1. INTRODUCTION

1.1 BACKGROUND

Nowadays tutorials are becoming really necessary and useful to the students who are looking for quality education. This project on tutorial Management provides this support for both lecturers and students. The project is divided into two modules the Admin and student.
The operations that can be performed by the admin and students are:
Admin:

- View the courses
- Add lecturers
- Delete lecturers Student:
- Register
- Login
- Students will have to fill a registration form in which he will specify the details
- Select branch and subject
- Select online or Offline mode
- View details of the course

Eclipse workspace and Apache server is used to implement this project.

1.2 BRIEF HISTORY OF TECHNOLOGY/CONCEPT/APPLICATION

The technologies used to implement this project entitled “Tutorial Management” are:

- Eclipse
- Apache Server ECLIPSE:

Eclipse is an integrated development environment (IDE) used in computer programming, and is the most widely used Java IDE. It contains a base workspace and an extensible plug-in system for customizing the environment. Eclipse is written mostly in Java and its primary use is for developing Java applications, but it may also be used to develop applications in other programming languages via plug-ins. JavaFX is a Java library used to build Rich Internet Applications. The applications written using this library can run consistently across multiple platforms. The applications developed using JavaFX can run on various devices such as Desktop
Computers, Mobile Phones, TVs, Tablets, etc.

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To develop GUI Applications using Java programming language, the programmers rely on libraries such as Advanced Windowing Tool kit and Swing. After the advent of JavaFX, these Java programmers can now develop GUI applications effectively with rich content.

APACHE SERVER:

Apache is the most widely used web server software. Developed and maintained by Apache Software Foundation, Apache is an open source software available for free. It runs on 67% of all webservers in the world. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules.

1.3 RESEARCH MOTIVATION

The quantity of online education in most disciplines is large and increasing rapidly. It's major advantages which are the motivations to do this project are:

- Time-saving and better performance than the manual based system
- There are no traffic jams, parking hassles are adverse weather conditions it enables the students to access course materials online
- Home comfort
- Cost savings
- Schedule flexibility
- Can choose only the subjects in which the student is interested in
- Self – Paced learning

1.4 RESEARCH OBJECTIVES

The primary objectives of this project are:

- To develop an application that provides quality education to students
- To provide hassle free learning to students through online courses
- To allow student to choose subjects of his choice and to select his mode of study
- To allow the admin to add and delete lectures as and when required

- To display all the details regarding the course to the student once he has successfully registered

1.5 ORGANISATION OF TECHNICAL REPORT

The following provides the roadmap for remainder of the report:

Chapter 2:

Presents a brief overview of the project, its requirements, etc

Chapter 3:

This chapter proposes the technology/application/concept in detail. This chapter highlights the detailed real time application/case study of the concept **Chapter 4:**

Conclusion and Future work

Chapter 5:

References.

2. SYSTEM ANALYSIS

2.1 REQUIREMENTS SPECIFICATIONS

2.1.1 SOFTWARE REQUIREMENTS:

SOFTWARE USED:	ECLIPSE
OPERATING SYSTEM:	WINDOWS
SOFTWARE:	WINDOWS
FRONT-END:	JAVAFX
BACK-END :	APACHE SERVER(SQL CONSOLE)

2.1.2 HARDWARE CONFIGURATION:

3. PROCESSOR:	Pentium IV processor 2GHz or greater
4. RAM:	1GB or greater
5. HARD DISK:	64 GB or greater.

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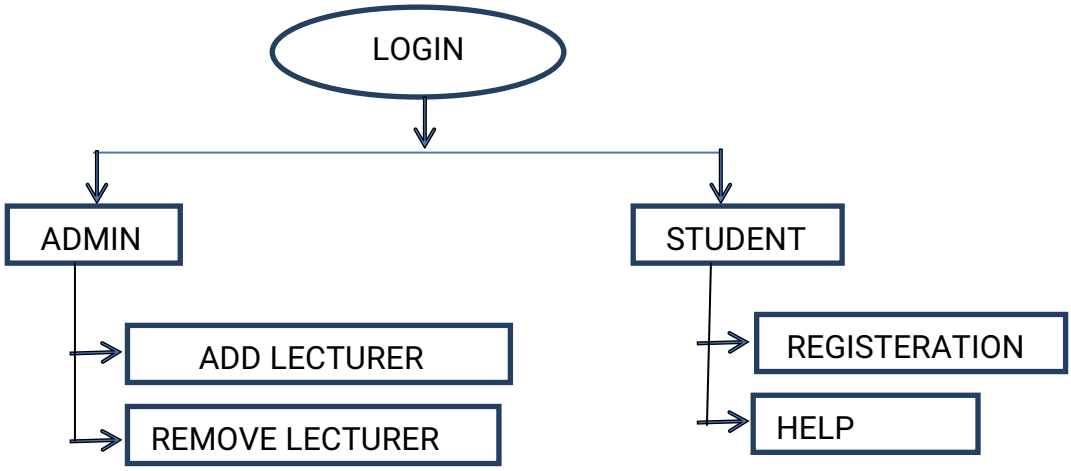
2.2 MODULES AND FUNCTIONALITIES:

The main screen gives two options one for the administrator and the other for the student.



ADMIN:

The admin has the privileges to register new students into the database. The admin is expected to login with his username and password which is verified for validation from the database. On valid login into the system the admin can perform the following operations:

- **Add lecturers:** The details of the lecturer and notes etc can be added by the admin.
- **Remove lecturers:** The admin has the privilege to delete existing lecturers.
- **View student details :** Get the details of the students and the course which the student has registered for.
- **View lecturer details:** The admin can view the details of the lecturer of a particular course

STUDENT

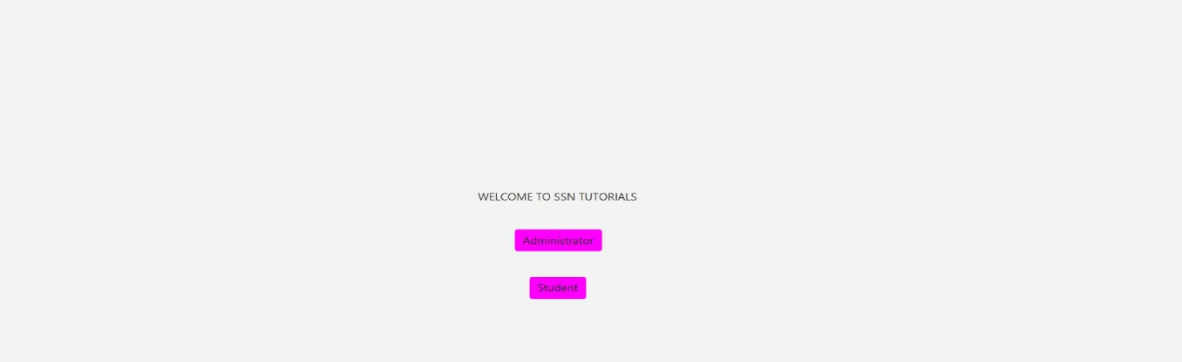
The student can register for new courses and there is a help section.

- **Registration:** Students who want to register for courses will have to login to the page. The student will have to fill a registration form in which he will specify the details. The student also has an option to select online mode or offline mode. Once the student details are collected he will get an option to choose the branch and subject.

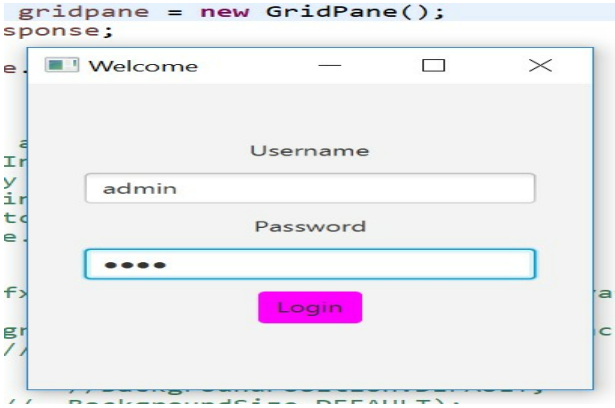
- **Help Menu:** Gives the description of the platform.

2.3 MODULES

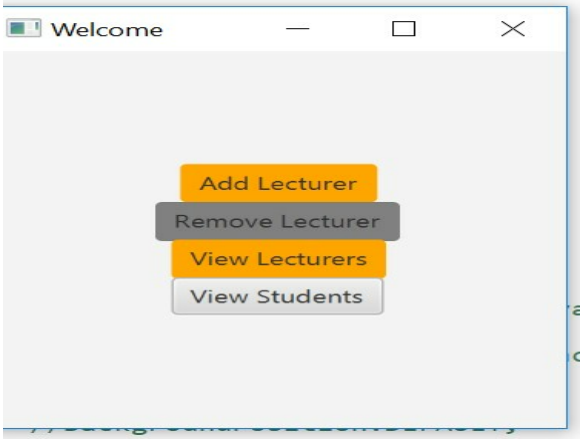
2.3.1 MAIN PAGE



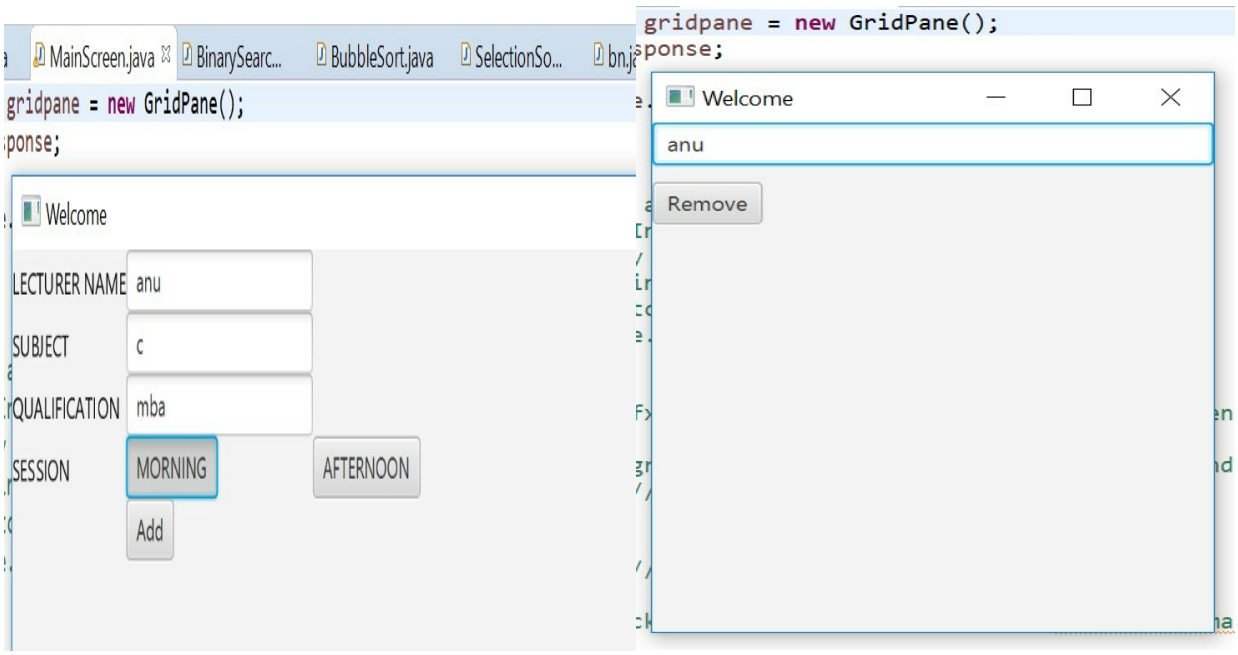
2.3.2 ADMIN LOGIN



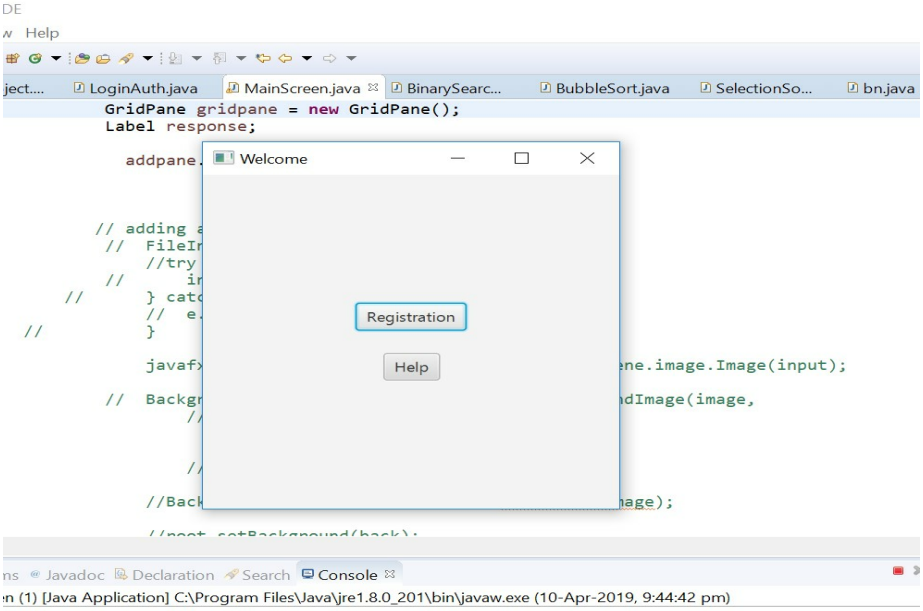
2.3.3 ADMIN FUNCTIONALITIES



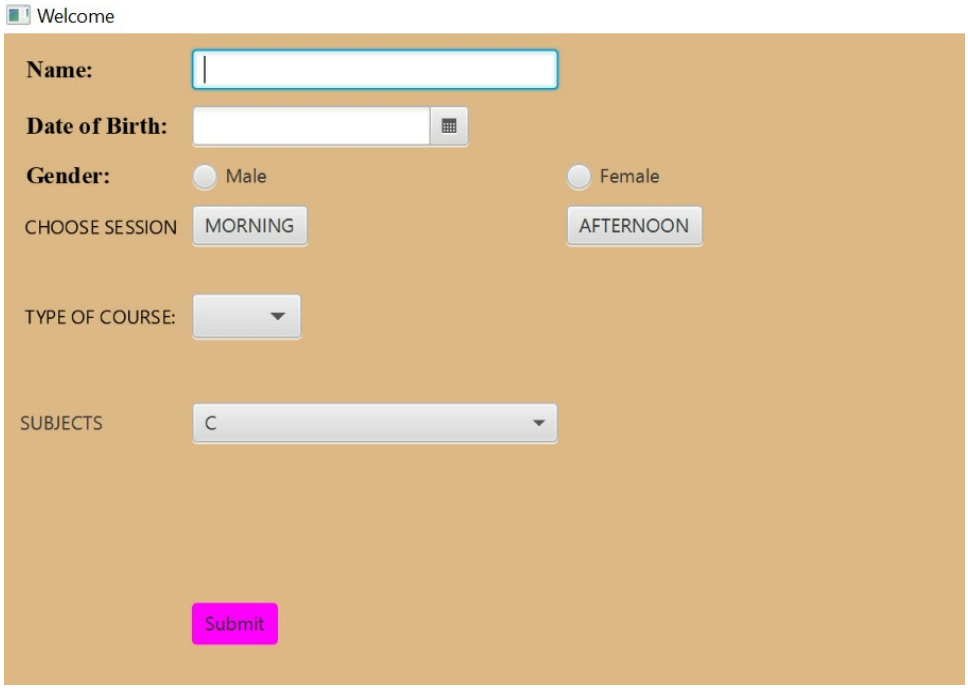
2.3.4 ADDING AND REMOVING LECTURER



2.3.4 STUDENT OPTIONS



2.3.5 REGISTRATION FORM



3. CONCEPTS USED

3.1 JAVA

Java is a popular programming language, created in 1995.It is owned by Oracle, and more than 3 billion devices run Java.

It is used for:

- Mobile applications (specially Android apps)
- Desktop applications
- Web applications
- Web servers and application servers
- Games
- Database connection And much, much more!

Advantages:

- Java works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.)
- It is one of the most popular programming language in the world
- It is easy to learn and simple to use
- It is open-source and free
- It is secure, fast and powerful
- It has a huge community support (tens of millions of developers)

3.2 JAVAFX

JavaFX is a standard GUI library, having extensive support for desktop computer and different web browsers on a different operating system like Windows, Linux etc. Desktop applications can be created efficiently using JavaFX, which act as a software platform. In the earlier edition of JavaFX, scripts were being used to build JavaFX applications, these scripts were declarative and static in nature. But with the advent of JavaFX 2.0 version, it is implemented as Java library, means applications now can be written using native Java code instead of scripts. With JavaFX, Java developers can address all the issues which come along with modern UI design. A complex set of controls are required in the modern UI, the responsiveness of UI is highly dependent upon concurrency, but Java multi-threaded code requires a lot of boilerplate code addition.

JavaFX is a software platform for creating and delivering desktop applications, as well as rich Internet applications (RIAs) that can run across a wide variety of devices. JavaFX is intended to replace Swing as the standard GUI library for Java SE, but both will be included for the foreseeable future. JavaFX has support for desktop computers and web browsers on Microsoft Windows, Linux, and macOS. JavaFX is no longer bundled with the latest Java, nor will be supported by Oracle, while it still is supported for the current long-term version Java SE 8 through March 2022.

JAVAFX FEATURES

Java APIs

FXML and Scene Builder

WebView

Swing interoperability

Built-in UI controls and

CSS Canvas API.

Multitouch Support

Hardware-accelerated graphics pipeline

High-performance media engine

Self-contained application deployment model

3.3 ECLIPSE

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3.5 JDBC

JDBC stands for Java Database Connectivity. JDBC is a Java API to connect and execute the query with the database. It is a part of JavaSE (Java Standard Edition). JDBC API uses JDBC drivers to connect with the database. There are four types of JDBC drivers:

- JDBC-ODBC Bridge Driver,
- Native Driver,
- Network Protocol Driver,
- and Thin Driver

We have discussed the above four drivers in the next chapter.

We can use JDBC API to access tabular data stored in any relational database. By the help of JDBC API, we can save, update, delete and fetch data from the database. It is like Open Database Connectivity (ODBC) provided by Microsoft.

The current version of JDBC is 4.3. It is the stable release since 21st September, 2017. It is based on the X/Open SQL Call Level Interface. The **java.sql** package contains classes and interfaces for JDBC API. A list of popular *interfaces* of JDBC API are given below:

- Driver interface
- Connection interface
- Statement interface
- PreparedStatement interface
- CallableStatement interface

- ResultSetinterface
- ResultSetMetaData interface
- DatabaseMetaData interface
- RowSet interface

A list of popular *classes* of JDBC API are given below:

- DriverManager class
- Blob class
- Clob class
- Types class

4. CONCLUSION AND FUTURE WORK

4.1 CONCLUSION

With the help of this project we were able to learn many new things and update our knowledge on programming. In this project entitled “Tutorial Management”, the student can study his choice of subject according to his convenient time. The student has all the access to the study material related to his course. He can also choose between online and offline mode of study according to his wish. The admin has the provision to add lectures related to the courses and he can also remove the lectures. Hence we were successful in achieving the objectives defined in this project i.e to develop an application that provides quality education to students.

4.2 FUTURE WORK

- Provision for adding audio and video lectures
- A ChatBot between the tutor and student for doubt solving
- Conduction of online examination and provision of certificates

5. REFERENCES

[1] https://www.tutorialspoint.com/javafx/

[2] https://docs.oracle.com/javase/tutorial/jdbc/basics/processingsqlstatements.html

[3] https://www.javatpoint.com/sql-tutorial

[4] Java: The Complete Reference, Ninth Edition [Herbert Schildt]