



# JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

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## STUDENT MANAGEMENT SYSTEM

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### ABSTRACT:

The Student Management System is involved in maintaining the details of the attendance of students. Along with this, the system can also perform various functionalities on enrolled students as well as teachers. Generated student attendance is based on classroom attendance. A daily attendance base will be maintained and specified users will be provided with a personalized username and password for proper observation and analysis of the attendance sheet along with related informations.

Using this given system we can easily create a number of new batches with respect to different subjects, class timing, semester name, etc. Apart from this, we are able to add, remove and update students and teachers with respect to different batches, subjects, and semester names.

We can generate normal as well as customized (with a given set of parameters) student attendance reports with relevant informations, in whichever format we like (PDF, Excel, XPS writer).

This system thus greatly reduces the complexity, time taken and manual efforts required to generate as well as maintain normal attendance reports and perform related operations on students, teachers, etc. by using one centralized system for all operations.

**KEYWORDS:** Attendance report generation and download, Management of students, Management of teachers, Batch management, Course Mapping, Updation of existing records

### 1. INTRODUCTION

#### 1.1 Definition: -

The student management system is software designed for daily student attendance at schools, universities, and institutions and many related activities. An easy access for attendance informations for specific students in specific classes and perform various operations on students, teachers, or batches being introduced. The informations is sorted by the respective incharges provided by the teacher for a particular class. This system is also useful for assessing student eligibility criteria. [5]

#### 1.2 Goal:

The purpose of developing this student management system is to computerize the traditional attendance format and be able to perform various operations. Another easy and very helpful purpose of developing this application is to automatically generate a report as per customizations at the end of a session or even in between the sessions.

#### 1.3 Scope:

The scope of the project is a system with software installed, which means the project is being developed as a desktop application, Works with specific institutions. However, you can modify this project later and run it online. [5]

### 2. OVERALL DESCRIPTION

#### 2.1 Product Perspective:

This product Student Management System is a stand-alone product and is independent of other products and systems. This product automates various tasks related to the processing of student data, better organization of informations and data stored, optimized performance, helping various universities ensure the easy and smooth functioning of these processes. [5]

#### 2.2 Product Features:

This system has two access modes.

##### (i) Administrators

Administrators have the access to manage student details and add new students, assign registration numbers to all students, assign courses to each student, and he has more to do. They have authority to update profile to assist teachers and students.

##### (ii) User

There are two users:

- Student: Student logs in to view their profile, attendance details, and more.
- Teacher: Add students, view student details and record student attendance.

### 3. SYSTEM ANALYSIS

In general sense a system analysis can be defined as distributing the entire process and finding its properties, features, etc. It defines the design as creating a preliminary sketch to represent the pattern or outline of the plan. It planned and carried out primarily with artistic designs or sophisticated walls. The system analysis and designing can be characterized as a collection of techniques and processes. Community of interest, culture, intellectual orientation. The various tasks of system analysis include:

- Understanding the java application.
- The overall plan.
- Scheduling according to plan.
- All the solutions that have been developed.
- Conducting a trade related survey.
- Conducting cost related benefit analysis.

This system manages the analysis of reports and develops manual input of student attendance. First, design the student registration, staff assignment, and timetable assignment forms. This project helps department attendance systems calculate exam eligibility percentages and reports. [1]

### 4. REQUIREMENT SPECIFICATIONS

#### 4.1 Hardware Requirements:

Memory: 2,4 GB

Hard Disk: 500 GB

Processor: Intel Core i3, i5

#### 4.2 Software Requirements:

Operating System: Windows 10,11

Front Design: Visual Studio 2021, Eclipse IDE

Frontend Language: Java

Backend Language: SQL (phpMyAdmin)

#### 4.3 Features Requirements:

The student management system includes the following features:

You can easily track student attendance informations.

Perform various operations (add, update, remove) on Student, Teacher, Batch sections

Quickly create an attendance list as per cutomization.

#### 4.4 Reliability

If the university LAN goes down or the server goes down due to a hardware or software failure, the software will not be able to connect to the central database. [8]

#### 4.5 Availability

The application is only available to authorized users of the university. The teachers will be able to mark the student's attendance and display all the enrolled courses, whereas admin will be able to add and update student records and perform operations on various parameters.

#### 4.6 Portability:

The software is a Windows-based application, written in Java and SQL/phpMyAdmin), so it is platform-independent and operating system independent.

### 5. DESIGN

#### 5.1 Input design:

The input design is part of the overall system design and requires special attention. The input data design aims to make data entry simple and error-free. The input form is designed using the controls available in the Java framework. Input design is the process of converting user input into a computer-based format. System users interacting through the workstation must be able to instruct the system to accept inputs in order to generate a report. [5]

#### 5.2 Output Design:

Output Design of the given application "Student Management System" generally refers to the results and informations that the system produces for many end users. Output is the main reason for developing a system and is the basis for assessing the usefulness of an application. The output needs to be attractive, convenient, and informative.

## USE CASE DIAGRAM:

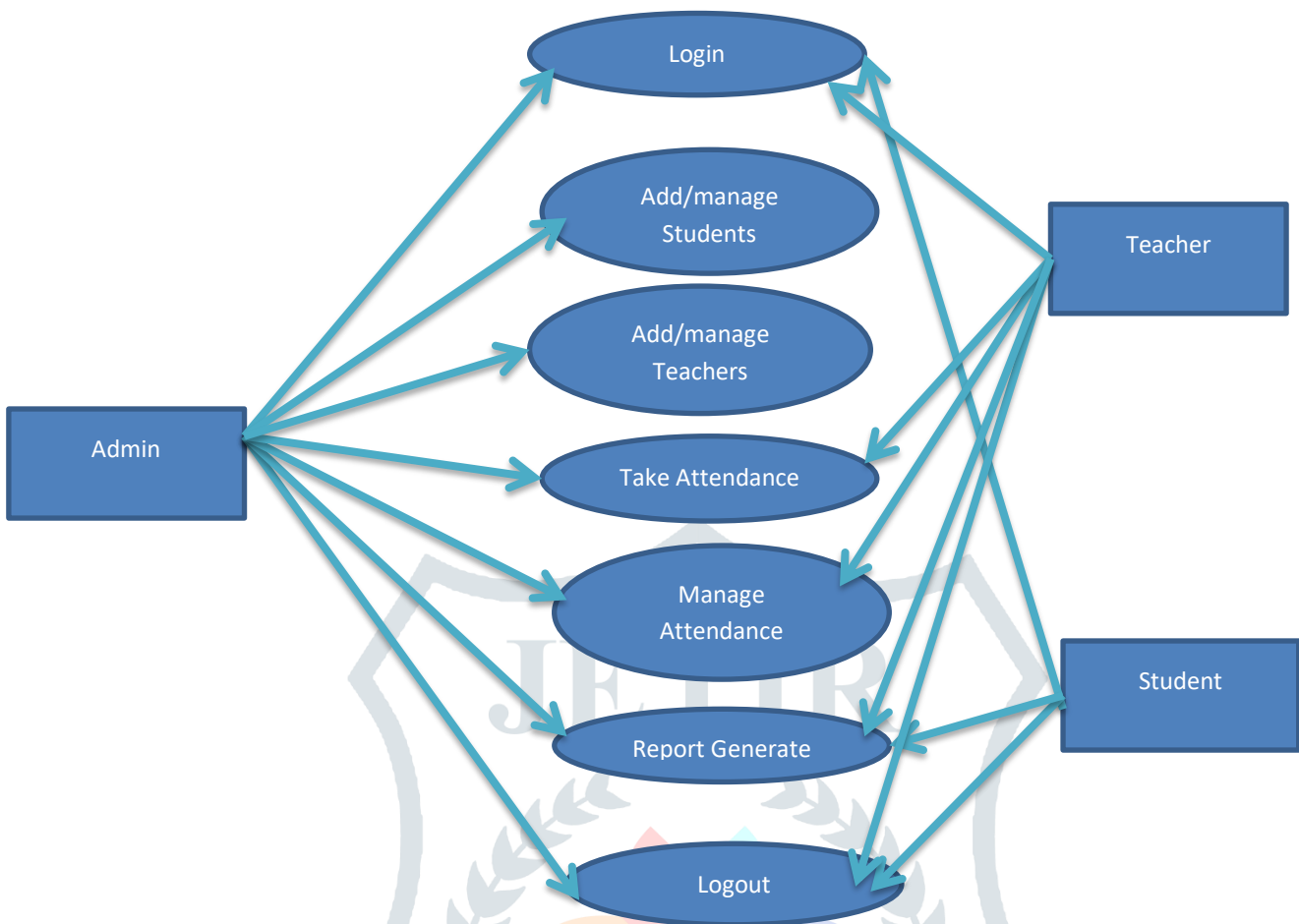


fig.1: user case diagram

**6. SOFTWARE DESCRIPTION****6.1 Visual Studio 2021/Eclipse IDE:**

Microsoft Visual Studio (VS Studio) is a Microsoft integrated development environment, commonly called IDE. It can be used by console and graphical users along with Windows forms, applications, websites, web applications, and web services in both native and managed code for all platforms supported by Microsoft Windows, Windows Mobile, and Windows CE.

Eclipse IDE acts as a code editing area form designer, code validator, compiler, and library browser for software development projects. It supports languages through language services. This allows code editors and debuggers to support any programming language (to varying degrees) as long as language-specific services are built. [2]

**6.2 SQL (phpMyAdmin):****6.2.1 Introduction**

SQL (phpMyAdmin) is a relational database management system. Breaking the RDBMS makes it look like RDBMS.

R in RDBMS stands for relational. DB is an abbreviation for database and is an information store. All of the information and data in the database is organized into multiple tables, where each table is organized into rows and columns. Each and every row in any specific table is called a record. A record can contain multiple pieces of information (called fields) and each column in the table is called a field. [3]

**6.2.2 Features:**

A lot of clients can easily connect to the server at the same time. The client can use multiple databases at the same time. We can access SQL using various interfaces such as command line clients and web browsers. [4]

7. DATABASE TABLES

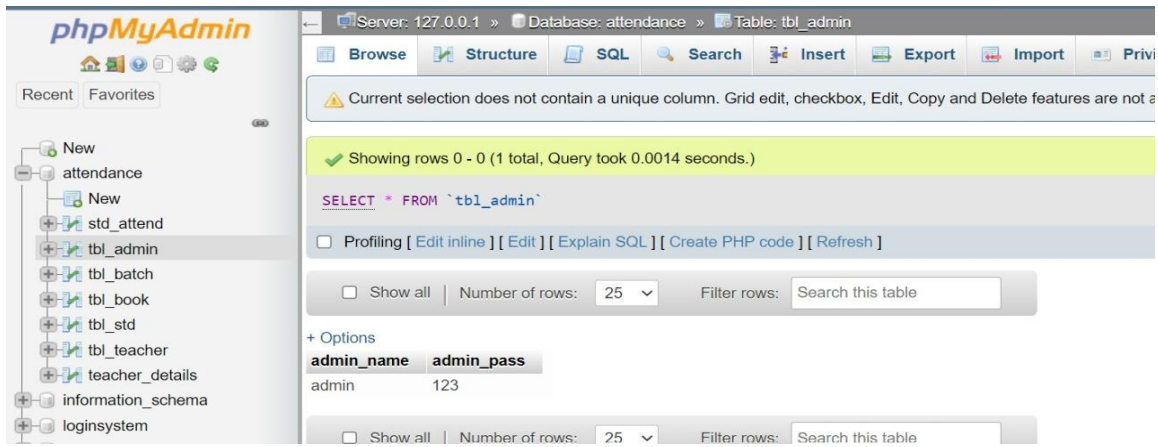


fig.2: admin table

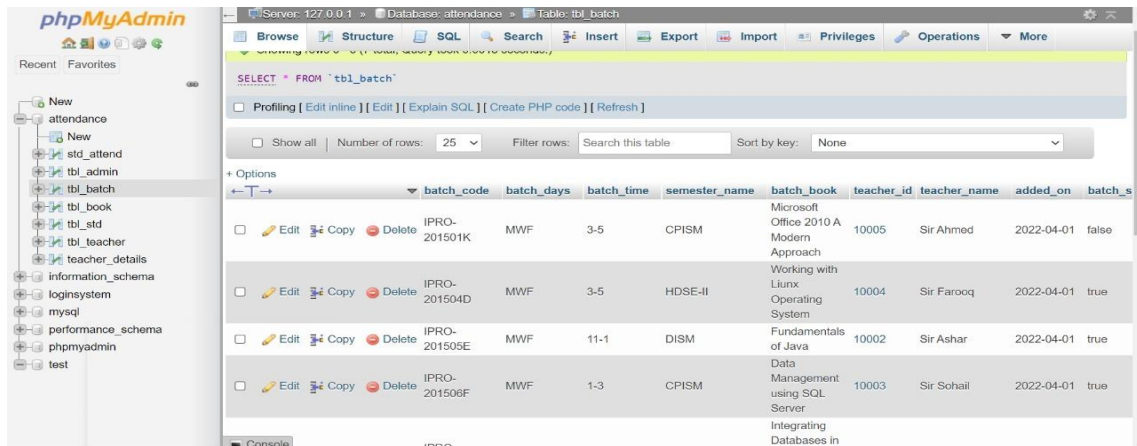


fig.3: batch table

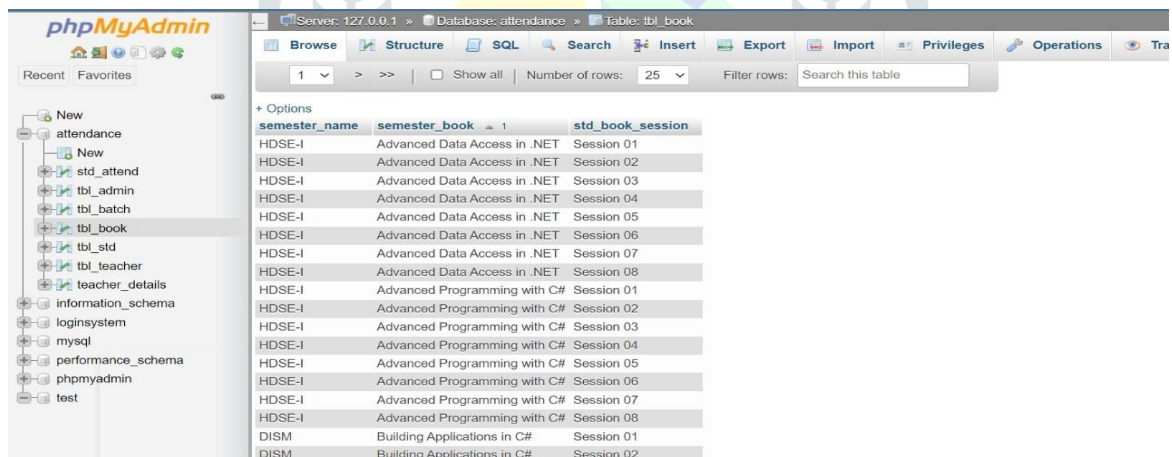


fig.4: book table

|                          | date_added | std_id | std_name | std_batch_code | semester_name | std_days | std_time | std_book             | teacher_name |
|--------------------------|------------|--------|----------|----------------|---------------|----------|----------|----------------------|--------------|
| <input type="checkbox"/> | 2022-04-01 | 1111   | Asad     | IPRO-201602C   | CPISM         | TTS      | 9-11     | HTML5 - NextGen Web  | Sir Ali      |
| <input type="checkbox"/> | 2022-04-01 | 1112   | Umer     | IPRO-201602C   | CPISM         | TTS      | 9-11     | HTML5 - NextGen Web  | Sir Ali      |
| <input type="checkbox"/> | 2022-04-01 | 1113   | Zaid     | IPRO-201602C   | CPISM         | TTS      | 9-11     | HTML5 - NextGen Web  | Sir Ali      |
| <input type="checkbox"/> | 2022-04-01 | 1114   | Ahemd    | IPRO-201602C   | CPISM         | TTS      | 9-11     | HTML5 - NextGen Web  | Sir Ali      |
| <input type="checkbox"/> | 2022-04-01 | 1115   | Sara     | IPRO-201602C   | CPISM         | TTS      | 9-11     | HTML5 - NextGen Web  | Sir Ali      |
| <input type="checkbox"/> | 2022-04-01 | 1116   | Habib    | IPRO-201505E   | DISM          | MWF      | 11-1     | Fundamentals of Java | Sir Ashar    |
| <input type="checkbox"/> | 2022-04-01 | 1117   | Hamid    | IPRO-201505E   | DISM          | MWF      | 11-1     | Fundamentals of Java | Sir Ashar    |
| <input type="checkbox"/> | 2022-04-01 | 1118   | Ibrahim  | IPRO-201505E   | DISM          | MWF      | 11-1     | Fundamentals of Java | Sir Ashar    |

fig.5: student table

|                          | teacher_id | user_name | teacher_name | teacher_pass | teacher_status | added_on   |
|--------------------------|------------|-----------|--------------|--------------|----------------|------------|
| <input type="checkbox"/> | 10001      | ali       | Sir Ali      | ali          | false          | 2022-04-01 |
| <input type="checkbox"/> | 10002      | ashar     | Sir Ashar    | ash          | true           | 2022-04-01 |
| <input type="checkbox"/> | 10003      | sohail    | Sir Sohail   | soh          | true           | 2022-04-01 |
| <input type="checkbox"/> | 10004      | farooq    | Sir Farooq   | far          | true           | 2022-04-01 |
| <input type="checkbox"/> | 10005      | ahmed     | Sir Ahmed    | ahm          | false          | 2015-01-01 |

fig.6: teacher table

|  | name   | surname | age | email            | teacher_id | teacher_pass |
|--|--------|---------|-----|------------------|------------|--------------|
|  | Ali    | Khan    | 25  | ali@gmail.com    | 10001      | ali          |
|  | Ashar  | Hussain | 25  | ashar@gmail.com  | 10002      | ash          |
|  | Syed   | Sohail  | 25  | sohail@gmail.com | 10003      | soh          |
|  | Farooq | Shibli  | 40  | farooq@gmail.com | 10004      | far          |
|  | Ahemd  | Shah    | 45  | ashar@gmail.com  | 10005      | ahm          |

fig.7: teacher details table

| attend_date | std_id | std_name | std_batch_code | std_book                                              | std_book_session | std_status |
|-------------|--------|----------|----------------|-------------------------------------------------------|------------------|------------|
| 2016-01-02  | 1122   | Basma    | I PRO-201601B  | Working with Cloud Computing                          | Session 01       | Present    |
| 2016-01-05  | 1122   | Basma    | I PRO-201601B  | Working with Cloud Computing                          | Session 03       | Absent     |
| 2016-01-07  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 01       | Present    |
| 2016-01-09  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 03       | Present    |
| 2016-01-12  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 05       | Present    |
| 2016-01-14  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 07       | Absent     |
| 2016-01-16  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 09       | Present    |
| 2016-01-19  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 11       | Absent     |
| 2016-01-21  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 13       | Absent     |
| 2016-01-23  | 1122   | Basma    | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 14       | Absent     |
| 2016-01-26  | 1122   | Basma    | I PRO-201601B  | Essential Features of .NET Framework                  | Session 01       | Present    |
| 2016-01-28  | 1122   | Basma    | I PRO-201601B  | Essential Features of .NET Framework                  | Session 02       | Absent     |
| 2016-01-30  | 1122   | Basma    | I PRO-201601B  | Essential Features of .NET Framework                  | Session 04       | Absent     |
| 2016-01-02  | 1123   | Batool   | I PRO-201601B  | Working with Cloud Computing                          | Session 01       | Absent     |
| 2016-01-05  | 1123   | Batool   | I PRO-201601B  | Working with Cloud Computing                          | Session 03       | Absent     |
| 2016-01-07  | 1123   | Batool   | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 01       | Absent     |
| 2016-01-09  | 1123   | Batool   | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 03       | Absent     |
| 2016-01-12  | 1123   | Batool   | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 05       | Present    |
| 2016-01-12  | 1123   | Batool   | I PRO-201601B  | Integrating Databases in Web Application using ADO... | Session 07       | Absent     |

fig 8: student attendance table

## 8. PROJECT DESCRIPTION

### 8.1 Problem Definition:

This system was developed with aims to reduce manual labors and avoid redundant data. You cannot generate efficient reports by manually maintaining attendance. The system can generate efficient weekly integrated reports based on attendance. Retaining attendees has for a long time been a difficult task for managers and staff, as attendees are registered. Instead, the software can be stored for long periods of time and informations can be obtained as needed. [8]

### 8.2 Project Overview:

The student management system basically has two main modules to function properly. Management Module has the authority to create new entries for faculty and student details. Users have the right to attend daily and create reports. Attendance reports can be generated based on student informations, dates, and classes. [8]

## 9. SYSTEM TESTING

After the source code is generated, you need to test the software and find (and fix) as many errors as possible before delivering it to your customers. Our goal is to design a set of cases that are likely to find bugs. Software techniques are used to reveal the error. These techniques provide a systematic guide for testing the internal logic of software components and the input and output domains of a program to design tests that reveal errors in program functionality, behavior, and performance. The internal program logic is executed using the white-box test case design technique. Software requirements are performed using the block box test case design technique. In both cases, the goal is to find the maximum number of errors with as little effort and time as possible. [6]

## 10. SYSTEM MAINTAINANCE

Software Maintenance does a lot of things other than just finding bugs. You should be prepared for any changes in the environment that might affect one's computer or other parts of his/her computerized system. Such activities are commonly referred to as maintenance. This includes both improving system functionality and eliminating failures that occur when operating a new system. This may include the ongoing involvement of most of the resources of the computer department. The most crucial task of the application or existing system is to change the environment. [7]

### 11. SNAPSHOTS

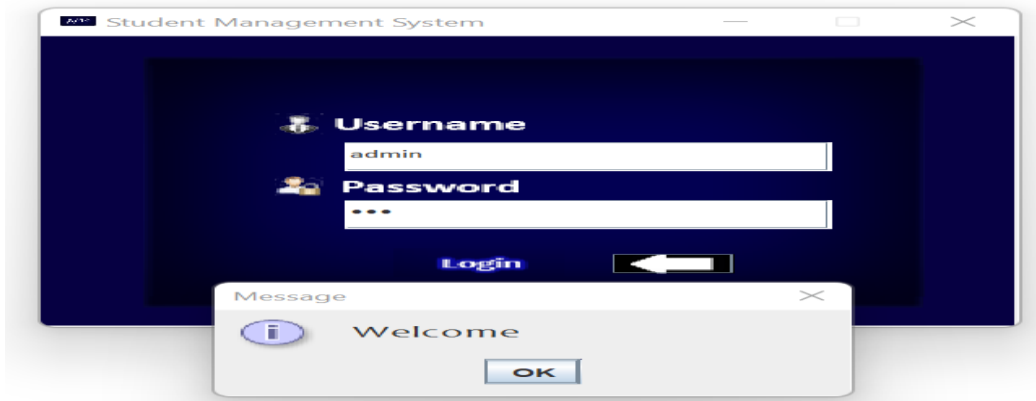


fig.9: login page

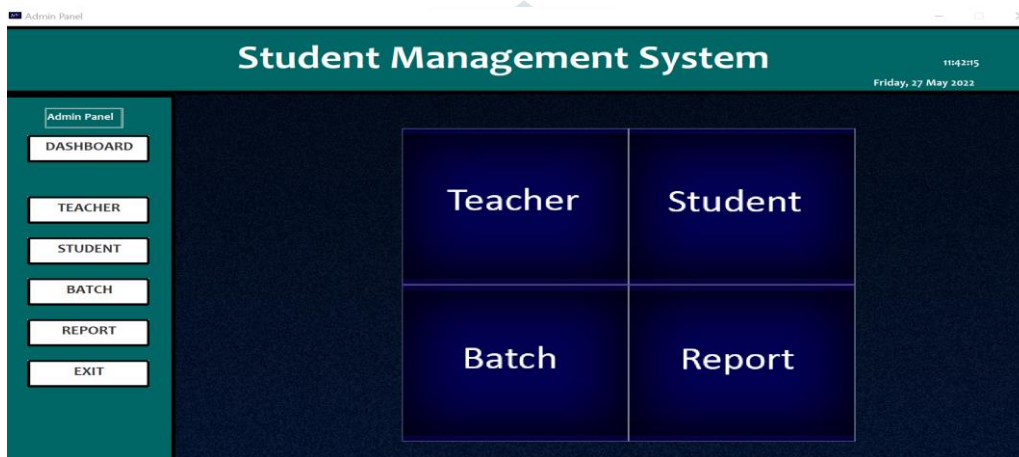


fig.10: dashboard

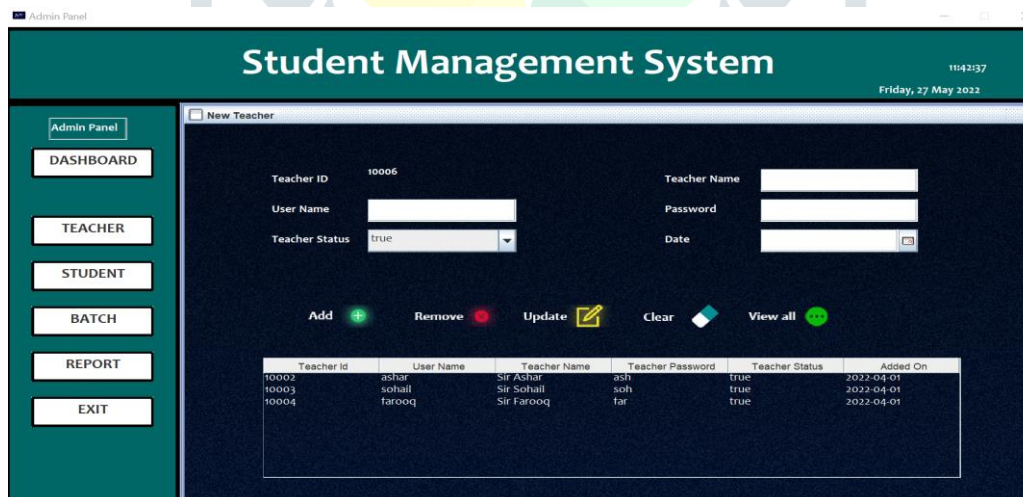


fig.11: add new teacher and related functionality

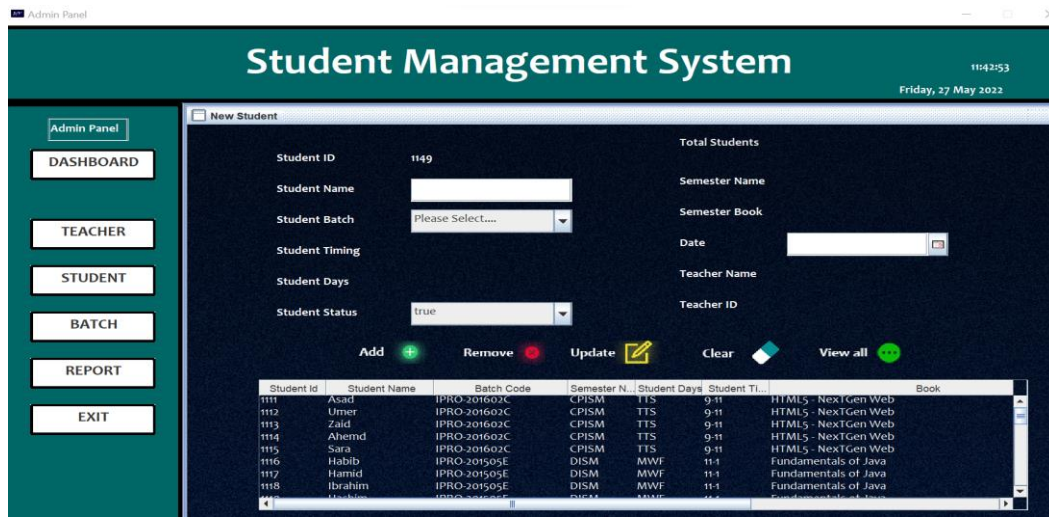


fig.12: add new student and related functionality

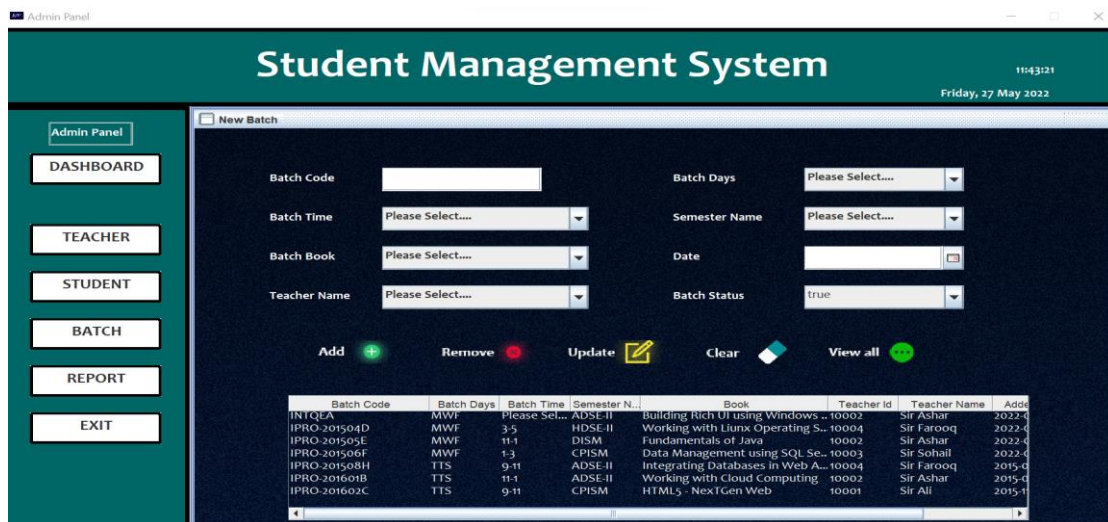


fig.13: add new batch and related functionality

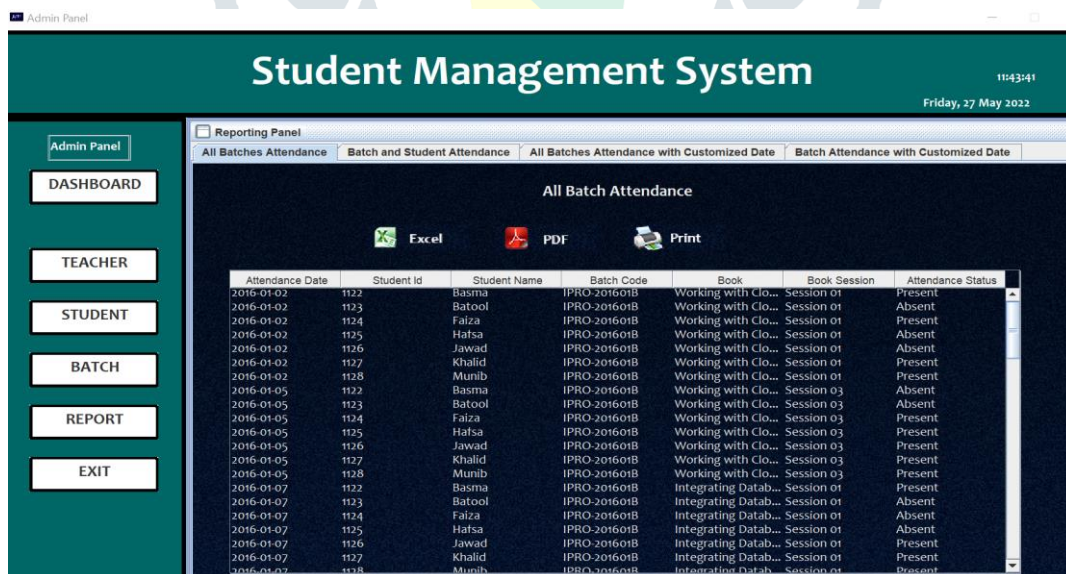


fig.14: report generation and related functionalities



## 12. CONCLUSION

### 12.1 Conclusion:

The student management system is developed using languages like java and fully serves the purpose of the developed system. The system is in a stable state and all errors have been eliminated. The system is operated with high level of efficiency, and all teachers and users associated with the system understand its benefits. It needs to be resolved as a requirement specification.

### 12.2 Scope of future development:

The project has a very large future scope. The project can be implemented on the intranet in future. The project is very much flexible in terms of expansion that it can be updated in the near future if needed. With the proposed Database Space Manager software ready and fully functional, customers have the ability to manage and perform multiple tasks in a much better, more accurate as well as error-free way.

## 13. REFERENCE

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