Tribhuvan University

Faculty of Humanities and Social Sciences

Seatplanner

A PROJECT REPORT

Submitted to

Department of Computer Application

Kantipur College of Management and Information Technology

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by

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Padam Raj Joshi [3880790]

August, 2022

Under the Supervision of

Mr. Sudip Khadka

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Faculty of Humanities and Social Sciences

Kantipur College of Management and Information Technology

Supervisor's Recommendation

We hereby recommend that this project prepared under my supervision by **Prajwal Dahal, Padam Raj Joshi** entitled "**Seatplanner.**" in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

_____

Mr. Sudip Khadka
SUPERVISOR
Kantipur College of Management and Information Technology
Department of BCA

Tribhuvan University

Faculty of Humanities and Social Sciences

Kantipur College of Management and Information Technology

LETTER OF APPROVAL

This is to certify that this project prepared by **Prajwal Dahal, Padam Raj Joshi** entitled "**Seatplanner**" in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion, it is satisfactory in the scope and quality as a project for the required degree.

Mr.
External Examiner
Tribhuvan University — Signature — Date

Mr. Amit Pandey
HOD/Coordinator
KCMIT — Signature — Date

Mr. Sudip Khadka
Supervisor
KCMIT — Signature — Date

Acknowledgement

This project is prepared in the partial fulfillment of the requirement for the degree of Bachelor in Computer Application (BCA). The satisfaction and success of completion of this task would be incomplete without heartfelt thanks to people whose constant guidance, support and encouragement made this work successful. On doing this undergraduate project we have been fortunate to have help, support and encouragement from many people we would like to acknowledge them for their cooperation.

Our first thanks goes to Tribhuvan University for designing such a worthy syllabus and making us do this project. Our next batch of thanks goes to the faculty of Management of KCMIT without whose help our project would have been impossible. This list includes Principal of KCMIT, **Mrs. Lalita Chand** Our very sincere and heartfelt thanks go to **Mr. Sudip Khadka** our project supervisors who constantly guided us through the project time period. Without his guidance, our project would have been impossible. Last but not the least we want to thank every direct and indirect hands that were involved in completion of this project.

This project has been a wonderful experience where we have learnt and experienced many beneficial things.

Padam Raj Joshi [3880790]

Prajwal Dahal [3880791]

Abstract

The main aim of this project is to provide simple platform to the examiner where they can generate automatic seat plan for examinee within a few minute. The develop systems will simplify Seatplanning process by automatically generating seat plan report in excel file. It will reduce time and effort for examiner which require in traditional way of seat planning. The develop system was designed and implemented using Java and MySQL.

Table of Contents

Acknowledgement i

Abstract ii

Chapter 1: Introduction 1

1.1: Introduction 1

1.2: Problem Statement 1

1.3: Objective 1

1.4: Scope 2

1.5: Overview of Report 2

Chapter 2: Background Story and Literature Review 3

2.1: Background Story 3

2.2: Literature Review 3

Chapter 3: System Analysis and Methodology 5

3.1: System Analysis 5

3.1.1: Requirement Analysis 5

3.1.2: Feasibility Study 8

3.2: Methodology 10

3.2.1: Algorithm 10

3.2.2: Flowchart 11

3.2.3: Data flow diagram (DFD) 12

3.2.4: Entity Relationship Diagram 15

Chapter 4: Result analysis and Discussion 16

4.1: Result Analysis 16

4.2: Test cases 16

Chapter 5: Conclusion and Recommendation 42

5.1: Limitation 42

5.2: Future Recommendation 42
5.3: Conclusion.....42
References.....43
Annex.....44

List of Figures

Figure 3.1.1.1: Use case diagram…….....……6

Figure 3.1.2.1: Gantt chart of seatplanner……..9

Figure 3.2.2.1: Flowchart of seatplanner……11

Figure 3.2.3.1: Context Diagram of seatplanner…….……12

Figure 3.2.3.2: Level 1 Dataflow Diagram of seatplanner……..13

Figure 3.2.3.3: Level 2 Dataflow Diagram of Seatplanner……..14

Figure 3.2.4.1: Entity Relationship diagram of Seatplanner……15

List of Tables

Table 4.2.1: Test Case for Login……16

Table 4.2.2: Test case for add, update and delete student……..20

Table 4.2.3:Test case for add,update and delete room……...26

Table 4.2.4: Test case for seat plan generation……..32

Table 4.2.5: Test case for change password……..37

List of Abbreviation

ER	Entity Relationship
DFD	Data Flow Diagram
MySQL	Structure Query Language

Chapter 1: Introduction

1.1: Introduction

Majority of educational institutes are dealing with issues for making seat plan for examinee in examination. They are facing issues like repetition of same examinee and no seat plan for some examinee as people tends to forgot things. Manual Seatplanning also takes lots of time and effort.

By looking at the worldwide trend of traditional system of work being replaced by Computer based System for efficient and fast output, we are motivated to make 'Seatplanner' which reduces time and effort of examiner.

This System is made by using free technology available on internet such as XAMPP for server and MySQL, Intellij Idea as IDE for java which performed operation like add, update and delete student and room data, generate seat plan report in Excel file.

1.2: Problem Statement

Traditional system of Seatplanning may not be reliable because of the problem which usually occurred such as forgot to put name of examinee in the seat plan report, repetition of same examinee. Examiner has to give lots of time and effort for making manual seat plan.

1.3: Objective

The main aim of this project is to design and implement Computer based Seatplanning

The specific objectives are:

- To develop a system for examiner to add examinee and generate automatic seat plan for exams in excel file.
- To reduce time and effort for examiner to make seat plan
- To solve problem of manual Seatplanning such as repetition of examinee and no seat for examinee.

1.4: Scope

Scope of this project is very broad, few of them are:

- This can be used in educational institutions as well as in corporate world for exams.
- This can be use by those universities where there are very high number of student.

1.5: Overview of Report

The report contains altogether have seven chapters. The first chapter “Introduction” contains whole information of the project “Seatplanner”. It is sub-headed into five topics. The chapter contains the introduction, problem statements, objectives, scope and overview of report of our project. Similarly, chapter two consists of the background study and literature review of the report. In addition, chapter three is all about the methods by which our project is being completed. It is sub headed in two topics: system analysis and methodology of the project. Under system analysis functional and non-functional requirement are made, feasibility analysis in technical, operational and economic, schedule feasibility of the project is analyzed. Under methodology, algorithm, flowchart, data flow diagram and E-R diagram of the project is designed. The chapter four consists of the details of the implementation and test cases of system. Chapter five includes limitation, future enhancement, conclusion and recommendation of our project. There can be some changes in future in this project to make more effective is included and also consists of overall summary of the project.

Chapter 2: Background Story and Literature Review

2.1: Background Story

This present era has been termed to be an information age. An age where the demand for information dramatically increased. The computer has been the most useful thing for getting or accessing information nowadays.

The unending global and social change that we find ourselves in as a result of rapid transformation from the industrial age to an information age brought about the introduction of computer into the information industry. This introduction (the use of computers) has rapidly affected all areas of life ranging from homes, industries and of course the educational system.

However, with the economic development and advancement in science and technology, adding to the rapid increase in the population of the country (Nigeria), education becomes the dream of every parent for her child, leaving behind the initial philosophy against education. This lead to massive increase of students in schools and there have been a silent cry for an efficient system that will manage students and department numerous files in different universities.

Presently in the Educational institute, due to the increasing number of students, seat allocation for examination has become problem for Educational institute as it consumes lots of time and effort.

However, this created a lot of problems associated with hall allocation and there are no rigid guidelines as to which method should be used. This project "Seatplanner" will consider the allocation of seats in room for examination.

2.2: Literature Review

Before making this project, a brief study on old seat allocation system were made. Various paper regarding seat allocation system were studied.

'Seating arrangement Tools for examinations' [1] developed by Ashti Fatima Alam using C/C++. The main drawback was it was not efficient & was not user friendly.

'Exam hall seating arrangement System' [2] using PHP developed by Prof. S.S.Aravinth, G.Pavithra is an online system, where student registration to be done first.

'Examination Management Automation System' [3] developed by Vamsi Krishna Yepuri, Gopi Chand Pamu, Naveen Kodali, Pradyumna L According to the paper, the system has been designed to simplify the allocation of halls, seating arrangement of

students and allocating staff to the examination halls. Allocation of faculty to corresponding rooms will be done by the exam cell coordinator in the form of word documents and excel sheets and also allocation of students to their corresponding rooms.

Chapter 3: System Analysis and Methodology

3.1: System Analysis

Systems Analysis the process of observing systems for development purposes. It helps in understanding of complex structure of the system. It also gives an advantage of understanding and comparing the subsystems functions with complete system.

3.1.1: Requirement Analysis

i. Functional Requirement:

These are the requirements that the end user specifically demands as basic facilities that the system should offer. It specifies 'What should the software system do?' All these functionalities need to be necessarily incorporated into the system as a part of the contract. They are basically the requirements stated by the user which one can see directly in the final product.

Login/Logout

- To make a system secure, User should log in before starting using the system and log out after he/she finishes.

Manage Student

- User can update, delete and add student

Manage Room

- User can update, delete and add room

Generate Report

- Report can be generated in Excel file and directly open that file in Excel

Change Password

- Admin can change Password.

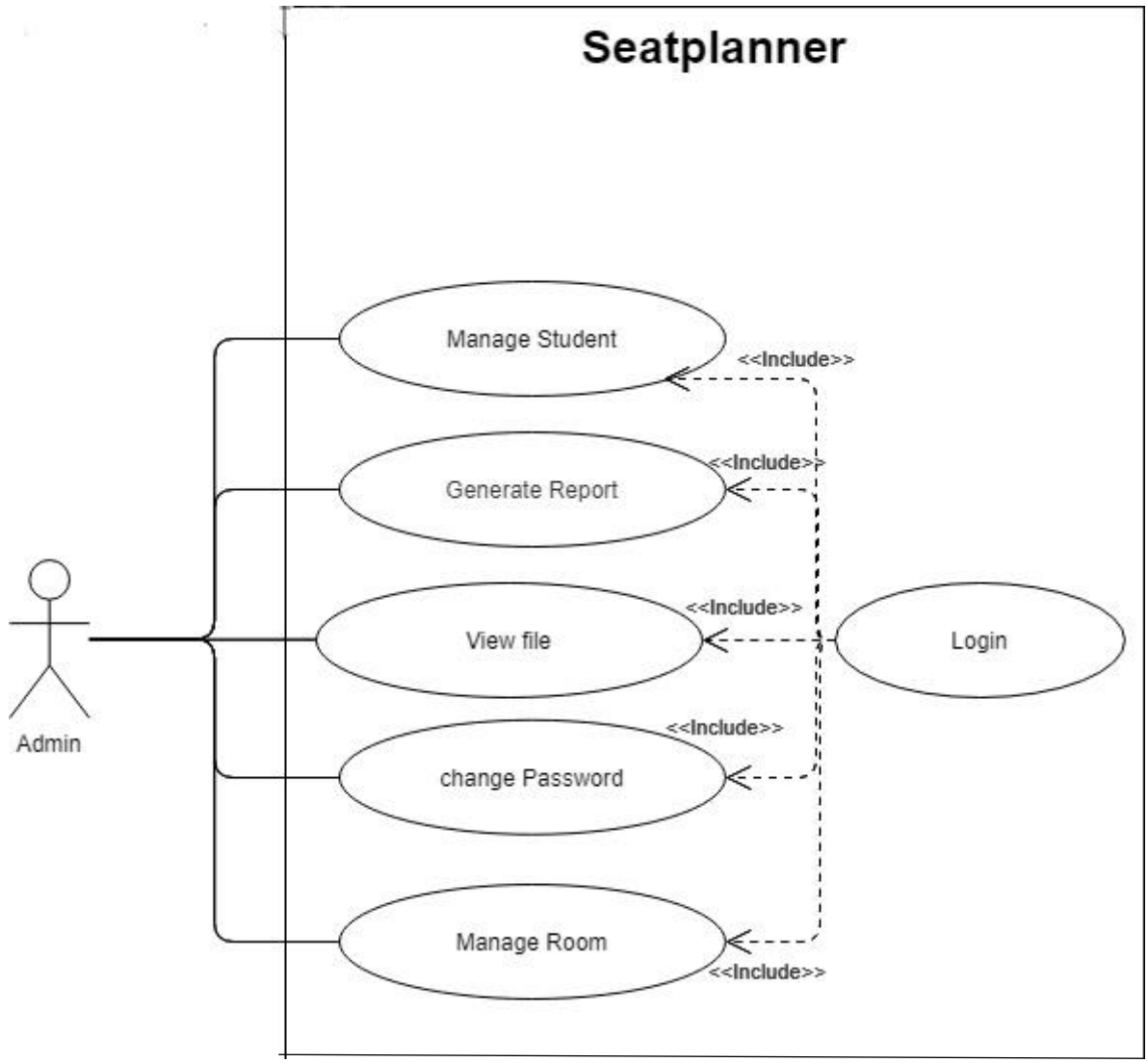


Figure 3.1.1.1: Use-case diagram

ii. Non-functional Requirement:

Non-Functional Requirement specifies the quality attribute of a software system. They judge the software system based on Responsiveness, Usability, Security, Portability and other non-functional standards that are critical to the success of the software system. This requirement describe how the functional requirement are implemented on the system.

Requirement Analysis produced the following non-functional requirement:

Reliability:

The degree to which the software regularly executes the stated functions without failure is referred to as reliability. All the function stated in this project will performed accurately.

Availability:

This software need computer system to operate. If you have computer system you can use this software 24 hours per day.

Security:

In order to prevent unauthorized access user needs to login with username and password for using this software.

Performance:

The system performance is very fast. The report generation time is very quick.

3.1.2: Feasibility Study

i. **Technical Feasibility:**

This study is carried out to check technical requirement of the system. Seatplanner is made using java which is platform independent language. It can be use in all types of operating system with java virtual machine (JVM) installed. This system can be use on computer with very basic specification. So, this software is technically feasible.

ii. Economic feasibility:

The program uses community edition of Intellij Idea for developing this system which is free of cost. The project is the part of academic qualification for Bachelor in Computer Application - Tribhuvan University and there is no monetary factor involved. So, the project is economically feasible.

iii. Operational feasibility:

This study is carried out to check the acceptance of the system. Seatplanner is design using simple UI so user can learn very fast to use it. So, project is operationally feasible.

iv. **Schedule Feasibility:**

Schedule Feasibility is defined as the probability of a project to be completed within its scheduled time limits, by a planned due date. If a project has a high probability to be completed on-time, then its schedule feasibility is high. If we want to see the project completed before they can lose their utility, we need to give proper attention to controlling their schedule feasibility.

The final schedule of the project is given below:

Task	April				May				June			
	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4	week 1	week 2	week 3	week 4
Planning												
Requirement analysis												
UI design												
Database design												
Report writing												
Implementation												
Testing and debugging												

Figure 3.1.2.1: Gantt chart of Seatplanner

3.2: Methodology

This section describes how actually system is implemented and work. To understand actual workflow of the system various model are shown in this section.

3.2.1: Algorithm

Step 1: Start

Step 2: Enter login username and password.

Step 3: If password and username is correct

a. user can add, update and delete student
b. user can add update and delete room
c. user can generate seat plan report in excel
d. user can change password
e. user can view generated file

Else

Show invalid credential message.

Step 4: End

3.2.2: Flowchart

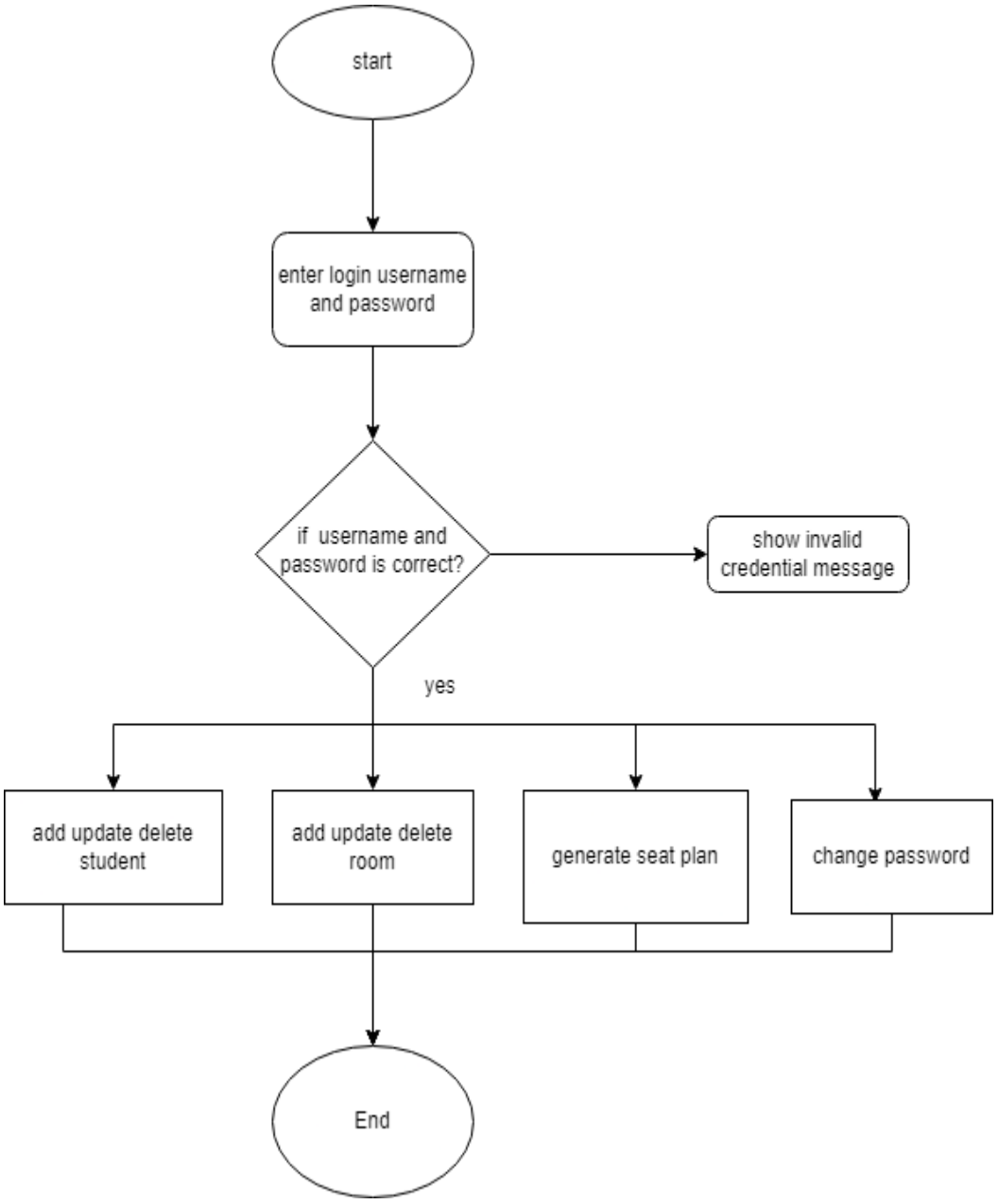


Figure 3.2.2.1 Flowchart of Seatplanner

3.2.3: Data flow diagram (DFD)

i. Context diagram (level 0 DFD)

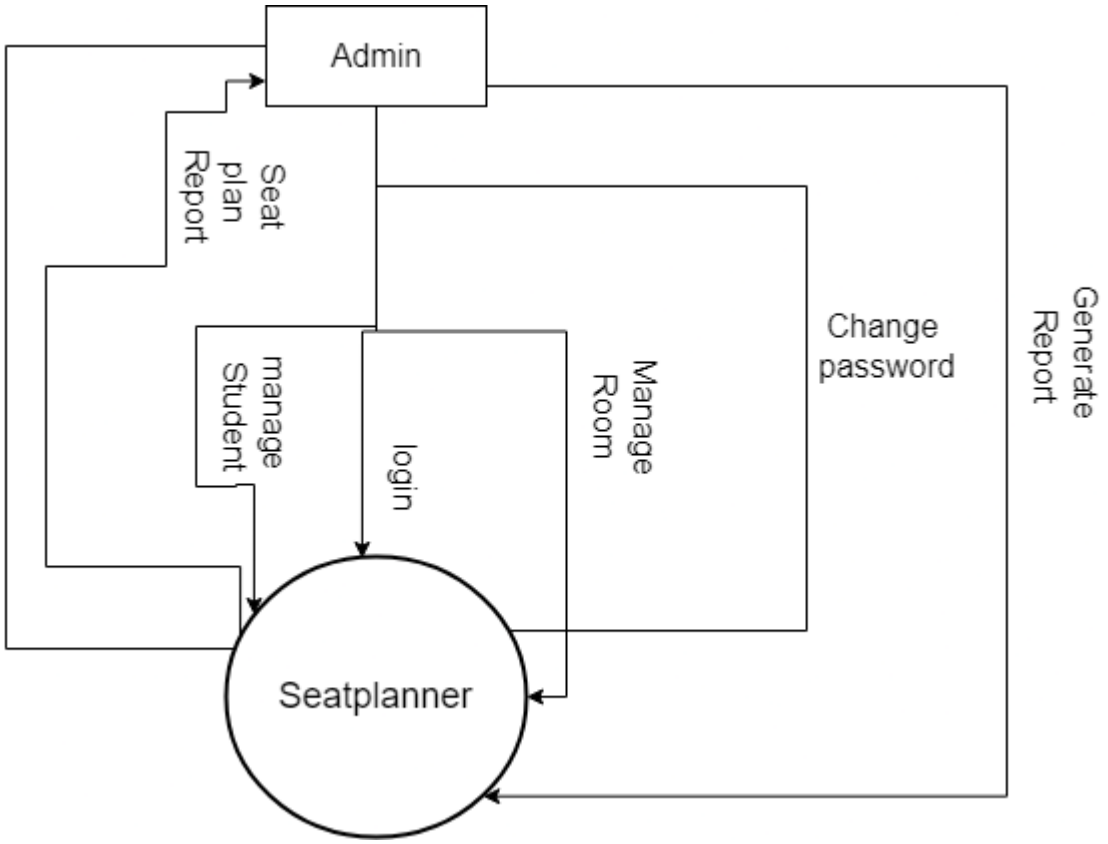


Figure 3.2.3.1: Context Diagram of Seatplanner

ii. Level 1 DFD

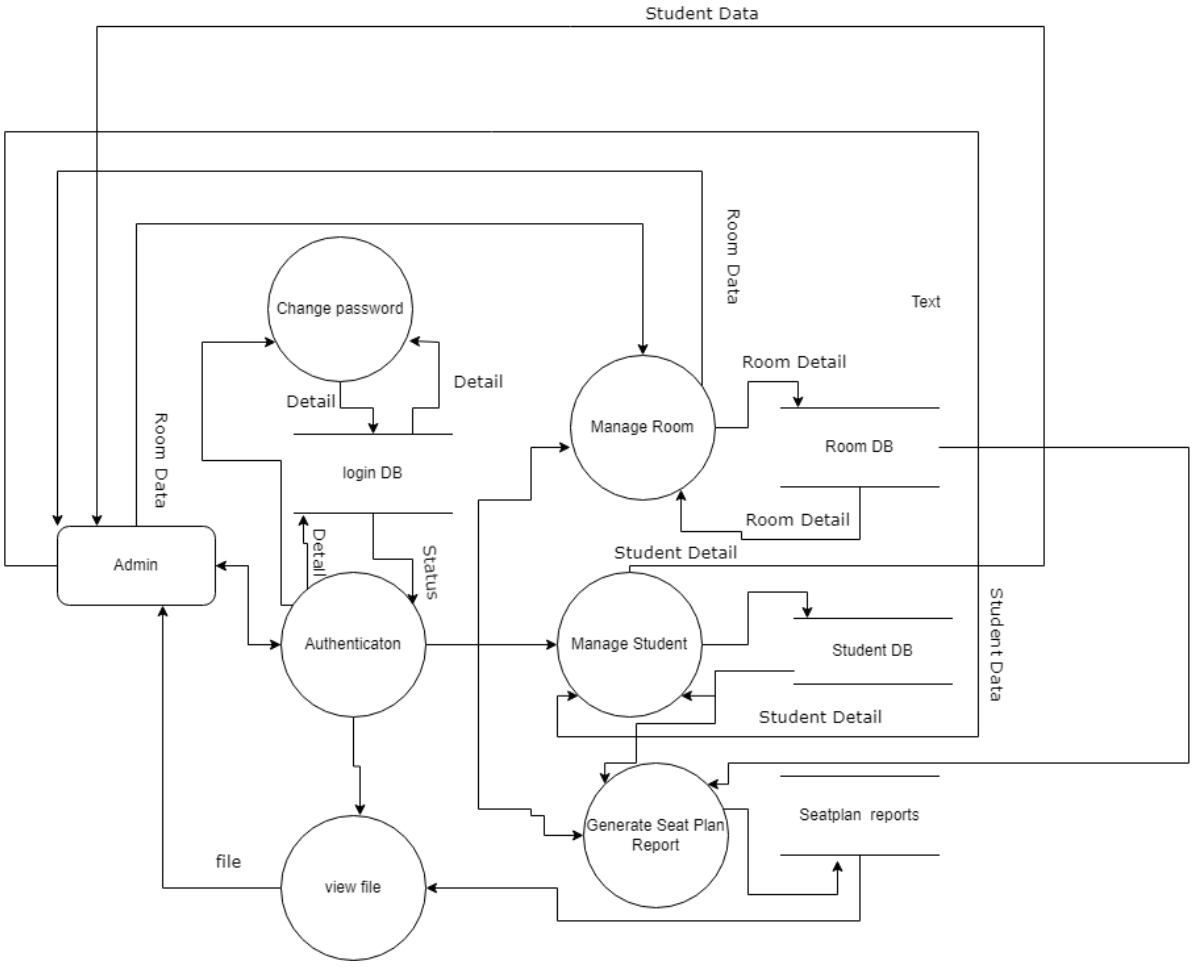


Figure 3.2.3.2: Level 1 Dataflow Diagram of Seatplanner

iii. Level 2 DFD

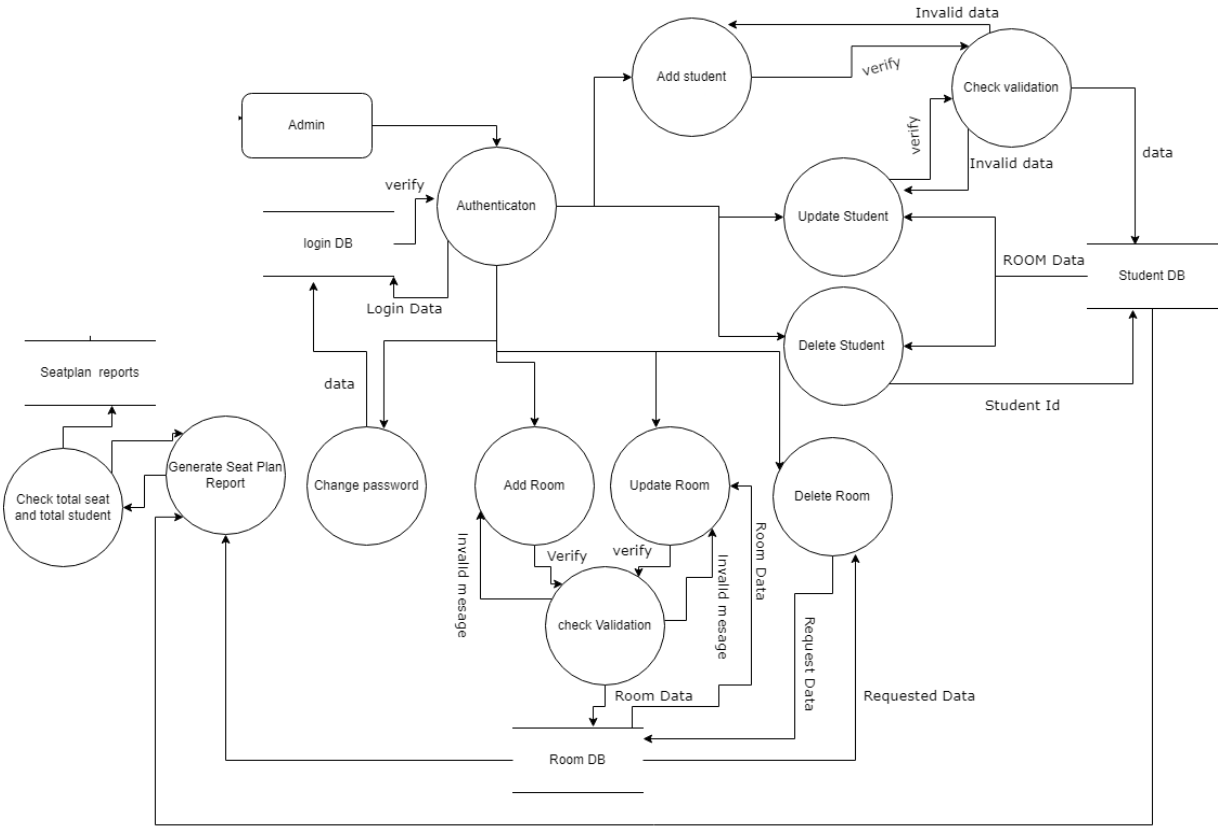


Figure 3.2.3.3: Level 2 Dataflow Diagram of Seatplanner

3.2.4: Entity Relationship Diagram

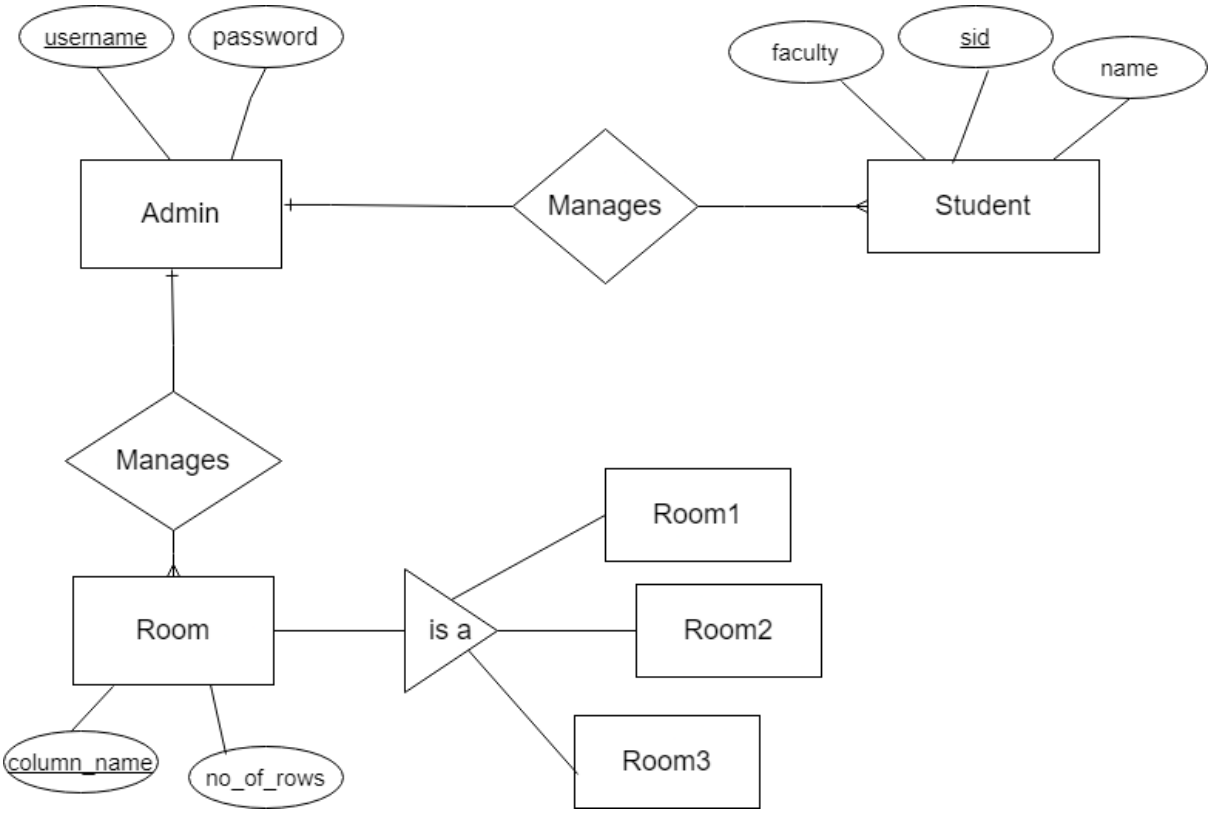


Figure 3.2.4.1: Entity Relationship Diagram of Seatplanner

Chapter 4: Result analysis and Discussion

4.1: Result Analysis

Despite project was not planned in proper manner, we made many changes while building the project for simplicity and additional features. Many additional features were added as per supervisor suggestion. Some of the features could not be added because of time bounds making them the limitation and future recommendation of this project

The screenshot of the project is shown in the Annex chapter.

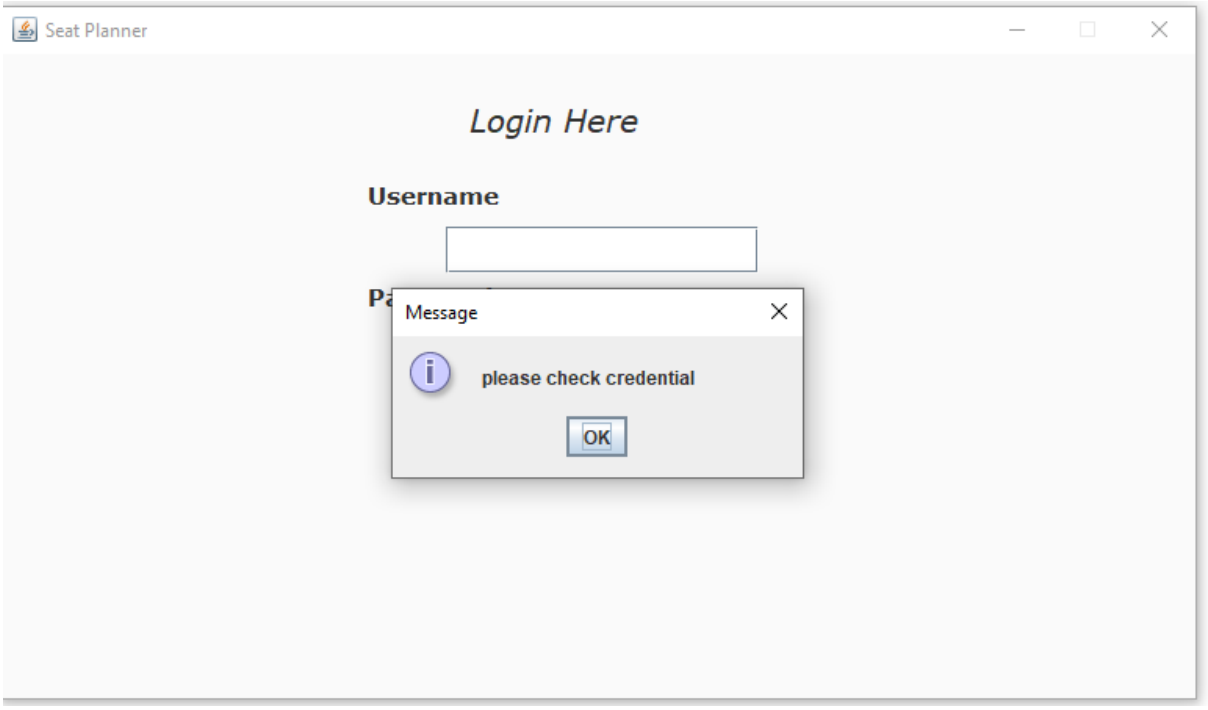
4.2: Test cases

Table 4.2.1: Test Case for Login

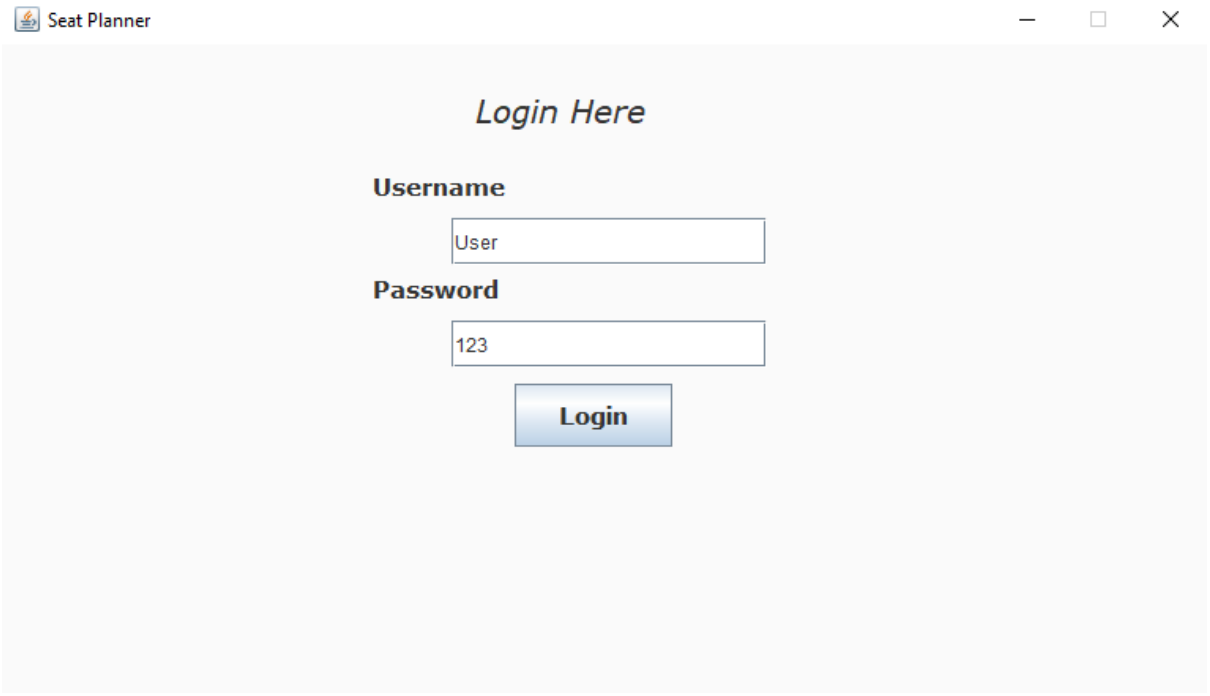
Test case id	1		
Test case description	Login		
Prerequisites	Enter the username and password. Click login		
Test scenario 1	User click login button without entering username and password		
Test data	Username: Password:		
Step	Expected output	Actual Result	Pass/fail
1.	Please check credential	Please check credential	Pass
Test scenario 2	Admin enter a wrong password or username		
Test data	Username: User Password: 123		
Step	Expected output	Actual Result	Pass/fail

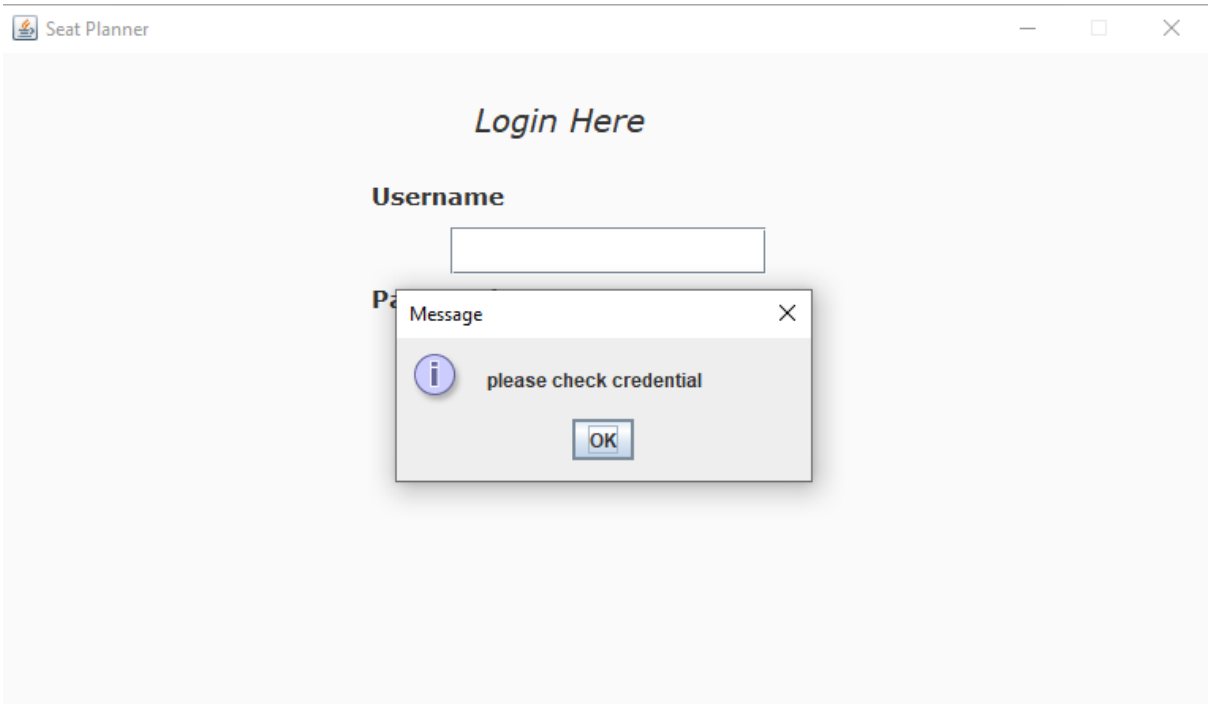
1.	Please check credential	Please check credential	Pass
Test scenario 3	Admin enter valid username and password		
Test data	Username: admin Password: root@123		
Step	Expected output	Actual Result	Pass/fail
1.	Add Student Window open	Add Student Window open	Pass

Test case scenario 1:

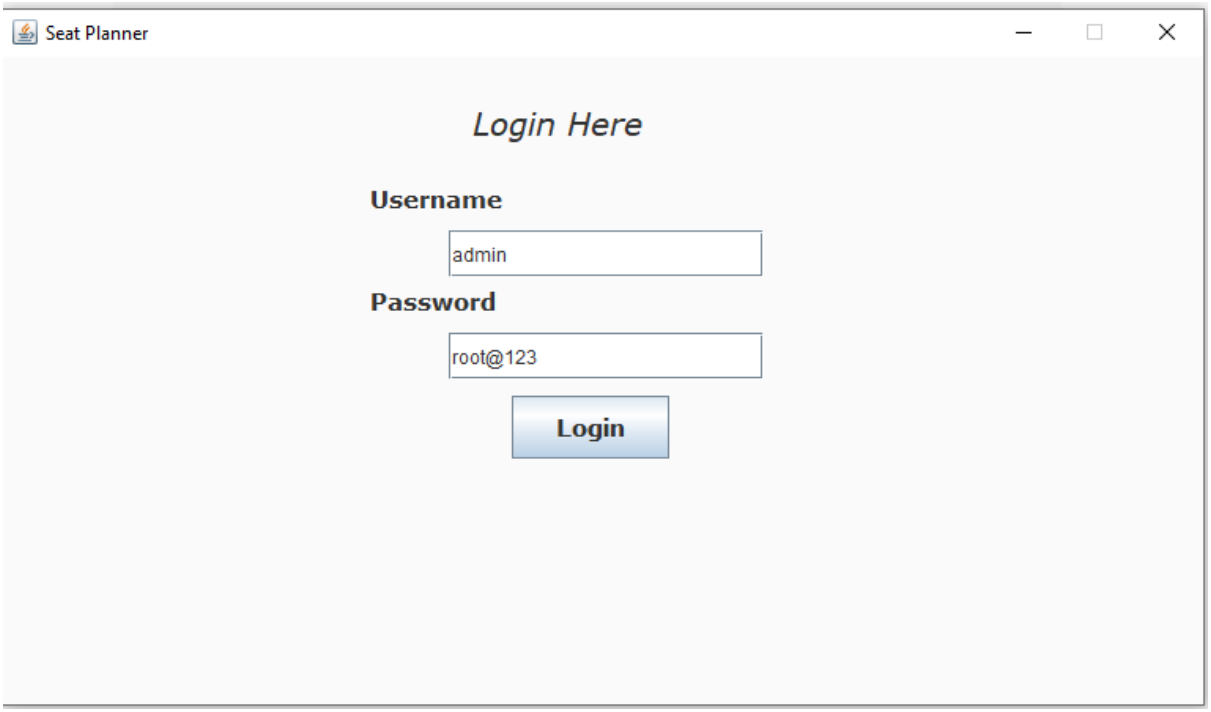


Test case scenario 2:





Test case scenario 3:



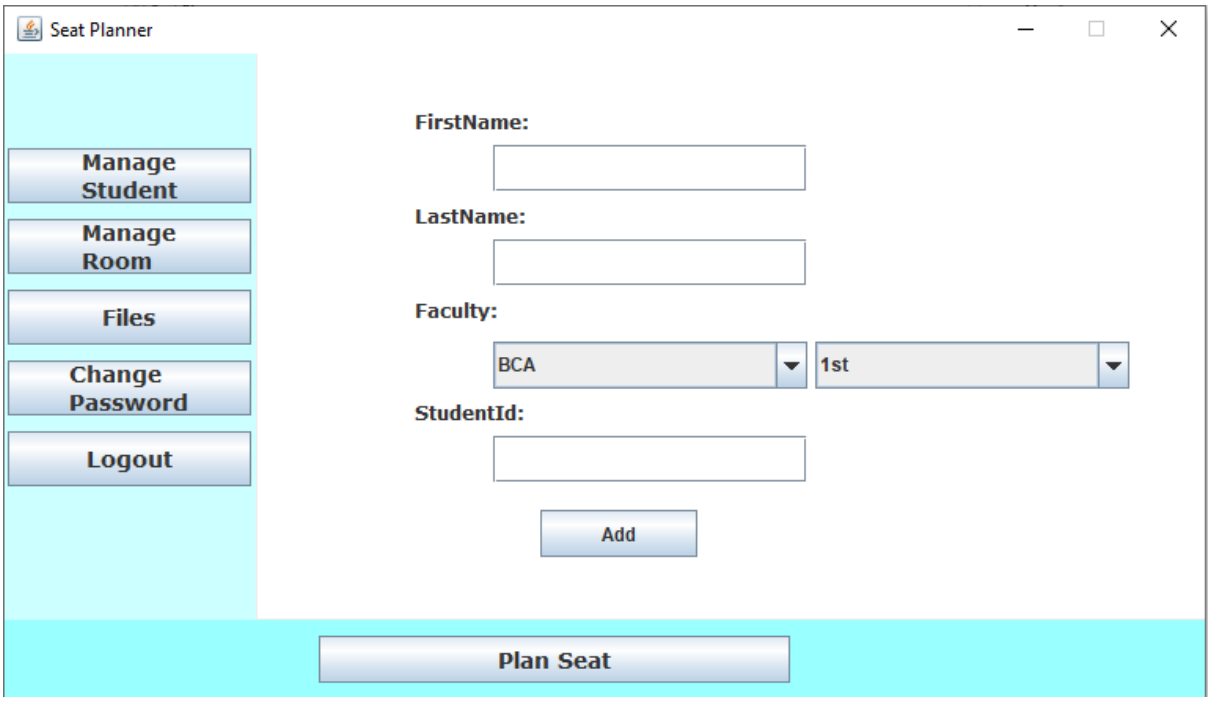
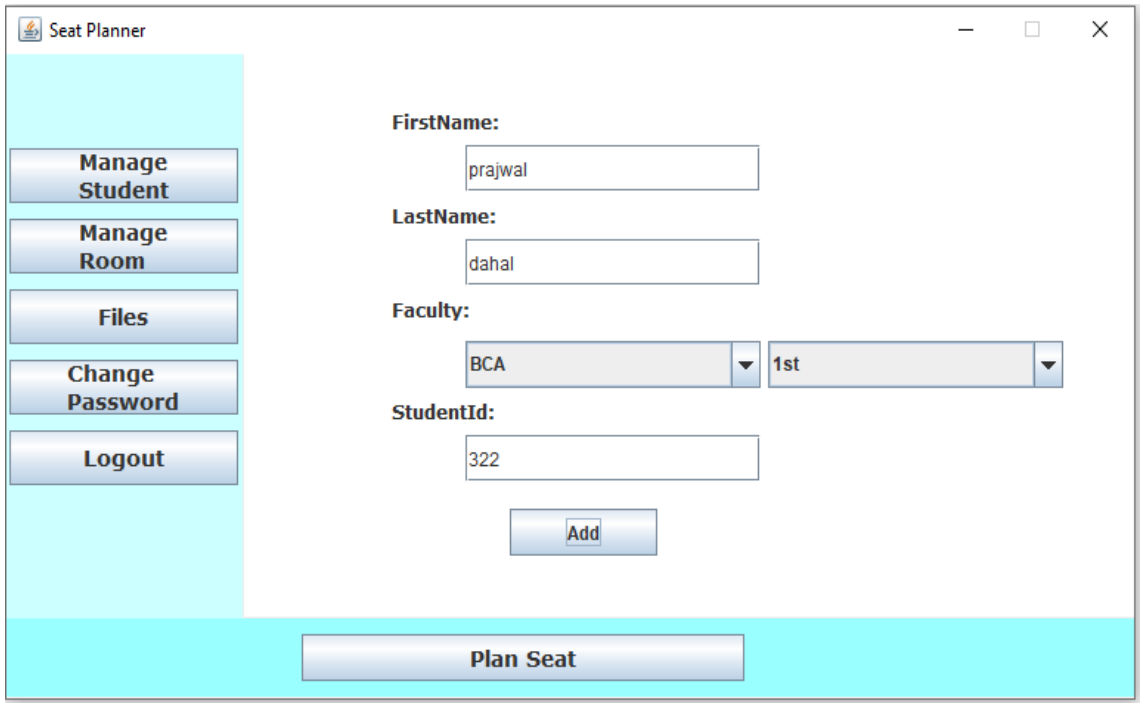


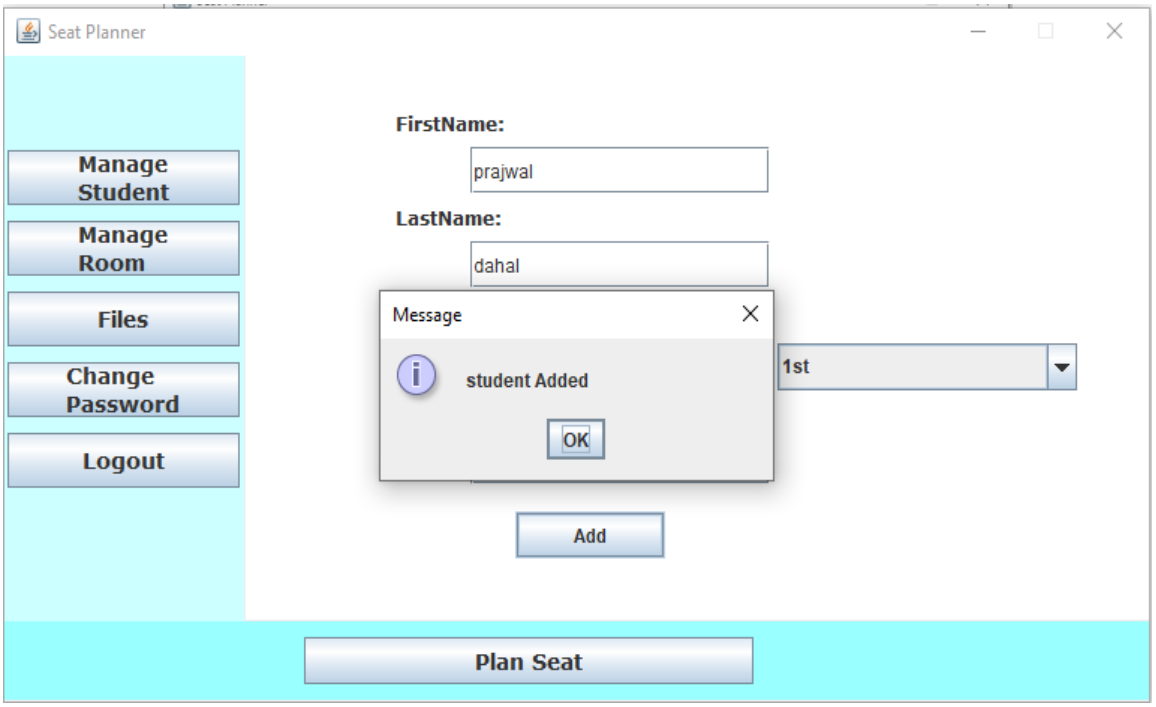
Table 4.2.2: Test case for add, update, delete student

Test Case ID	2		
Test Case Description	Add, update, delete Student		
Prerequisites:	All the field must be filled.		
Test Scenario	1. Enter the First Name, Last Name, faculty, student id. 2. Click Add button. 3. Update the student to create some changes.		
	4. Delete the student if necessary.		
Test Data	First Name: prajwal Last Name: Dahal Faculty: BCA 1st Student Id: 322 **Update data:** Faculty: BBA 1st **Delete data:** Student Id: 322		
Step	Expected Result	Actual Result	Pass/Fail
1.	Student added	Student added.	Pass
2.	Do you want to update student with id=322?	Do you want to update student with id =322?	Pass
3.	Do you want to delete student with id 322?	Do you want to delete student with id 322?	Pass

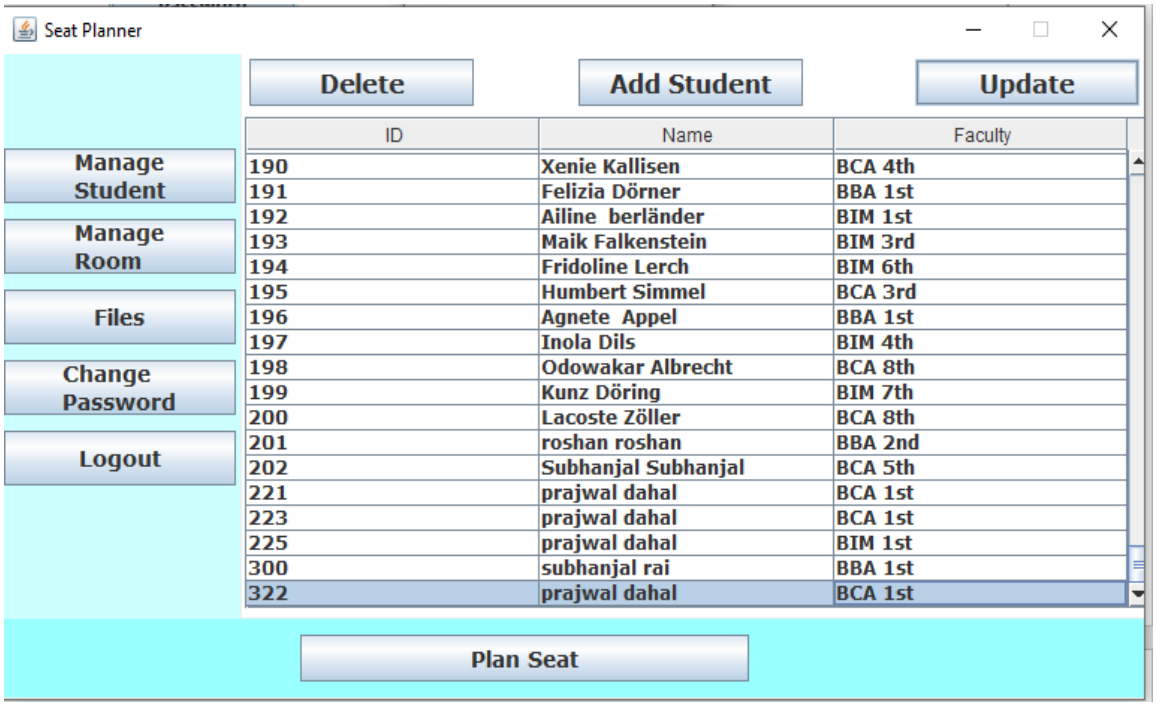
Test Scenario:

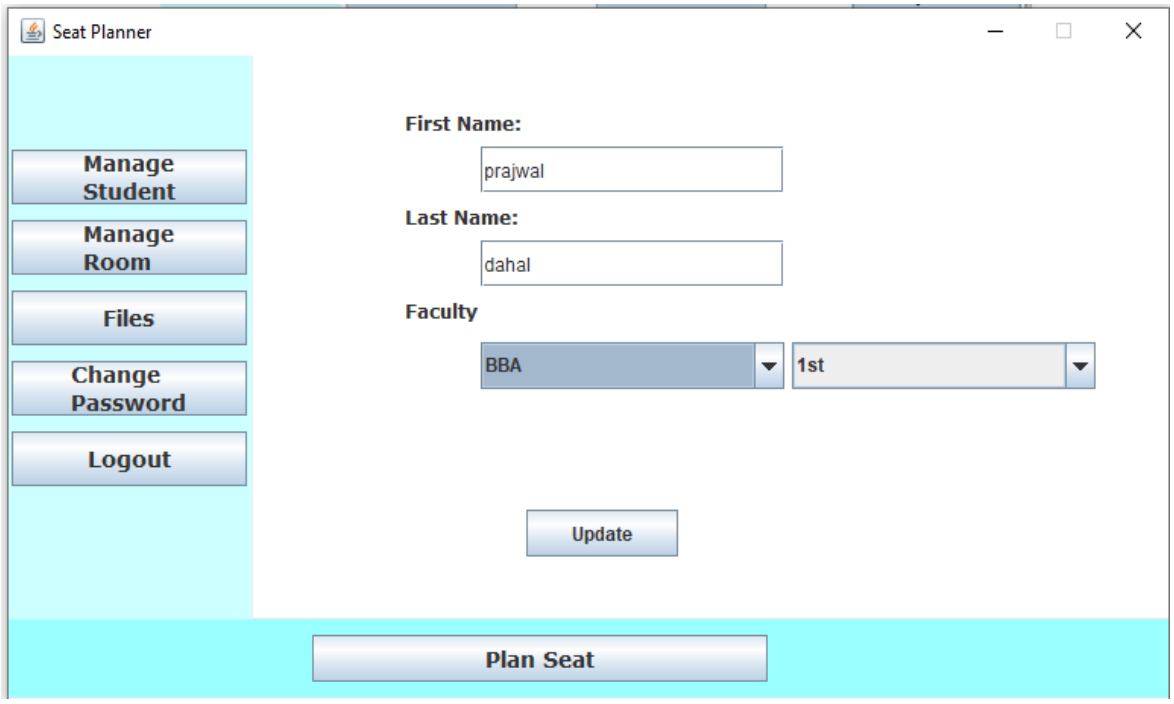
Add Student

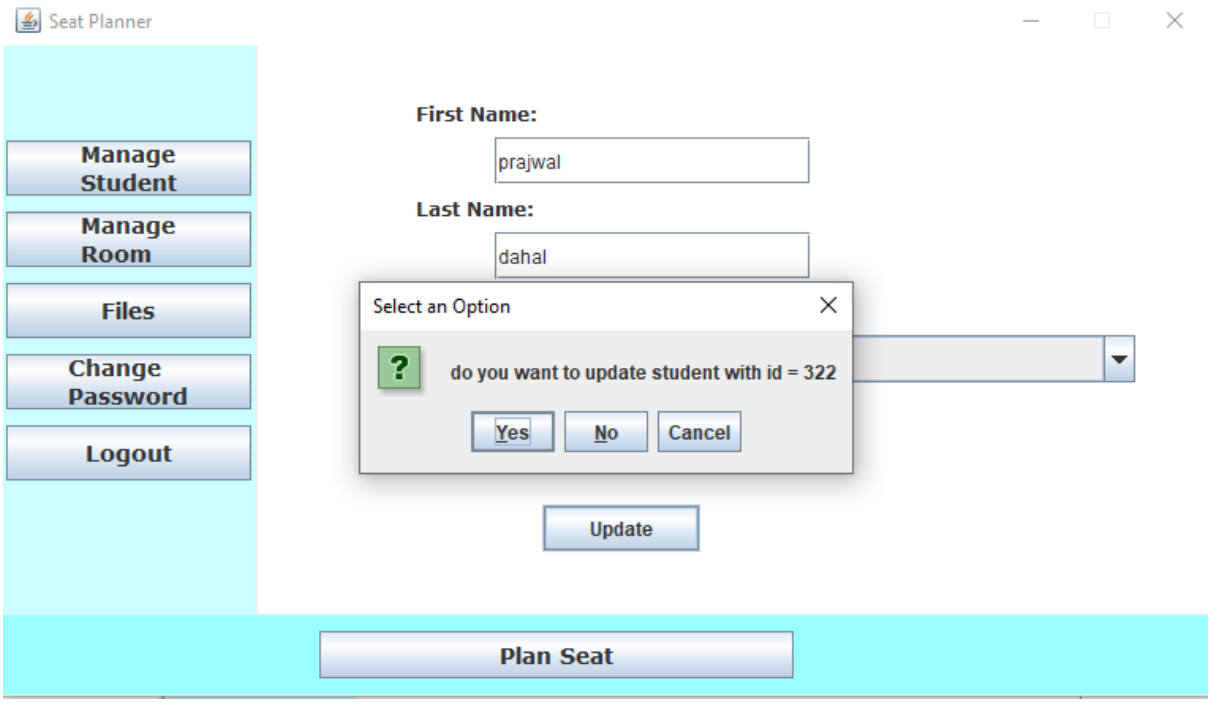


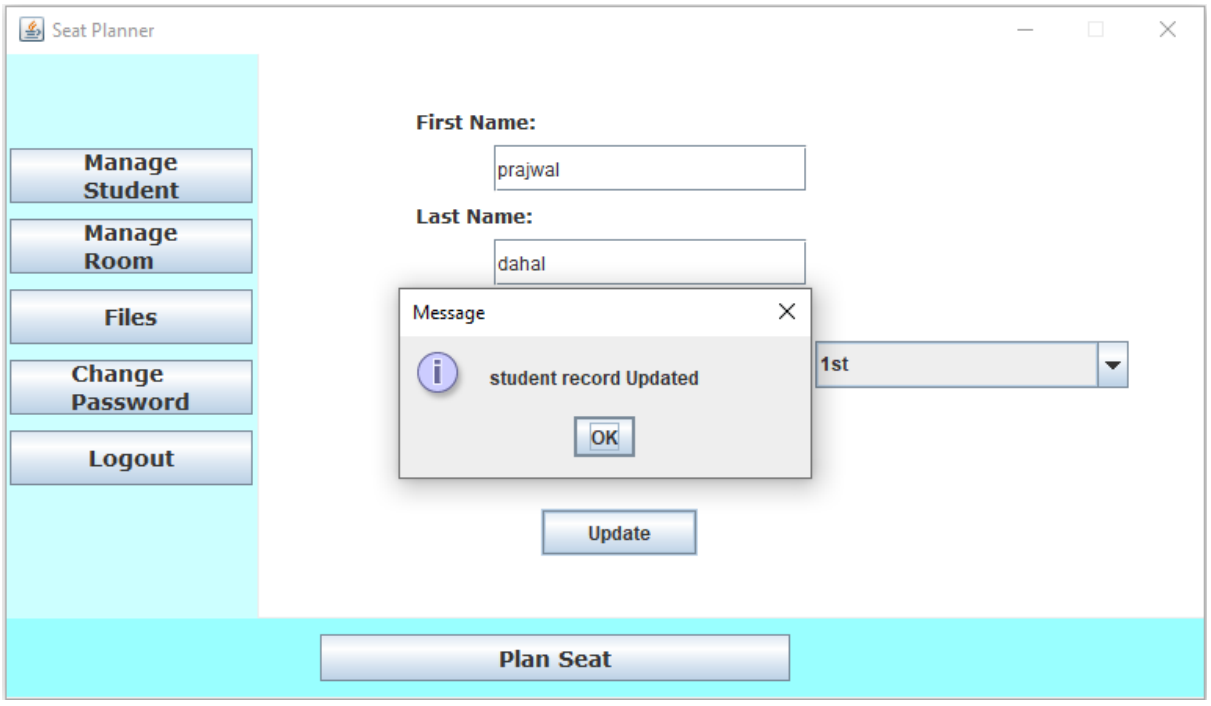


Update Student:

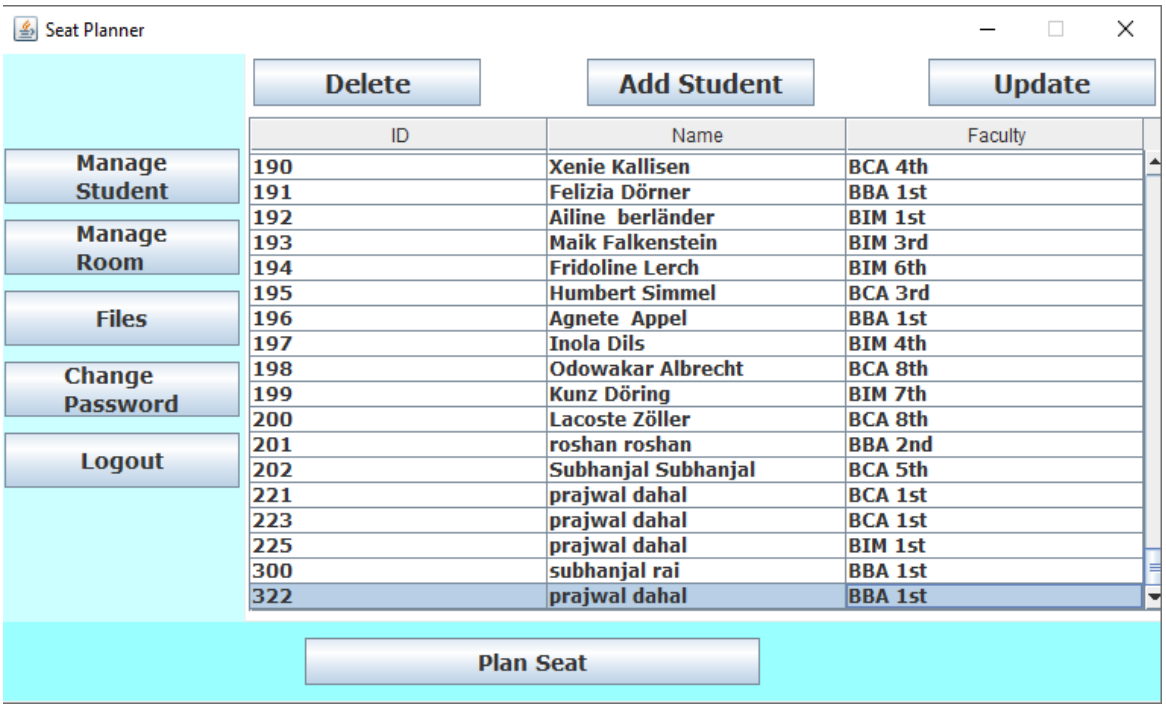


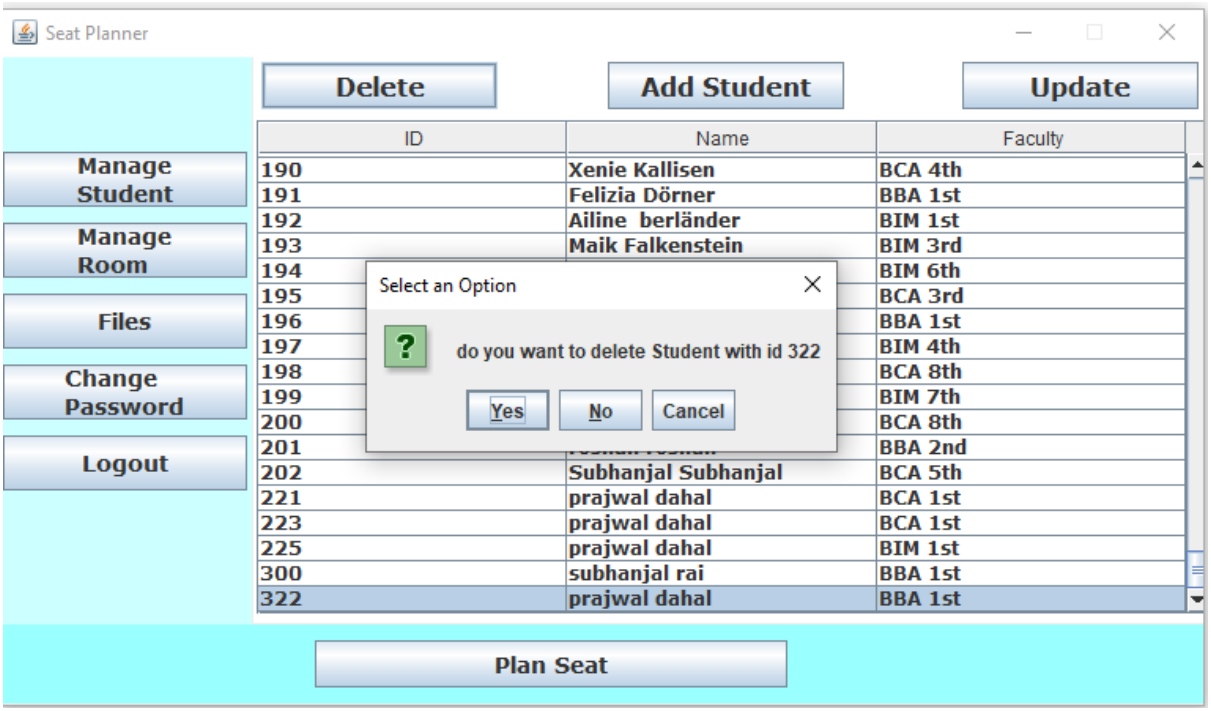



Seat Planner
Manage Student
Manage Room
Files
Change Password
Logout
First Name:
prajwal
Last Name:
dahal
Select an Option
do you want to update student with id = 322
Yes
No
Cancel
Update
Plan Seat


Seat Planner
Manage Student
Manage Room
Files
Change Password
Logout
First Name:
prajwal
Last Name:
dahal
Message
student record Updated
OK
1st
Update
Plan Seat

Delete Student:




Seat Planner
Delete
Add Student
Update
Manage Student
Manage Room
Files
Change Password
Logout
ID
Name
Faculty
190 Xenie Kallisen BCA 4th
191 Felizia Dörner BBA 1st
192 Ailine berländer BIM 1st
193 Maik Falkenstein BIM 3rd
194 BIM 6th
195 BCA 3rd
196 BBA 1st
197 BIM 4th
198 BCA 8th
199 BIM 7th
200 BCA 8th
201 BBA 2nd
202 Subhanjal Subhanjal BCA 5th
221 prajwal dahal BCA 1st
223 prajwal dahal BCA 1st
225 prajwal dahal BIM 1st
300 subhanjal rai BBA 1st
322 prajwal dahal BBA 1st
Select an Option
do you want to delete Student with id 322
Yes
No
Cancel
Plan Seat

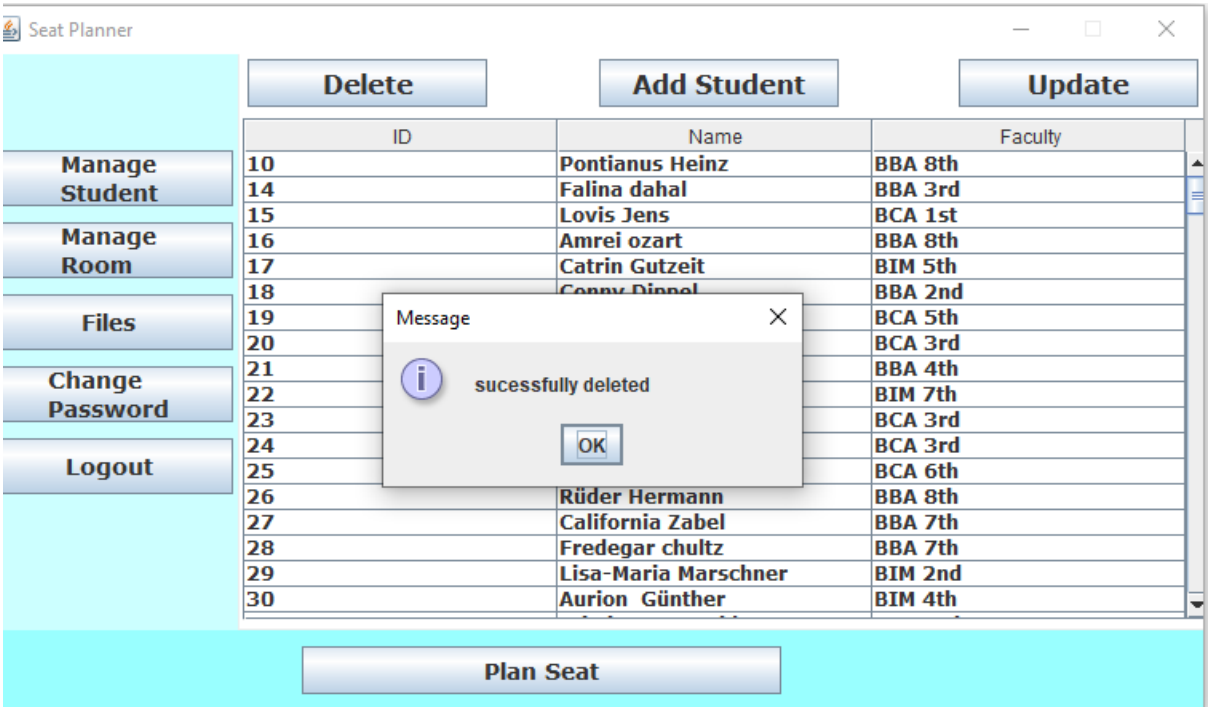
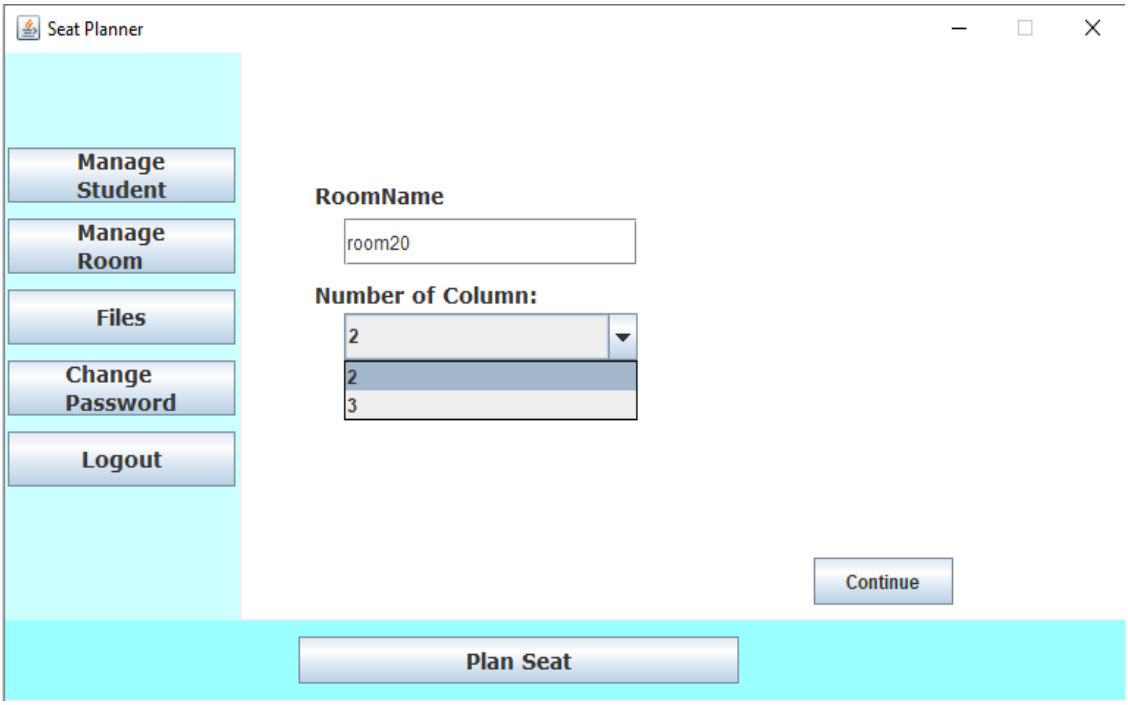

Seat Planner
Delete
Add Student
Update
Manage Student
Manage Room
Files
Change Password
Logout
ID
Name
Faculty
10 Pontianus Heinz BBA 8th
14 Falina dahal BBA 3rd
15 Lovis Jens BCA 1st
16 Amrei ozart BBA 8th
17 Catrin Gutzeit BIM 5th
18 BBA 2nd
19 BCA 5th
20 BCA 3rd
21 BBA 4th
22 BIM 7th
23 BCA 3rd
24 BCA 3rd
25 BCA 6th
26 Rüder Hermann BBA 8th
27 California Zabel BBA 7th
28 Fredegar chultz BBA 7th
29 Lisa-Maria Marschner BIM 2nd
30 Aurion Günther BIM 4th
Message
sucessfully deleted
OK
Plan Seat

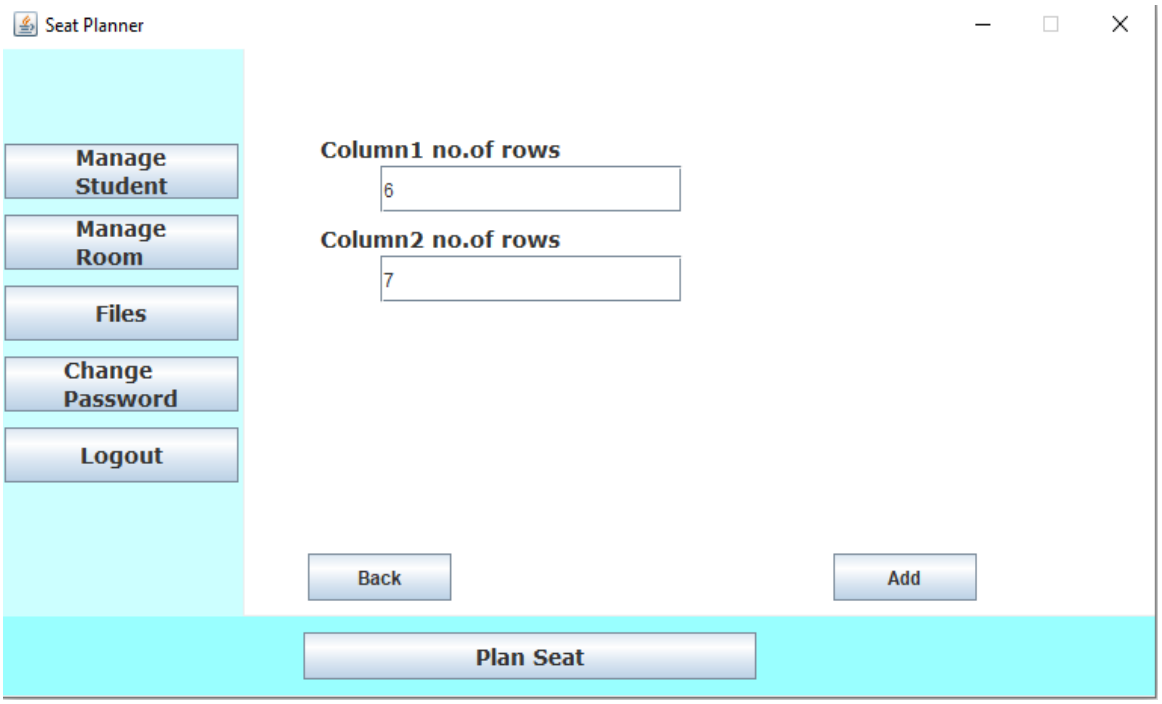
Table 4.2.3: Test case for add, update and delete room

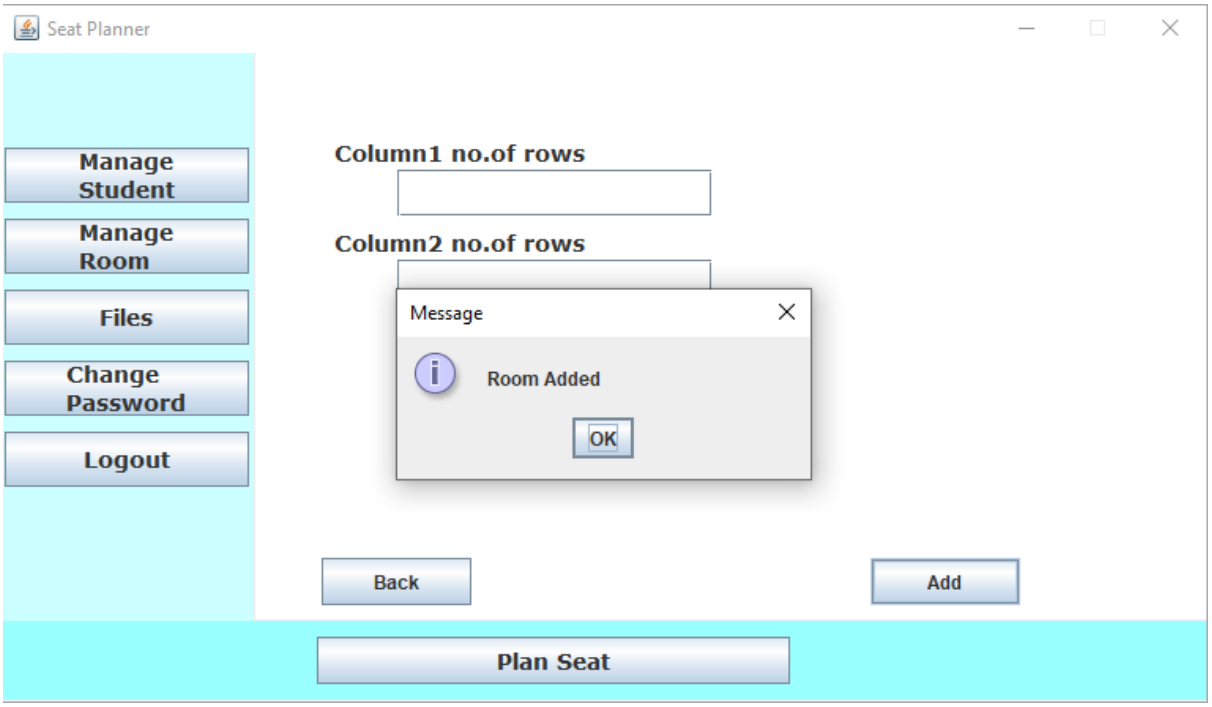
Test Case ID	3		
Test Case Description	Add and delete Room		
Prerequisites:	All the field must be filled.		
Test Scenario	1. Enter room name and select number of column 2. Click on continue 3. Fill no of rows in each column 4. Click on add		
Test Data	**Add data** Room Name: room20 No of column : 2 Column1 no of rows:6 Column2 no of rows:7 **Update Room:** Room Name:room2 No of column2:2 Column1 no of rows:8 Column2 no of rows:6 **Delete room :** Room: room2		
Step	Expected Result	Actual Result	Pass/Fail
1.	New room added	New room added.	Pass
2.	Do you want to delete room2?	Do you want to delete room2?	Pass
3.	Do you want to update room?	Do you want to update room?	Do you want to update room?

Test Scenario:

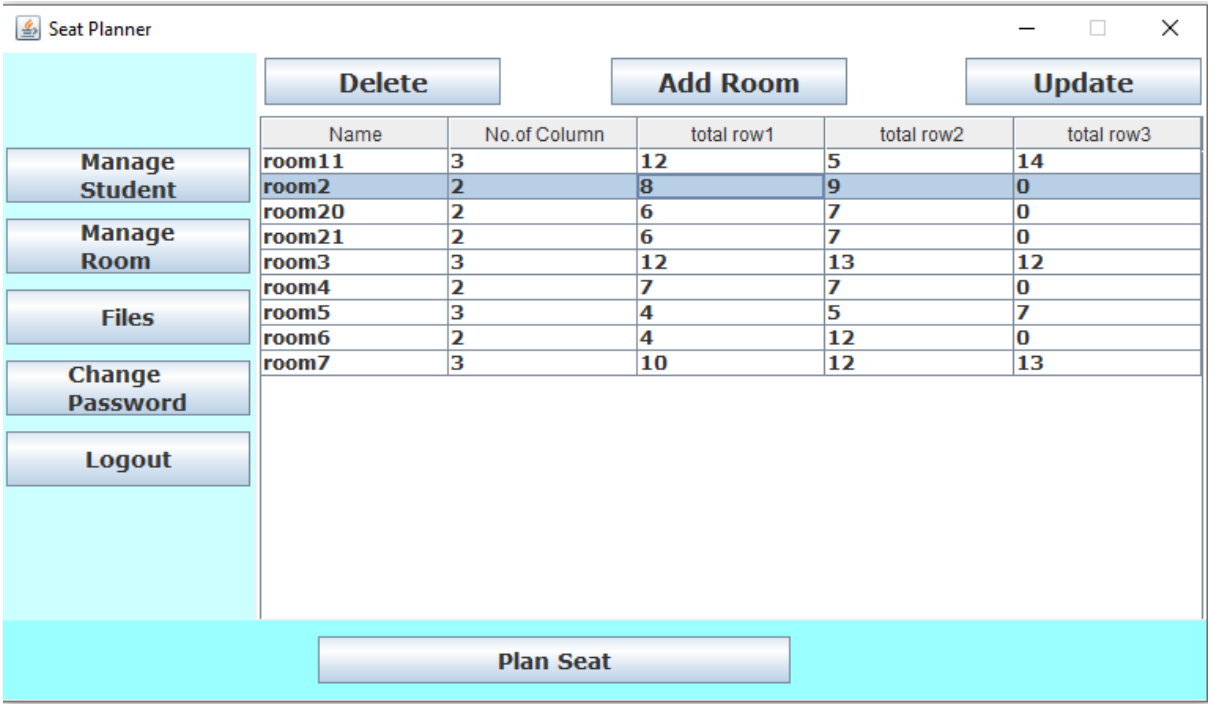
Add Room:



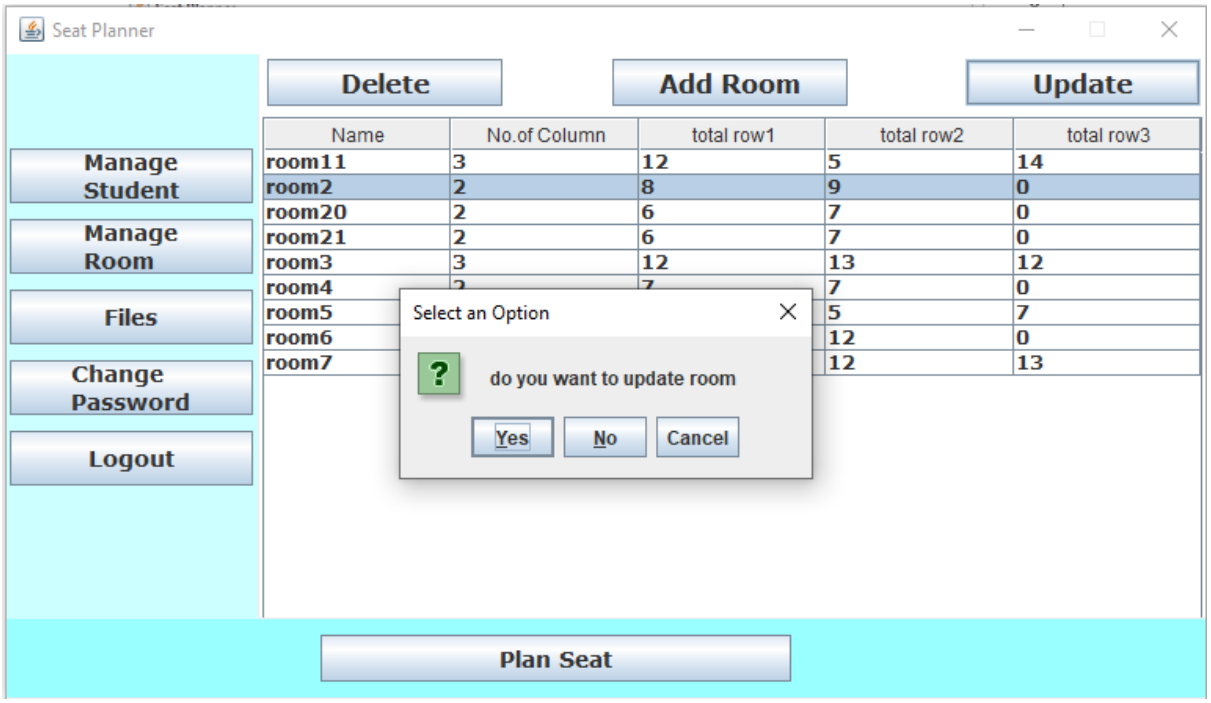


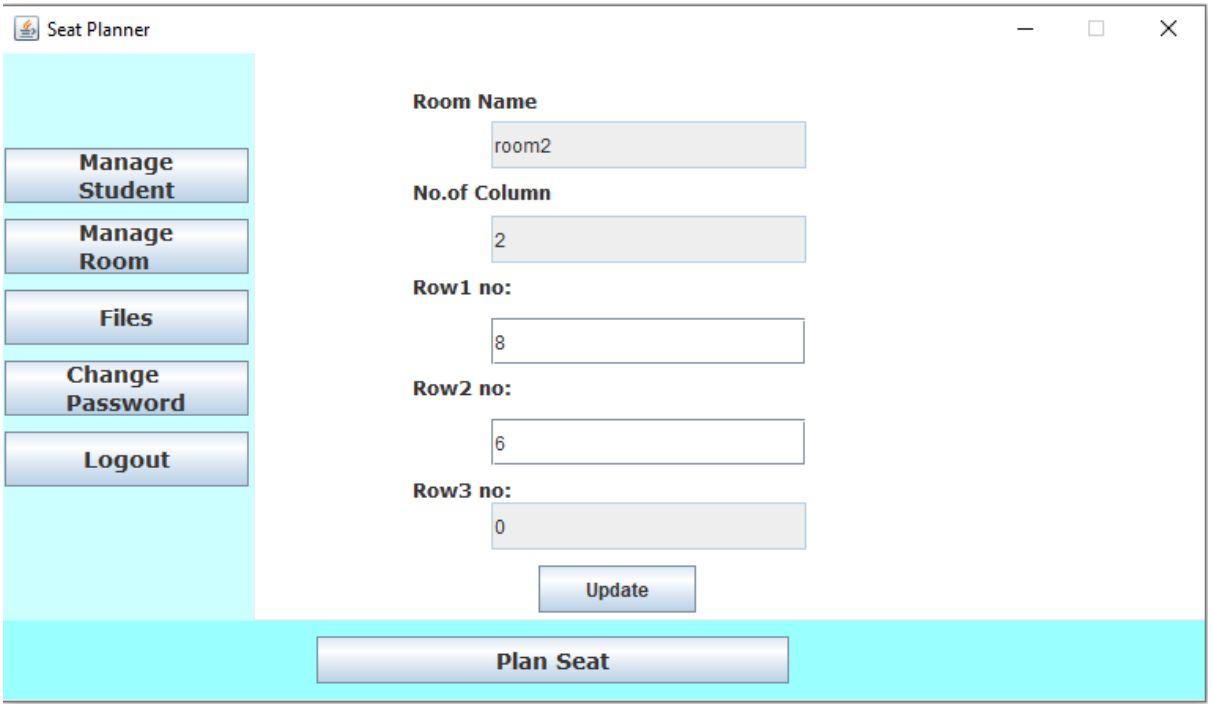


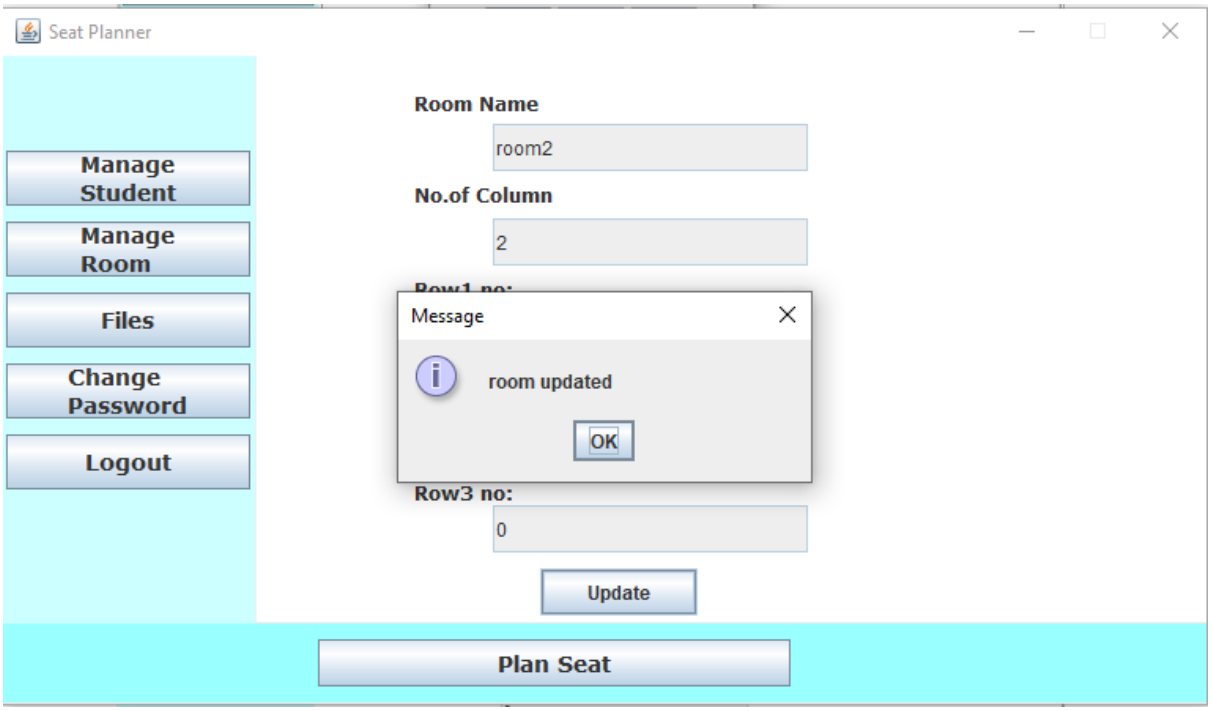
Update Room:



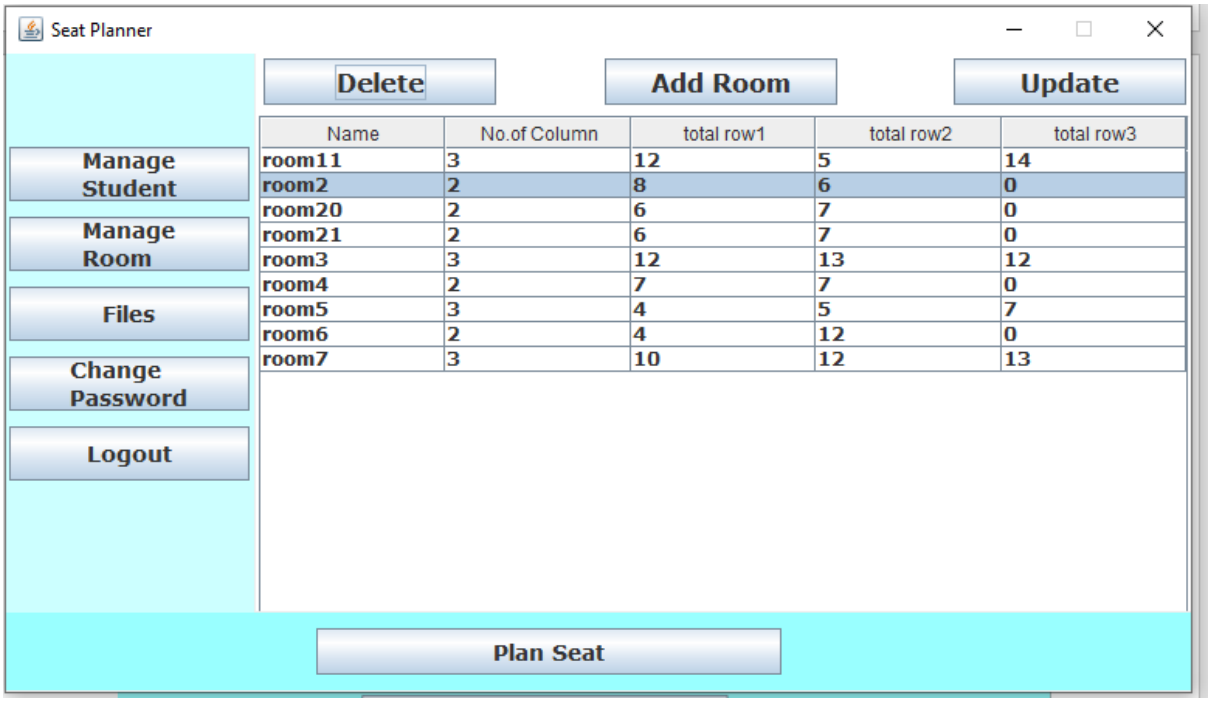
Name	No.of Column	total row1	total row2	total row3
room11	3	12	5	14
room2	2	8	9	0
room20	2	6	7	0
room21	2	6	7	0
room3	3	12	13	12
room4	2	7	7	0
room5	3	4	5	7
room6	2	4	12	0
room7	3	10	12	13

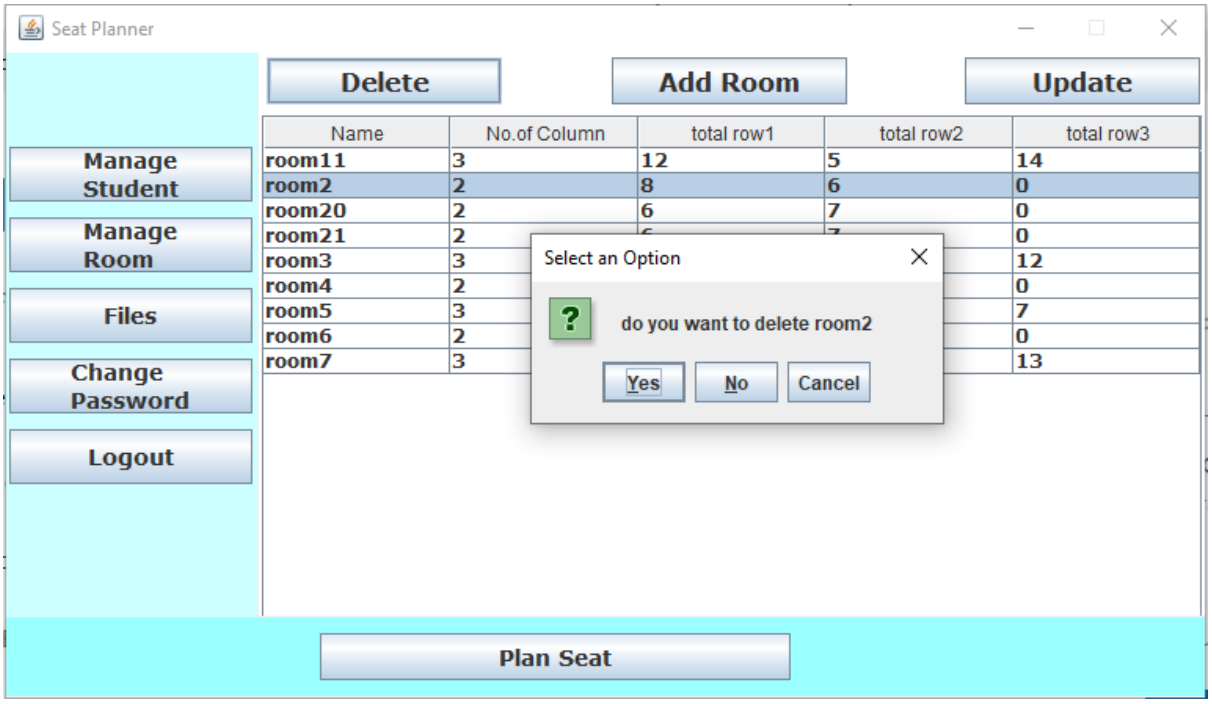

Seat Planner
Delete
Add Room
Update
Manage Student
Manage Room
Files
Change Password
Logout
Name
No.of Column
total row1
total row2
total row3
room11 3 12 5 14
room2 2 8 9 0
room20 2 6 7 0
room21 2 6 7 0
room3 3 12 13 12
room4 7 0
room5 5 7
room6 12 0
room7 12 13
Select an Option
do you want to update room
Yes
No
Cancel
Plan Seat


Seat Planner
Manage Student
Manage Room
Files
Change Password
Logout
Room Name
room2
No.of Column
2
Row1 no:
8
Row2 no:
6
Row3 no:
0
Update
Plan Seat


Seat Planner
Manage Student
Manage Room
Files
Change Password
Logout
Room Name
room2
No.of Column
2
Message
room updated
OK
Row3 no:
0
Update
Plan Seat

Delete Room:


Seat Planner
Delete
Add Room
Update
Manage Student
Manage Room
Files
Change Password
Logout
Name | No.of Column | total row1 | total row2 | total row3
room11 | 3 | 12 | 5 | 14
room2 | 2 | 8 | 6 | 0
room20 | 2 | 6 | 7 | 0
room21 | 2 | 6 | 7 | 0
room3 | 3 | 12 | 13 | 12
room4 | 2 | 7 | 7 | 0
room5 | 3 | 4 | 5 | 7
room6 | 2 | 4 | 12 | 0
room7 | 3 | 10 | 12 | 13
Plan Seat


Seat Planner
Delete
Add Room
Update
Manage Student
Manage Room
Files
Change Password
Logout
Name
No.of Column
total row1
total row2
total row3
room11 3 12 5 14
room2 2 8 6 0
room20 2 6 7 0
room21 2 0
room3 3 12
room4 2 0
room5 3 7
room6 2 0
room7 3 13
Select an Option
do you want to delete room2
Yes
No
Cancel
Plan Seat

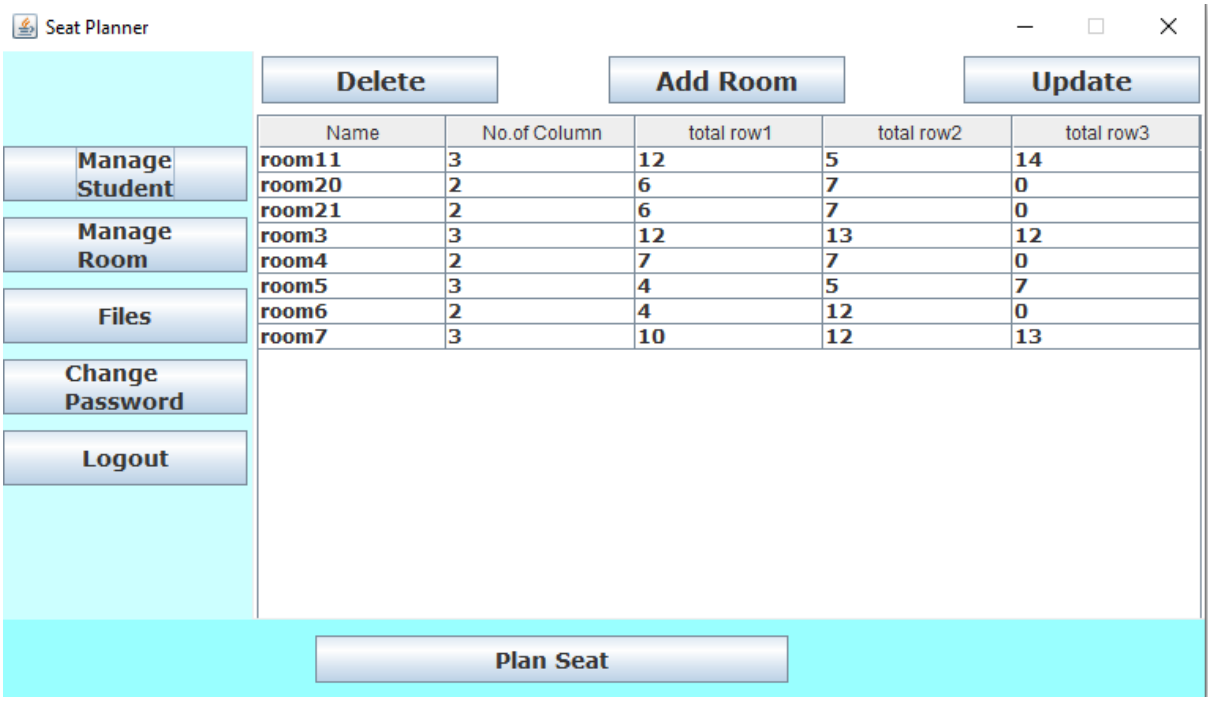
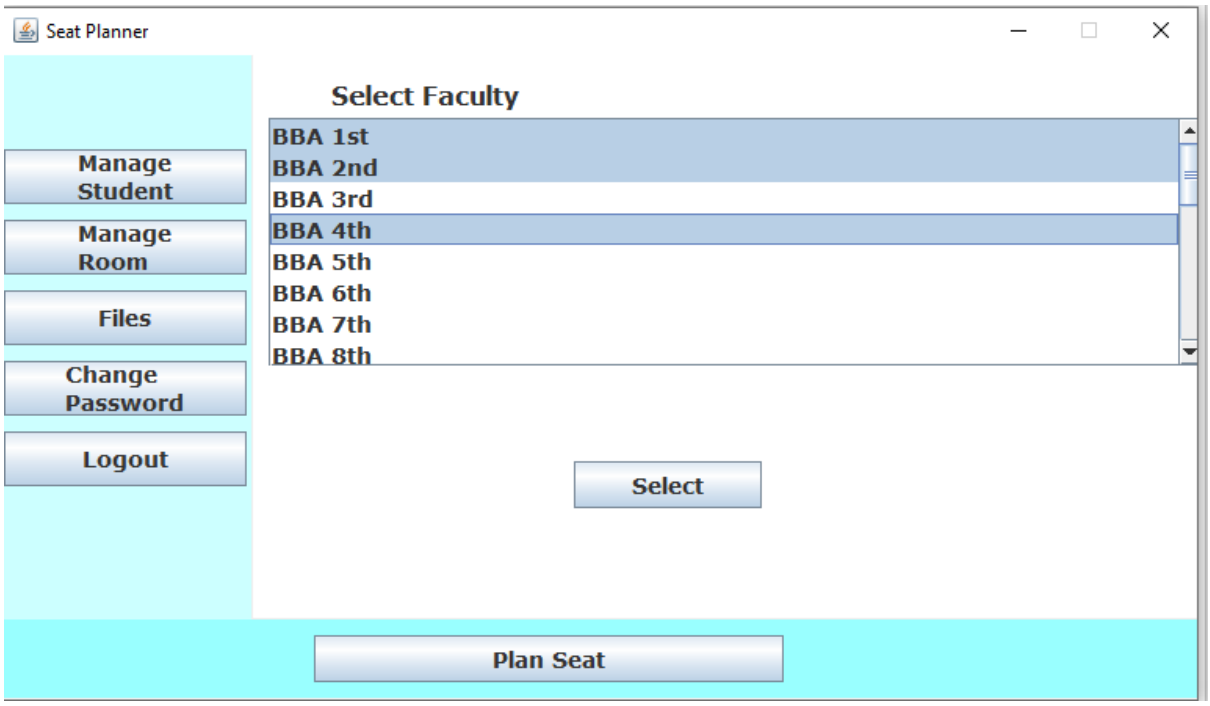

Seat Planner
Delete
Add Room
Update
Manage Student
Manage Room
Files
Change Password
Logout
Name
No.of Column
total row1
total row2
total row3
room11 3 12 5 14
room20 2 6 7 0
room21 2 6 7 0
room3 3 12 13 12
room4 2 7 7 0
room5 3 4 5 7
room6 2 4 12 0
room7 3 10 12 13
Plan Seat

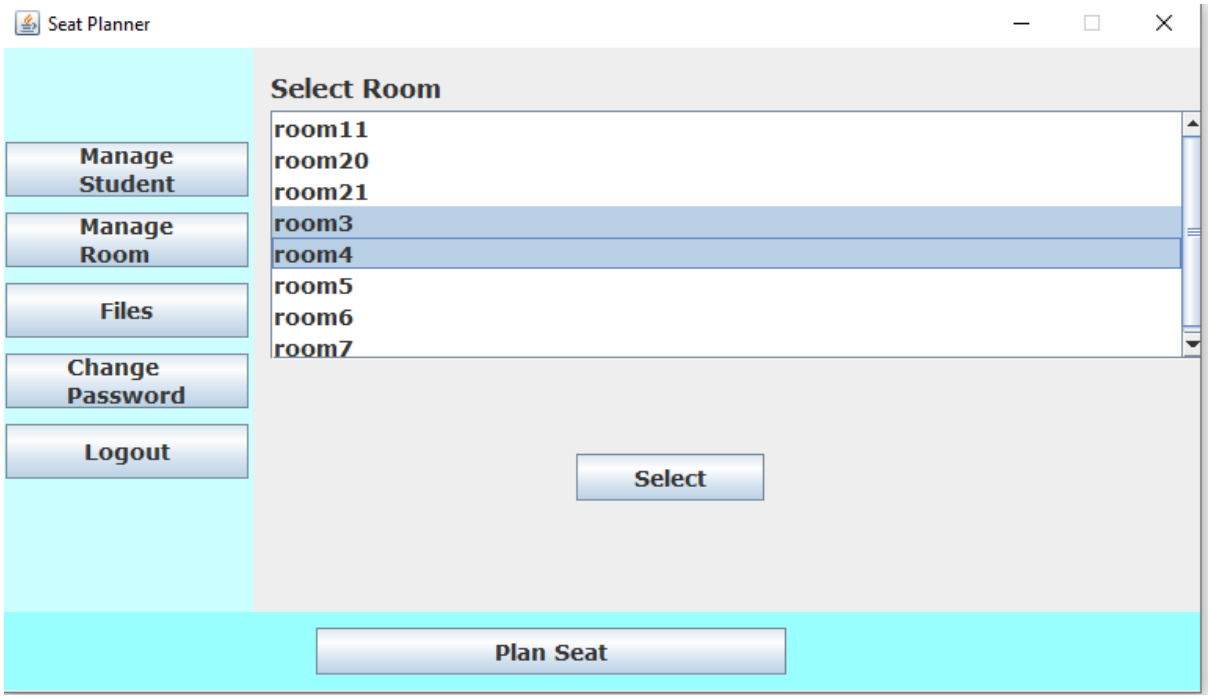
Table 4.2.4: Test case for seat plan generation

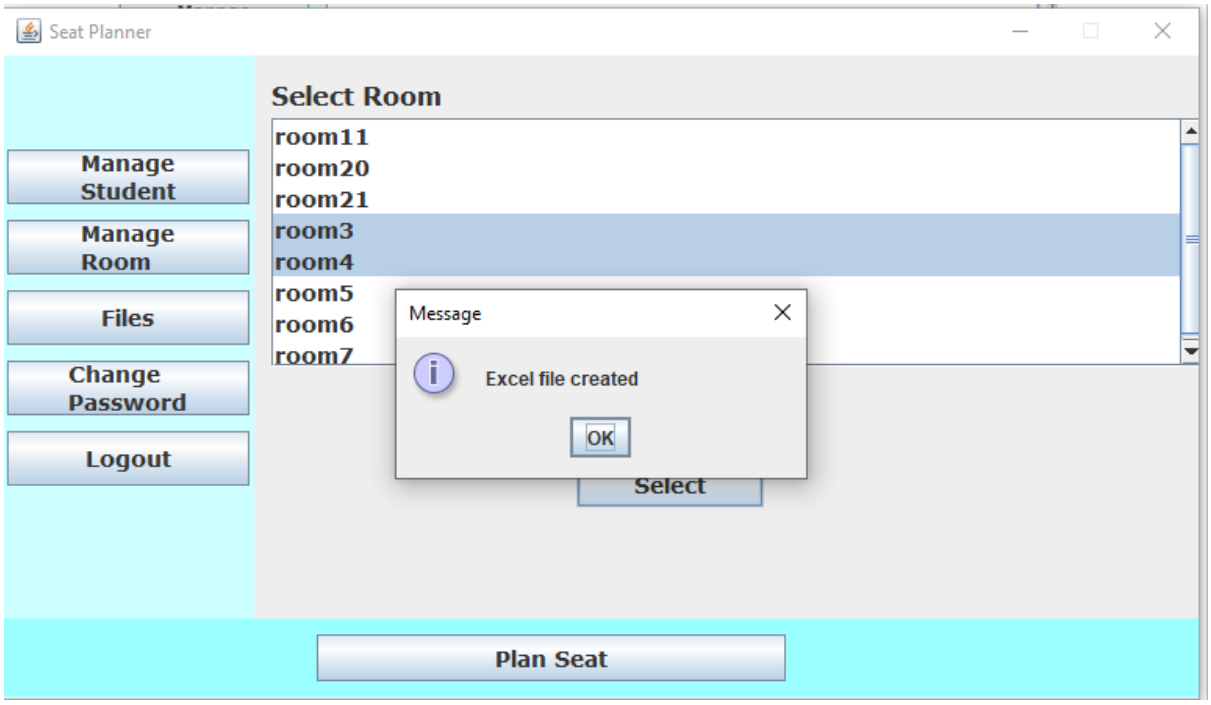
Test case id	4		
Test case description	Seat plan generation		
Prerequisites	should have store at least one student and one room		
Test scenario 1	1. Click on plan seat 2. Select faculty for seat plan and click on select 3. Select room for seat plan and click on select (select less or equal number of student than seat available)		
Test data	Selected faculty: BBA 1st, BBA 2nd , BBA 4th Selected room:room3,room4		
Step	Expected output	Actual Result	Pass/fail
1.	Excel file created	Excel file created	Pass

Test scenario 2	1. Click on plan seat 2. Select faculty for seat plan and click on select 3. Select room for seat plan and click on select (select more number of student than seat available)		
Test data	Selected faculty: : BBA 1st, BBA 2nd , BBA 4th Selected room: room20		
Step	Expected output	Actual Result	Pass/fail
1.	Seat is less than total student Total seat=13 Total student=22	Seat is less than total student Total seat=13 Total student=22	Pass

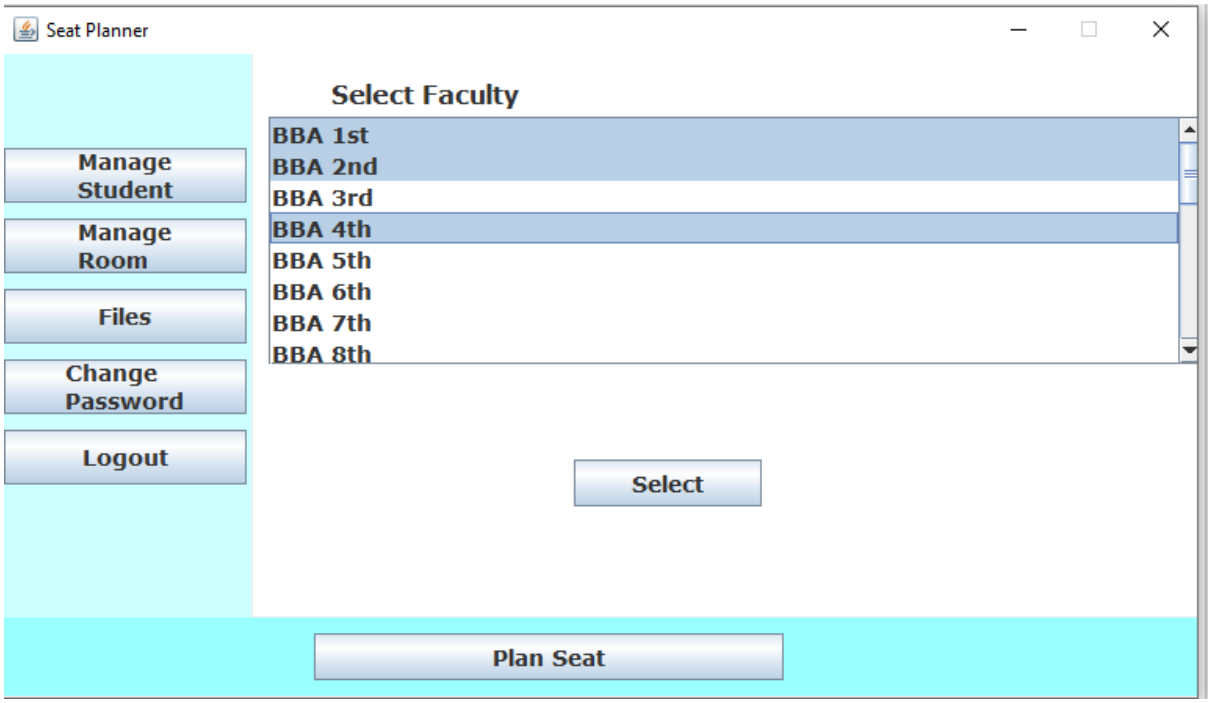
Test Scenario 1:

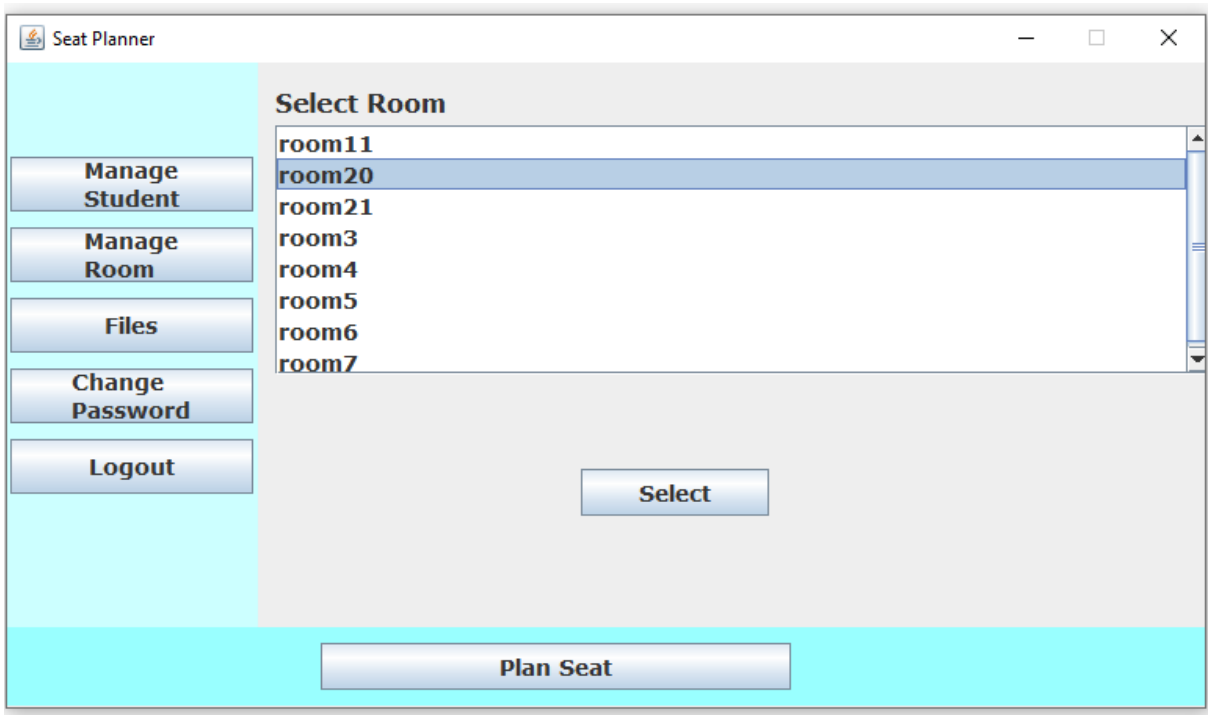






Test Scenario 2:


Seat Planner
Select Faculty
BBA 1st
BBA 2nd
BBA 3rd
BBA 4th
BBA 5th
BBA 6th
BBA 7th
BBA 8th
Manage Student
Manage Room
Files
Change Password
Logout
Select
Plan Seat


Seat Planner
Select Room
room11
room20
room21
room3
room4
room5
room6
room7
Manage Student
Manage Room
Files
Change Password
Logout
Select
Plan Seat

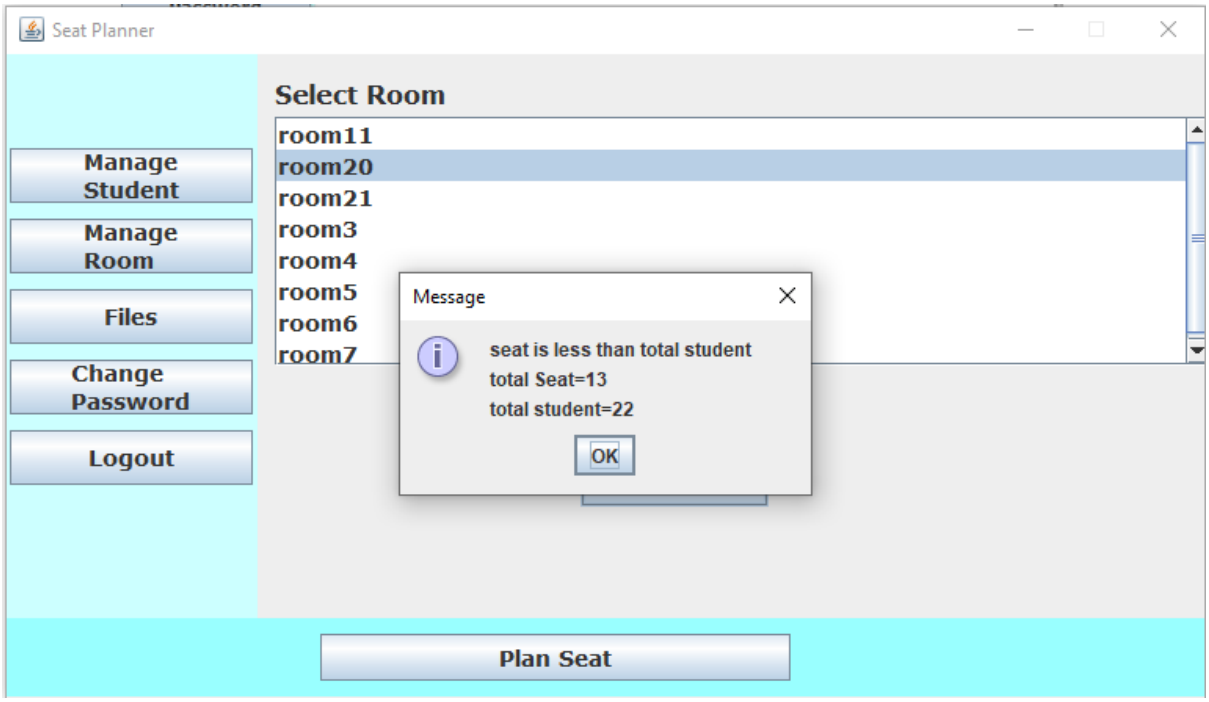
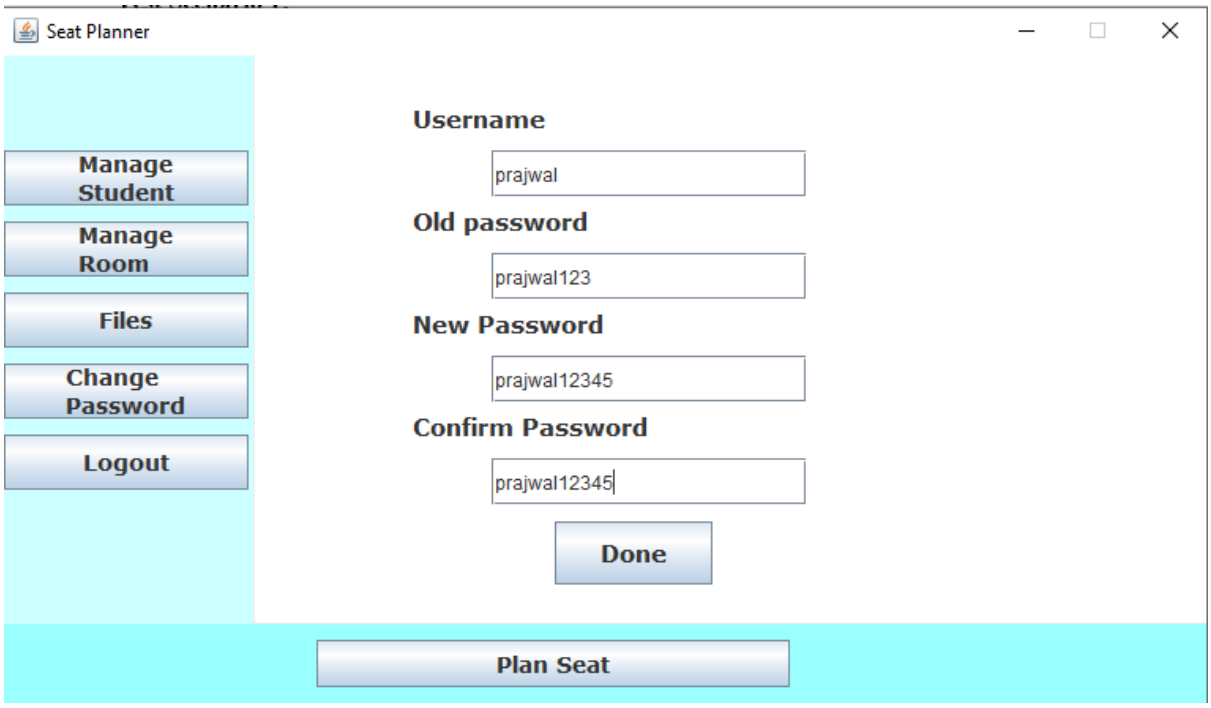

Seat Planner
Select Room
Manage Student
Manage Room
Files
Change Password
Logout
room11
room20
room21
room3
room4
room5
room6
room7
Message
seat is less than total student
total Seat=13
total student=22
OK
Plan Seat

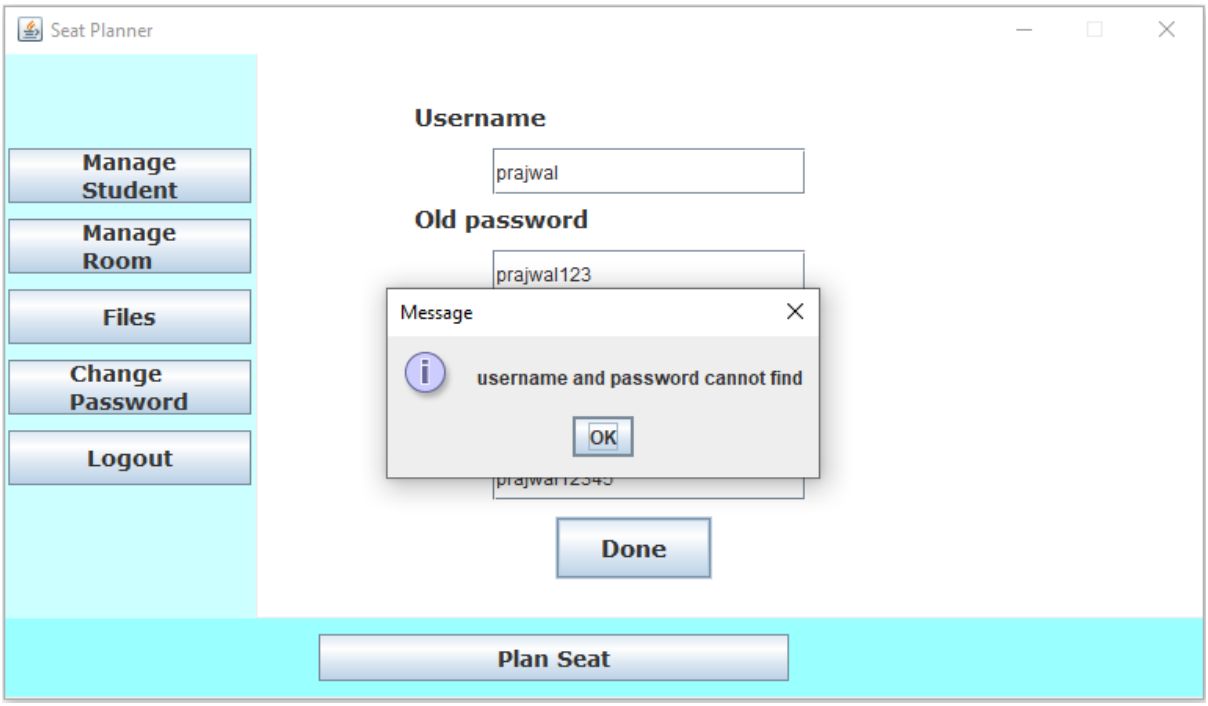
Table 4.2.5: Test case for change password

Test case id	5		
Test case description	change password		
Prerequisites	should not left field empty		
Test scenario 1	1.enter invalid username and password		
Test data	username: prajwal password: prajwal123 password:prajwal12345 confirm password:prajwal12345		
Step	Expected output	Actual Result	Pass/fail
	username and password cannot find	username and password cannot find	Pass
Test scenario 2	enter valid username and password but doesn't match new password and confirm password		
Test data	username: admin password:root@123 password :root11234 confirm password:root1234		
Step	Expected output	Actual Result	Pass/fail

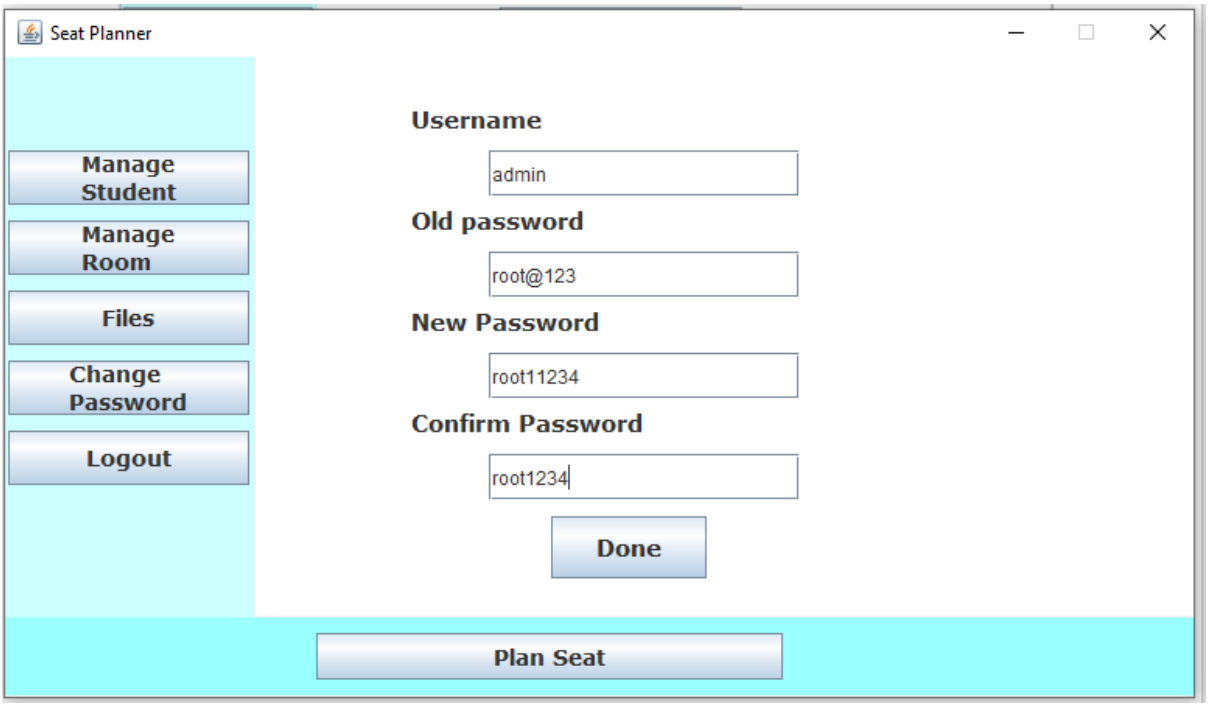
	new password and confirm password doesn't match	new password and confirm password doesn't match	Pass
Test scenario 2	Enter valid data.		
Test data	Username: admin password:root@123 password :root confirm password: root		
Step	Expected output	Actual Result	Pass/fail
	password changed	password changed	Pass

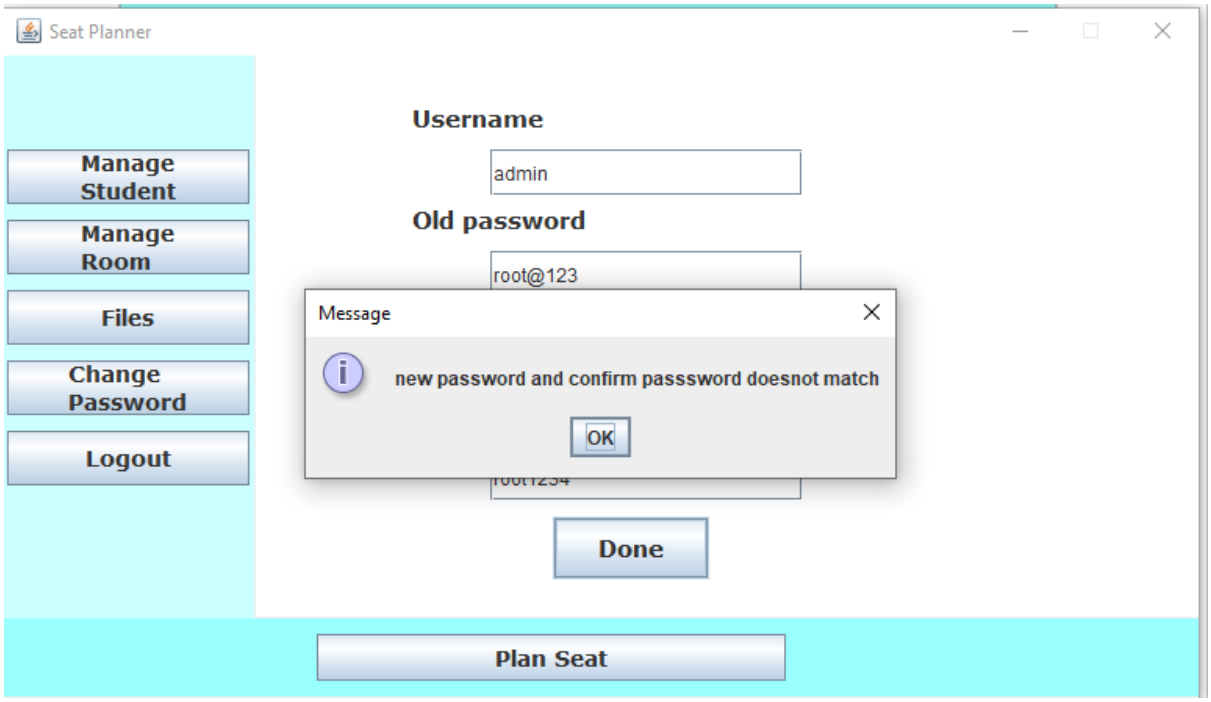
Test Scenario 1:



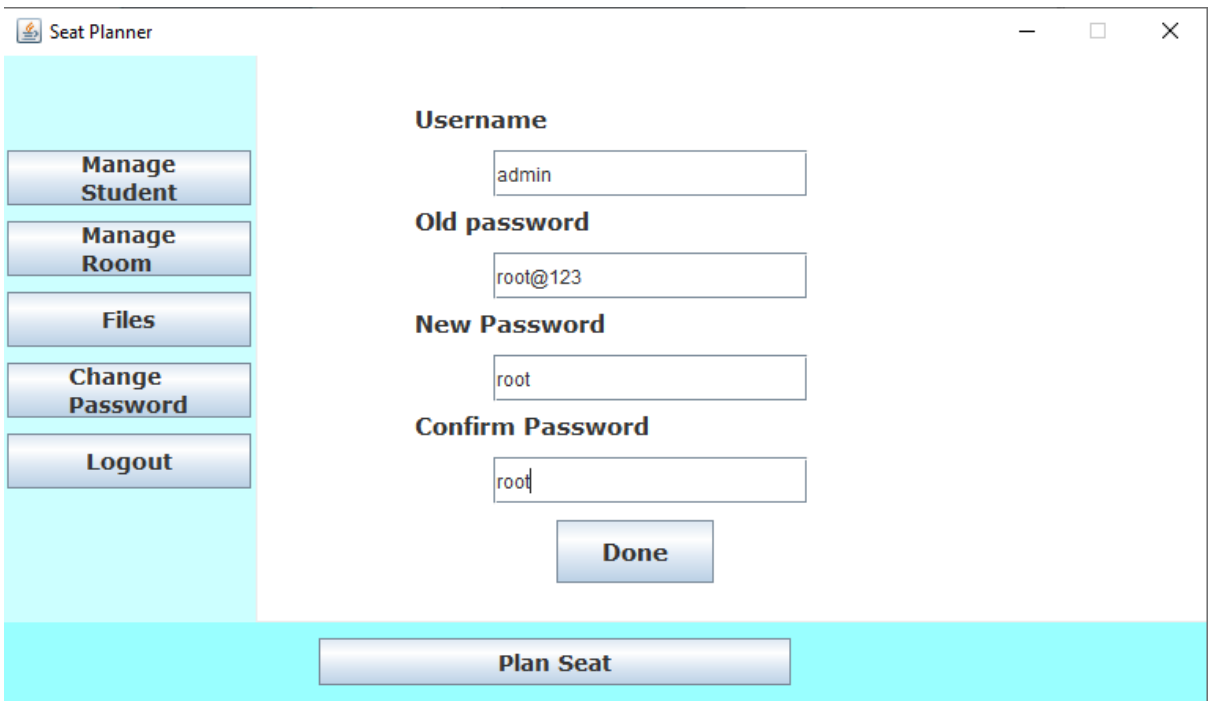


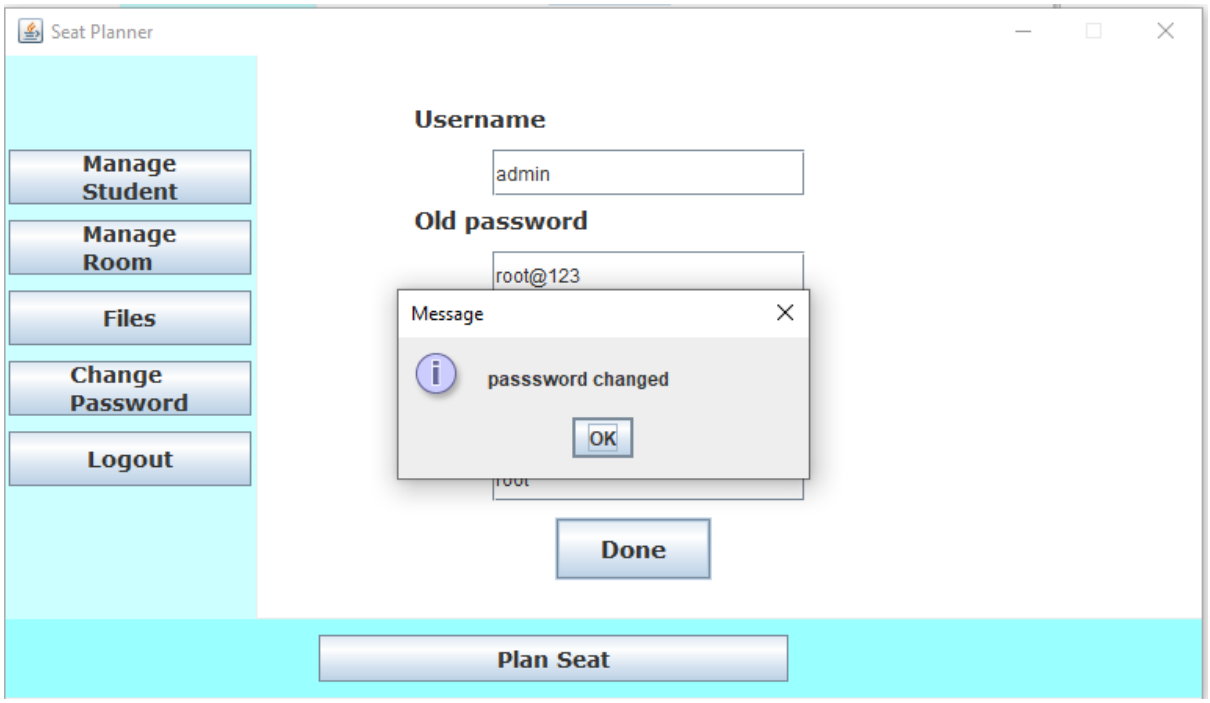
Test Scenario 2:





Test Scenario 2:




Seat Planner
Manage Student
Manage Room
Files
Change Password
Logout
Username
admin
Old password
root@123
Message
passsword changed
OK
Done
Plan Seat

Chapter 5: Conclusion and Recommendation

5.1: Limitation

There are some limitations for the current system to which solutions can be provided as a future development.

1. No feature added for elective courses
2. You cannot update room name and no of column.
3. If selected room exceeds no of student then also new sheet will be created in the excel file.
4. No record of student in which room, seat is allocated for them.

5.2: Future Recommendation

Here is what can be added in future to this swing application to increase its usability and user experience. There is lot to be done. We will need lot of time and effort for all of these to be done.

1. Application design enhancement
2. Update of Room name
3. Generate seat plan according to elective course taken by student
4. Store student record in which room he/she is allocated
5. Store generated file in database

5.3: Conclusion

This application is great advantage to all the educational institutes as it is simplifying the seating arrangement by automatically generating the seats for the students. Project results in reduction of manpower & workload on staff. It benefits all the educational institutes by reducing the complexity involved while allocating examination rooms for the students. This application has features like create report in excel file which cannot be found in most of the system which enhance the usability of the application.

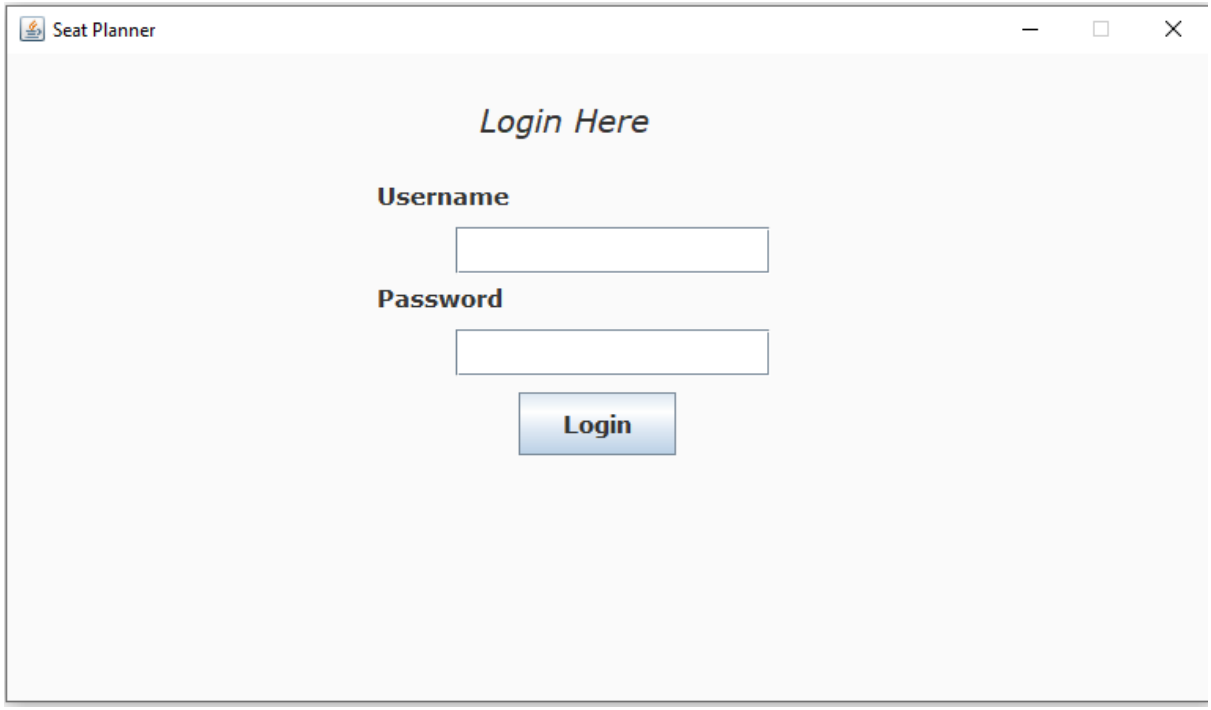
References

[1] A. F. Alam, "papers:ijeast," februrary 2016. [Online]. Available: https://www.ijeast.com/papers/8-10,Tesma104,IJEAST.pdf.

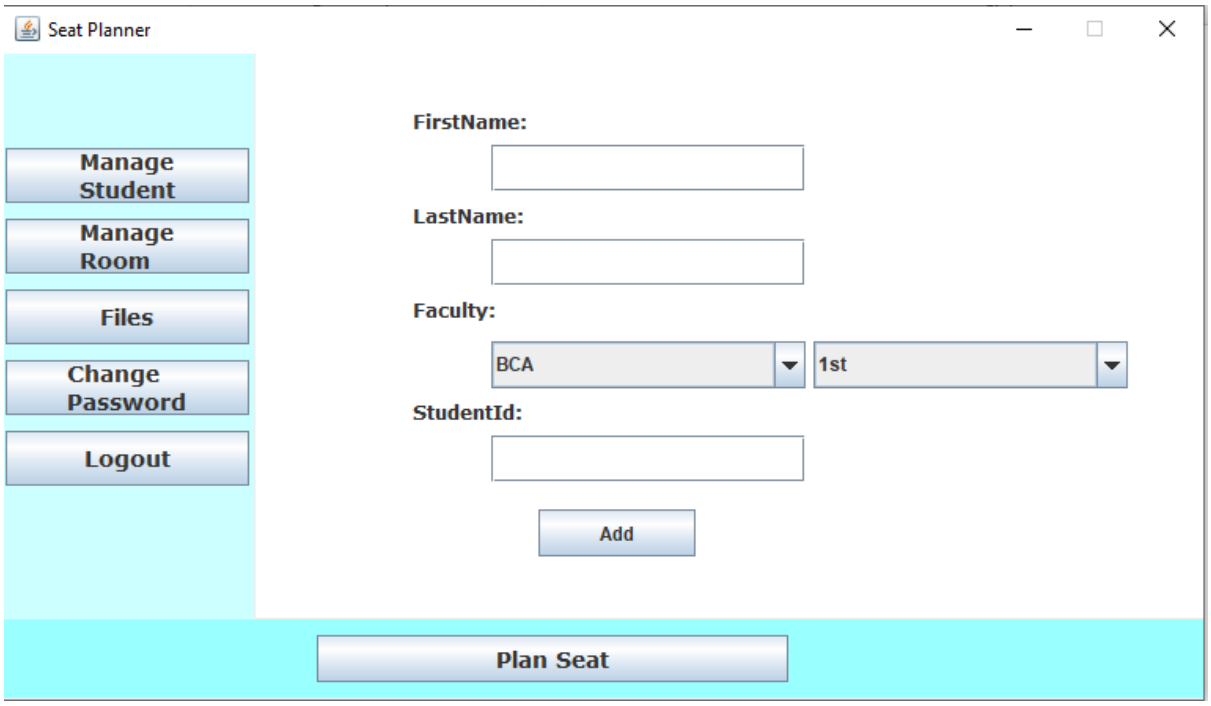
[2] G. S.S.Aravinth, "EXAM_HALL_SEATING_ARRANGEMENT _SYSTEM_USING_PHP:academic.edu," 2014. [Online]. Available: https://www.academia.edu/30521526/EXAM_HALL_SEATING_ARRANGEMENT_SYSTEM_USING_PHP.

[3] G. C. P. N. K. P. L. Vamsi Krishna Yepuri, "archives:irjet.net," april 2018. [Online]. Available: https://www.irjet.net/archives/V5/i4/IRJET-V5I4614.pdf.

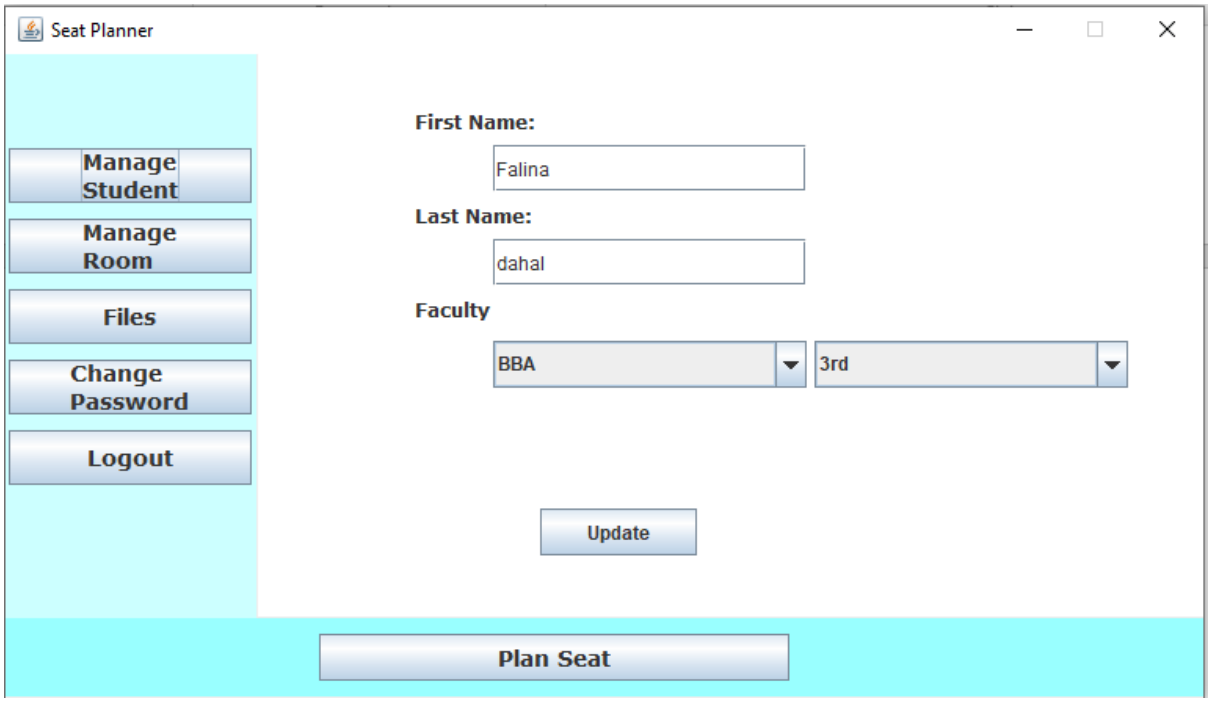
Annex



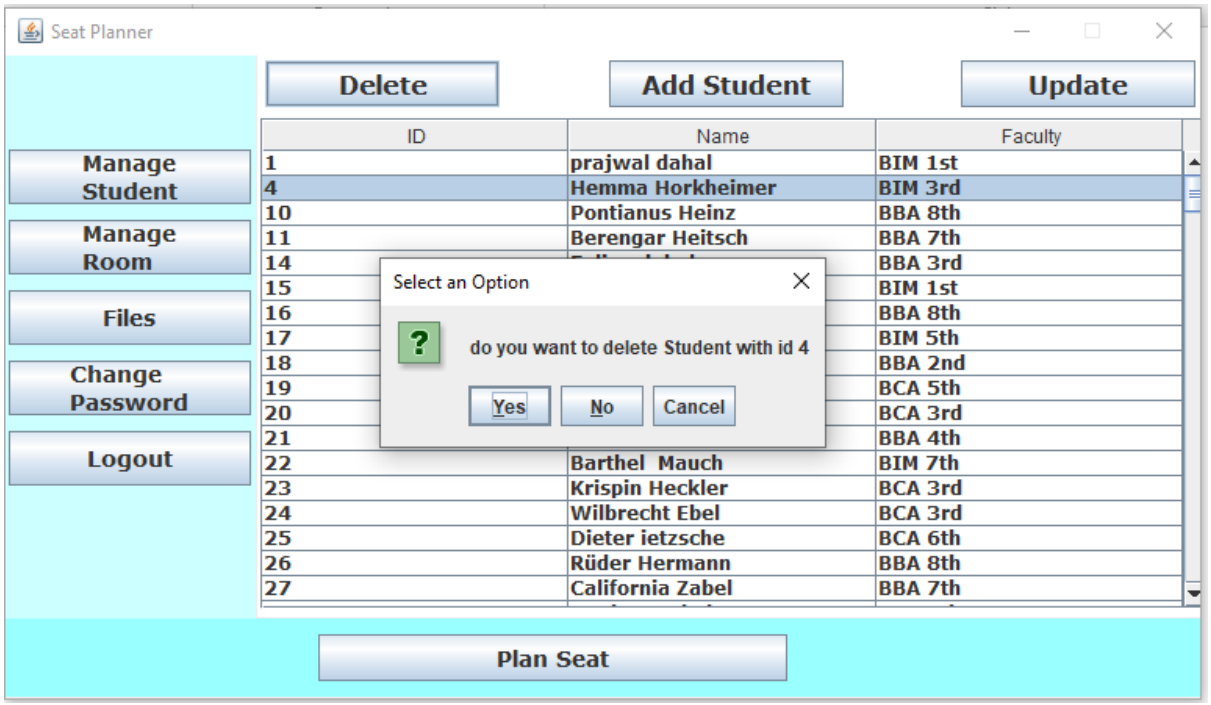
Login form



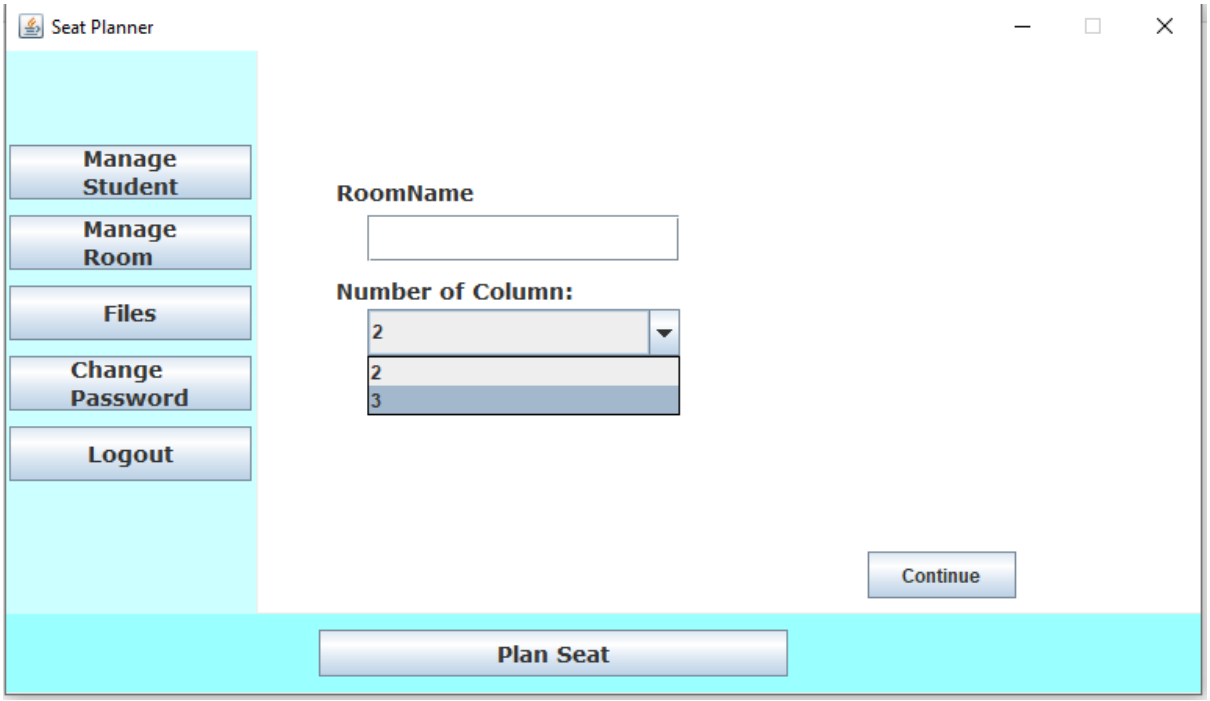
Add Student



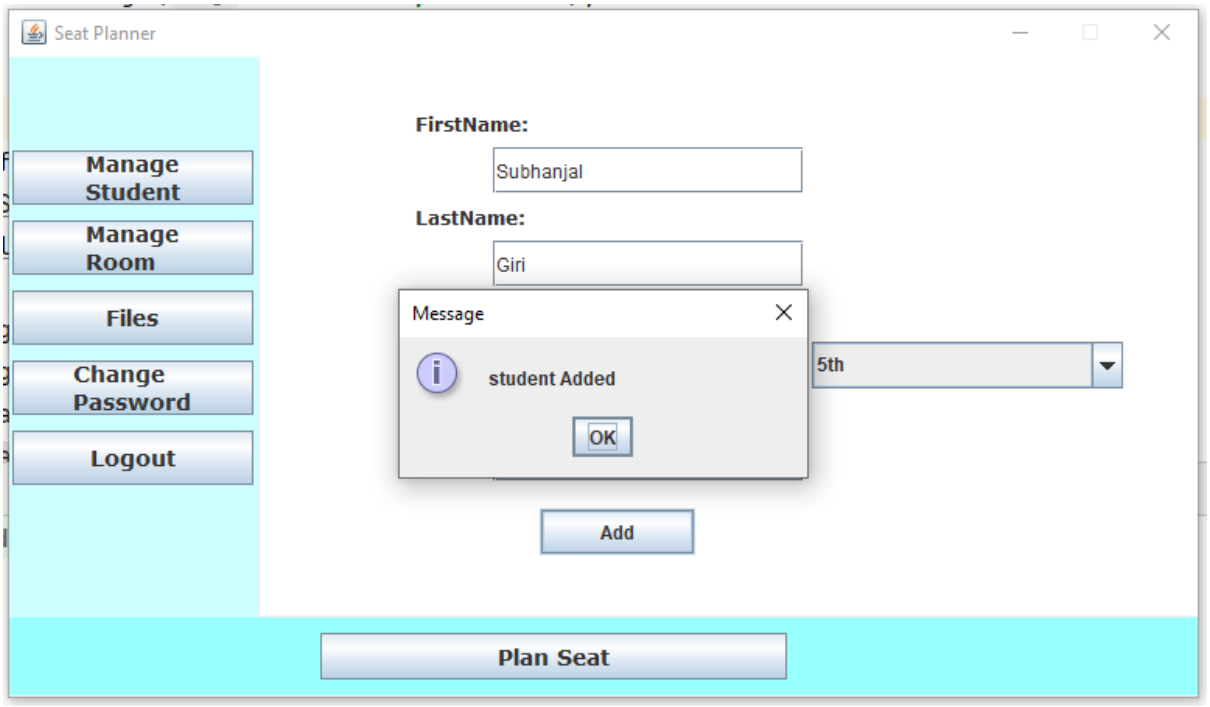
Update Student



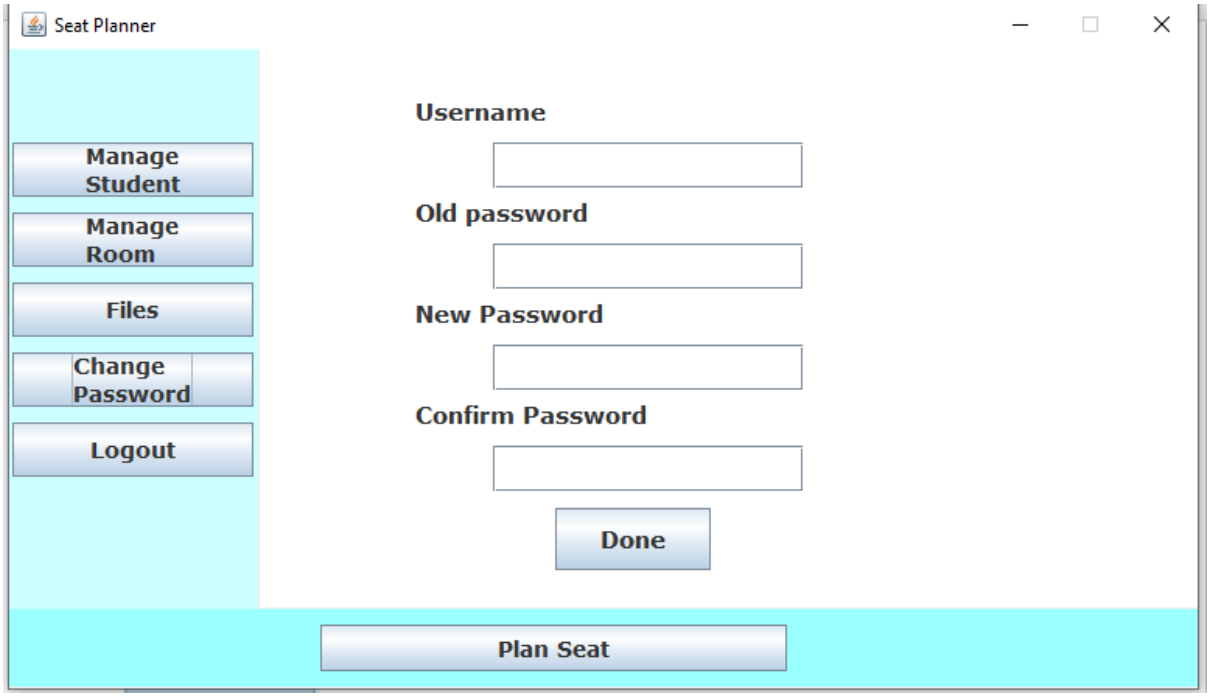
Delete Student



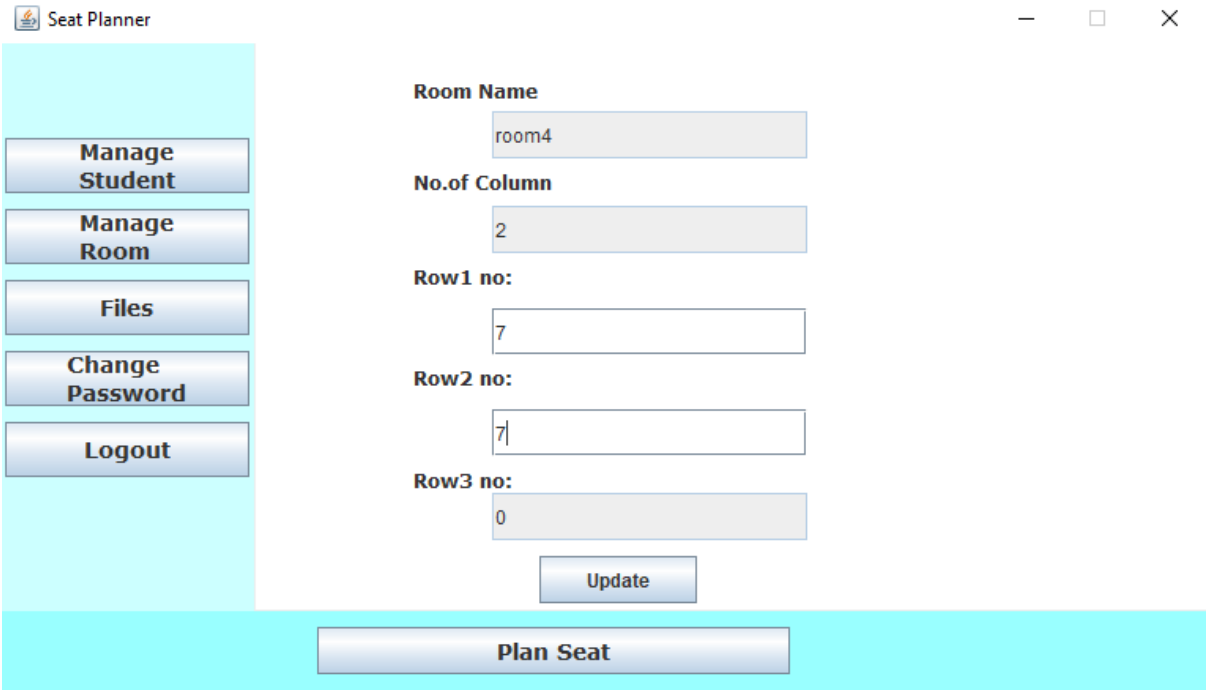
Add Room



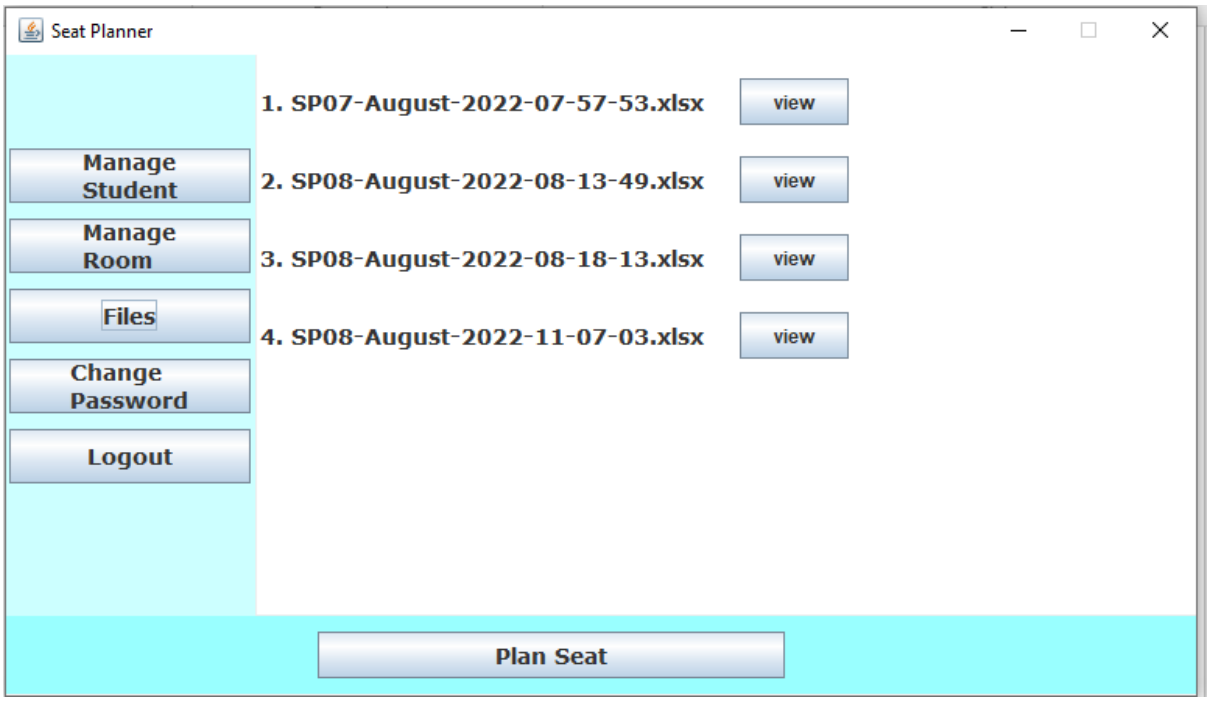
Student Added



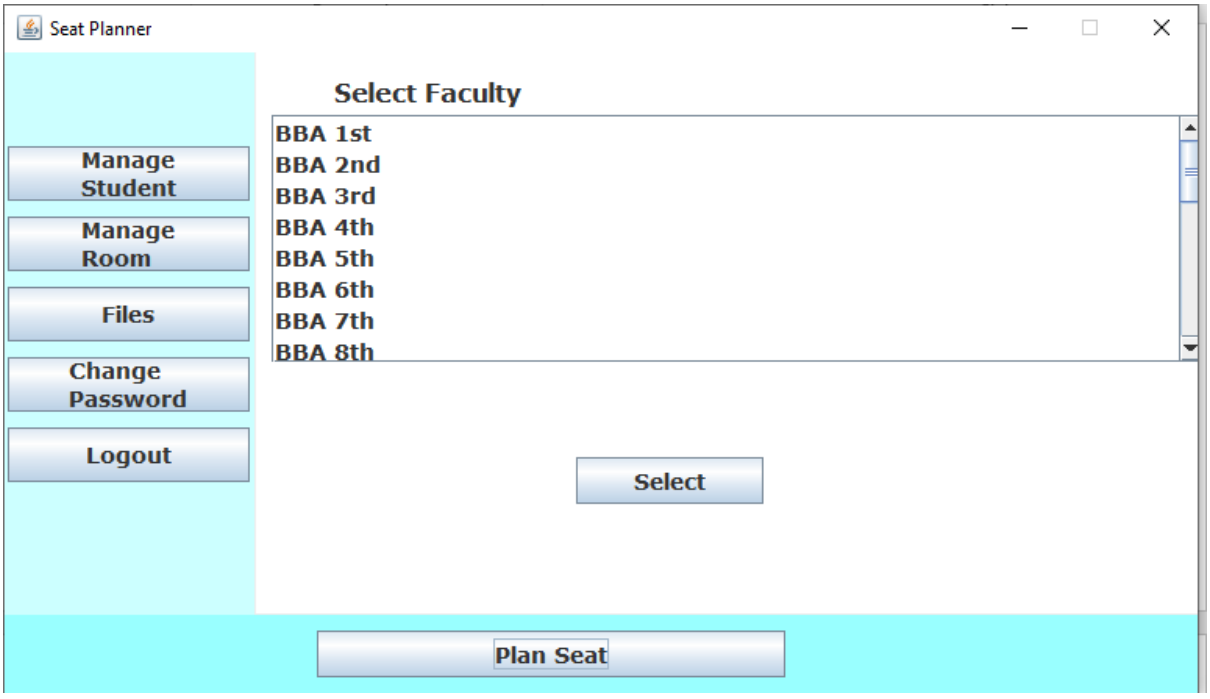
Change Password



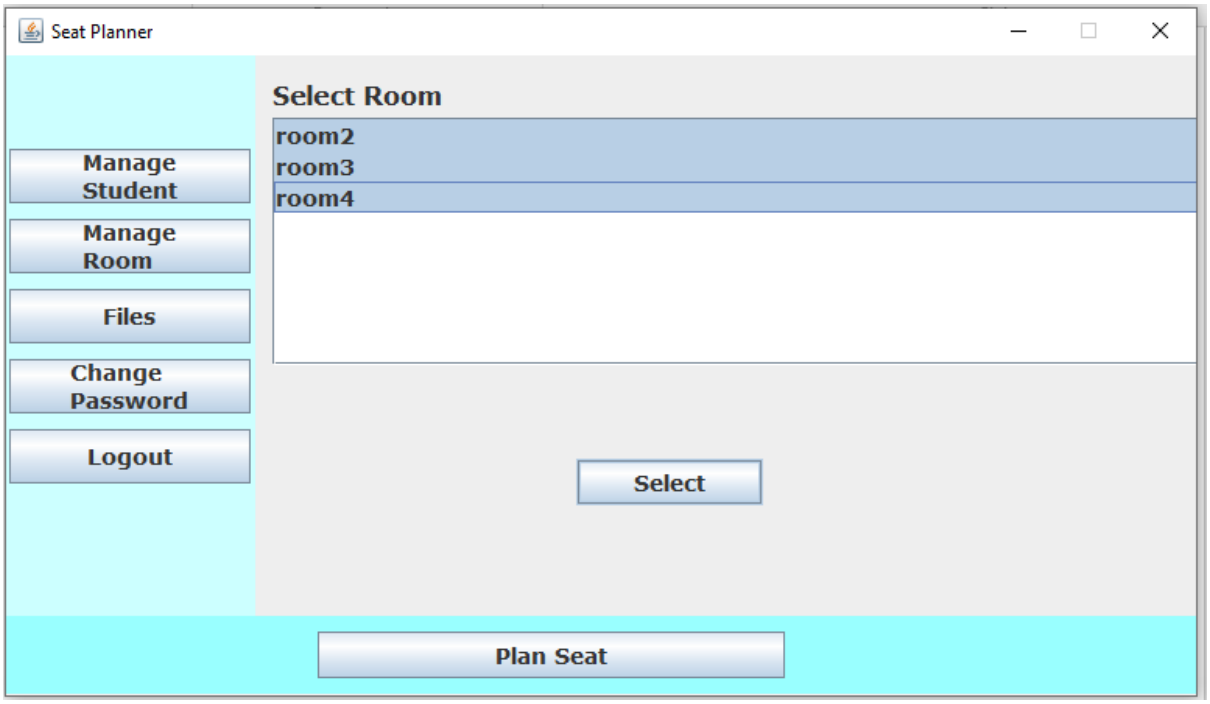
Update Room



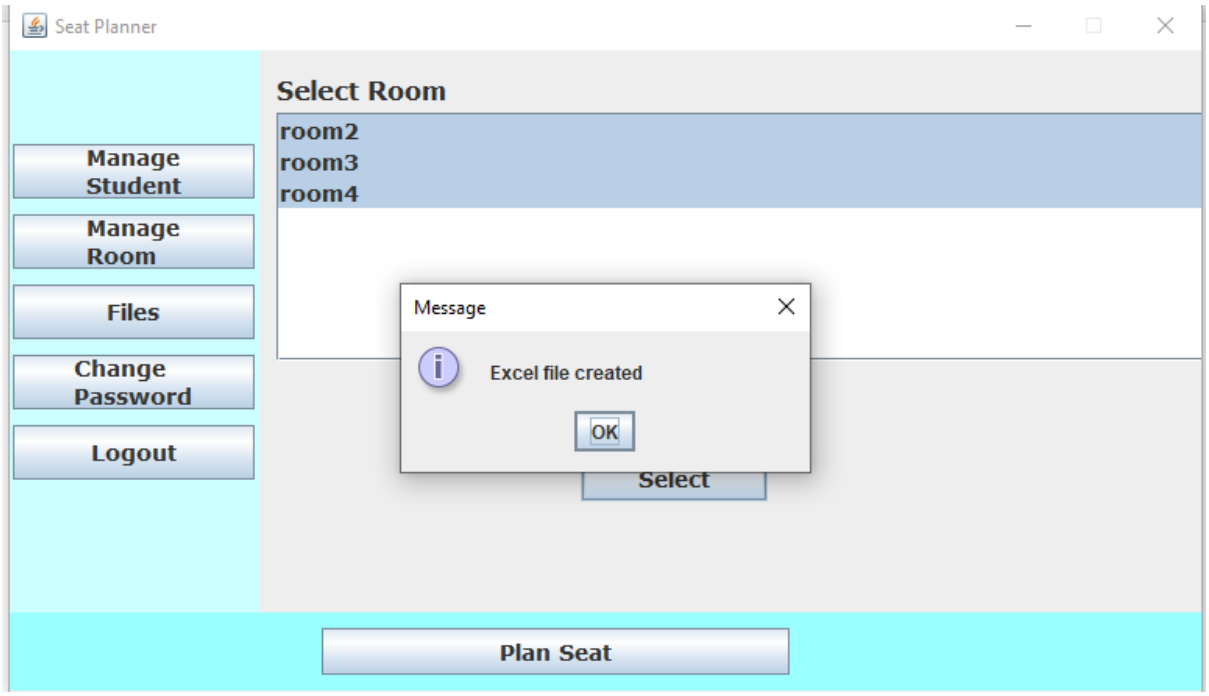
Created File List



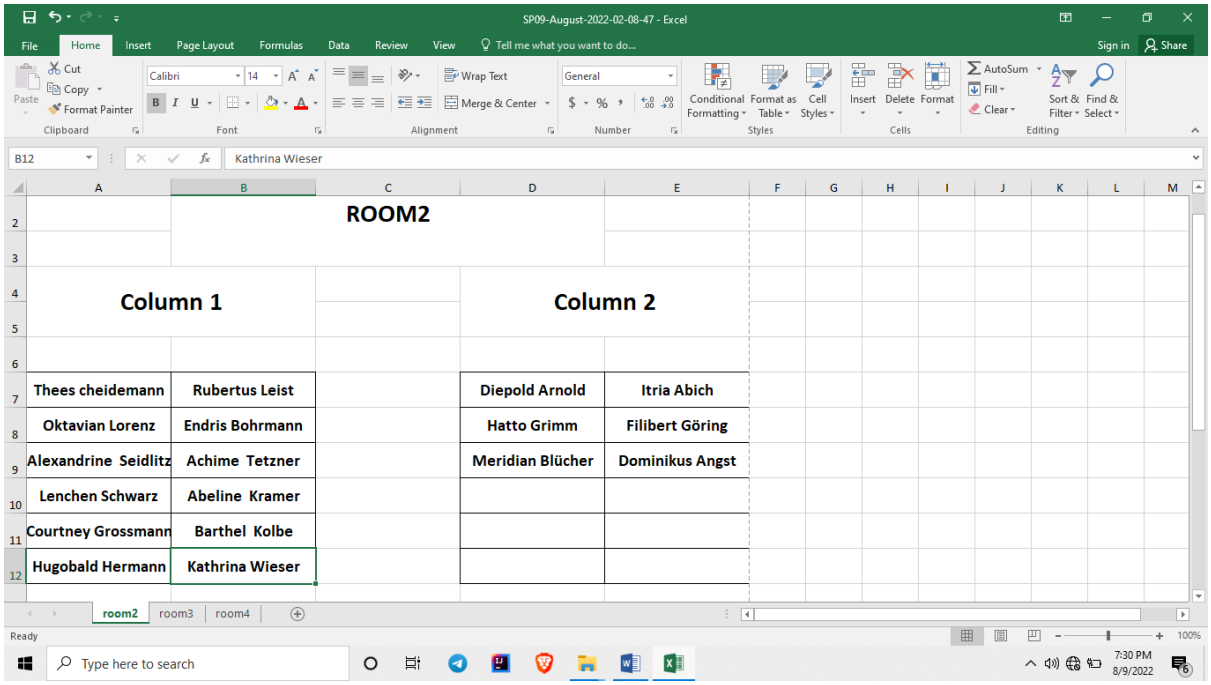
Generate Report step 1



Generate Report step 2



Generate report step 3



Generated Report Sample