NITTE MEENAKSHI INSTITUTE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION, AFFILIATED TO VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM, APPROVED BY AICTE & GOVT.OF KARNATAKA

COURSE PROJECT REPORT

on

FILE SECURITY SYSTEM

Submitted in partial fulfilment of the requirement for the award of Degree of

Bachelor of Engineering

in

Computer Science and Engineering

Submitted by:

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CERTIFICATE

This is to certify that the Course Project titled "FILE SECURITY SYSTEM" is an authentic work carried out by **GAURAV RAJ SHAH(INT18CS195), KHUSH DASSANI (1NT18CS074), ABHISHEK KUSHWAHA(1NT18CS212), SIDDHARTH YADAV (1NT18CS208)** bonafide students of **Nitte Meenakshi Institute of Technology**, **Bangalore** in partial fulfilment for the award of the degree of ***Bachelor of Engineering*** in COMPUTER SCIENCE AND ENGINEERING of Visvesvaraya Technological University, Belagavi during the academic year ***2019-2020.***

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ABSTRACT

Have you ever felt a need of having a private space inside your own system? Do you ever allow someone else to use your computer and have to worry about your privacy? Or Do you ever have to work on a shared system, may be in your office or school, where you constantly worry about your files being stolen or its privacy? If your answer to all of these questions is ‘yes’, then you might need to have felt a need to have some file security system inside your computer where you could lock away your important and private contents using a password without having to worry about it being accessed without your knowledge. And what if I tell you that, in addition to just being locked using a password, your files will also be encrypted making it impossible for any unauthorized access to occur.

For this purpose, we have developed this java-based File Security System software. In order to make the program user friendly, we have kept the program quite simple keeping its User Interface as minimal as possible where the users can create their own spaces, populate them with their important files and set a security key for safety. However, this process is not that straight-forward at its backend. Apart from having a JavaFX based GUI and an extensive use of database, the program also employs an encryption algorithm to securely store the files. A local key generated by the decryption algorithms can only get the files back to its original format making it very secure.

INTRODUCTION

File Security System is a Java based application which aims to dwindle most of the prevailing problems in securely managing files and folders inside a system. This program is primarily focused on eradicating major security issues faced while keeping files secure within a computer, either personal or a shared one. However, this software has a better use case in shared systems where a single system may be accessible to multiple user and may not to trust worthy for confidential contents. That being the main reason, this system liberates its users to protect or isolate their share of files in a system by using their own security key or say password.

To make the program efficient and easy for the users to use, we have designed a very minimalist graphical user interface by using JavaFX. In addition to that, this program is also capable of restricting unknown users from accessing the file by simply locking them after a few invalid tries. This program is solely devoted to provide security and give access only to the authorized users. In order to make that happen, we have employed a file-based encryption system to store files in a format which can then only be usable once it has been decrypted by the local key generated by the algorithm.

CORRELATING THEORETICAL CONCEPTS TO PRACTICAL IMPLEMENTATION

JavaFX

JavaFX is a software platform for creating and delivering desktop applications, as well as rich Internet applications that can run across a wide variety of devices. In this project, we have made an extensive use of JavaFX to build User Interface (UI) in order to give our program a nice look and feel.

Java Database Connectivity (JDBC)

Java Database Connectivity (**JDBC**) is an application programming interface (API) for the programming language Java, which defines how a client may access a database. It is a Java-based data access technology used for Java database connectivity. It is part of the Java Standard Edition platform. In order to connect our software with the local database, we have employed JDBC along with MySQL to store and retrieve user information such are username, passwords, filepaths, and so on.

File Encryption and Decryption System

Encryption is the cryptographic process of encoding information such as files in a computer. In this process, an encryption algorithm is used to encrypt files that the user may need to secure. The advantage of using file encryption is that a special key is required to restore the files once encrypted to its former state. If an unauthorized user tries to access the files, the files may get destroyed if the unique key is not used generated by its counter decryption algorithm. This system gives the user files an additional layer of security and indemnity.

DESIGN OF THE SYSTEM AND IMPLEMENTATION

Steps for Connecting to the Database:

- Step 1:

```
Class.forName("com.mysql.jdbc.Driver");
```

- Step 2:

```
Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/javaproject
","root","password");
```

Steps for Executing Queries:

- Step 1:

```
PreparedStatement pmt=con.prepareStatement("Select path from
file where uname=(?)");
```

- Step 2:

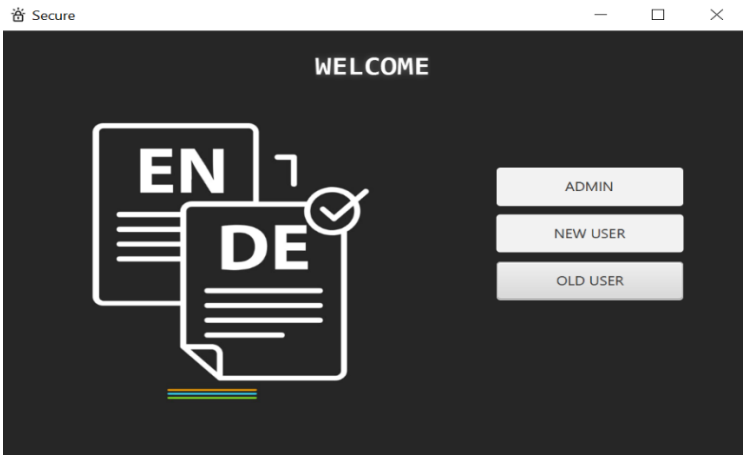
```
pmt.setString(1, name);
```

- Step 3:

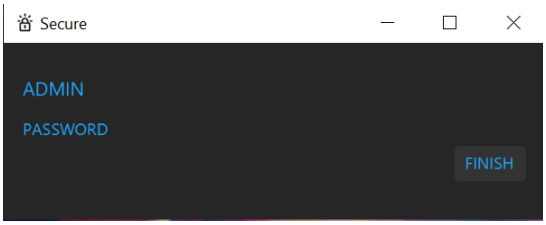
```
ResultSet rs=pmt.executeQuery();
if(!rs.next()) {
    System.out.println();
}
```

RESULTS AND SNAPSHOTS

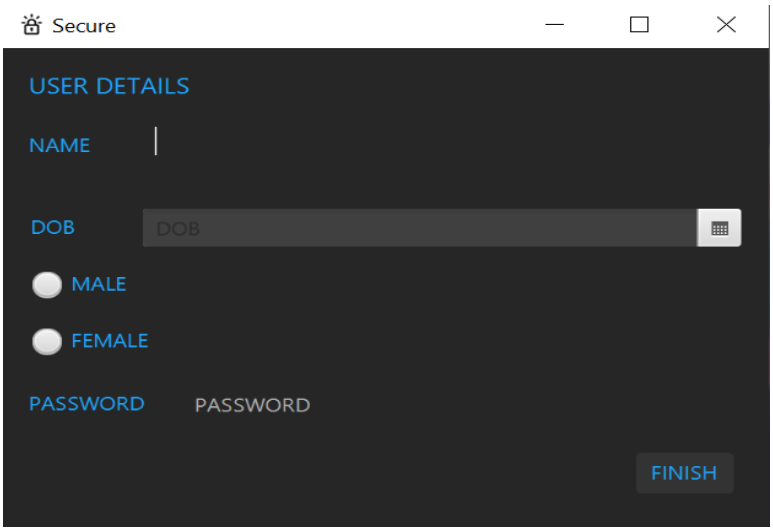
Welcome Page:



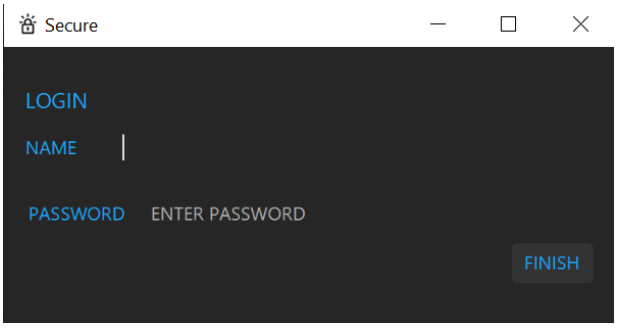
Admin Access Panel:



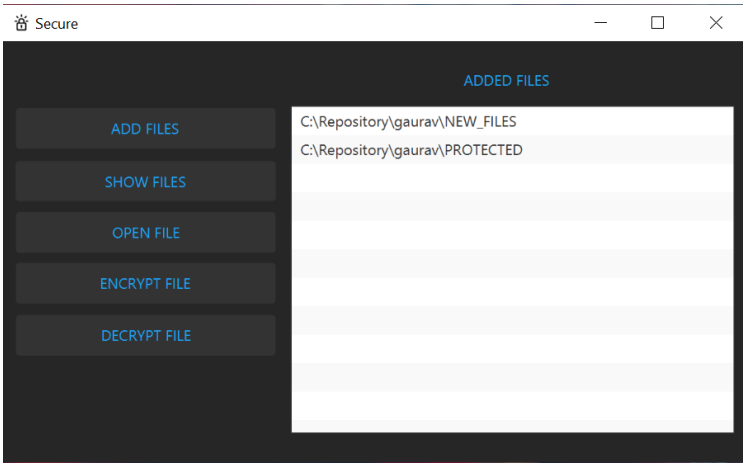
Create New User Page:



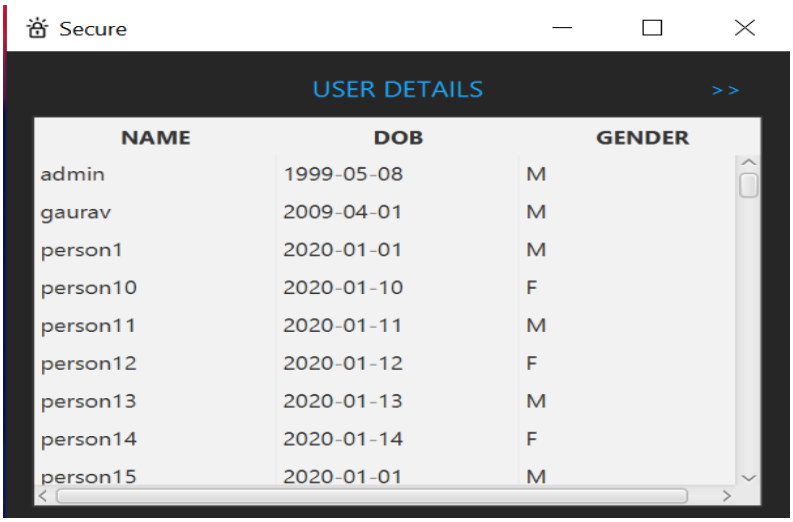
Existing User Login Page:



File Encryption and Decryption Page:



Admin's view panel of all existing users:



CONCLUSION

As demonstrated and explained before, the program works as explained and according to its requirements. It allows its users to create their space accessible with a security key and store their files in a confined place inside a system. It encrypts the data at bit level as requested by the users and again decrypts back if required by the authorized user in future. The User Interface is quite minimal and there is no lag or other software level problems in execution of the program. The database connectivity also works normally.

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