

# College Admission Management System

## Internship Project Report

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### 1. Introduction

This project is a **College Admission Management System** developed as part of my one-month internship at **Elevate Labs**. It is a Java-based console application designed to simplify and automate the management of students, courses, and their admission applications. The system helps college administration to perform CRUD operations efficiently with a user-friendly menu-driven interface.

### 2. Abstract

The application allows management of student records, course details, and admission applications. It implements key Object-Oriented Programming concepts such as encapsulation, abstraction, and modular design. The system supports adding, viewing, updating, and deleting records for students, courses, and applications. Additionally, it features importing and exporting student data in CSV format for data portability. A merit list based on student marks is also generated.

### 3. Tools Used

- **IDE:** Eclipse IDE
- **Programming Language:** Java (JDK 11+)
- **Database:** MySQL (for persistent storage)
- **Libraries:** JDBC for database connectivity
- **Utilities:** Java I/O for CSV import/export
- **Build Tool:** None (Standalone Java Application)

### 4. Steps Involved in Building the Project

#### 4.1 Requirement Analysis

- Understand the needs of college admission management: handling students, courses, and applications.
- Define the functionalities such as CRUD operations and merit list generation.

#### 4.2 Design

- Use OOP principles to design model classes: **Student**, **Course**, and **Application**.

- Design service interfaces and implementations for business logic and database operations.
- Plan for CSV data import/export functionality for bulk student data handling.

### 4.3 Implementation

- Setup MySQL database schema with foreign key constraints for data integrity.
- Implement DAO layer for database CRUD operations using JDBC.
- Develop service layer to handle business logic and validation (e.g., unique emails).
- Build a console-based menu-driven controller to interact with the user.
- Add CSVUtility class to support import/export of student data in CSV format.
- Implement error handling and input validation for robustness.

### 4.4 Testing

- Perform unit testing of services and database operations.
- Test all menu options interactively via the console.
- Verify CSV import/export functionality with sample files.

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## 5. Conclusion

This project provided hands-on experience in Java application development using core OOP concepts and JDBC connectivity. The system streamlines college admission management, reducing manual work and errors. The addition of CSV import/export enhances usability and data portability. This internship task helped me gain practical skills in software design, database integration, and file handling in Java, preparing me for real-world software projects.

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