

# Student Database Management System

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**Abstract** - This system will contain all the students' information like their names, titular, roll number, address, phone number, mark, aggregate, graduation date, college is chosen, and many more. This system will help the college manager to perform their work quickly and efficiently. This system will help the college control the attendance and other information of students. This system will also help the college control the timetable of students and their exams. It is a valuable web-based portal for students, admin, and staff. The modern situation withinside the board is that it's miles registering more students at the school or college level per year, and hence the workload is enormous. Also, because the number of students enrolled on board has increased manifold just in the last couple of years only, all the processes on the board are manual with very little intervention from IT. As a result, the work becomes much more tedious and difficult, as well as more prone to errors. Users must have tools that simplify the processes of maintaining data and obtaining important information fast so as to get the most out of their huge and complicated datasets. Otherwise, facts can end up a liability, with the price of obtaining and handling it drastically outweighing the cost obtained.

**Key Words:** Smart fees payment, Automation, Attendance Management, Notifier, Dashboard

## 1. INTRODUCTION

### Overview of Student Database Management System

The college students aren't capable of preserve tune in their information. It becomes straightforward if all the details and updates of the data from the admin and coordinator are readily available for the students. Managing this information freehand is a very stressful job. But using a simple web portal, anyone can carry out their data-related work, which is the main aim of the Student database management system. It provides students, admin, and staff a simple web portal to manage and monitor the overall student database. Because facts is so crucial in maximum organizations, pc scientists have developed many concepts and techniques for managing data. The database control system (DBMS) is the software program that manages data in a database. The number one characteristic Of a DBMS is to offer a manner to shop and retrieve database records this is each handy and efficient. By data, we imply acknowledged

data that have documented and implicit meaning. It can be possible by providing structures and operations that allow data manipulation to facilitate the use of the data. It may be possible by using functions and procedures that provide a convenient way to access data. Data structure and database systems are fundamental tools in information management, as are queries, which allow data to be selected, processed, and updated. Query languages are based on the idea in which the data are altered with a structure In a manner that helps the procedure of selection, modification. The most important of these are database security and access control. Developers use these concepts and techniques to build database systems that can keep out intruders and deflect their attempts to interfere with the data. This article discusses database system security and access control. We begin by examining some of the basic concepts of database system security, and then we look at some of the more critical techniques for implementing database system security.

## 2. Existing System

The existing system of Student database management system is manual. Admin or staff write data for students manually. Students read the data, which is written by staff, and keep it manually. In this system, all work is done manually, so it can take more time to complete all the paperwork. Staff requires remembering in mind or verifying in papers for student information, so it is difficult for staff. The existing system does not help users get the correct information at the right time, and users cannot manage data efficiently.

### Disadvantages

- It is time-consuming.
- Helpful information is not retrieved at the right time.
- Any updates to the records through group participants or the staff cannot see immediately by the rest of the team.
- All work is done manually.

### Proposed System

There In this proposed system, we will enforce a system that can manage project cognates of all work consumed by staff and admin. Staff updates student information, views information, submits certificates and leaves, and OD requests from students. Then also, staff can permit student requests and download submitted certificates. And admin can add staff and students and also add fee details. Students give requests for Leave an OD, then submit required certificates for staff and view fee details that the admin adds. Managing and controlling the

database of students using manual or traditional processes is a very tedious job. The fundamental purpose of this challenge is to create an automatic device for dealing with all of the databases of students. A student Database management system is a system for managing, controlling, and monitoring students' information. It is a web-based helpful portal for students, admin, and staff.

## Advantages

- Student Database Management System exists as an efficient web application used extensively.
- This web application has many advantages over the traditional system.
- This web application reduces the extra time and effort required to manage and monitor the student database in colleges.

## Module Description:

- Admin Module
- Staff Module
- Student Module

### Admin Module

Admin can add new students and staff. Admin only adds fee details for each student. Admin has a username and password to enter into the system.

### Staff Module

The staff has to register using their details for login to this web application. Staff also have a username and password to enter into the system. Staff can view information on leave and OD requests from students then also staff can permit student requests. And also, view submitted certificates; download submitted certificates.

### Student Module

The student module manages the student's basic details like name, gender, date of birth, department details, contact details, etc. The student can log in to the student panel using the student module. Students give requests for Leave an OD, then submit required certificates for staff and view fee details that the admin adds.

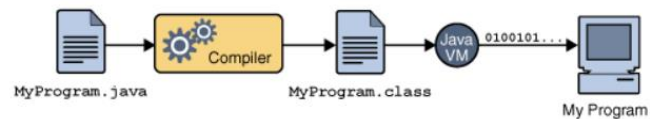
## 3. Software Description:

### Front End

#### Java (Programming Language)

In the Java programming language, all supply code is first written in undeniable textual content documents finishing with the .java extension. Those supply documents are then compiled into .elegance documents via way of means of the javac compiler. A .elegance record does now no longer include code local for your processor; it as an alternative carries bytecodes — the gadget language of the Java Virtual Machine<sup>1</sup> (Java VM). The java launcher device then runs your software with

the Java Virtual Machine instance. Because the Java VM is to be had on many exceptional working systems, the duplicate.

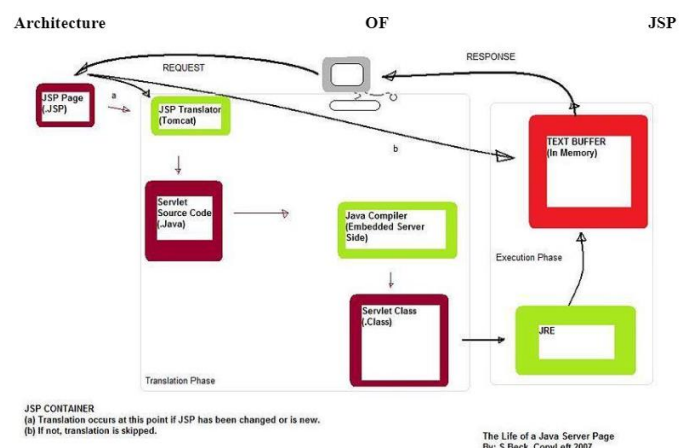


**Fig-1:** An Overview of the software development process

Magnificence documents can run on Microsoft Windows, the Solaris TM Operating System (Solaris OS), Linux, or Mac OS. Some digital machines, which include the Java HotSpot digital machine, carry out extra steps at runtime to offer your software a overall performance boost. It consists of numerous obligations which include locating overall performance bottlenecks and recompiling (to local code) often used sections of code. Through the Java VM, the identical software can run on a couple of platforms.

### JSP - Front End

JavaServer Pages (JSP) is a Java era that permits software program builders to dynamically generate HTML, XML, or different files in reaction to a Web customer request. The era permits Java code and particular predefined movements to be embedded into static content. The JSP syntax provides extra XML-like tags, referred to as JSP movements, for use to invoke integrated functionality. Additionally, the era permits for growing JSP tag libraries that act as extensions to the usual HTML or XML tags. Tag libraries offer a platform-unbiased manner of extending the abilities of a Web server. JSPs are compiled into Java Servlets with the aid of using a JSP compiler. A JSP compiler may also generate a servlet in Java code compiled with the aid of using the Java compiler, or it could generate byte code for the servlet directly. JSPs also can be interpreted on-the-fly decreasing the time taken to reload changes. JavaServer Pages (JSP) era presents a simplified, rapid manner to create dynamic net content. JSP era allows fast improvement of net-primarily based totally applications which are server- and platform-unbiased.



**Fig-2:** Figure

### My Sql - Back End

Most aspects of MySQL usage are covered in the MySQL Reference Manual. Both MySQL Community Server and MySQL Enterprise Server are covered in this manual. If the manual does not provide the answer(s), you can purchase MySQL Enterprise, which includes full support and services.

MySQL Enterprise also offers a large knowledge base library with hundreds of technical articles that address common database issues including performance, replication, and migration. MySQL AB creates and maintains a line of high-performance, low-cost database products. 'MySQL Enterprise,' a comprehensive combination of production-tested software, proactive monitoring tools, and premium support services, is the company's flagship offering. MySQL is the maximum broadly used open-supply database software on the planet. MySQL is utilized by among the world's biggest and fastest-developing companies.

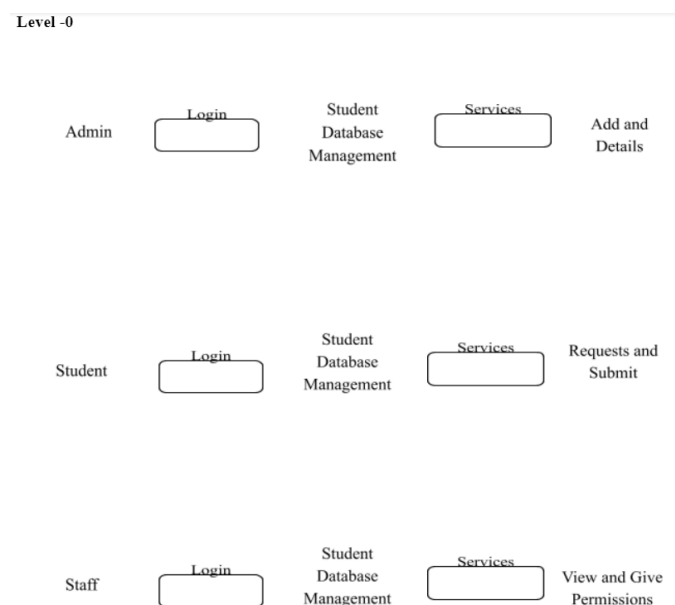
## JDBC

Java Database Connectivity (JDBC) is a programming framework for Java developers writing programs that access information stored in databases, spreadsheets, and flat files. JDBC is commonly used to connect a user program to a "behind the scenes" database, regardless of the database management software used to control the database. In this way, JDBC is cross-platform. This article will provide an introduction and sample code that demonstrates database access from Java programs that use the classes of the JDBC API, which is available for free download from Sun's site. A database that another program links to is called a data source. Many data sources, including products produced by Microsoft and Oracle, already use a standard called Open Database Connectivity (ODBC). Many legacy C and Perl programs use ODBC to connect to data sources. ODBC consolidated much of the commonality between database management systems. JDBC builds on this feature and increases the level of abstraction. JDBC-ODBC bridges have been created to allow Java programs to connect to ODBC-enabled database software.

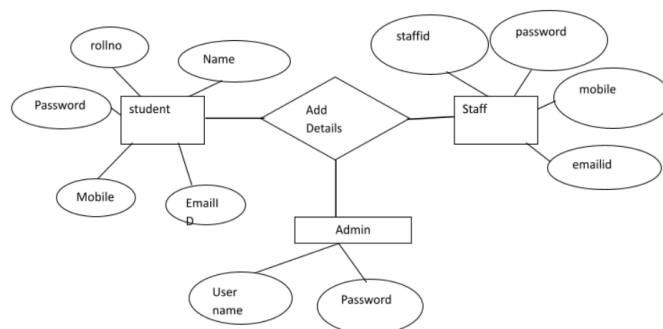
## 4. System Design

### System Flow Diagram

**Fig -1: Data Flow Diagram**



**Fig-2: ER Diagram**



### Table Design:

**Table Name: Student**

Primary key = rollno

Field Name	Data type	Size	Description
Name	Varchar	50	Name
rollno	Varchar	50	rollno
password	Varchar	50	Password
Mobile no	Varchar	50	User mobile number
Email id	Varchar	50	User email id

**Table Name: Staff**

Primary key = staffid

Field Name	Data type	Size	Description
Staff id	Varchar	50	Id for staff
password	Varchar	50	Password for staff
mobile	Varchar	50	Mobile of staff
emailid	Varchar	50	Email id of staff

**Table Name: Admin**

Field Name	Data type	Size	Description
username	Varchar	50	username
password	Varchar	50	password

**Table Name: Fees**

Primary key = id

Field Name	Data type	Size	Description
id	Varchar	50	student id
name	Varchar	50	student name
fees	Varchar	50	Fees

### Input Design:

The hyperlink among the statistics gadget and the consumer is the enter design. It entails creating data preparation specifications and procedures, which are required to convert transaction data into a format suitable for data entry processing. Inspecting the

pc to study information from a written or revealed document, or having customers kind the information at once into the system, are approaches to get information into the pc for processing.

The enter layout specializes in controlling the quantity of enter required, controlling errors, heading off delay, heading off more steps, and preserving the technique simple. The gadget desires the information concerning the asset items, depreciation rates, asset transfer, and bodily verification for diverse validation, checking, calculation, and file generation. The mistakes elevating technique is likewise protected withinside the software, which facilitates boost the mistake message at the same time as the incorrect enter access is done. So in the enter layout, the subsequent matters are considered

### Output Designs:

Computer output is the maximum crucial and direct statistics supply for the person. Output layout is a method that includes designing important outputs withinside the shape of news which might be despatched to the customers in line with the requirements. Efficient, intelligible output layout have to enhance the system's courting with the person and assist make choices. Since the reviews are directly referred with the aid of using the control to make choices conclusions, they should be designed with nearly care, and the info withinside the reviews should be simple, descriptive, and clean to the person. So even as designing output, the subsequent matters are to be considered.

.Determine what facts to present. Arrange the presentation of facts in a suitable format. Decide a way to distribute the output to supposed receipts. Depending on the character and destiny use of output required, they may be displayed at the reveal for instant want and for acquiring the hardcopy. The alternatives for the output reviews are given withinside the appendix.

### 5.Conclusion:

The attendance module is the crucial part of the application. It stores all the students in a list with their corresponding ward phone numbers. Student Project Management System is an efficient application that would be used powerfully. This application has many advantages over the traditional system. These blessings are centralized data, updated reputations, reporting, Email notification, ease of use, backups, etc. This application reduces the extra time and effort required to manage and monitor college student data. The portal is supplied with an admin login to update the student and faculty information from time to time. The portal eliminates the paperwork, leading to loss of data and data redundancy.

The portal permits its customers to access, control and update their records successfully and efficiently. It lets in for a centralized facility that may effortlessly be changed and speedily shared amongst a couple of customers.

Having a net-primarily based totally front stop gets rid of the requirement of customers' requirement to recognize and use a database at once and permits customers to attach from everywhere with a web connection and a number one net browser. It additionally permits the opportunity of queries to acquire facts for numerous surveys. Due to the numerous customers studying and enhancing scholar statistics withinside the department, it's miles a great use for the sort of system.

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