ISSN 2277-2685
IJESR/April-June. 2025/ Vol-15/Issue-2s/1164-1176
T.Ramyasree *et. al.*, / International Journal of Engineering & Science Research

Autoseat:Smart Exam Seating System

K.Shireesha[1], T.Ramyasree[2], V.Ushakiran [3], P.Yamini[4]

[1]Associate professor Department of Computer Science and Engineering, Bhoj Reddy Engineering College for Women, Hyderabad, India

[2, 3, 4]Students, Department of Computer Science and Engineering, Bhoj Reddy Engineering College for Women, Hyderabad, India

ABSTRACT

The "AutoSeat: Smart Exam Seating System" is a mini project designed to revolutionize traditional exam management by automating the seat allocation process in educational institutions. The system addresses critical challenges such as inefficient manual scheduling, susceptibility to errors, lack of flexibility, and inadequate security measures. By leveraging advanced algorithms, AutoSeat ensures fair student distribution, supports diverse exam hall layouts, integrates seamlessly with student databases, and resolves scheduling conflicts effectively. With an intuitive user interface and robust data protection mechanisms, the system not only enhances administrative efficiency but also minimizes the risk of malpractice. Developed using a waterfall model with technologies such as PHP, MySQL, HTML, and CSS, the system provides a scalable and reliable solution tailored to modern academic needs. Comprehensive testing has demonstrated its capacity to deliver accurate, secure, and user-friendly exam seating arrangements, making it an invaluable tool for educational institutions.

I. INTRODUCTION

The "AutoSeat: Smart Exam Seating System" is a mini project designed to revolutionize traditional exam management by automating the seat allocation process in educational institutions. The system addresses critical challenges such as inefficient manual scheduling, susceptibility to errors, lack of flexibility, and inadequate security measures. By leveraging advanced algorithms, AutoSeat ensures fair student distribution, supports diverse exam hall layouts, integrates seamlessly with student databases, and resolves scheduling conflicts effectively. With an intuitive user interface and robust data protection mechanisms, the system not only enhances administrative efficiency but also minimizes the risk of malpractice. Developed using a waterfall model with technologies such as PHP, MySQL, HTML, and CSS, the system provides a scalable and reliable solution tailored to modern academic needs. Comprehensive testing has demonstrated its capacity to deliver accurate, secure, and user-friendly exam seating arrangements, making it an invaluable tool for educational institutions.

II. LITERATURE SURVEY

Several research efforts have explored the automation of exam seating arrangements to overcome the inefficiencies of traditional manual methods. Kishore et al. (2021) introduced a basic automated system that minimized manual work and improved seat allocation fairness, but it lacked scalability and did not effectively handle real-time conflicts such as overlapping exams. Vidyashree et al. (2023) developed a more advanced system integrating student databases with automated seat mapping, improving data accuracy and dynamic allocation, yet the system had limitations in accommodating special needs and managing hall

layout variations. Sankari et al. (2020) focused on creating a user-friendly interface and supporting different hall configurations, but their system offered limited customization and weak data security measures. Collectively, these systems contributed valuable features but were constrained by issues like poor conflict resolution, lack of real-time updates, limited scalability, and insufficient data privacy mechanisms. The proposed "AutoSeat" system builds upon these findings by introducing a comprehensive, scalable solution that integrates seamlessly with student databases, adapts to various hall layouts, ensures secure data handling, and provides advanced conflict detection and resolution, aiming to make exam management more efficient, fair, and reliable.

III. PROPOSED SYSTEM

The proposed system introduces automated exam seating system which will streamline seat allocation using advanced algorithms, ensuring fair distribution, reducing administrative workload, and minimizing cheating. It will support various hall layouts for flexible adjustments and integrate seamlessly with student databases to maintain accurate information and accommodate special needs. The system will detect and resolve conflicts like overlapping schedules and seating preferences through alerts and reallocation suggestions.

IV. IMPLEMENTATION

The implementation of the AutoSeat: Smart Exam Seating System involves the development of a web-based application designed to automate and optimize exam seating arrangements in educational institutions. The system is structured into two main modules: Admin and Student, each with specific functionalities and access rights.

Technology Stack:

- Front-End: HTML, CSS
- Back-End: PHP
- Database: MySQL
- Operating System: Windows 11
- Hardware Requirements: Ryzen 7 processor, 16 GB RAM, 512 GB SSD

Admin Module:

- Login/Logout: Secure role-based access.
- Manage Classes: Add, update, and organize class information.
- Manage Students: Import and manage student data.
- Manage Rooms: Define room capacities and layouts.
- Manage Allotment: Automatically generate seat allotments using predefined algorithms.
- View Allocation: Preview and export seating arrangements.

Student Module:

- Login: Access their seat allotment details.
- View Allocation: Students can view their exam hall, seat number, and timing.

Core Features:

- Automated Seat Allocation: Uses algorithmic logic to assign seats by separating students from the same department, minimizing chances of malpractice.
- Conflict Resolution: Detects and resolves scheduling conflicts or overlapping exams, providing alerts to the admin.
- Special Needs Accommodation: Identifies and places students with special requirements appropriately.
- Scalable Design: Handles large volumes of student data and hall configurations without performance issues.

- Security Measures: Implements encryption, secure login, and data privacy compliance to protect student information.
- Reporting System: Generates and exports reports for administrative review and future planning.

Process Flow:

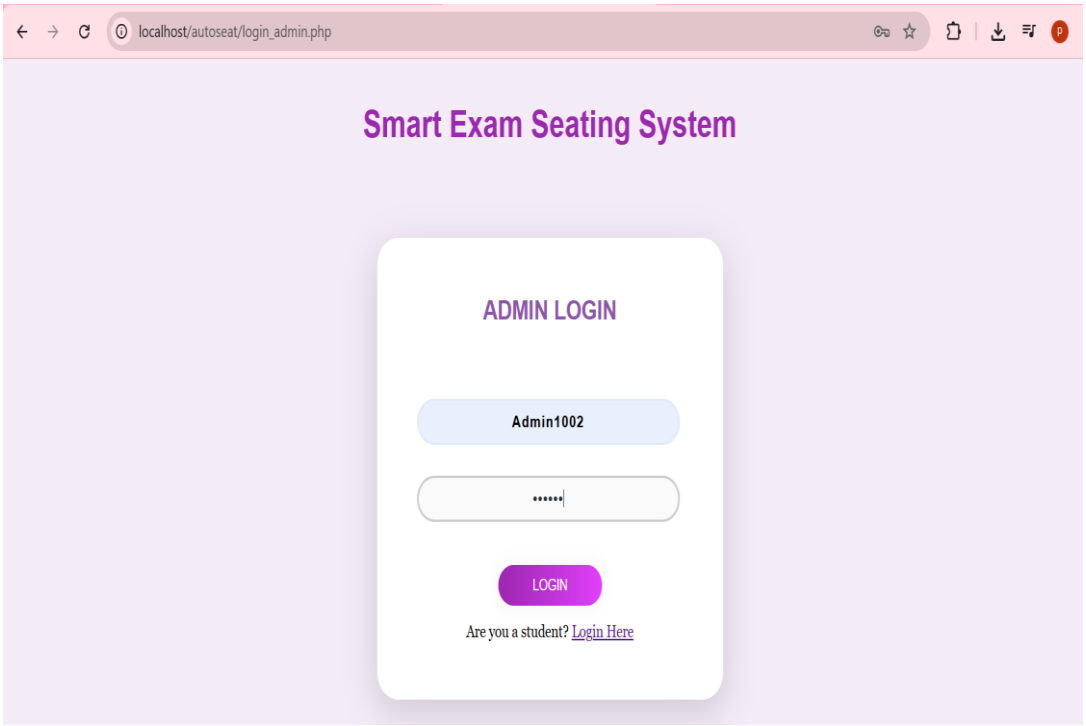
- Admin logs in and uploads the student, class, and room data.
- The system processes inputs and runs the allocation algorithm.

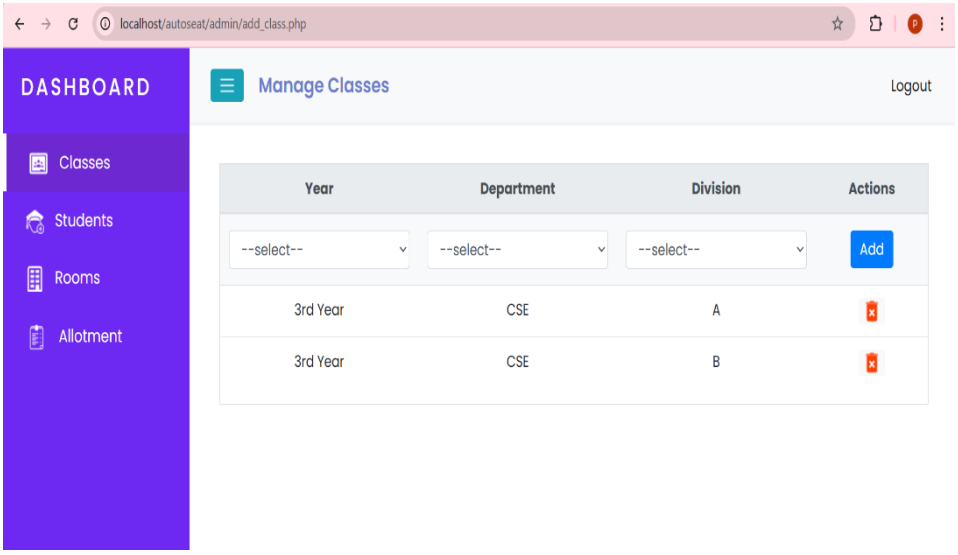
.

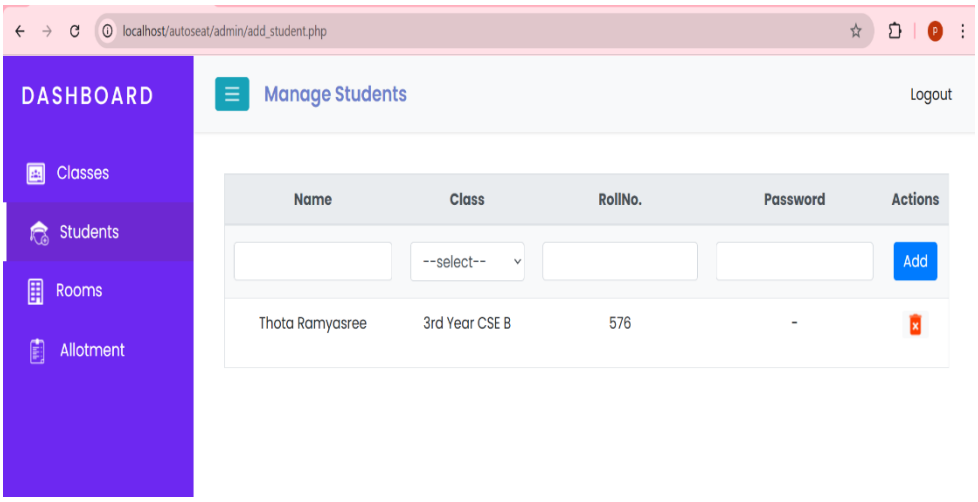
- Seat allotments are generated and conflicts, if any, are flagged.
- Admin can make adjustments or approve the final arrangement.
- Students log in to view their assigned seating details.

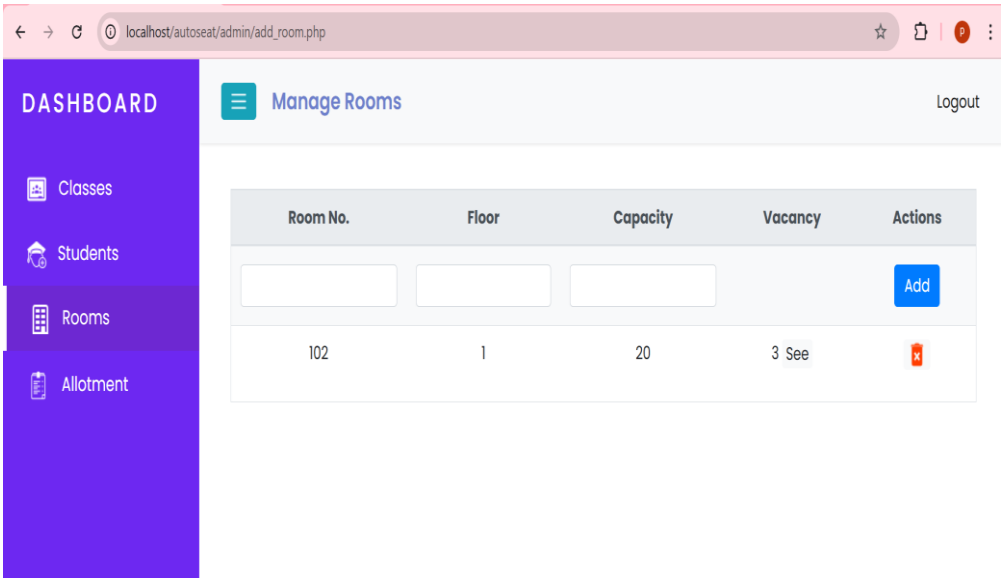
This implementation ensures a robust and user-friendly system that addresses the common challenges in manual exam seating, improving accuracy, efficiency, and fairness in examination administration

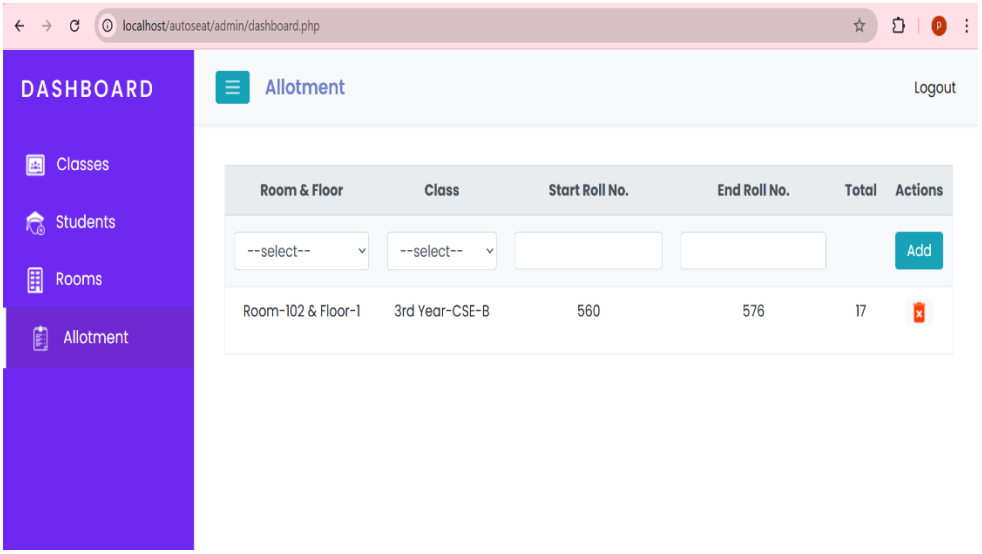
V. RESULT

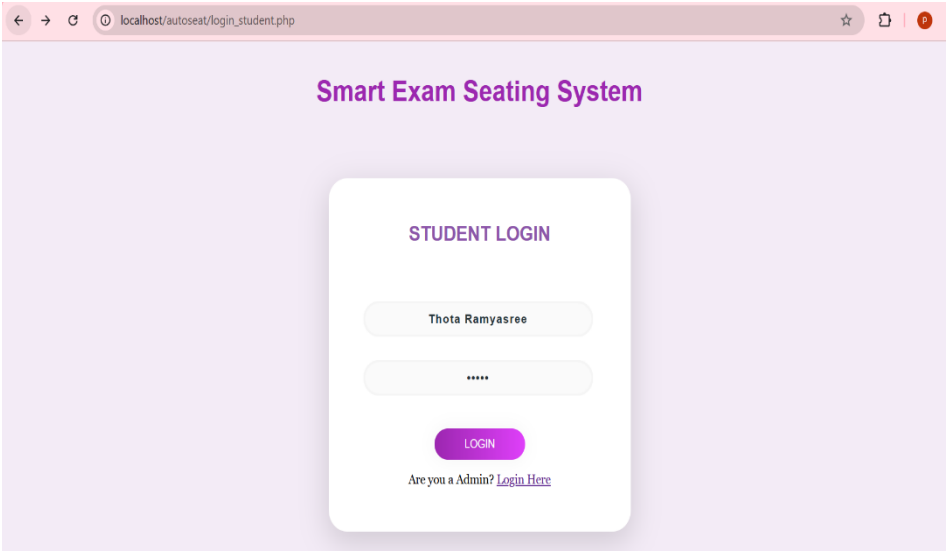


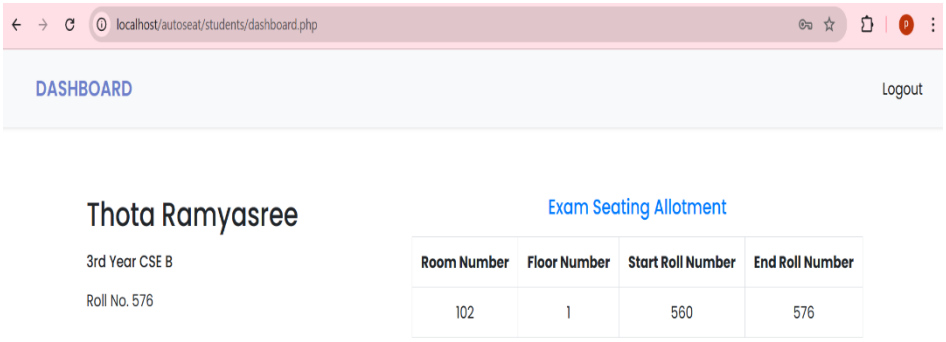

localhost/autoseat/admin/add_class.php
DASHBOARD
Manage Classes
Logout
Classes
Students
Rooms
Allotment
Year
Department
Division
Actions
--select--
--select--
--select--
Add
3rd Year
CSE
A
3rd Year
CSE
B


localhost/autoseat/admin/add_student.php
DASHBOARD
Manage Students
Logout
Classes
Students
Rooms
Allotment
Name
Class
RollNo.
Password
Actions
--select--
Add
Thota Ramyasree
3rd Year CSE B
576
-


localhost/autoseat/admin/add_room.php
DASHBOARD
Manage Rooms
Logout
Classes
Students
Rooms
Allotment
Room No.
Floor
Capacity
Vacancy
Actions
Add
102
1
20
3 See


localhost/autoseat/admin/dashboard.php
DASHBOARD
Classes
Students
Rooms
Allotment
Allotment
Logout
Room & Floor
Class
Start Roll No.
End Roll No.
Total
Actions
--select--
--select--
Add
Room-102 & Floor-1
3rd Year-CSE-B
560
576
17


localhost/autoseat/login_student.php
Smart Exam Seating System
STUDENT LOGIN
Thota Ramyasree
LOGIN
Are you a Admin? Login Here


localhost/autoseat/students/dashboard.php
DASHBOARD
Logout
Thota Ramyasree
3rd Year CSE B
Roll No. 576
Exam Seating Allotment
Room Number
Floor Number
Start Roll Number
End Roll Number
102
1
560
576

VI. CONCLUSION

The AutoSeat: Smart Exam Seating System makes the exam seating process easier, faster, and more accurate by using automation. Instead of doing everything manually, which takes a lot of time and can have mistakes, this system helps schools arrange seats fairly and quickly. It also avoids problems like students from the same class sitting together, handles special seating needs, and keeps student information safe. The system is easy to use for both admin and students and works well even when there are many students or large exam halls. Overall, it saves time, reduces errors, and makes exam management much better.

VII. REFERENCES

- Kishore, A. N. Sasireka, & Vijay. K (2021). Design and Development of Enhanced Exam Hall Seating Arrangement Automation System. International Journal of Innovative Technology and Exploring Engineering (IJITEE), DOI:10.17762/ITII.V9I2.418.
- Vidyashree B. P., Azadar Hussain, Harsha Kumar Gowda D. K., Karthik S., & Kshithij Bharadwaj K. V. (2023). Automatic Exam Seating Arrangement System. International Journal of Engineering Research and Technology (IJERT), e-ISSN: 2582-5208.
- Sankari, G. R., Jenisha, R., Mary, X., Haritha, K., & Pushparaj, D. J. (2020). Exam Seating Arrangement. International Journal of Advanced Research Trends in Engineering and Technology (IJARTET), Vol. 7, Issue 7.