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 [ ]

June, 2022

Under the Supervision of

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Faculty of Humanities and Social Sciences

Kantipur College of Management and Information Technology

Supervisor's Recommendation

I 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.

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Mr. Sudip Khadka
SUPERVISOR
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Department of BCA

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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 [ ]

Prajwal Dahal[ ]

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 proposed 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 proposed system was designed and implemented using Java and MySQL.

Table of Contents

List of Figures

List of Tables

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.

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.

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

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.

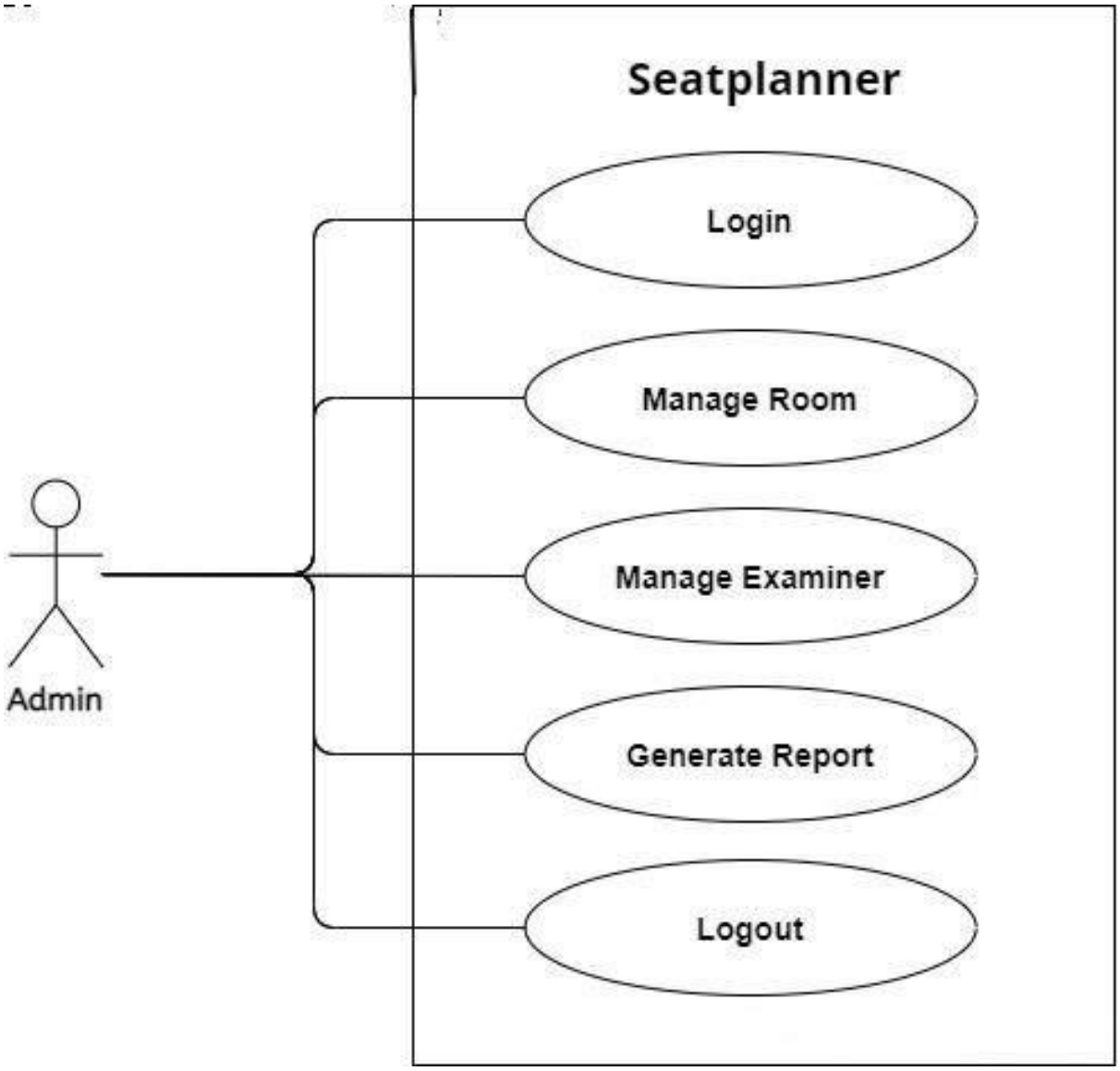

Figure 3.1.1.1: Use-case diagram

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	March				April				May			
	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

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

Else

Show invalid credential message.

Step 4: End

3.2.2: Flowchart

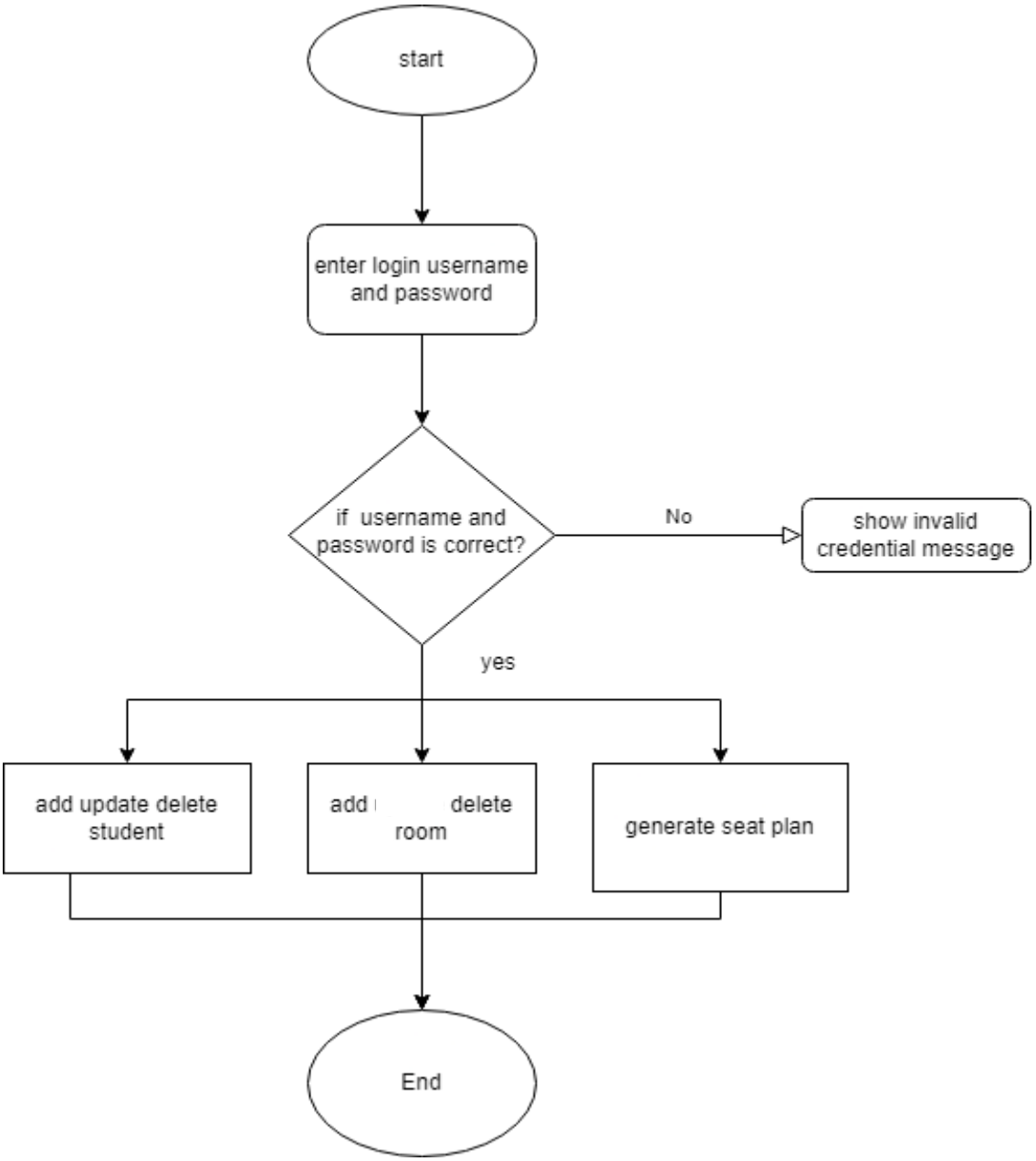

Figure 3.2.2.1 Flowchart of Seatplanner

3.2.3: Data flow diagram (DFD)

i. Context diagram (level 0 DFD)

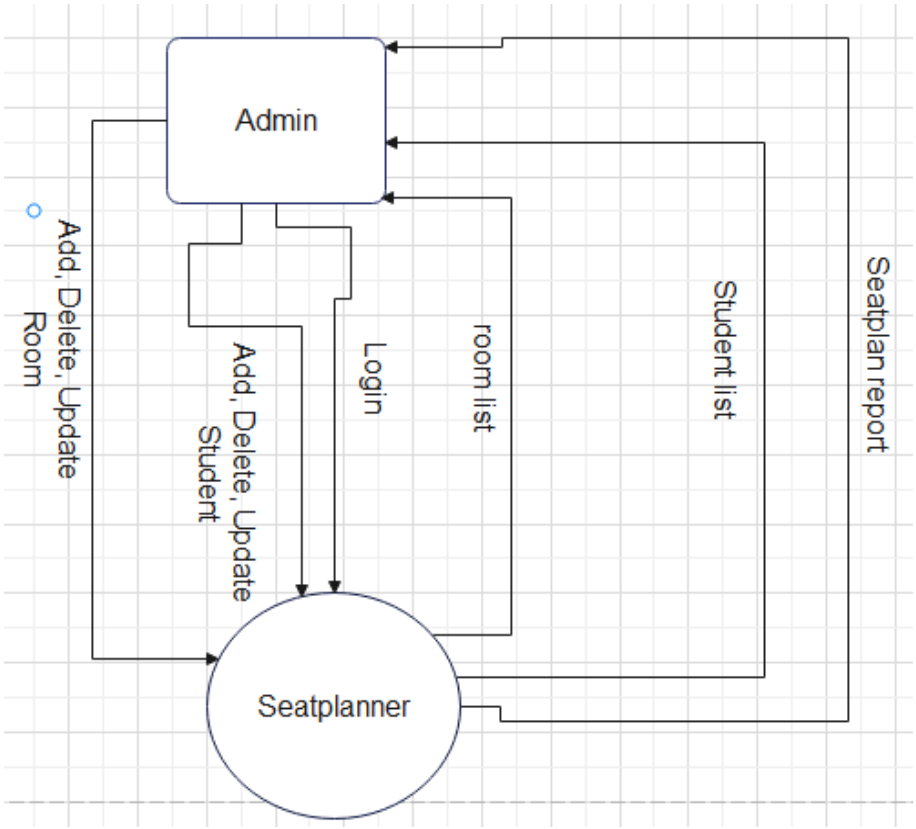

Figure 3.2.3.1: Context Diagram of Seatplanner

ii. Level 1 DFD

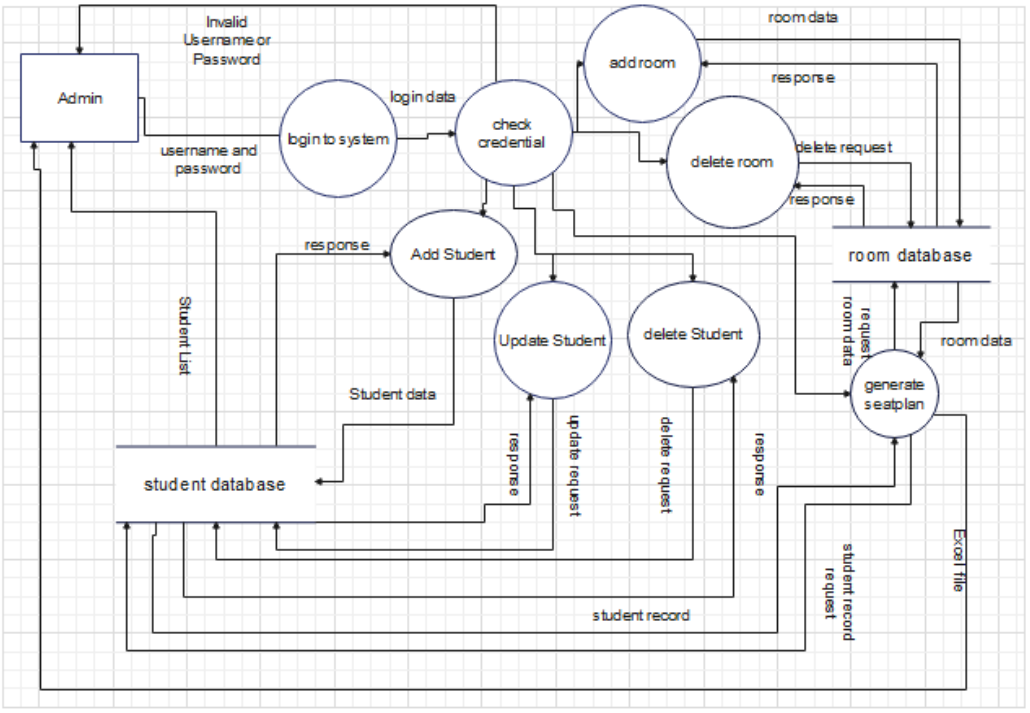

Figure 3.2.3.2: Level 1 Dataflow Diagram of Seatplanner

3.2.4: Entity Relationship Diagram

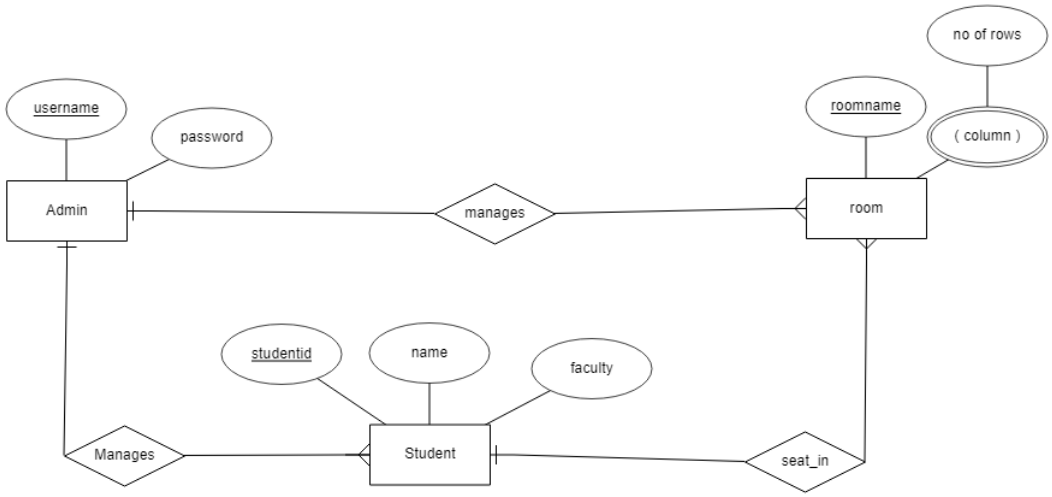

Figure 6 **Figure 3.2.4.1: Entity Relationship Diagram of Seatplanner**

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 1 for Login

Test case id	1		
Test case description	Login		
Prerequisites	Enter the valid 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	Username or Password is Invalid	Username or Password is Invalid	Pass
Test scenario 2	User enter a wrong password		
Test data	Username: admin Password: 123		
Step	Expected output	Actual Result	Pass/fail

1	Username or Password is Invalid	Username or Password is Invalid	Pass
Test scenario 3	Admin enter wrong username		
Test data	Username: root Password: admin@1234		
Step	Expected output	Actual Result	Pass/fail
1	Username or Password is Invalid	Username or Password is Invalid	Pass
Test scenario 3	Admin enter valid username and password		
Test data	Username: root Password: admin@123		
Step	Expected output	Actual Result	Pass/fail
1	Login successful	Login successful	Pass

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: 12 **Update data:** Faculty: BBA 1st **Delete data:** Student Id: 12		
Step	Expected Result	Actual Result	Pass/Fail
1.	Student added	Student added.	Pass
2.	Student detail successfully updated	Student updated	Pass
3.	Do you want to delete student with id 12?	Do you want to delete student with id 12?	Pass

Table 4.2.3: Test case for add 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	Room Name: room2 No of column : 2 Column1 no of rows:5 Column2 no of rows:4 **Delete room :** Room: room2		
Step	Expected Result	Actual Result	Pass/Fail
1. 2.	New room added Do you want to delete room2?	New room added. Do you want to delete room2?	Pass Pass

Table 4.2.4: Test case for seat plan generation

Test case id	1		
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 sear 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: BCA 4th BIM 2nd BCA 3rd Selected room:room1,room2		
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 sear 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: BCA 4^{th}, BIM 2^{nd} , BCA 3^{rd}, BCA 5^{th}, BIM 6^{th} Selected room:room1		
Step	Expected output	Actual Result	Pass/fail
1	Seat is less than total student	Seat is less than total student	Pass

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. Cannot generate seat plan for elective courses
2. Due to implementation problem cannot update room data but you can delete room and add same room with new data.
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 him.

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
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 student which enhance the usability of the application.

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Annex