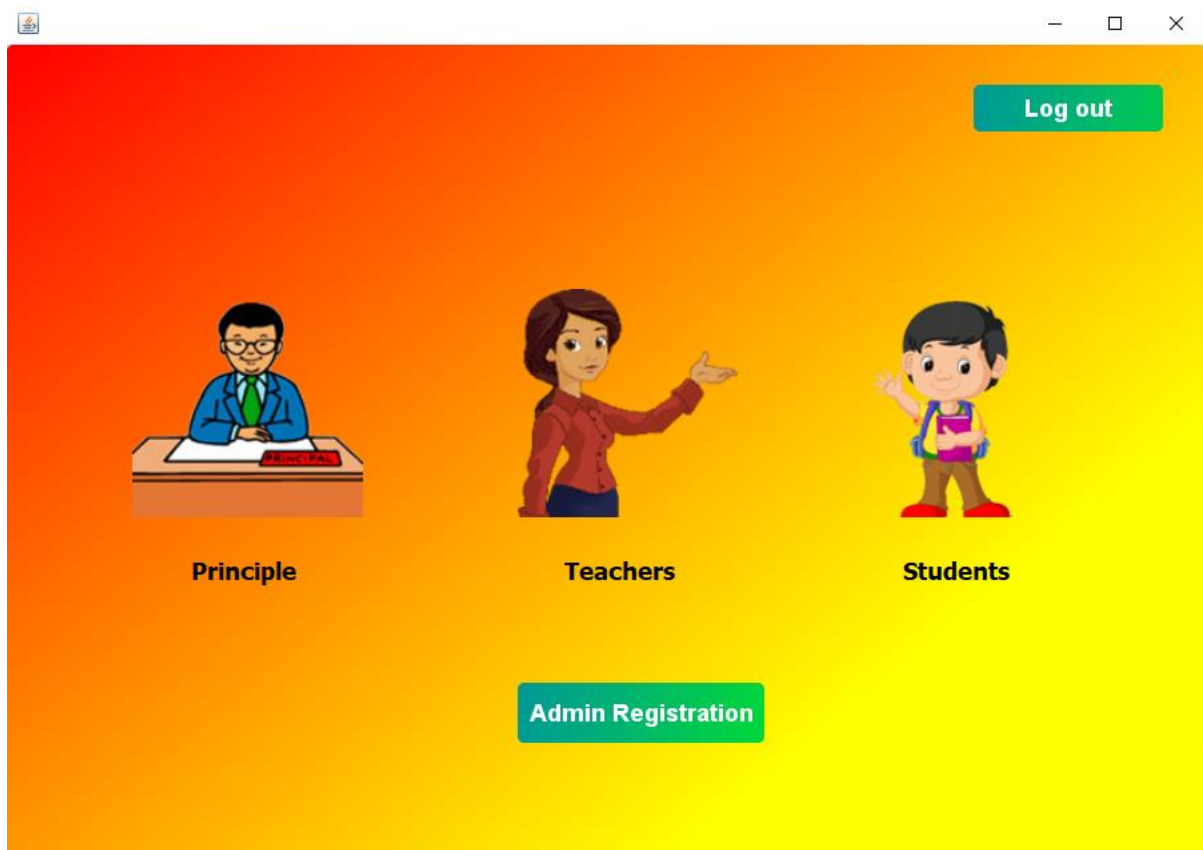
Login

User Email

Password

Login **Cancel**


6.3 HOME DASHBOARD WITH NAVIGATION



6.4 PRINCIPAL MANAGEMENT SCREENS (CURRENT PRINCIPLE/VIEW/EDIT)

— □ ×

Current Principle



Principle Name	Lakshan Dananjana
NIC Number	200214101910
Address	292/1 Siyabalawaththe Dewahuwa
Status	Currunt
Stating Date	2025-03-26

View All Principles

Back To Home

Principle Details Table

Search

ID	Name	NIC	Status	Address	Starting...	End Date
1	Lakshan Da...	200214101...	Currunt	292/1 Siyab...	2025-03-26	

Edit Principle

Print Document

Back To Home

Edit Details In Principles

Search

ID

ID

Name

Address

Job Status

Currunt

NIC Number

Add New Principle

Update Principle

Delete Principle

Back To Details

6.5 TEACHER MANAGEMENT SCREENS (VIEW/EDIT)

Teachers Details

Search

ID	Name	NIC	Address	Subject
1	Lakshan Dananjana	200214101910	292/1 Siyabalaw...	mathametics

Edit Teacher

Print Document

Back To Home

Edit Deatail In Teachers

Search

ID

Name

Address

Subject

NIC Number


Insert Teacher

Update Teacher

Delete Teacher

Back To Details

6.6 STUDENT MANAGEMENT SCREENS (VIEW/EDIT)


— □ ×

Student Table

Search

ID	Student Name	Student Age	Grade	Address
1	Lakshan Dananjana	12	7	292/1 Siyabalawa...

Edit Student

Print Document

Back To Home

Edit Details In Student

Search

ID	ID
Student Name	<input type="text"/>
Student Age	<input type="text"/>
Grade	<div>Select Grade</div>
Address	<input type="text"/>

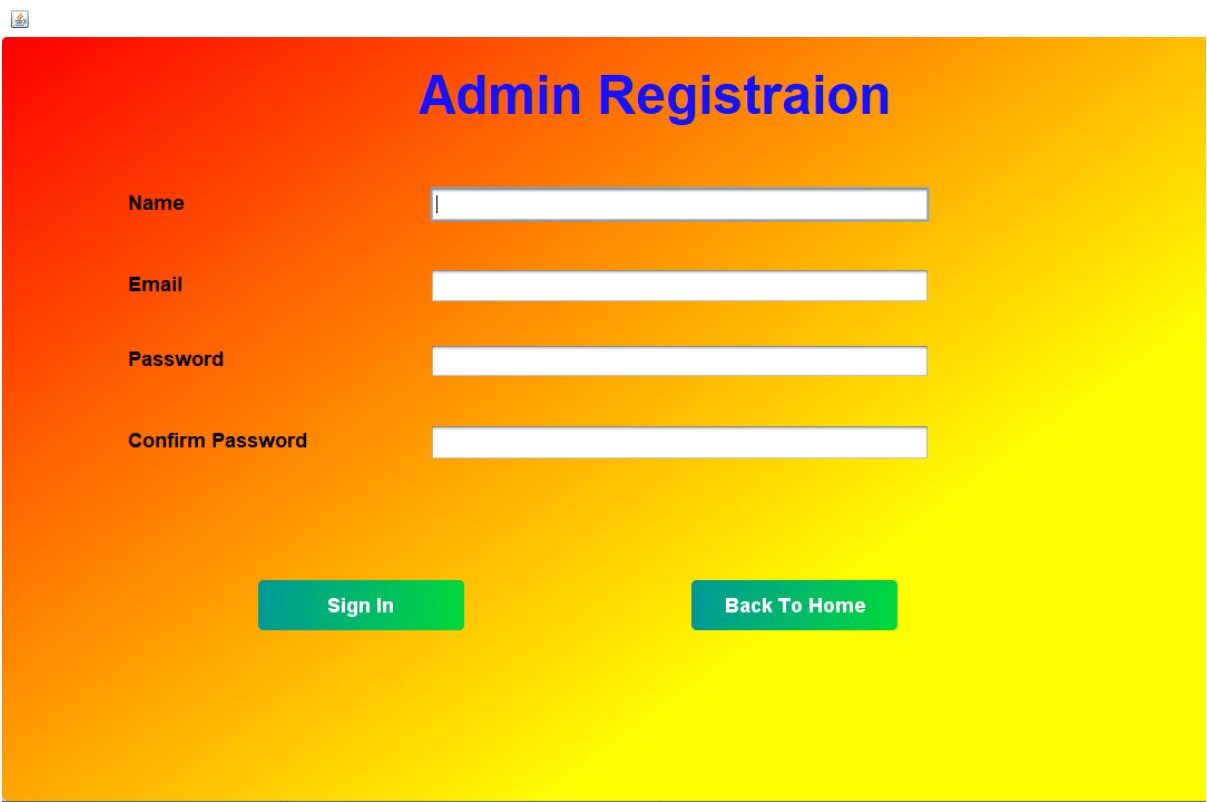
Add Student

Update Student

Delete Student

Back To Details

6.7 ADMIN REGISTRATION INTERFACE

The image shows a web form titled "Admin Registraion" (note the typo) on a gradient background from orange to yellow. The form contains four input fields: "Name", "Email", "Password", and "Confirm Password". Below the fields are two buttons: "Sign In" and "Back To Home".

Admin Registraion

Name

Email

Password

Confirm Password

Sign In **Back To Home**

7. DEVELOPMENT PROCESS

7.1 SDLC TIMELINE

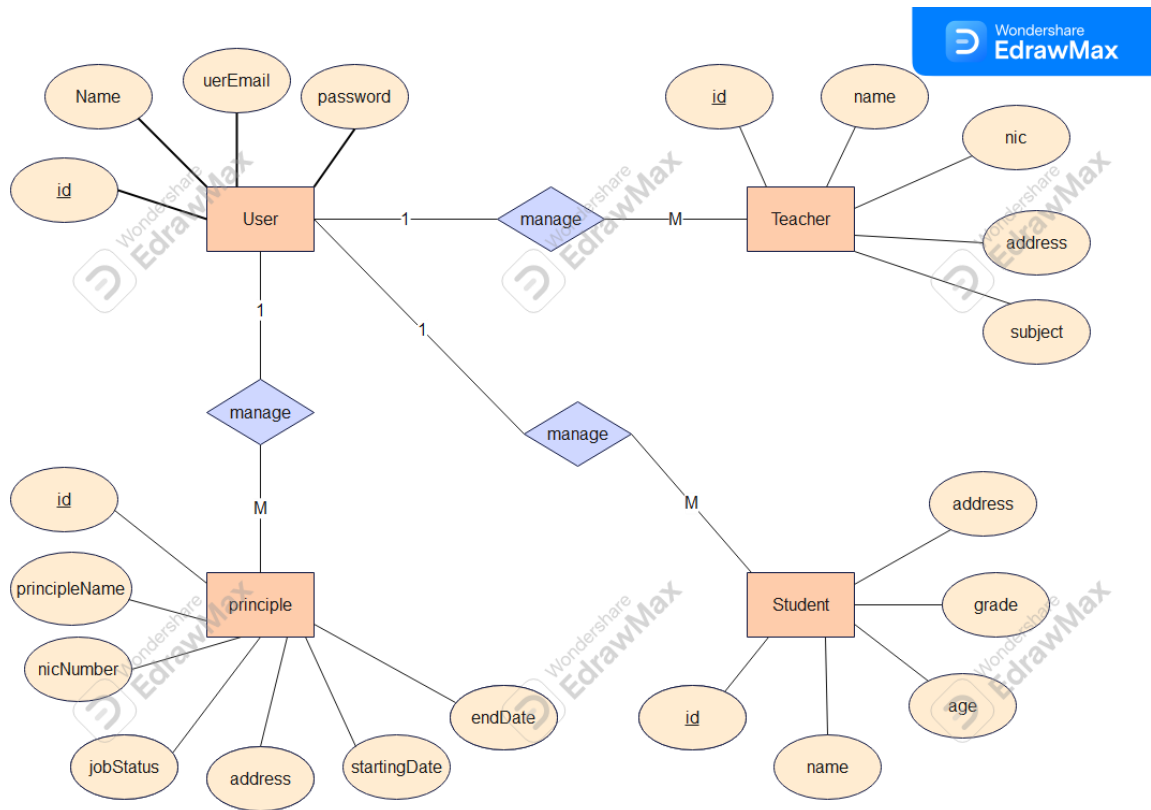
The project followed a structured timeline:

Phase	Duration (Weeks)	Outcome
Requirement Analysis	2	SRS Document
System Design	3	ER Diagrams, UI Mockups
Implementation	6	Core system development
Testing	3	Unit & Integration tests
Deployment	2	Test environment setup

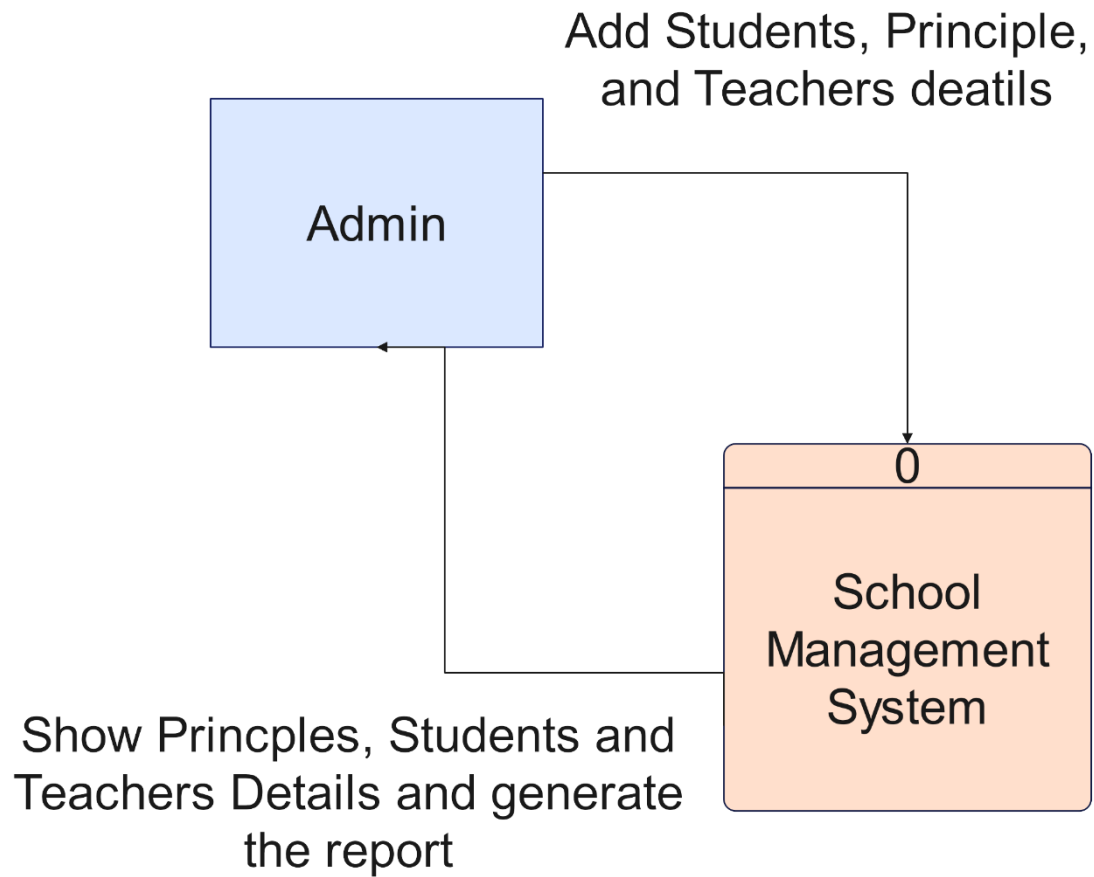
7.2 KEY DIAGRAMS

The system architecture was guided by:

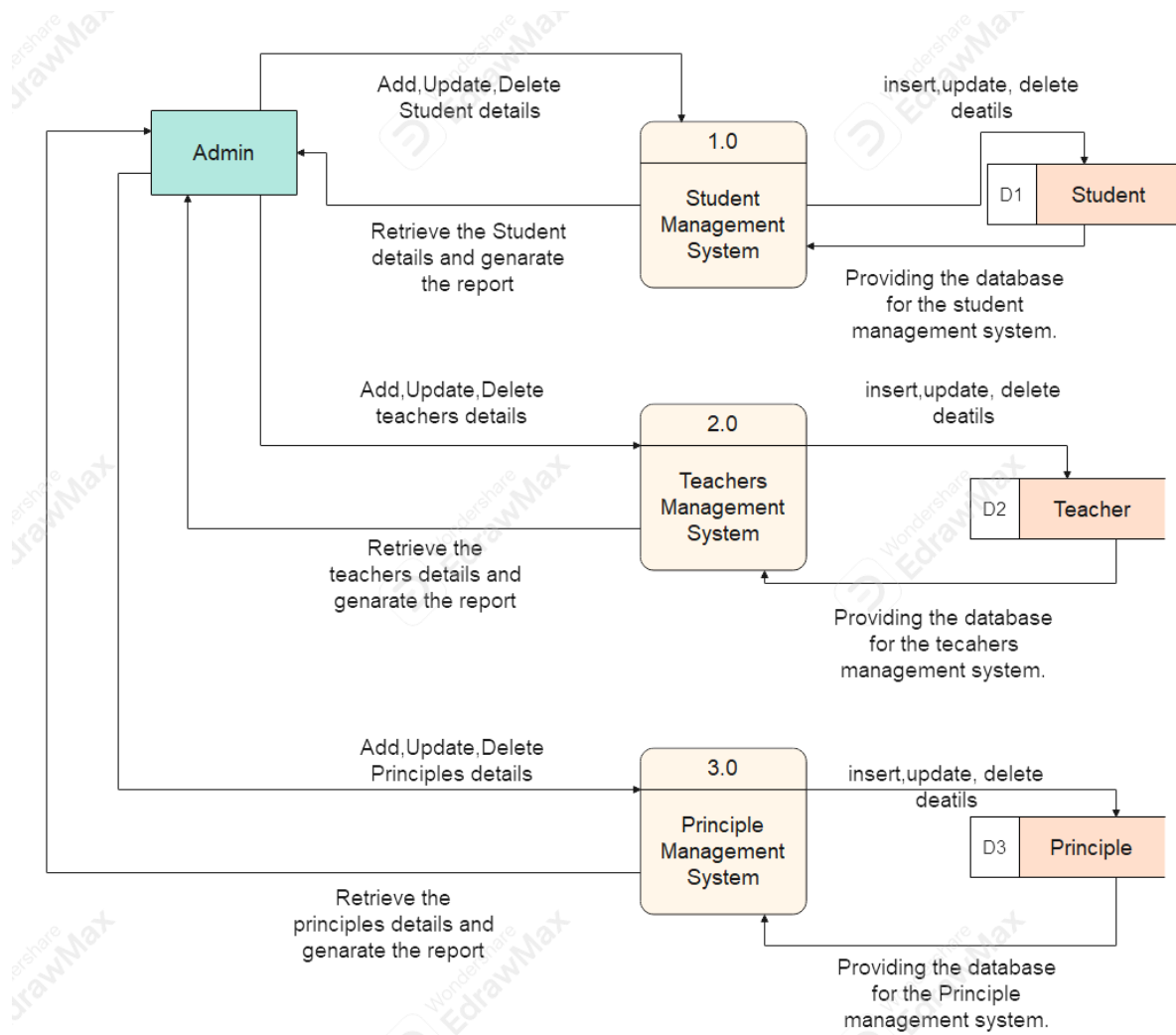
7.2.1 ENTITY-RELATIONSHIP (ER) DIAGRAM



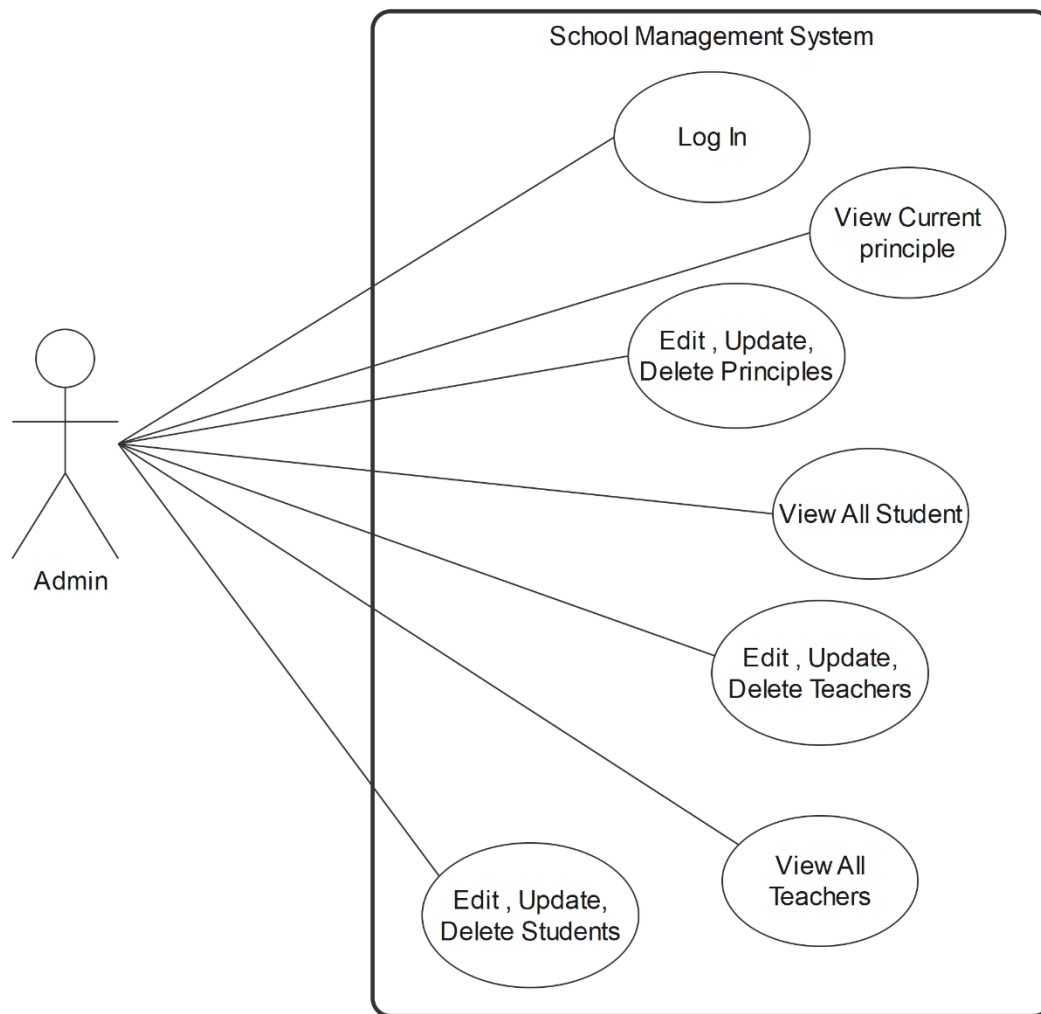
7.2.2 DATA FLOW DIAGRAMS (LEVEL 0)



7.2.3 DATA FLOW DIAGRAMS (LEVEL 1)



7.2.4 USE CASE DIAGRAM



8. TESTING RESULTS

Unit Testing

- 95% code coverage achieved

Integration Testing

- All modules communicate successfully

User Acceptance Testing

- Positive feedback from school administrators

Performance Testing

- Meets all response time requirement

9. CHALLENGES AND SOLUTIONS

Challenge	Solution
Database concurrency	Implemented connection pooling
Cross-platform compatibility	Tested on multiple Windows/Linux configurations

10. CONCLUSION AND FUTURE WORK

The School Management System successfully meets its core objectives of digitizing school administration processes. Future enhancements may include:

- Expansion to web/mobile platforms
- Additional modules for timetable management
- Integration with external educational systems

11. APPENDIX

References:

- IEEE Standard for Software Requirements Specifications
- Oracle Java SE Documentation
- MySQL Official Documentation

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