



Student Department Management System

A comprehensive DBMS mini-project for academic workflow management

Introduction & Purpose

System Overview

A menu-driven database application designed to streamline student-department data management in educational institutions.

Core functionality: efficient record handling, departmental organization, and real-time data operations.



Project Objectives



Centralized Management

Single interface for all student-department operations



Efficient Retrieval

Quick access to departmental student records



Dynamic Updates

Real-time add, modify, and delete capabilities



User-Friendly Design

Intuitive menu-driven navigation system



System Workflow Architecture

View Module

Department-wise student listing



Manage Module

Add • Delete • Update operations



Exit Option

Safe program termination

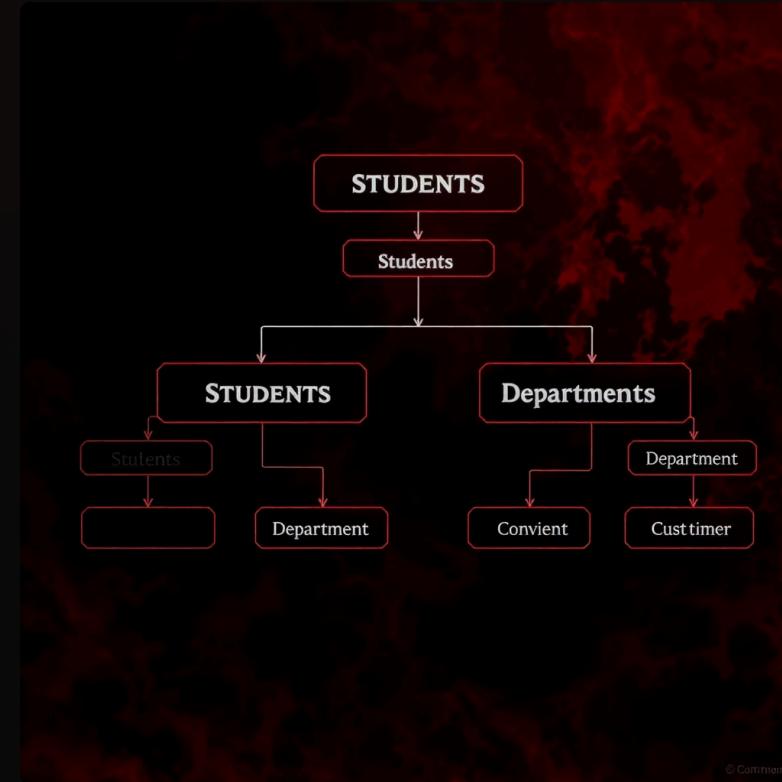


Database Design Structure

Entity Relationships

Students table linked to **Departments** table via `dept_id` foreign key

- One-to-many relationship
- Referential integrity maintained
- Normalized schema design



- ❑ **Key Constraint:** Each student belongs to exactly one department; departments can have multiple students

Lin. Fletcher	Lin. Lin.	10. 100	Lin. Lin. Lin.	Lin. Lin.	Lin. Lin.
Lin. Rylee, Camille	Lin. Lin.	10. 100	Lin. Lin. Lin.	Lin. Lin.	Lin. Lin.
Lin. Everlee	Lin. Lin.	10. 100	Lin. Lin. Lin.	Lin. Lin.	Lin. Lin.
Film. Detour, Macbeth	Detour	10. 100	Detour, Detour	Detour	Detour
Film. Billie Tiling Done	Film. Billie	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
The. Dreddell COuter	COuter	10. 100	The. The. The.	The. The.	The. The.
Film. Sailing	Sailing	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Sweet Charlie	Sweet	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Everyone's Capitalist	Everyone's	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Girl On Detour	Girl	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Old Doctor	Old	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Laff Taffy	Laff	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Husband For	Husband	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Teacher Team	Teacher	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Film. Billie Done	Billie	10. 100	Film. Film. Film.	Film. Film.	Film. Film.
Film. Film. Billie Done	Billie	10. 100	Film. Film. Film.	Film. Film.	Film. Film.

Table Structure Specifications

1

Students Table

- **roll_no** (Primary Key) – Unique identifier
- **name** (VARCHAR) – Student full name
- **dept_id** (Foreign Key) – Department reference
- **email** (VARCHAR) – Contact information

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Departments Table

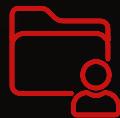
- **dept_id** (Primary Key) – Department code
- **dept_name** (VARCHAR) – Department name
- **hod_name** (VARCHAR) – Head of department
- **location** (VARCHAR) – Building/floor info

Implementation Technology Stack



Java Application Layer

Menu-driven console interface
with object-oriented design
patterns for robust functionality



SQL Database Engine

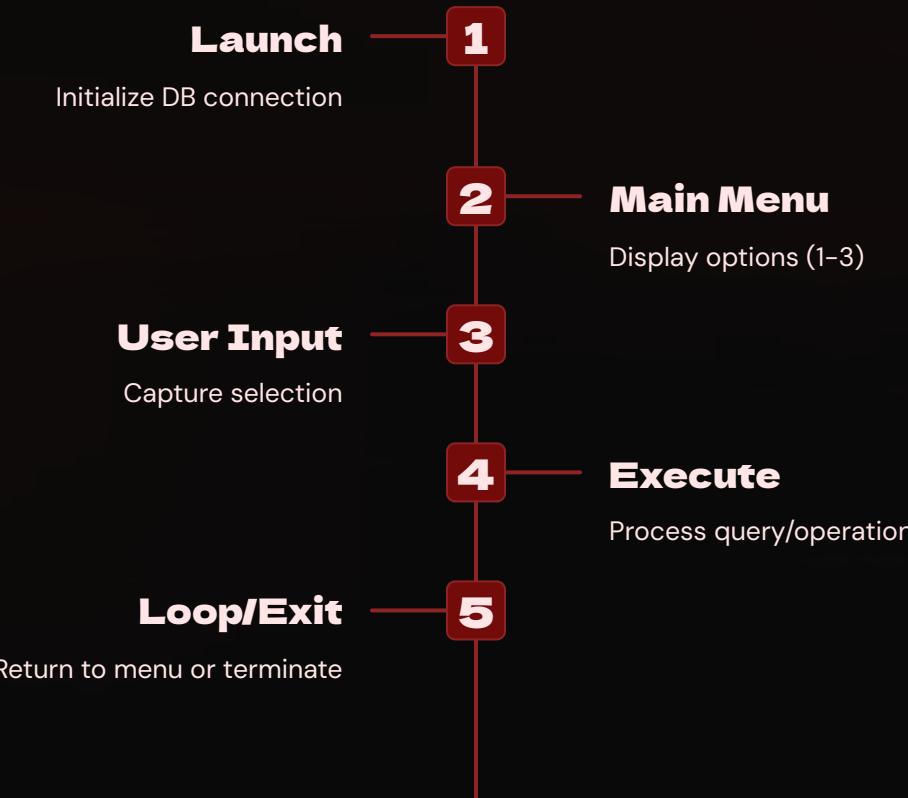
Oracle/MySQL RDBMS for
structured data storage with
ACID transaction support



JDBC Connectivity

Java Database Connectivity API
bridges application and
database seamlessly

Program Flow Mechanism



"Manage sub-menu offers Add, Delete, Update operations with validation and confirmation prompts before database commits"

Key Features & Advantages



Department-Centric Viewing

Filter and display students by academic department instantly



Complete CRUD Operations

Create, Read, Update, Delete — full data lifecycle control



Data Integrity

Foreign key constraints prevent orphaned records



Scalability Ready

Architecture supports expansion to additional modules



Future Enhancements



Advanced Search

Multi-criteria filtering: by name, roll number, email, or department



Web Interface

Browser-based GUI replacing console for better accessibility



Analytics Dashboard

Department-wise statistics, enrollment trends, visual reports



Authentication System

Role-based access control for admin, faculty, and student users

Thank You

Questions & Discussion Welcome