**1. Introduction**

The **College Admission Management System** is a Java-based desktop application designed to streamline and automate the admission process for educational institutions. It enables students to register and apply for courses, and administrators to manage applications, generate merit lists, and export admission results efficiently.

**2. Abstract**

Manual admission processes often result in data inconsistencies, inefficiencies, and increased administrative workload. This system aims to solve those problems by offering a lightweight, GUI-based interface developed in Java Swing, with backend database support using MySQL. The system calculates merit based on academic performance and automates course allocation using pre-defined cut-off logic. It ensures transparency, data integrity, and ease of use for both students and administrators.

**3. Tools Used**

| **Component** | **Technology** |
| --- | --- |
| Frontend | Java Swing (GUI) |
| Backend | Java JDBC |
| Database | MySQL |
| IDE | VS Code |
| Dependency | MySQL JDBC Driver (mysql-connector-j) |
| Output Format | CSV Export (Admin Panel) |

**4. Steps Involved in Building the Project**

1. **Database Design:**
   * Created students, courses, and applications tables in MySQL.
   * Defined primary keys and foreign key relationships.
2. **GUI Development:**
   * Built separate Swing forms for:
     + Student Registration
     + Admin Panel
   * Integrated dropdowns for dynamic course selection.
3. **Backend Logic:**
   * Connected Java to MySQL using JDBC.
   * Implemented merit calculation and cut-off checks in the backend.
   * Enabled data validation and feedback messages.
4. **Admin Panel Features:**
   * View applicants and their scores.
   * Export filtered admission list to CSV format.
   * Approve or reject applications based on criteria.
5. **Testing:**
   * Verified DB connectivity, form validations, and merit calculations.
   * Handled edge cases such as duplicate entries or empty inputs.

**5. Conclusion**

The College Admission Management System successfully demonstrates how Java and MySQL can be combined to build an interactive and functional admission tool. With real-time validation, user-friendly interfaces, and admin features like CSV export, the system simplifies and secures the admission workflow. It is a scalable solution that can be extended with features like login systems, document uploads, and automated notifications.

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