PROJECT REPORT

ON

ATTENDANCE MANAGER

A report submitted in partial fulfilment of the requirement for the award of

the degree of

BACHELOR OF TECHNOLOGY

In

INFORMATION TECHNOLOGY

At

Submitted By:

Amanjeet Singh -1401051085

Deepanshu Joshi -1401051077

Ashish Singh Panwar -1401051034

Under the guidance of:

Dr. Narendra Kumar

Assistant Professor

Department of Information Technology

DIT UNIVERSITY, DEHRADUN

(State Private University through State Legislature Act No. 10 of 2013 of Uttarakhand and approved by UGC)

Mussoorie Diversion Road, Dehradun, Uttarakhand - 248009, India.

2017-2018

CERTIFICATE

This is to certify that the project entitled "**ATTENDANCE MANAGER**" in partial fulfilment of the requirement for the award of the **Degree B.Tech** in **Information Technology**, submitted to **DIT University**, Dehradun, Uttrakhand, India is an authentic record of bona fide research work carried out by **Mr Amanjeet Singh** Roll no 1401051085 under my supervision and guidance.

Dr Narendra Kumar	**Dr Rama Sushil**
Asst. Professor	**Head of Department**
Department of IT	**Department of IT**
DIT University	**DIT University**

CERTIFICATE

This is to certify that the project entitled "**ATTENDANCE MANAGER**" in partial fulfilment of the requirement for the award of the **Degree B.Tech** in **Information Technology**, submitted to **DIT University**, Dehradun, Uttrakhand, India is an authentic record of bona fide research work carried out by **Mr Deepanshu Joshi** Roll no 1401051077 under my supervision and guidance.

Dr Narendra Kumar	**Dr Rama Sushil**
Asst. Professor	**Head of Department**
Department of IT	**Department of IT**
DIT University	**DIT University**

CERTIFICATE

This is to certify that the project entitled "**ATTENDANCE MANAGER**" in partial fulfilment of the requirement for the award of the **Degree B.Tech** in **Information Technology**, submitted to **DIT University**, Dehradun, Uttrakhand, India is an authentic record of bona fide research work carried out by **Mr Ashish Singh Panwar** Roll no 1401051034 under my supervision and guidance.

Dr Narendra Kumar	**Dr Rama Sushil**
Asst. Professor	**Head of Department**
Department of IT	**Department of IT**
DIT University	**DIT University**

CANDIDATES DECLARATION

We hereby certify that the work, which is being presented in the report/ project report, entitled **Attendance Manager**, in partial fulfilment of the requirement for the award of the Degree of **Bachelor of Technology** and submitted to the institution is an authentic record of our own work carried out during the period ***from Jan'2018*** to ***May'2018*** under the supervision of **Dr. Narendra Kumar.**

Date: **Signature of the Candidates**

This is to certify that the above made statement by the candidate is correct to the best of my knowledge.

Date: **Signature of Supervisor**

ACKNOWLEDGEMENT

Attendance Management System is a user-friendly, flexible and full featured student attendance management tool which allows controlling students' attendance by automating timekeeping and attendance tracking. It captures data from Time and Attendance Terminals, and simultaneously allows optional PC entry. It automatically calculates attendance percentage, total classes attended and unattended classes for a particular student. It enables performing some key administrative functions such as tracking absences, getting debar list, etc.

I express our sincere thanks and gratitude to **HOD IT, Dr. Rama Sushil** for allowing me to take up this project and for providing me the opportunity and infrastructure to work.

I would also like to thank **Dr. Narendra Kumar**, for his technical guidance and support given for carrying out the project and for helping me in each and every manner and their continuous guidance for the project.

Finally I would thank my parents for imparting me moral support and motivation during this project.

Thanking You,

Amanjeet Singh 1401051085

Deepanshu Joshi 1401051077

Ashish Singh Panwar 1401051034

ABSTRACT

The system maintains an analytical record of students, in accordance to the minimum attendance required by the faculty, for allowing student to sit for the examination. The front end of the project is being made using Netbeans IDE 8.2, in Java language; whereas the backend is being created and managed using MySQL 5.6 and WAMP Server. The project is being made by keeping in mind the problems faced while keeping attendance records on paper, or on spreadsheets, where the authority or faculty has to use formulae and decide which student matches the criteria and which student doesn't.

All the tables are in a hierarchy. There is a view which holds the data of every student and their attendance table for the rows. We can only insert new data if we are logged in as a Faculty. But if we are logged in a student then we can only view our attendance. The front end is designed using Eclipse and the back end is built on MySQL and the connectivity between the two is done using JDBC Drivers.

TABLE OF CONTENT

LIST OF FIGURES

CHAPTER 1- ATTENDANCE MANAGEMENT SYSTEM

1.1. INTRODUCTION

Attendance Management System is a user-friendly, flexible and full featured student attendance management tool which allows controlling students' attendance by automating timekeeping and attendance tracking. It captures data from Time and Attendance Terminals, and simultaneously allows optional PC entry.

It automatically calculates attendance percentage, total classes attended and unattended classes for a particular student.

It enables performing some key administrative functions such as tracking absences, getting debar list, etc.

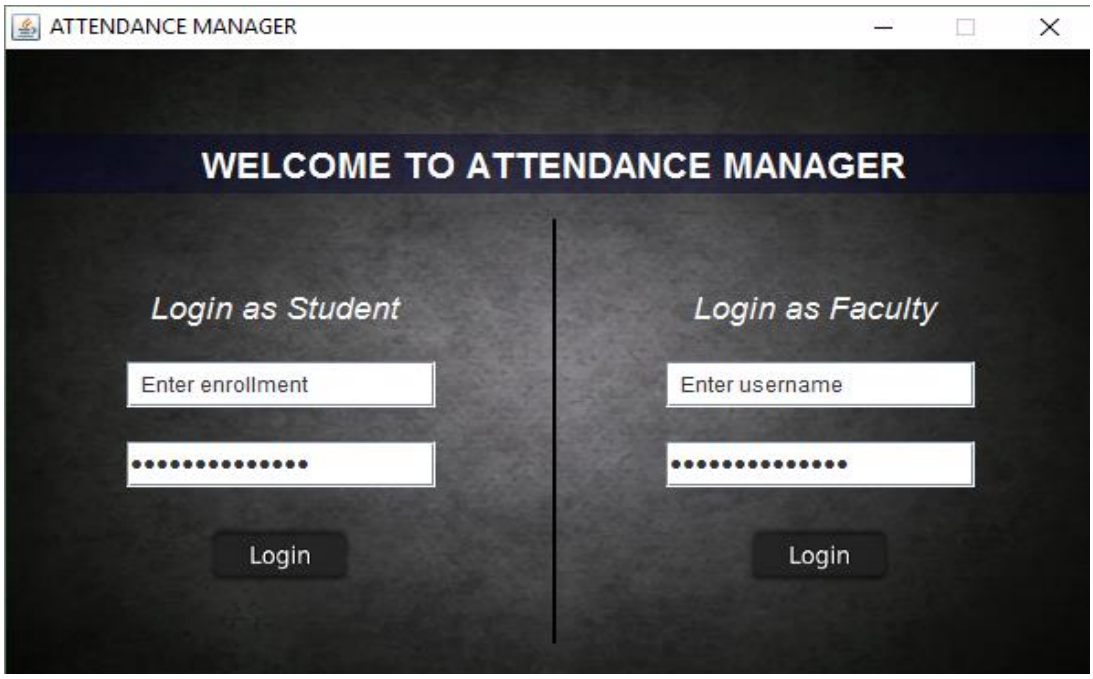

Figure-1 Homepage of attendance manager.

The system maintains an analytical record of students, in accordance to the minimum attendance required by the faculty, for allowing student to sit for the examination.

The front end of the project is being made using Netbeans IDE 8.2, in Java language;

whereas the backend is being created and managed using MySQL 5.6 and WAMP Server.

The project helps the teachers upload their records to the system, and accordingly keeps track of each individual, and his attendance in classes. Even the students can access their records and maintain their attendance as per the criteria suggests.

It solves a big problem of teachers and saves time as well, which can be utilized in helping students in their out of box endeavours.

The project uses colour coding and data assessment tools to manage the attendance records.

The attendance management software enables the college and school students to improve lecturer's performance and productivity. The faculty does not have to expend their time in manual computation to obtain the student attendance percentage.

This system can help lecturers to take attendance easily. Manipulation and management of attendance data has to be taken care of, by the system so that the manual intervention can be removed.

CHAPTER 2- OVERVIEW

2.1. WHY DATA BASE?

Record keeping is an essential part of every industry, it allows us to manipulate the historic data and use that data to make decisions. Attendance is an important part of school and colleges it allows the faculty to know which student is coming regular to classes and also helps in creating good students. It is also useful for the administrative authority to check for the late comers to work. Database tools like MySQL and Oracle are available for record keeping purposes, which are easily adaptable by nearly every industry. These records can be accessed later, and analysed for further calculations, as needed by the user.

2.1.1 Advantages of database

- Single validated database throughout college/school.
- Current dataflow into Web based access.
- Compliance of academic standards & best practices.
- Providing fast access of quality data to users.

2.2 ATTENDANCE MANAGER REPORT

2.2.1 SCOPE OF THE PROJECT

The Scope of proposed system is to develop a system for attendance marking and viewing using database management system which can be accessed by the users through LAN/WAN. Respective departments of organization can access the data easily from this proposed system.

The present system handles data related to:

1) Attendance marking (For faculties).
2) Making calculations to check for debarred.
3) Viewing of attendance. (For students).
4) Subject-wise debarred list.

2.2.2 DEVELOPER'S RESPONSIBILITY

The developer is responsible for developing the proposed software i.e. he should analyse, design and implement the proposed project.

2.2.3 OBJECTIVE OF THE PROJECT

The proposed system aims to manage the attendance of the students on desktop and to insert/ update/ delete data in the attendance database. The proposed system has the following objectives:

1. **Accessibility from across Organization:** The proposed interface for accessing, it becomes much easier for users to access student attendance data in an efficient and secure manner without the need for extra software. The proposed system does not requires license and hence unlimited number of users can access the system.

2. **Improved GUI:** In this system, data was visible only in Form style which made it difficult to work with many rows of data at a time specially update. The proposed system has easy-to-use interface in which data is visible in Form and tabular format at the same time. This make it easy for users to work with multiple data in a seamless manner.

3. **Easy to maintain:** This system used MySQL Forms/Reports for GUI. This technology has become obsolete and no manpower is available who are well versed with this old technology. The proposed system is developed in latest web technology (Java, JFrame Form, JPanel, JDBC Connectivity), which makes it easier to maintain the system.

CHAPTER 3 – TOOLS / PLATFORM TO BE USED

3.1. SYSTEM REQUIREMENT SPECIFICATION

- **Hardware Requirement:**
  1. Processor : Intel Core i3 5th Gen
  2. RAM : 1 GB
  3. Hard disk : 500 GB
  4. Peripherals : Keyboard, Mouse, Colour Monitor

- **Software Requirement :**
  1. Operation System: Windows XP/7/8/10, Linux.

- **Programming Environment:**
  1. Front End: Java (Eclipse)
  2. Back End: Wamp (MySQL)

3.2. LANGUAGE USED

- **JAVA**

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented,[1] and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. Java applications are typically compiled to byte code that can run on any Java virtual machine (JVM) regardless of computer architecture. As of 2016, Java is one of the most popular programming languages in use, particularly for client-server web applications, with a reported 9 million developers. Java was originally developed by James Gosling at Sun Microsystems (which has since been acquired by Oracle Corporation) and released in

1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++, but it has fewer low-level facilities than either of them.

Important advantages Java offers over other Web development models:

1. Java offers high cross-functionality and portability as programs written in one platform can run across desktop, mobiles and embedded systems.
2. Java is free, simple, object-oriented, distributed, supports multithreading and offers multimedia and network support.
3. Java is a mature language, therefore more stable and predictable. The Java Class Library enables cross-platform development.
4. Unlike C and C++, Java programs are compiled independent of platform in bytecode language which allows the same program to run on any machine that has a JVM installed.
5. Java has powerful development tools SDK and NetBeans which have debugging capability and offer integrated development environment.
6. Increasing language diversity, evidenced by compatibility of Java with Scala, Groovy, JRuby and Clojure.

- **WAMP Server**

Wamp Server refers to a software stack for the Microsoft Windows operating system, created by Romaine Bourdon and consisting of the Apache Web Server, OpenSSL for SSL support, MySQL database and PHP programming language. It stands for Windows, Apache, MYSQL and PHP. WAMP is a variation of LAMP for Windows systems and is often installed as a software bundle. It is often used for web development and internal testing, but may also be used to serve live websites.

To store the Data Views and Triggers for better database management:

Views: A VIEW is a virtual table, through which a selective portion of the data from one or more tables can be seen. Views do not contain data of their own. They are used

to restrict access to the database or to hide data complexity. A view is stored as a SELECT statement in the database. A view is nothing more than a SQL statement that is stored in the database in an associated name. A view is actually a composition of a table in the form of a predefined SQL query.

Views, which are a type of virtual tables that allows users to do the following:

- Structure data in a way that users or classes of users find natural or intuitive.
- Restrict access to the data in such a way that a user can see and sometimes modify exactly what they need and no more.
- Summarize data from various tables which can be used to generate reports.

Triggers: A database trigger is procedural code that is automatically executed in response to certain events on a particular table or view in a database. The trigger is mostly used for maintaining the integrity of the information on the database. For example, when a new record is entered or inserted in the Field or Reservoir table, then the view of the two tables is also updated accordingly.

3.3. CREATE A DESKTOP BASED APPLICATION PROJECT

- Creation of Database in WAMP
- Creation of Schema
- Creation of Tables
- Creation of Views
- Creation of Triggers
- IDE interface NetBeans used for developing the whole code in Java
- Connecting NetBeans 8.1 to MySQL using WAMP Server for Java
- Adding JDBC libraries, JPanel libraries
- Adding controls like Text Box, Text Fields, Buttons, and Menu Items etc.
- Adding event handlers.
- Adding different kinds of validations and checks.

- Debugging of the code
- Testing the code

3.4. DATABASE- MYSQL

MySQL is an open source relational database management system. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company, MySQL AB, now owned by Oracle Corporation. MySQL is a central component of the LAMP open-source web application software stack. LAMP is an acronym for Linux, Apache, MySQL, and Perl/PHP/Python. MySQL is used in many high profile, large-scale websites, including Google, Facebook, Twitter, Flickr and YouTube. The first version of MySQL appeared on 23rd May, 1995. It was initially created for personal usage from MySQL based on the low-level language ISAM, which the creators considered too slow and inflexible. They created a new SQL interface, while keeping the same API as MySQL. By keeping the API consistent with the MySQL system, many developers were able to use MySQL instead of the (proprietarily licensed) MySQL antecedent.

The MySQL server software itself and the client libraries use dual-licensing distribution. They are offered under GPL version 2, beginning from 28th June 2000 or to use a proprietary license. MySQL has received positive reviews, and reviewers noticed it “performs extremely well in the average case”. It has also been tested to be a “fast, stable and true multi-user, multi-threaded SQL database server.”

CHAPTER 4 - ENTITY RELATIONSHIP DIAGRAM

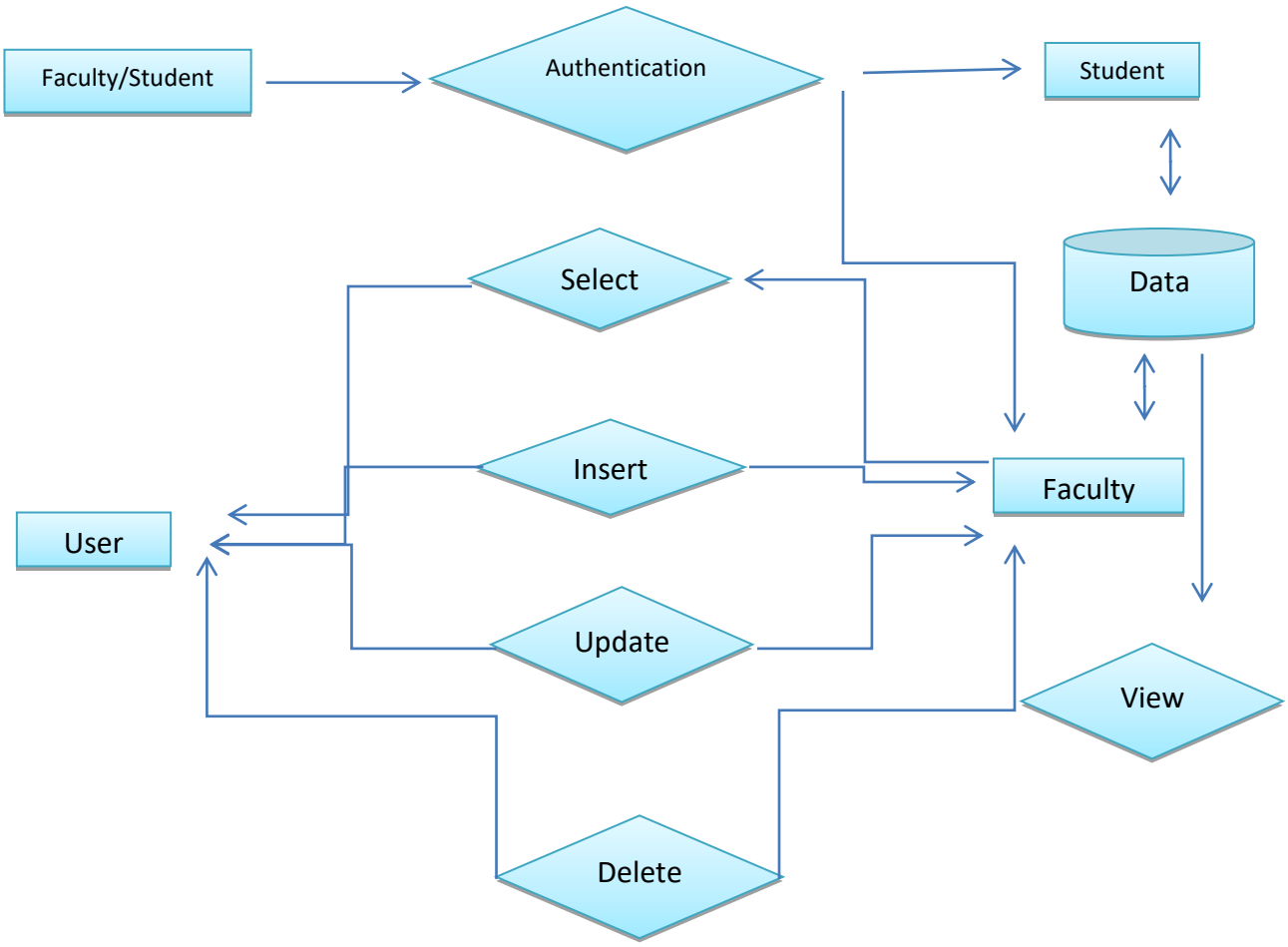

Figure: 4.1 Entity relationship diagram

The ER diagram here shows different kinds of users can insert, update and delete or just view the data depending on his/her authorization level.

CHAPTER 5 - DATA FLOW DIAGRAM (DFD)

0 Level DFD: It explains the system from the top, giving the basic idea of how system will behave.

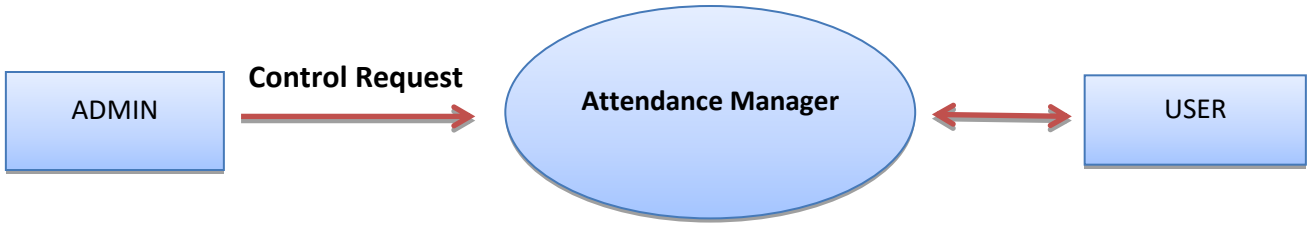

Figure 5.1: 0 Level DFD

Level 1 DFD: It explains the functionalities of the system in detail and gives idea of DB.

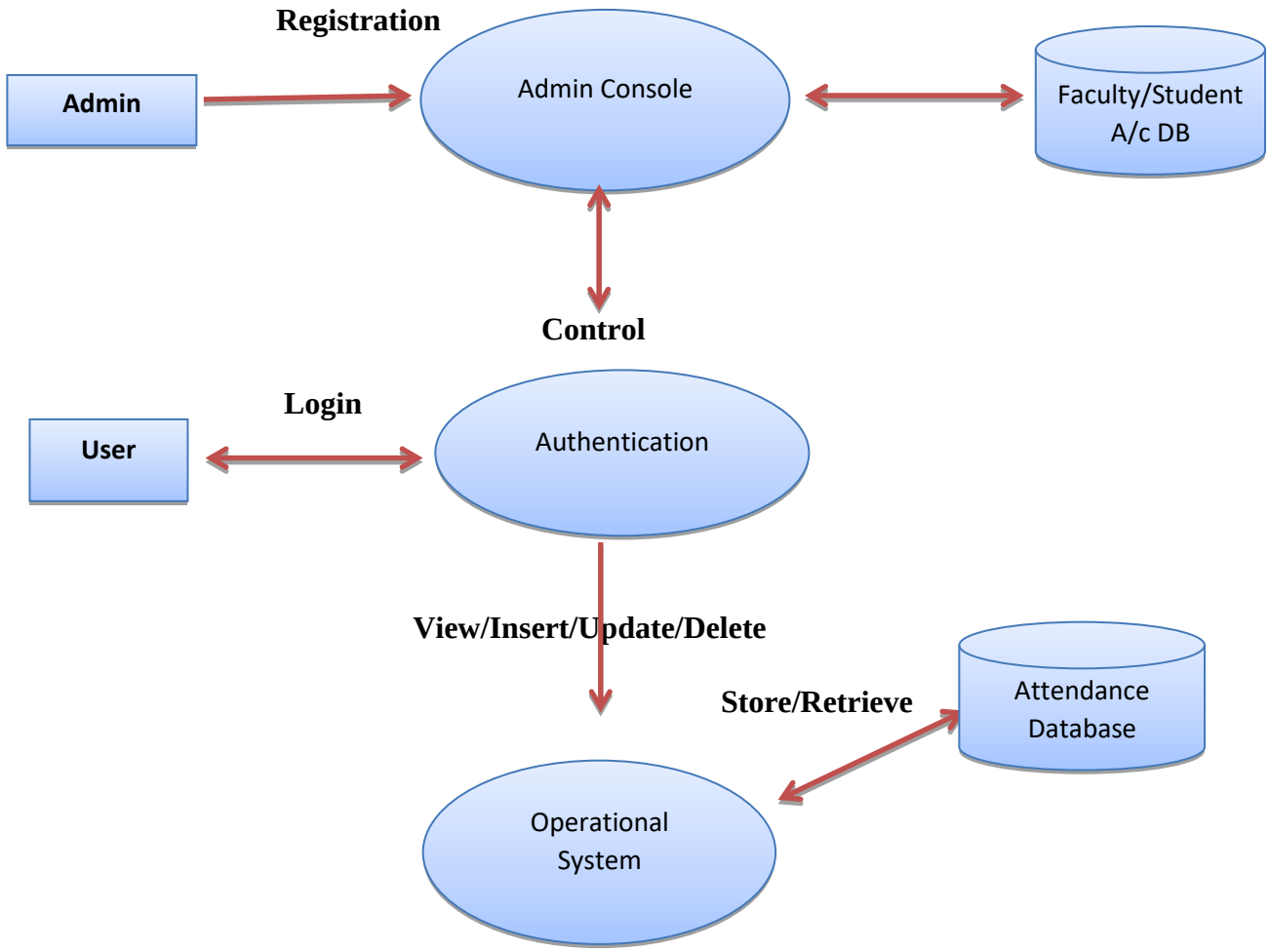

Figure 5.2: 1 Level DFD

Level 2 DFD: The functionalities of what a user can do is shown in this diagram.

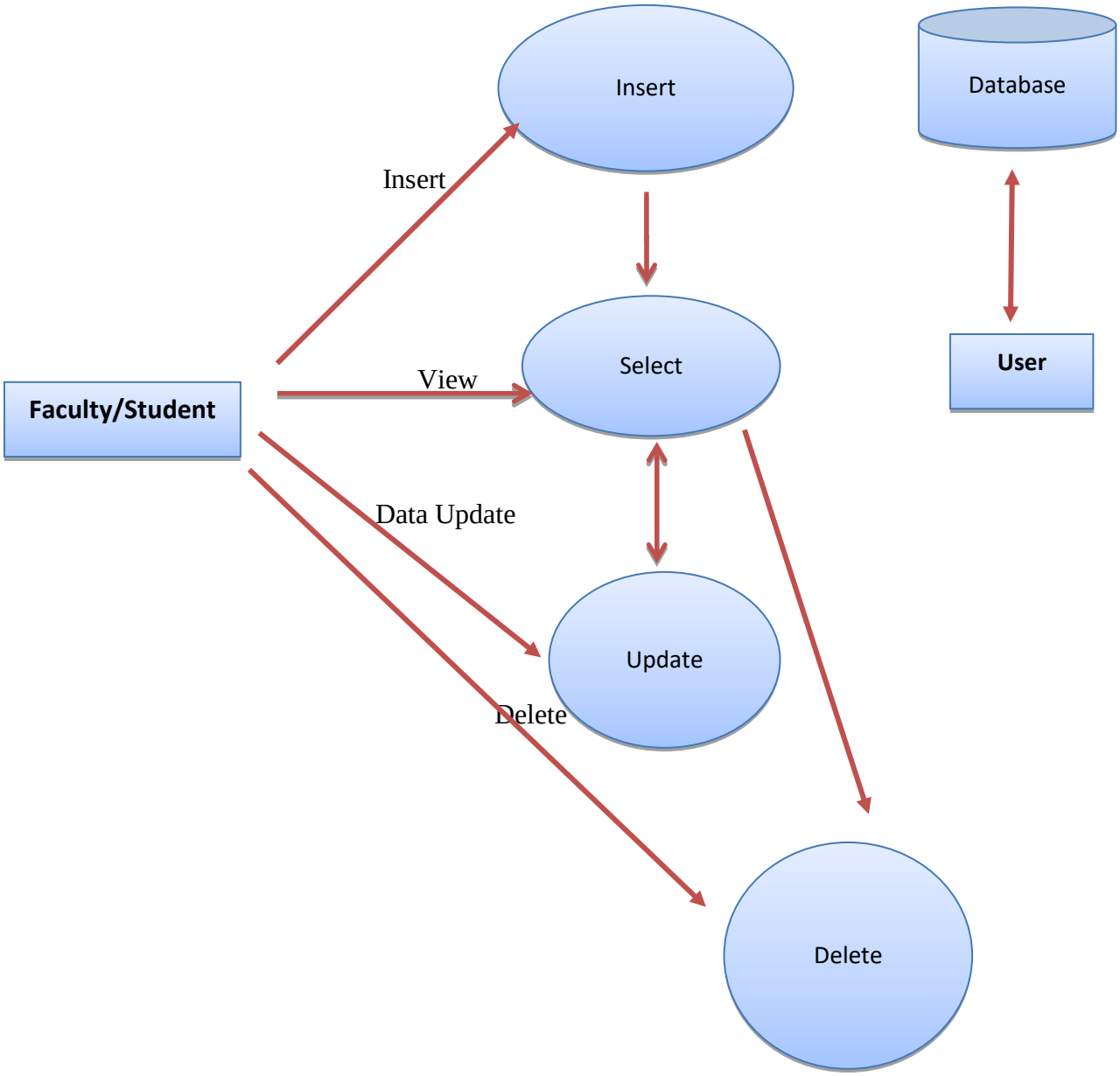

Figure 5.3: 2 Level

CHAPTER 6 - BACK END DESIGN

In backend MySQL is used, the overview of tables is given below:

1. Faculty
2. Course
3. Subject
4. Class(Class name)

6.1 TABLE- FACULTY:

The screen is shown the figure 6.1. This table is used to hold all the classes of the faculty for the system.

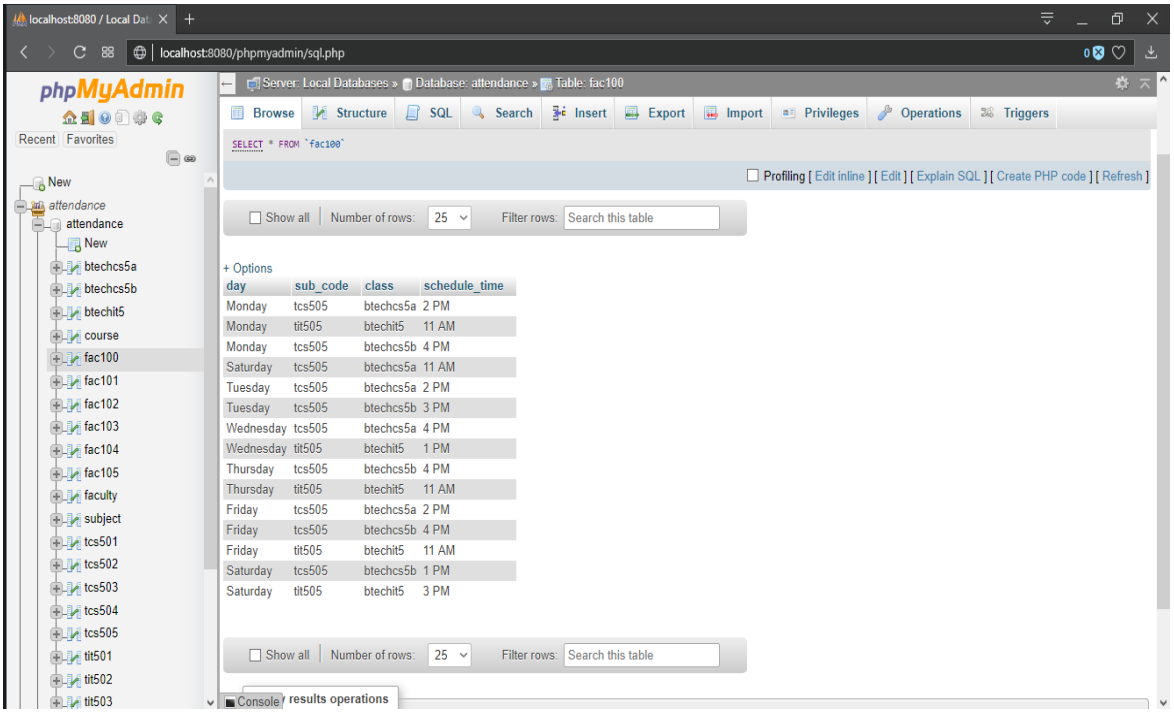

Figure: 6.1 Faculty table

6.2 TABLE- COURSE:

The screen is shown the figure 6.2. This table is used to hold all the attendance records of the students for the system.

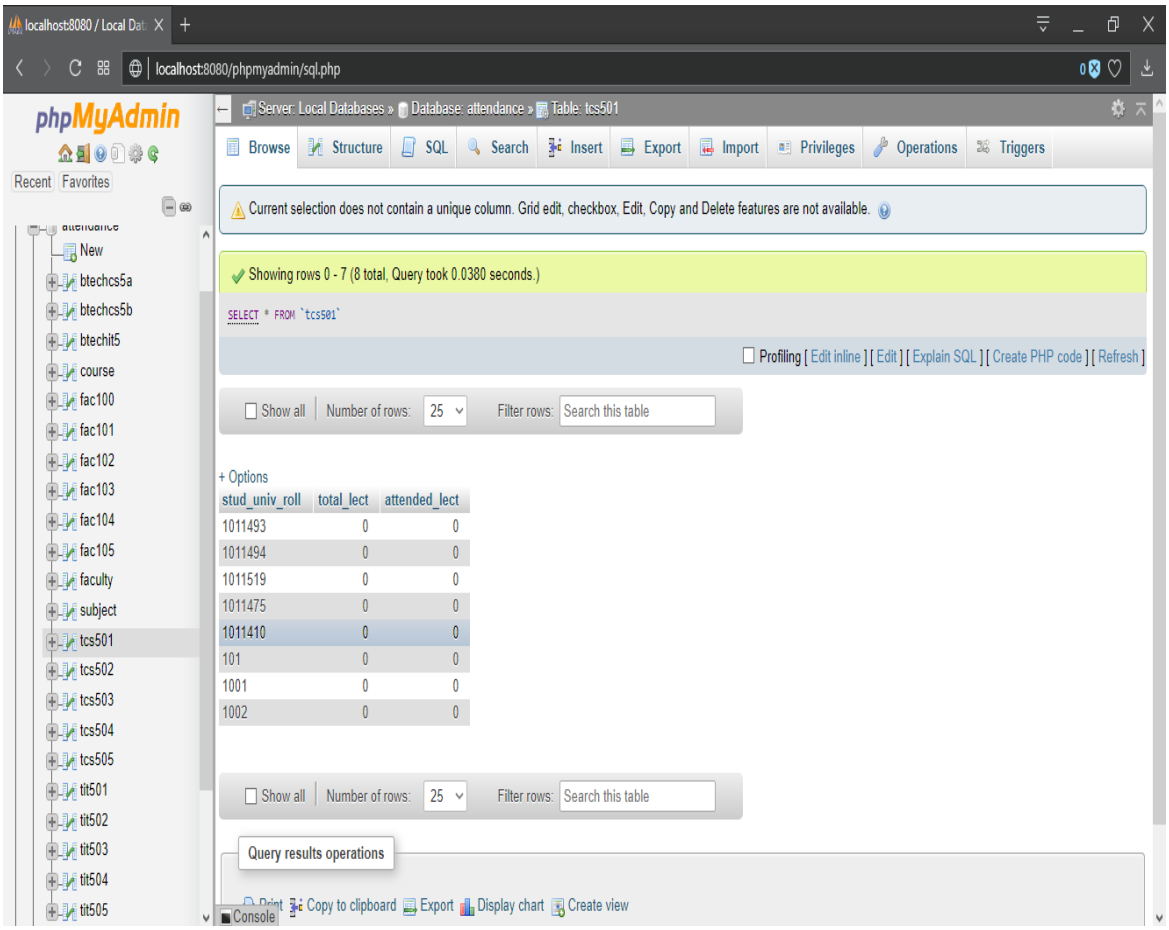

Figure: 6.2 Course Table

6.3 TABLE- Subject:

The screen is shown the figure 6.3. This table is used to hold all the records of the subjects for the course.

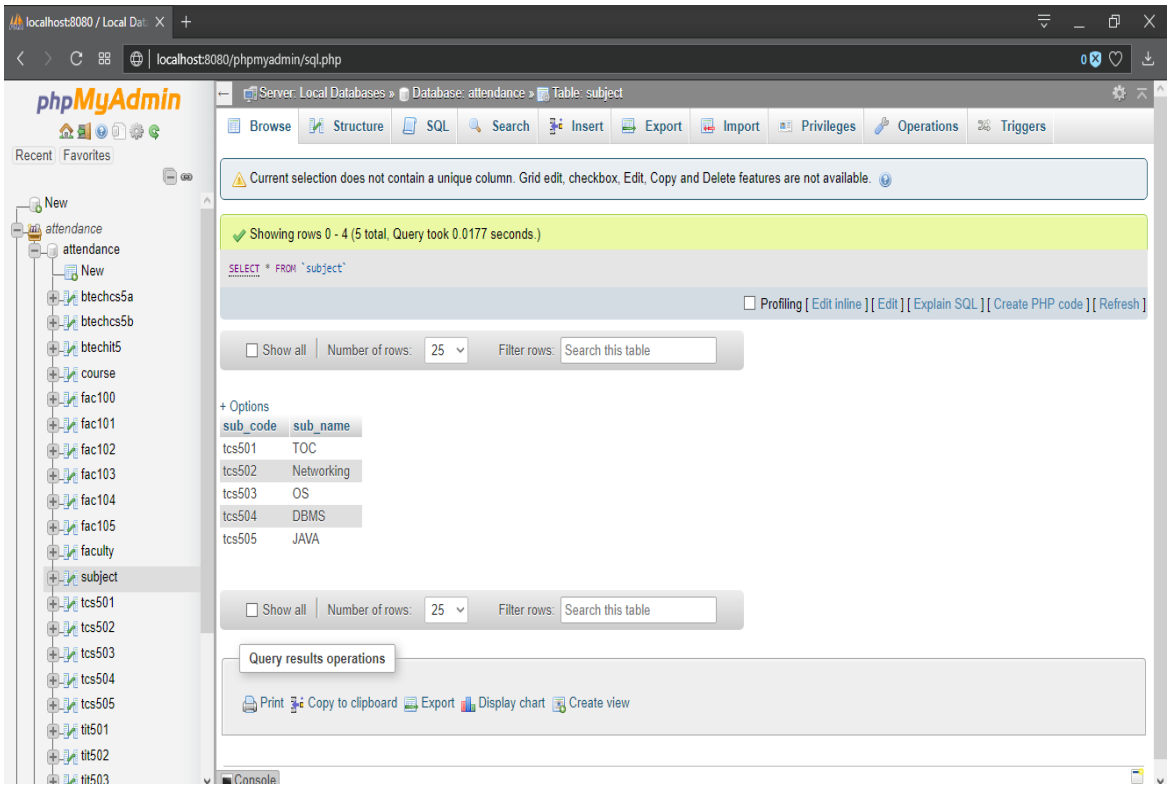

Figure: 6.3 Subject table

6.4 TABLE- CLASS:

The screen is shown the figure 6.4. This table is used to hold all the attendance records of a class for the system.

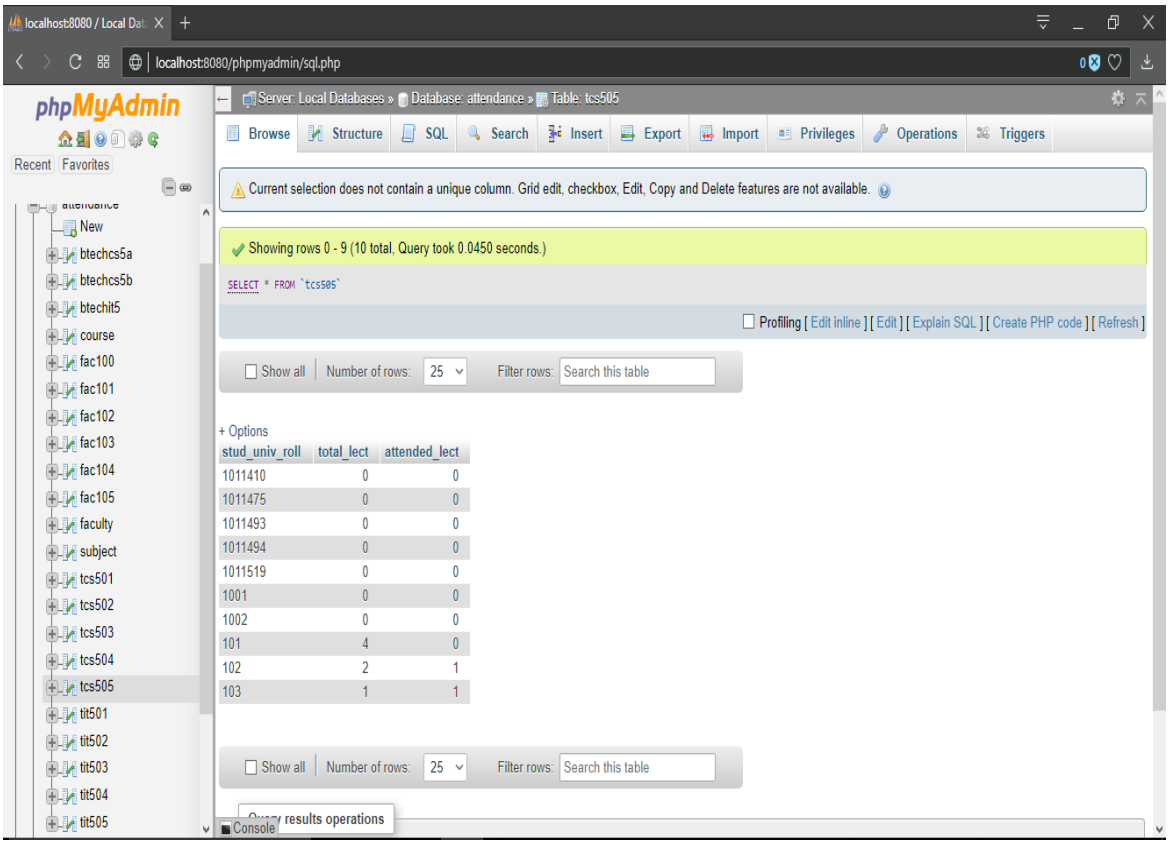

Figure: 6.4 Class table

CHAPTER 7- FRONT END DESIGN

7.1 LOGIN PAGE

The screen is shown the figure 7.1. This page is used to for the system so that user (Faculty/Student) can login to the system.

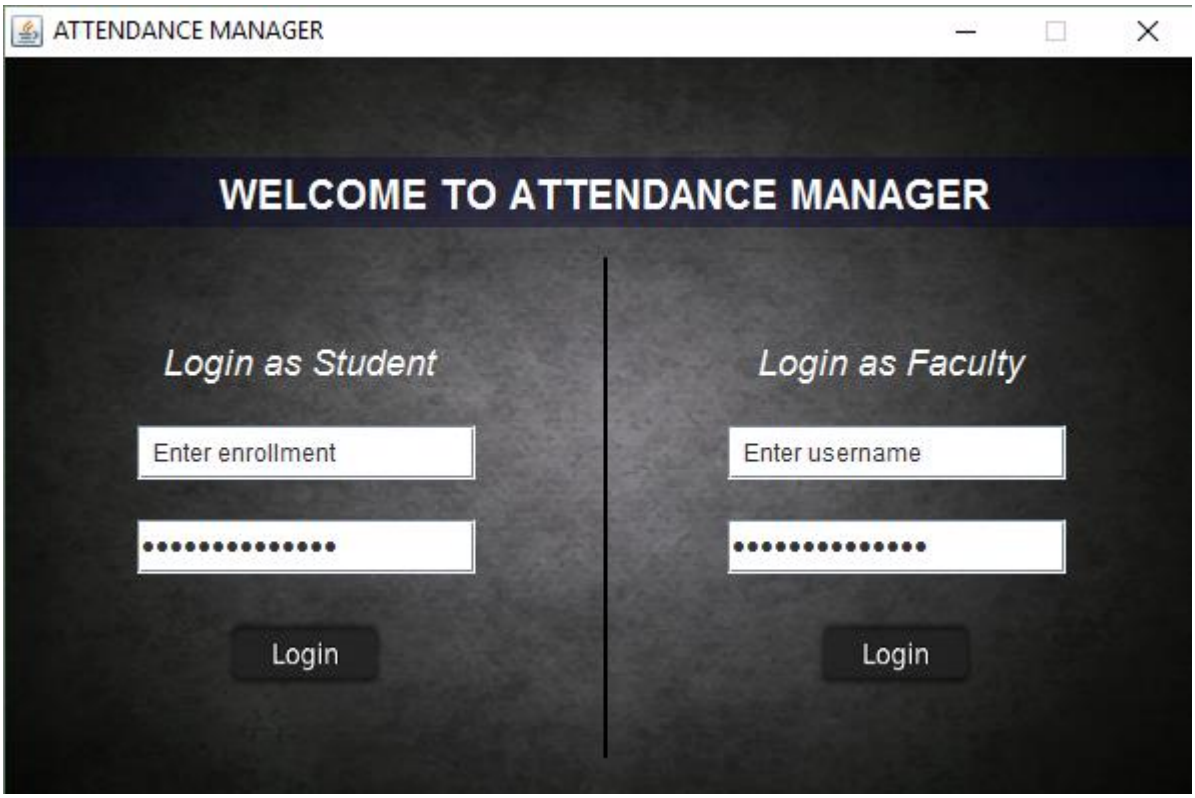

Figure 7.1 Login Page

7.2 FACULTY PAGE

The screen is shown the figure 7.2. This page is used by the admin or the registered users to login to the system.

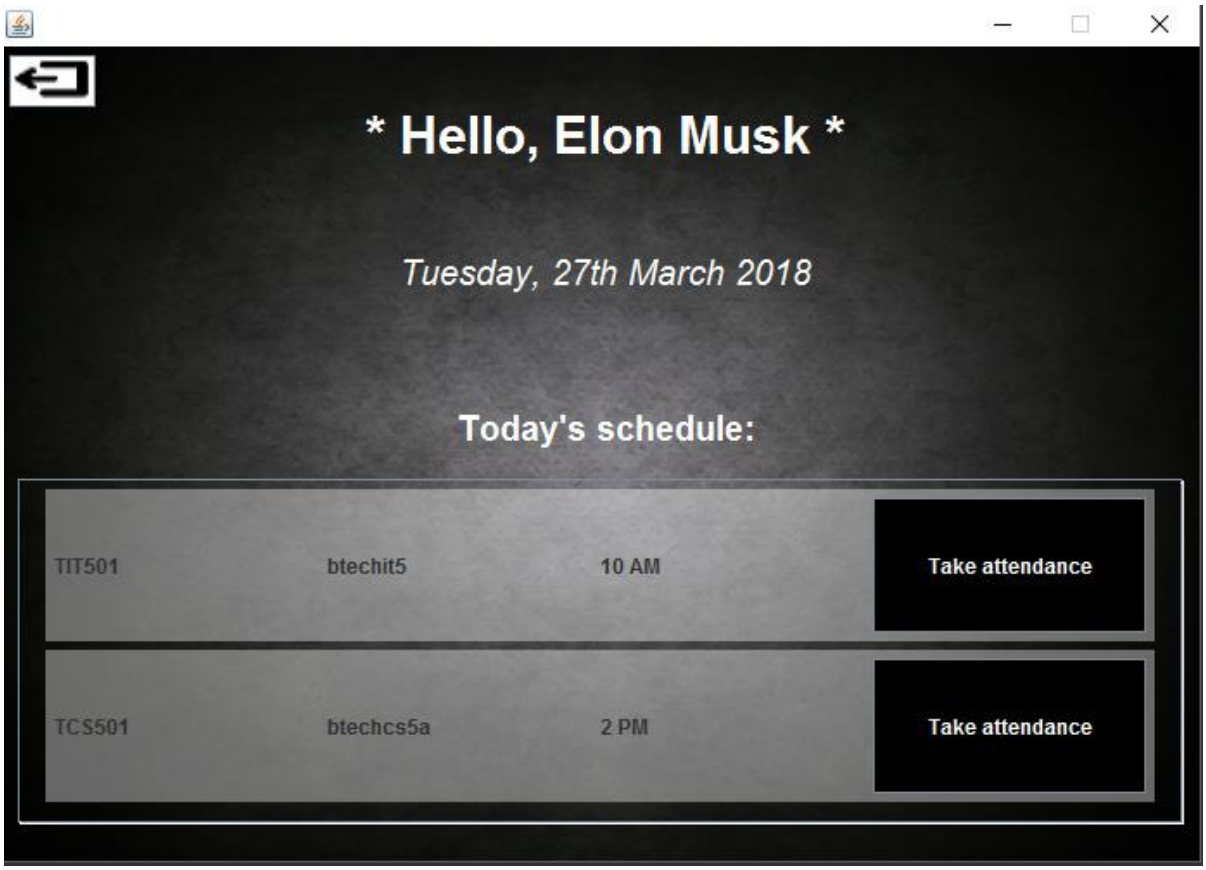

Figure: 7.2 Faculty Login

7.3 ATTENDANCE RECORD PAGE

The screen is shown the figure 7.3. This page is used by the faculty to record the attendances of the student and then submit it.

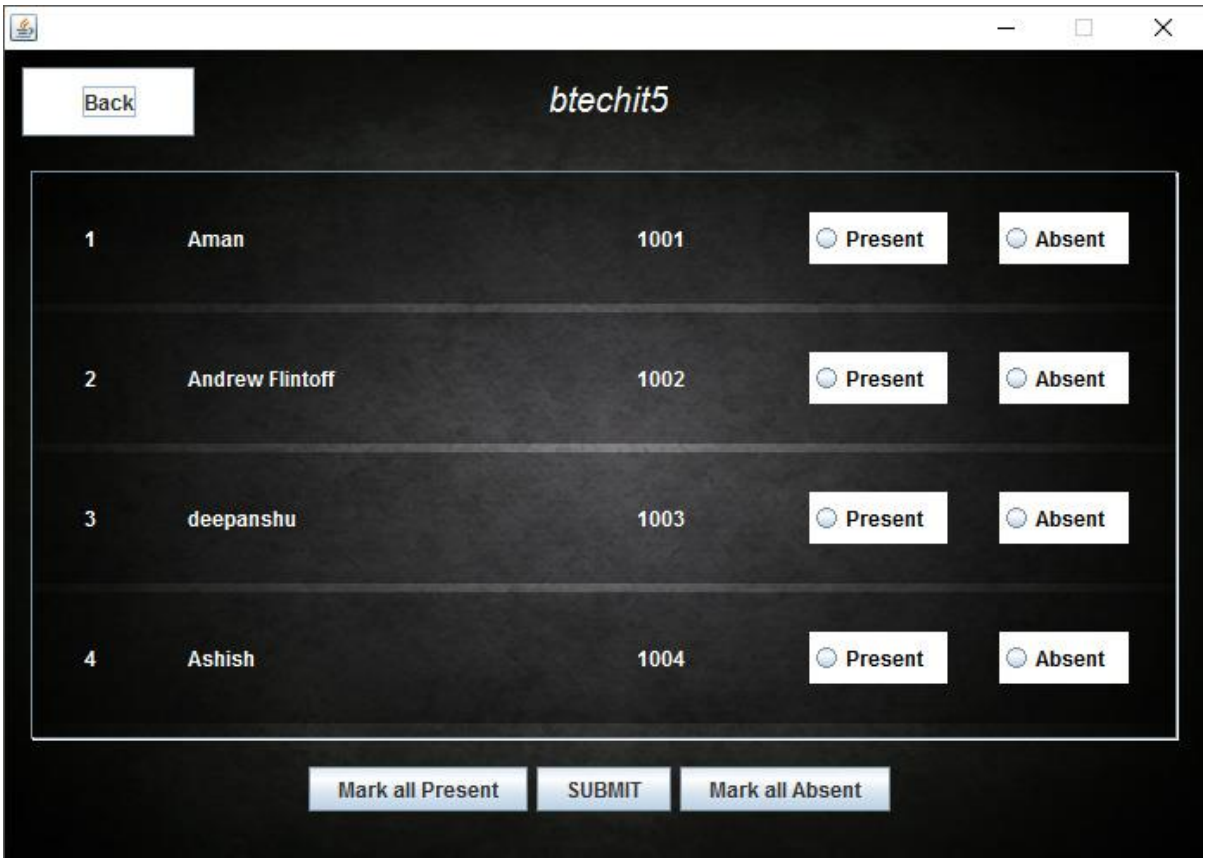

Figure: 7.3 Attendance Record Page

7.4 STUDENT VIEW PAGE

The screen is shown the figure 7.4. This page is used to show the attendance of the logged in student and also show in which subject he is debarred.

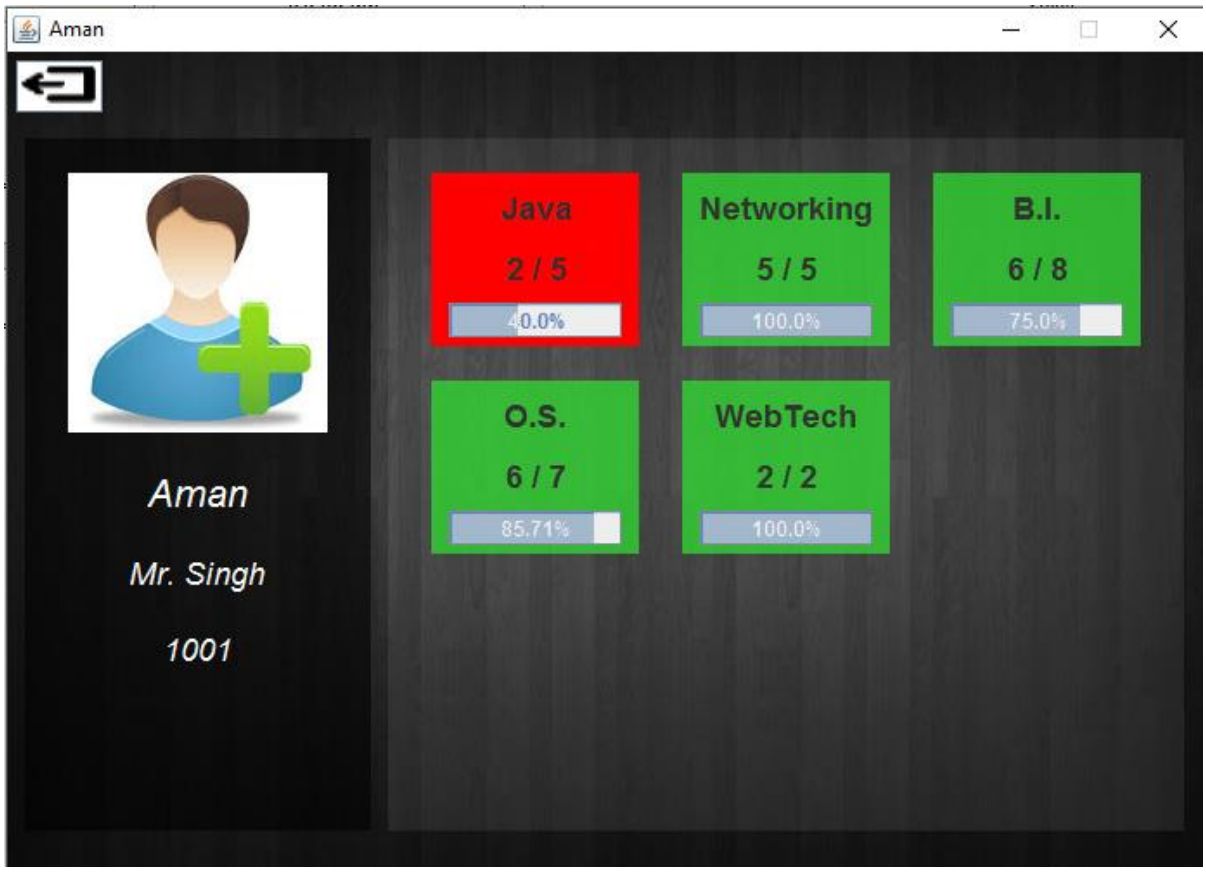

Figure: 7.4 Student View Page

CHAPTER 8 - CODE SNIPPETS

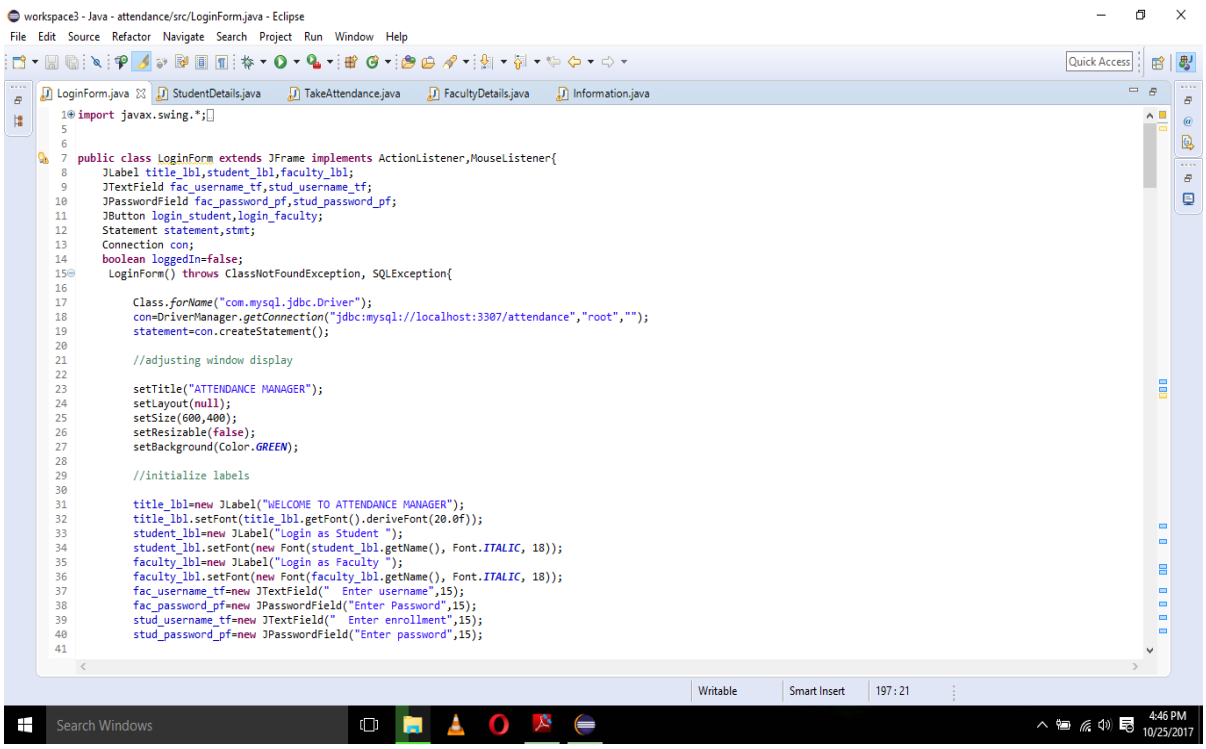

Figure: 8.1 **Code snippet of login form java file**

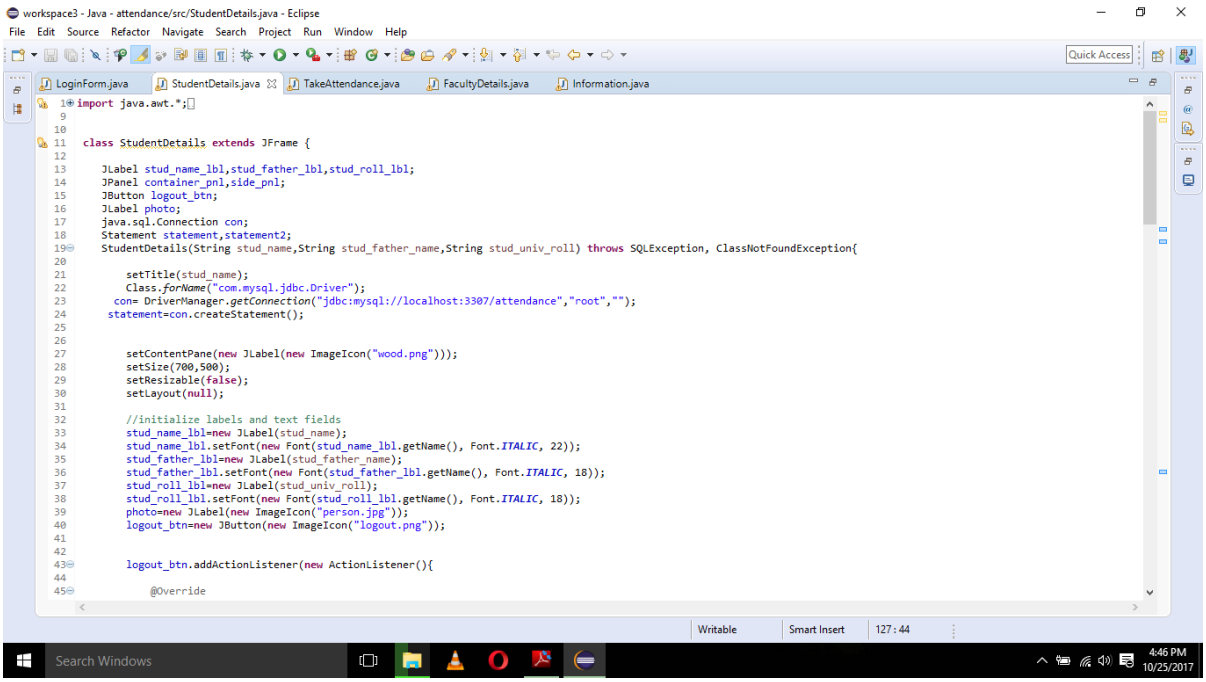

Figure: 8.2 Code snippet of Student details java file

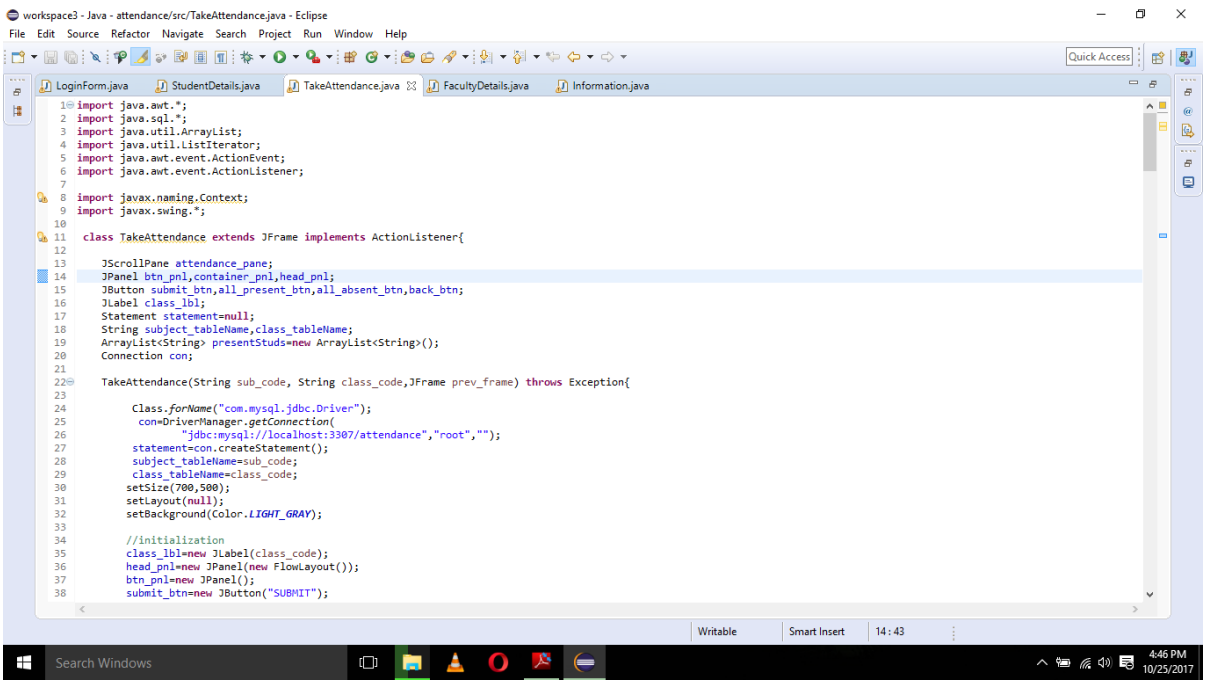

Figure: 8.3 Code snippet of take attendance java file

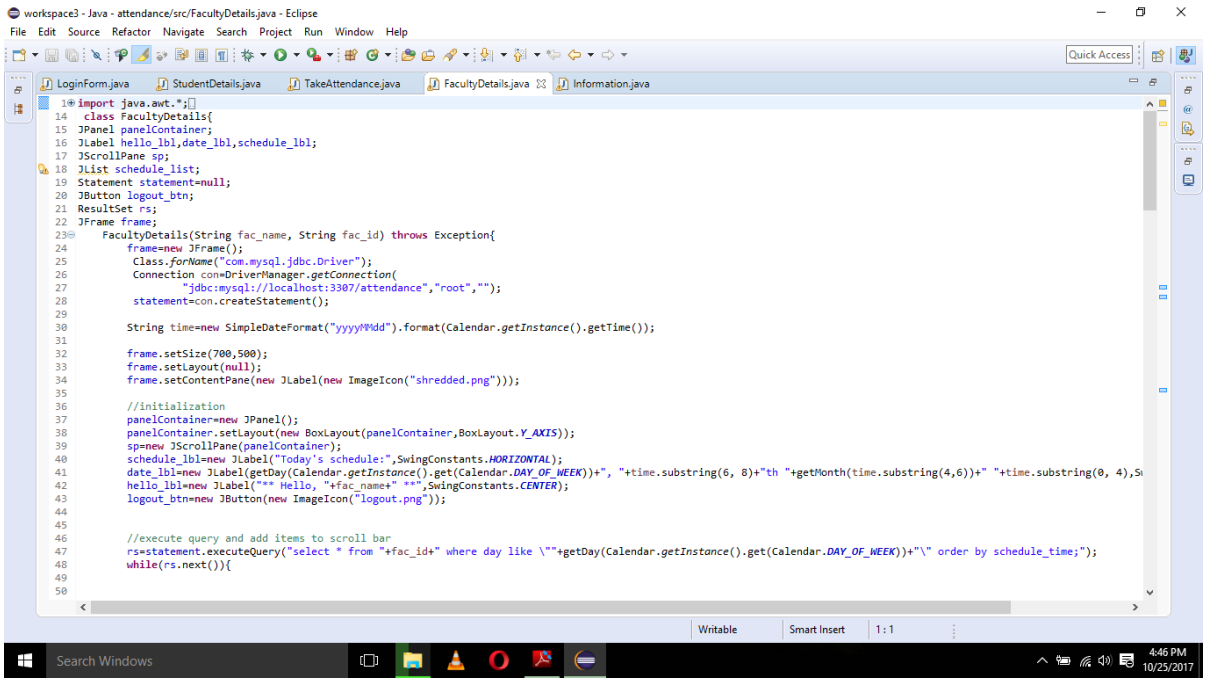

Figure: 8.4 Code of Faculty details java file

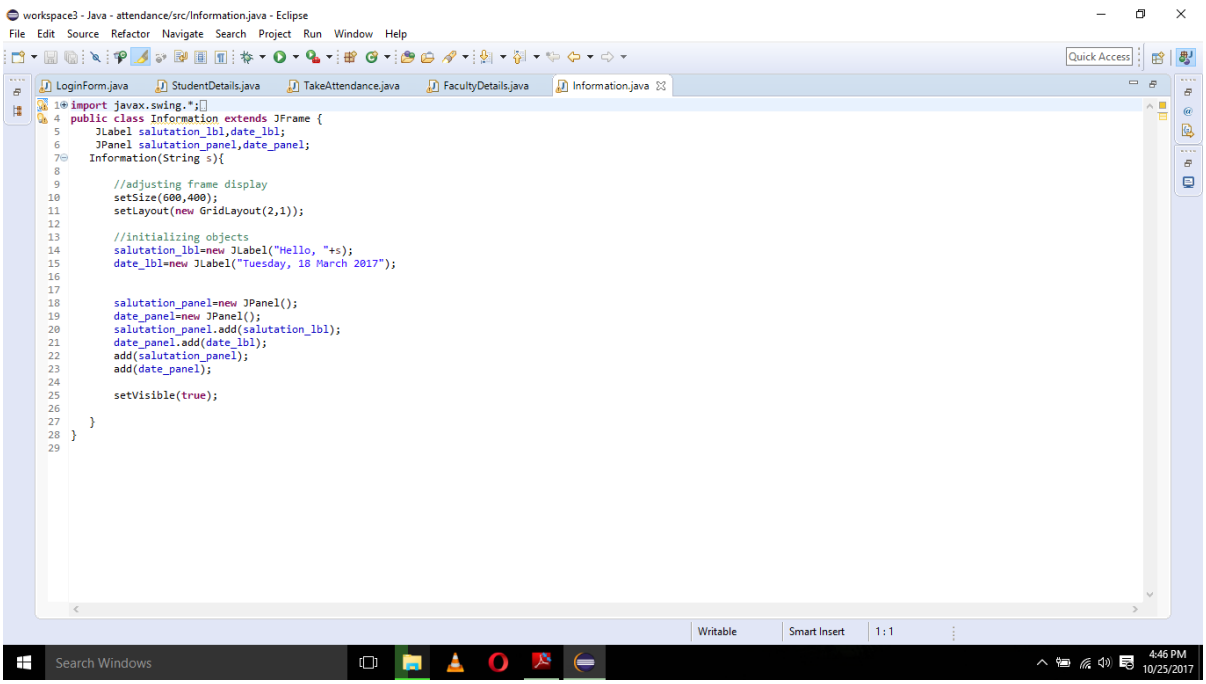

Figure: 8.5 Code snippet of Information java file

CHAPTER 9-CONCLUSION

The Software developed is found to be working efficiently and effectively. It results in regular and timely action against the proceedings done by the user. It can be observed that the information can be obtained easily and accurately.

The Software is made user friendly to the maximum so that any lay man can run the software provided he could access to the system via the login password.

It believes that partnership work is highly beneficial to the organization and that partnership work is the way forward to reduce crime and disorder.

REFERENCES

1. Herbert Schildt, JAVA: The Complete Reference, Oracle Press, 2004

2. E. Balagurusamy, Programming with JAVA, McGraw Hill Pvt. Ltd., Delhi, 2015

3. Stack Overflow, Stackoverflow.com, 2016. [Online]. Available: http://stackoverflow.com/.

4. W3Schools Online Web Tutorials, W3schools.com, 2016.

5. Head First Java by Kathy Sierra and Bert Bates, 1st Edition, O Reilly Media, 2005.

6. MySQL Cookbook by Paul DuBois, 3rd Edition, O Reilly Media, 2014.