

EXAM CELL AUTOMATION SYSTEM WITH OPEN AI

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Dr. A.P.J. Abdul Kalam Technical University, Lucknow

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IN

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UNDER THE GUIDANCE OF

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DEPARTMENT OF INFORMATION TECHNOLOGY

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Dr. A.P.J. Abdul Kalam Technical University, Lucknow

May 2023



Department of Information Technology

Session 2022-2023

Project Completion Certificate

Date: 20/05/2023

This is to certify that Mr. **MANAV AGGARWAL** bearing Roll No. 2001320139004 students of 4TH year Information Technology has completed project program (KIT-851) with the Department of Information Technology from 20-Feb-2023 to 20-May-2023.

I worked on the project titled "**EXAM CELL AUTOMATION SYSTEM WITH OPEN AI**" under the guidance of **Dr. Anand Dohare**.

This project work has not been submitted anywhere for any degree.

(Dr. Anand Dohare)

AP, Dept. of IT

Project Coordinator/HoD-IT



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Abstract

A technology called examination cell automation with chatbots enables universities or other educational institutions to automate their examination-related operations. The chatbots serve as a virtual assistant and can answer questions from students and handle issues with exam times, grades, and comments. The purpose of this research paper is to analyses the significance of test cell automation using chatbots, as well as its advantages, disadvantages, and implementation approaches.

A project is created for the institution to reduce the manual process of allocating test rooms and setting up seats. It makes it easier to obtain a specific student's exam information for a certain class. This seating arrangement method was created with the intention of giving teachers a conflict-free approach to assign each student an exam room. Most students struggle to locate the test room, therefore a recently developed idea makes it easier for the staff to organize the exam rooms. Additionally, this project assigns a specific invigilator to a specific hall. It is also quite helpful for colleges as the programmer can produce reports on hall separation and related issues. In light of their departments and register numbers, manual Excel sheet and paper labor is therefore automated.

Currently Exam cell activity mostly includes a lot of manual calculations and is mostly paper based. The project aims to bring in a centralized system that will ensure the activities in the context of an examination that can be effectively managed. This system allows students to enroll themselves into the system by registering like by providing their Enrollment number, Name, email, examination, semester, etc. Examination Cell Automation System is developed for the college to simplify the activities of Staff and Students .It facilitates to access the examination information of a particular student in a particular department. The information is stored into the database which will be provided by the teacher for a respective student. Here the admin updates the student details, staff details and can add or delete them.

Exam Cell Automation System has been created to avoid lot of manual work traditionally done by the Students, Faculties as well as the Exam Cell. The major Focusof the System is to efficiently manage the activities carried out by the exam cell. As we all know that examination plays a very crucial role in Students as well as in faculties life when its adhered to, all the work needs to be done with perfection and withfull attention, however manually carrying out the examination work might lead to a flaw or a mistake sometime which in turn increases the work of the respected faculty. The Basic aim of designing this system is to computerize the manual work to a greater extent almost next to negligible. In this system the result will be generated by the exam cell by calculating the CGPI and SCPI of every individual student. The Sys-tem will have a easy to use interface which will in turn will be helpful for the user. Currently the system used by the Exam cell also automated the work to a greater extent but still it requires a lot of manual work by the Students as well as the Exam cell and Faculties. This System acts as an interface between the Students, Faculties and the Exam Cell department. The information is stored into the database which will be provided by the teacher for a respective student. Here the admin updates the student details, staff details and can add or delete them. The result will be finally a fully automated system.

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List of Abbreviations

S. No.	Abbreviations	
1.	AI	Artificial Intelligence
2.	JS	JavaScript
3.	CSS	Cascading Style Sheet
4.	API	Application Program Interface
5.	JSON	JavaScript Object Notation
6.	HTML	Hyper Text Markup Language
7	UI	User Interface
8	VS CODE	Visual Studio Code
9	ANN	Artificial Neural Network
10	SVM	Support Vector Machine
11	NN	Neural Network
12	GUI	Graphical User Interface
13	SRS	System Requirement Specification
14	DFD	Data Flow Diagram
15	ER DIAGRAM	Entity Relationship Diagram
16	OS	Operating System
17	UML	Unified Modelling Language
18	OOA & D	Object Oriented Analysis And Design
19	PERT	Program Evaluation Review Technique
20	ST	Software Testing
21	JDBC	Java Data Base Connectivity

CHAPTER – 1

Introduction

Examination System is an integral part of the Exam cell Department. Earlier Exam form filling requires a lot of project work by the students as well as by the Exam cell department, but through Exam Cell Automation System all the student, faculties and the Exam cell related work will be done automatically. The online filling and submission of the form is taking over the traditional system. With the help of such system exam cell can gather all the useful information from the Centralized database. Previously the students have to form a long queue to submit the exam form by bunking their lectures because form filling is mandatory so they have to submit it anyhow. As all this work were done manually that were more prone to flaws, and requires lot of labour work. The current systems are traditional systems which support manual processes leading to huge time consumption and stack of hard copies. The systems make the processes delayed. So, to overcome all such flaws and errors we have developed such a system that will provide a digital environment and most of the problem has been solved by the System.

In recent years, there has been an increase in the use of chatbots in various fields, including education. One of the areas where chatbots are being used is in exam cell management. Exam cell management involves the coordination of various activities such as registration, scheduling, and grading. These activities require a lot of human resources, time, and effort. The integration of chatbots in exam cell management is a promising solution to these challenges. This literature review aims to explore the use of chatbots in exam cell management and the benefits and limitations of this technology.

Examination cell automation is a method of digitising the test process that helps educational institutions to handle their examination-related responsibilities more effectively. Automation has grown in importance within the educational system with the emergence of technology. In order to increase process efficiency and cut costs, educational institutions use a variety of software and technologies to automate their operations. Because they can handle a variety of duties, including answering student questions, evaluating projects, and organising tests, chatbots have grown in popularity in recent years.

Objectives: The primary objective of this project is to develop an exam cell automation system that can handle various exam-related activities. Aim to achieve the following objectives:

- To develop a user-friendly interface for the exam cell automation system that can be used by both exam cell staff and students.
- To create a system that can manage the registration of students for exams, including the collection of fees, data entry, and scheduling.
- To develop a system that can generate various reports, such as student registration reports, exam schedules, and grade reports.
- To create a system that can handle the grading process, including the calculation of grades and the publication of results.
- To develop a system that can provide real-time updates and notifications to students regarding exam related events.
- To create a system that can integrate with other existing systems in the institution, such as the student information system and the finance system.

Scope: The exam cell automation system will involve the following tasks:

- Requirement gathering and analysis: This will involve identifying the needs and requirements of the exam cell and the stakeholders involved in the examination process.
- System design and architecture: This will involve designing the system architecture, creating the database schema, and developing the user interface.
- System development: This will involve the actual development of the exam cell automation system, including the coding, testing, and debugging of the software.
- System integration: This will involve integrating the exam cell automation system with other existing systems in the institution.

System deployment and maintenance: This will involve the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support.

1.1 Purpose:

The system is created to ease the work of the users. This system does almost all the work digitally rather than manually and hence it requires lot of storage to store all the details of the students, staffs. This System will be used by the Students, the faculties and the exam cell members.

1.2 Project Scope:

The scope of the project is that all the examination related work for the students can be done using this system. It will provide faster and easier access for updating records as the project work will reduce. All the students related database can be retrieve any time by authorized person .Students have to register for the first time with our system to enrol themselves by providing personal details, uploading photo and sign etc. which will generate a unique id for each student. The students can also modify/edit their details in future if required. Once registered students can loginto our website through their registered id and password and can fill various forms like Exam form, K.T form. The Exam cell admin can verify students form through his/her login id and can modify the students form if students have made any mistake during filling the form and by chance submitted it. Revaluation form can be filled without having to stand in a long queue. Application support and maintenance after deployment will be provided to production. The System can be customized as per therequirements of the college and student as well as the faculty can access it remotely.

1.3 Project Goals and Objectives:

1.3.1 Goals

- Provide a solution for our exam cell system which reduce manual work.
- It allows students to fill exam form from anywhere which help us to not to be in present in college and also reduce the chance of bunking class to stand in long queuefor filling form.
- It also allow students to fill form for ATKT according to their previous data storedin database.
- It provides a facility to auto-generate new roll no for new joiners to the institute.
- Can easily allocate subjects to specific teachers by HOD.

BENEFITS OF CHATBOT

The use of chatbots to automate test cells offers a number of advantages including:

- Increased Productivity: Automating test-related processes lightens the workload of exam cell workers, which boosts productivity.
- Chatbots are accessible around-the-clock, offering student's immediate support and swiftly addressing their issues.
- Greater Accuracy: Using automation lowers the possibility of human mistake, resulting in greater accuracy in exam-related processes like scheduling and grading.

Enhanced Student pleasure: Chatbots give students prompt, individualized support, enhancing their pleasure.

1.3.2 Objective

- Objective of the project is to save men power and time.
- Reduce the manual work (project work).
- Can be always available for everyone from everywhere so everyone can accesstheir data from anywhere.

SOME CHALLENGES OF CHATBOT

Despite the advantages, using a chatbot to automate test cells has a number of difficulties, including the following:

- Technical difficulties: The institution may not have the technical know-how needed to install a chatbot.
- Integration with current Systems: Integrating with current systems can be difficult, especially with learning management and student information systems.

- Natural Language Processing: Because human language is so complicated, it might be difficult for chatbots to understand and reply to student inquiries using natural language processing.

NEED OF AUTOMATION CHATBOT:

Since the entire task must be completed manually and takes a lot of time, there are a number of issues with current exam cell activities. The current system involves manual entry of every student's data, including their semester, department, subject, and K.T. Additionally, the current system requires manual calculations to calculate the CGPI and SPGI for each student. Each student's personal information must be filled out by test cell staff members for record-keeping purposes. In the current system, students are required to manually complete all of the forms and submit them while waiting in a long queue for verification. The form must be sent to the office after it has been confirmed. All of these factors make it necessary to create a better system that can quickly and effectively solve all of these issues.

Automation chatbots have become an essential tool in many sectors, providing benefits such as increased efficiency, cost savings, and improved customer service. Here are some of the main reasons why automation chatbots are needed in all sectors:

1. 24/7 availability: Automation chatbots can provide instant responses to customers' queries and are available 24/7, which means that customers can get the help they need at any time of the day or night. This is especially important in sectors such as healthcare, finance, and e-commerce, where customers may have urgent questions or require assistance outside of normal business hours.
2. Cost Savings: Automation chatbots can help reduce labor costs by handling repetitive and routine tasks, such as answering frequently asked questions and handling simple transactions. This can free up staff to focus on more complex and value-added tasks.
3. Increased Efficiency: Automation chatbots can handle a large volume of requests simultaneously, without any need for breaks or downtime. This can help increase the efficiency of operations and reduce the waiting time for customers.
4. Personalization: Automation chatbots can be designed to provide personalized responses to customers, based on their individual needs and preferences. This can help improve the customer experience and increase customer satisfaction.
5. Data Collection and Analysis: Automation chatbots can collect and analyse data on customer interactions, providing valuable insights into customer behavior, preferences, and needs. This data can be used to improve products, services, and customer experiences.

In conclusion, automation chatbots are needed in all sectors to improve efficiency, reduce costs, and provide better customer service. They can provide 24/7 availability, cost savings, increased efficiency, personalization, and data collection and analysis.

KEY FEATURES OF EXAM CELL AUTOMATION SYSTEM WITH CHATBOT

- Chatbot based Interface: The system provides a chatbots based interface for students to interact with the exam cell. Students can use natural language to ask questions and get quick responses.
- 24/7 Availability: The chatbots are available 24/7, allowing students to get answers to their queries at any time.
- Personalization: The chatbots can be customized to provide personalized responses to students based on their queries, preferences, and history.
- Quick Response Time: The system can respond to student queries in real-time, reducing the waiting time and improving the overall experience.
- Integration with Exam Cell Database: The system is integrated with the exam cell database, allowing it to retrieve accurate and up-to-date information regarding exam schedules, hall tickets, results, and other related queries.
- Notifications and Alerts: The system can send notifications and alerts to students regarding exam schedules, hall tickets, results, and other important updates.
- Automation of Exam Cell Processes: The project has automated the exam cell processes, which has reduced manual effort and improved efficiency.
- Better Experience for Users: The project has provided a better experience for students and faculty by providing them with quick and accurate information about the exam cell processes.
- Improved Security: The project has ensured the security and confidentiality of exam-related data by implementing various security measures.
- Increased Productivity: The project has increased productivity by reducing the time and effort required to manage exam cell processes

1.4 Organization of report:

The report is organized as follows: The introduction is given in Chapter 1. It describes the fundamental terms used in this project. It describes the Goal, Objectives and scope of this project. The Chapter 2 describes the review of the relevant various techniques in the literature systems. It describes the pros and cons of each technique with how to overcome those cons using new technology. The project planning includes members and capabilities of this project, roles and responsibilities of each member, Budget of Project and Project timeline is described in Chapter 3. The Chapter 4 describes Functional and Non-functional Requirements of project. Along with this it also explains features of system and constraints of system. The Chapter 5 includes Design Information with Class Diagram, Sequence Diagram, Component Diagram and System Architecture. Implementation of each module is explained in Chapter 6. Chapter 7 shows final Test Cases and Test Results. Chapter 8 includes Screenshot of outputs and Conclusion and Future Scope of Project is described in Chapter 9.

CHAPTER – 2

Literature Survey

In recent years, there has been an increase in the use of chatbots in various fields, including education. One of the areas where chatbots are being used is in exam cell management. Exam cell management involves the coordination of various activities such as registration, scheduling, and grading. These activities require a lot of human resources, time, and effort. The integration of chatbots in exam cell management is a promising solution to these challenges. This literature review aims to explore the use of chatbots in exam cell management and the benefits and limitations of this technology.

Benefits of Chatbots in Exam Cell Management: One of the key benefits of chatbots in exam cell management is the reduction in the workload of exam cell staff. Chatbots can handle a large volume of inquiries and requests from students, which reduces the need for human intervention. This allows exam cell staff to focus on more critical tasks that require their expertise. Chatbots can also provide 24/7 support to students, ensuring that their inquiries and requests are attended to promptly. Another benefit of chatbots in exam cell management is the improvement in the accuracy and consistency of information provided to students. Chatbots are programmed to provide accurate and up-to-date information based on the exam cell's database. This ensures that students receive consistent and reliable information. Chatbots can also provide personalized responses to students based on their queries, preferences, and history.

Chatbots can also improve the efficiency of exam cell management by automating repetitive tasks such as sending reminders and notifications to students. This reduces the workload of exam cell staff and ensures that students receive timely reminders and notifications regarding important exam-related events. **Limitations of Chatbots in Exam Cell Management:** One of the main limitations of chatbots in exam cell management is their inability to handle complex queries and requests. Chatbots are programmed to handle specific queries and may not be able to handle queries that require a human touch. In such cases, students may have to be redirected to human exam cell staff, which defeats the purpose of using chatbots. Another limitation of chatbots in exam cell management is their dependence on technology. Chatbots require a stable internet connection and a reliable software platform to function effectively. Technical issues such as server downtime and software glitches can affect the performance of chatbots and impact the quality of service provided to students.

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Uses of OpenAI in Web based applications

OpenAI is an artificial intelligence research laboratory consisting of a team of researchers, engineers, and experts working towards the development of advanced AI technology. OpenAI was founded in 2015 by a group of influential technology executives, including Elon Musk, Sam Altman, Greg Brockman, Ilya Sutskever, John Schulman, and Wojciech Zaremba.

OpenAI's mission is to create and promote advanced artificial intelligence that can be used for the betterment of humanity. OpenAI believes that the development of AI has the potential to revolutionize many industries and improve the lives of people worldwide.

OpenAI is known for creating state-of-the-art AI models and technologies such as GPT-3, a language model capable of generating human-like text, and DALL-E, an image generation AI. These models have been utilized in various industries, including healthcare, finance, and entertainment.

OpenAI's research projects also include advancing the field of reinforcement learning, developing algorithms that enable machines to learn from trial and error. This research is critical to the development of autonomous vehicles and other machines that require adaptive behavior.

OpenAI is committed to open research, meaning that its research is available to the public, and its technologies are accessible to developers and researchers worldwide. OpenAI aims to ensure that the benefits of AI technology are accessible to everyone, regardless of their location or economic status.

Overall, OpenAI is a leader in the field of artificial intelligence and is dedicated to advancing the technology to improve human life.

Both approaches use human trainers to improve the model's performance. In the case of supervised learning, the model was provided with conversations in which the trainers played both sides: the user and the AI assistant. In the reinforcement learning step, human trainers first ranked responses that the model had created in a previous conversation. These rankings were used to create "reward models" that were used to fine-tune the model further by using several iterations of Proximal Policy Optimization (PPO).

Artificial Intelligence (AI) has the potential to play a significant role in rural development by improving the quality of life for people living in rural areas. Here are some important ways in which AI can contribute to rural development:

1. Precision Agriculture: AI can be used to analyze large amounts of data from agricultural fields, including soil moisture, temperature, and other environmental factors. This can help farmers optimize crop yields, reduce waste, and conserve resources.
2. Rural Healthcare: Rural areas often face a shortage of healthcare professionals, making it difficult for people to access healthcare services. AI can be used to improve access to healthcare in rural areas by providing remote healthcare services such as telemedicine, diagnostic tools, and chatbots that can help patients receive diagnoses and treatment recommendations.

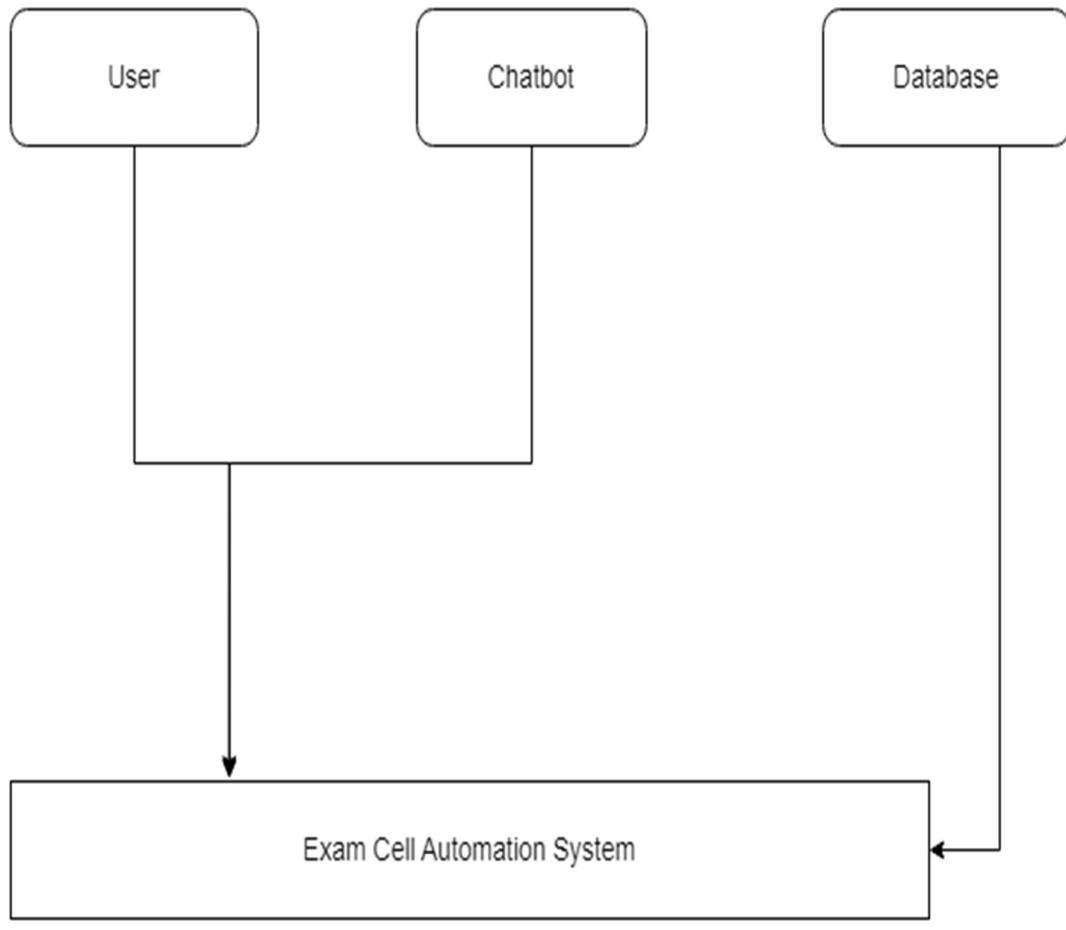
3. Education: AI-powered technologies can help provide quality education to students in rural areas, where the availability of quality teachers and educational resources is limited. AI-powered chatbots and virtual assistants can provide personalized learning experiences to students, enabling them to learn at their own pace.

4. Infrastructure: AI can be used to optimize infrastructure planning and maintenance in rural areas. For example, AI can be used to predict road conditions and weather patterns, enabling road crews to prioritize maintenance efforts and ensure that rural areas remain accessible.

5. Disaster Response: Rural areas are often more vulnerable to natural disasters such as floods, droughts, and wildfires. AI can be used to predict and respond to these disasters more effectively, enabling governments and disaster response teams to allocate resources and respond more efficiently.

Overall, AI has the potential to play a critical role in rural development by improving access to healthcare, education, infrastructure, and other services. By harnessing the power of AI, we can create more equitable and sustainable rural communities, where everyone has access to the resources and opportunities they need to thrive.

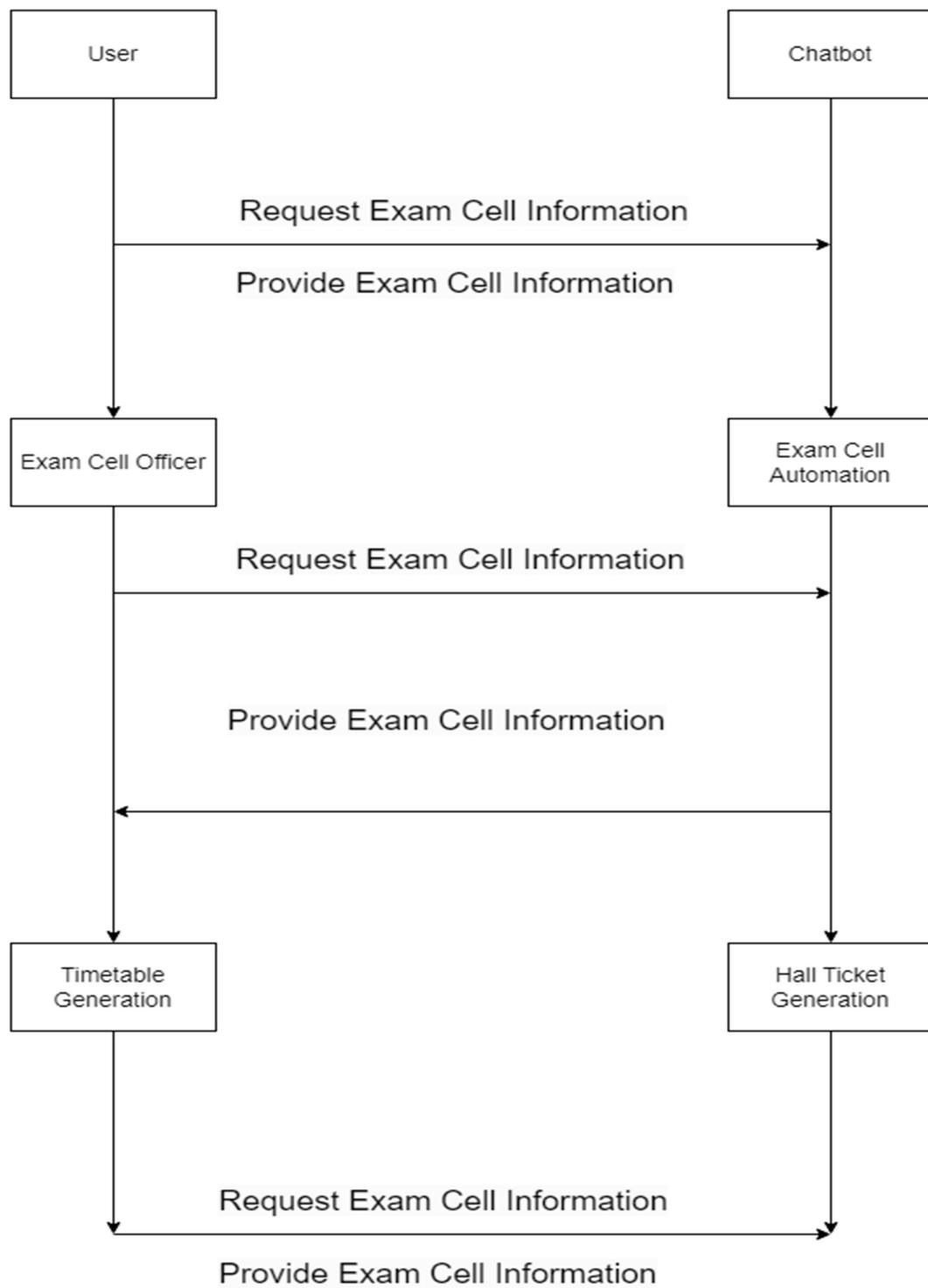
2.1 Flow of Project:



Exam cell automation system with chatbot DFD-0

Education: AI-powered technologies can help provide quality education to students in rural areas, where the availability of quality teachers and educational resources is limited. AI-powered chatbots and virtual assistants can provide personalized learning experiences to students, enabling them to learn at their own pace.

Exam cell automation system with chatbot DFD-1



2.1.1 Admin Panel

- Admin Login: The application's administrator can log in using the specified username and password.
- Manage Departments: The college's administrative staff is in charge of several departments, including information technology, computers, and mechanical.
- Admin oversees semester management.
- Manage Subject: Admin administers subjects that are exclusive to a department.
- Manage notification: The administrator can broadcast a department-specific notification for students to view.
- Manage Marks: For the purpose of generating results, the admin administers the departmental and subject-specific marks.
- Manage Exam Schedule: The administrator oversees the department- and semester-specific exam schedule including date and time specifications.
- Manage exam forms: The administrator may manage exam forms for ordinary examinations, A.T.K.T. forms, revaluation forms, and photocopy requests made by students.

2.1.2 Student Panel

- Student Registration: Students register by providing their contact information, department information, and other details.
- Student Login: Enter your username and password to log in as a student.
- Access Exam Timetable: Students can access the exam timetable, which is managed by the admin.
- Examine Exam Hall Tickets: Students may examine and, if necessary, print their exam hall tickets.
- View Marks: In the login panel, students may view their marks by topic.
- View Profile: In the profile section, students can change their personal data.

2.2 Technical Review:

- Laravel is an open-source PHP framework, which is robust and easy to understand. It follows a model-view-controller design pattern. Laravel reuses the existing components of different frameworks which helps in creating a web application. The web application thus designed is more structured and pragmatic.
- Laravel offers a rich set of functionalities which incorporates the basic features of PHP frameworks like Code Igniter, Yii and other programming languages like Ruby on Rails. Laravel has a very rich set of features which will boost the speed of web development.

2.2.1 Advantage of Technology:

- The web application becomes more scalable, owing to the Laravel framework.
- Considerable time is saved in designing the web application, since Laravel reuses components from other framework in developing web application.

- It includes namespaces and interfaces, thus helps to organize and manage resources.

2.2.2 Reasons to use this Technology:

- Modularity: Laravel provides 20 built in libraries and modules which helps in enhancement of the application. Every module is integrated with Composer dependency manager which eases updates.
- Testability: Laravel includes features and helpers which helps in testing through various test cases. This feature helps in maintaining the code as per the requirements.
- Routing: Laravel provides a flexible approach to the user to define routes in the web application. Routing helps to scale the application in a better way and increases its performance.

METHODOLOGY

- Requirement gathering and analysis: This stage involves identifying the needs and requirements of the exam cell and stakeholders involved in the examination process. The requirements are collected through interviews, surveys, and feedback from stakeholders.
- System design and architecture: This stage involves designing the system architecture, creating the database schema, and developing the user interface. The system design and architecture are based on the requirements gathered in the previous stage.
- System development: This stage involves the actual development of the exam cell automation system, including the coding, testing, and debugging of the software. The development process is based on the system design and architecture.
- System integration: This stage involves integrating the exam cell automation system with other existing systems in the institution. The integration is done to ensure that the exam cell automation system can communicate with other systems and share data.
- System deployment and maintenance: This stage involves the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support. The deployment process includes installing the system on the server and client machines, training the users on how to use the system, and providing ongoing support to ensure that the system operates smoothly.

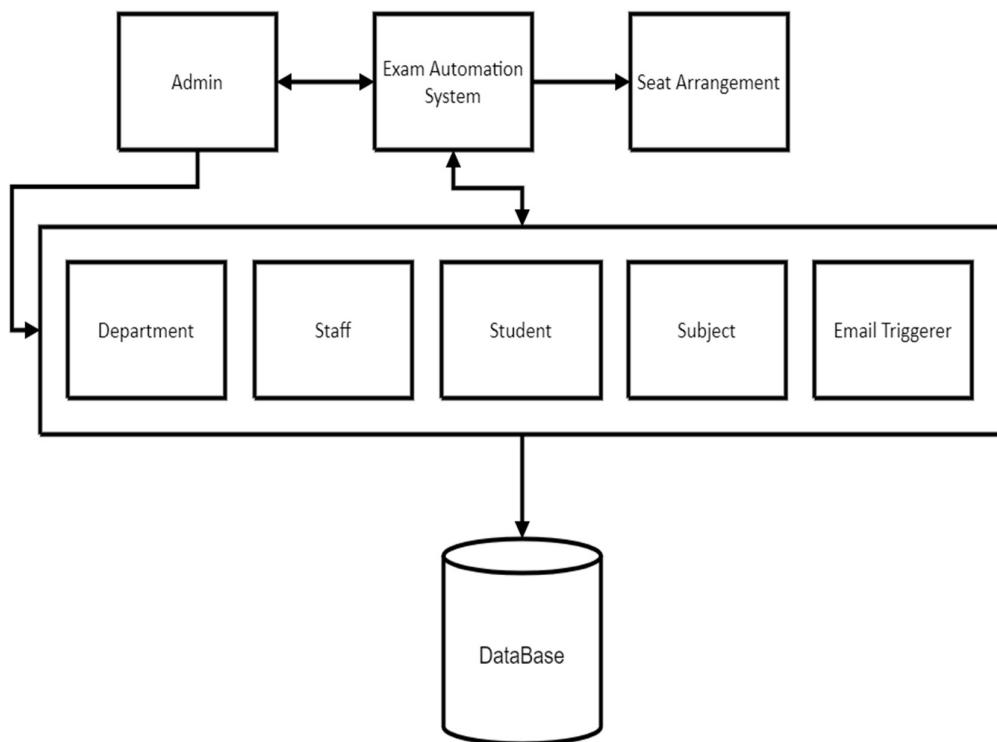
The methodology for an AI project can vary depending on the specific project and its goals. However, here are some general steps that can be followed when developing an AI project:

1. Define the problem: The first step in any AI project is to clearly define the problem that needs to be solved. This involves understanding the problem domain, identifying the relevant data sources, and determining the desired outcome.
2. Collect and preprocess data: AI projects rely on large amounts of data to train and test machine learning models. Data must be collected from relevant sources, cleaned, and preprocessed to ensure that it is suitable for use in machine learning algorithms.
3. Develop a model: Once the data has been collected and preprocessed, the next step is to develop a machine learning model that can be trained on the data to make predictions or classify inputs. This involves selecting an appropriate machine learning algorithm, training the model on the data, and evaluating its performance.
4. Test and refine the model: After the model has been developed, it needs to be tested and refined to improve its accuracy and performance. This involves evaluating the model's performance on test data and making adjustments to improve its accuracy.

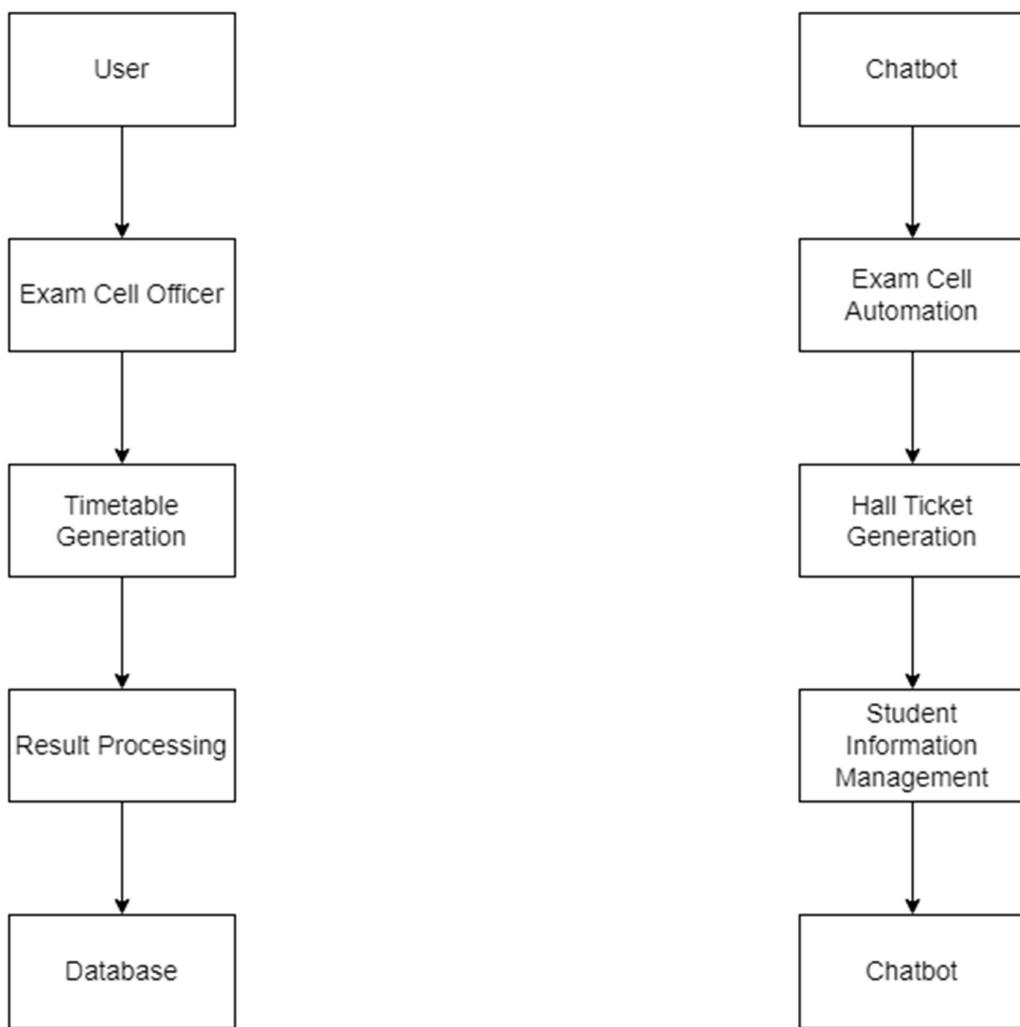
5. Deploy the model: Once the model has been developed and tested, it needs to be deployed in a production environment. This involves integrating the model into an application or system and ensuring that it can handle real-world data inputs.

6. Monitor and maintain the model: Once the model has been deployed, it needs to be monitored and maintained to ensure that it continues to perform accurately over time. This involves monitoring the model's performance, retraining the model on new data as needed, and making adjustments to the model as necessary.

Throughout the development process, it is important to document the steps taken and the decisions made, as well as to collaborate with stakeholders and team members to ensure that the project meets its goals and objectives.



• **Figure 1. System Architecture for Exam Cell Automation with Chatbot**



Exam cell automation system with chatbot Data flow diagram.

The following is a detailed explanation of each stage:

- Requirement gathering and analysis: The requirement gathering stage involves identifying the needs and requirements of the exam cell and stakeholders involved in the examination process. The requirements are collected through interviews, surveys, and feedback from stakeholders. The requirements gathered in this stage include the features and functionalities of the exam cell automation system, the system's interface, and the user roles and permissions.

- System design and architecture: The system design and architecture stage involves designing the system architecture, creating the database schema, and developing the user interface. The system architecture includes the components and modules of the exam cell automation system, how they interact with each other, and the data flow between them. The database schema includes the structure of the database tables and fields used to store data. The user interface design includes the layout and functionality of the system interface.
- System development: The system development stage involves the actual development of the exam cell automation system, including the coding, testing, and debugging of the software. The development process is based on the system design and architecture developed in the previous stage. The development process includes creating the system components, integrating them into a functional system, and testing the system for bugs and errors.
- System integration: The system integration stage involves integrating the exam cell automation system with other existing systems in the institution. The integration is done to ensure that the exam cell automation system can communicate with other systems and share data. The integration process includes identifying the systems to be integrated, developing the integration plan, and implementing the integration plan.
- System deployment and maintenance: The system deployment and maintenance stage involve the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support. The deployment process includes installing the system on the server and client machines, training the users on how to use the system, and providing ongoing support to ensure that the system operates smoothly. The maintenance process involves monitoring the system for bugs and errors, fixing any issues that arise, and updating the system to incorporate new features and functionalities.

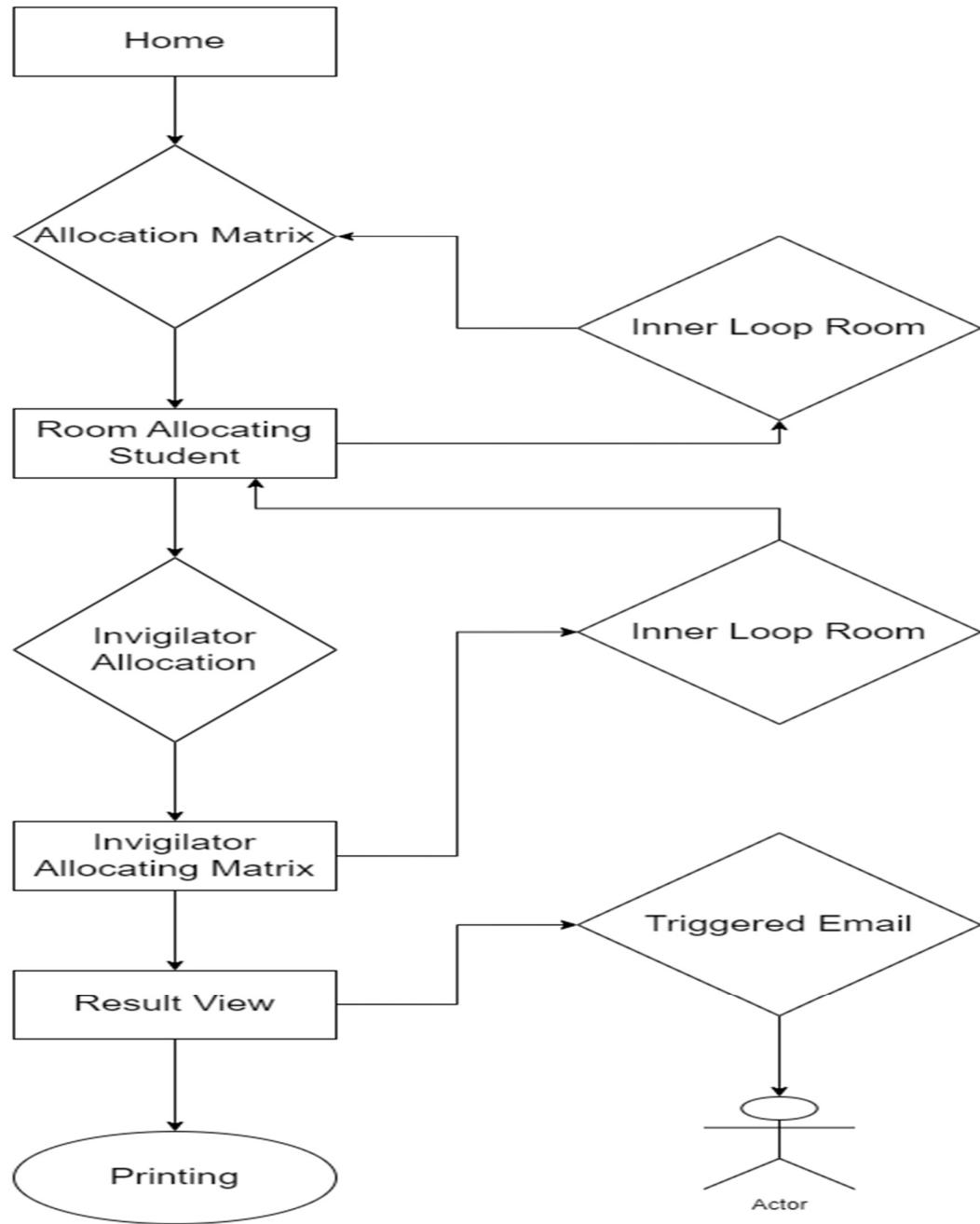


Figure 2: Dataflow Diagram for Exam Cell Automation with Chatbot

Problem Statement: The exam cell of a university is struggling to manage the high volume of inquiries and requests from students during exam time. Students are facing difficulties in getting timely and accurate information regarding exam schedules, hall tickets, results, and other related queries.

Solution: An automated exam cell system with a chatbots can be implemented to provide students with easy access to information and support.

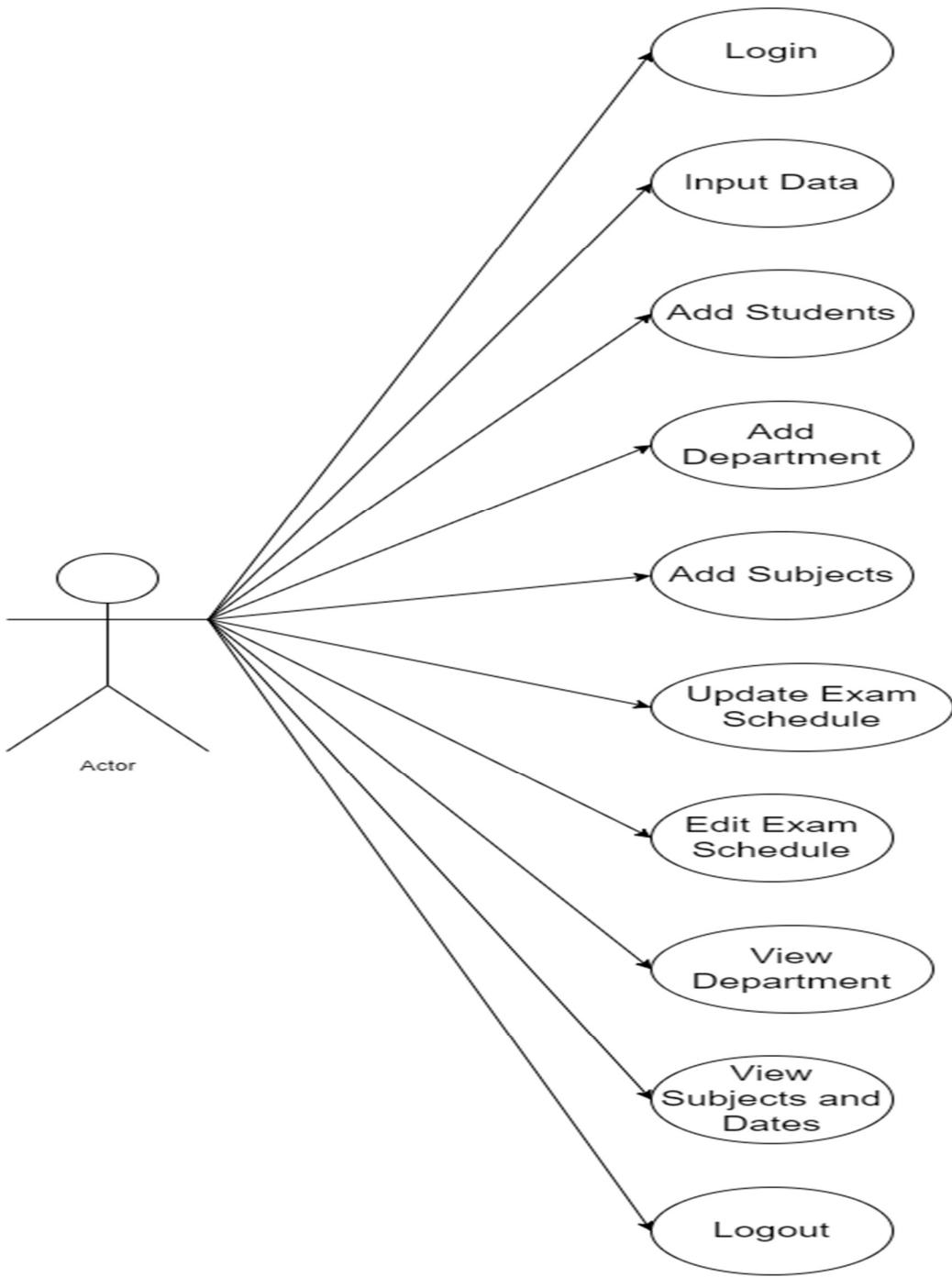


Figure 3: Use Case Diagram for Admin

An exam cell is responsible for managing the entire examination process, from registration of students to the announcement of results. With the increasing number of students in universities and colleges, the exam cell has to deal with a large volume of inquiries and requests. This can

be challenging, especially during peak periods such as exam time, when there is a high demand for information and support.

To address these challenges, an automated exam cell system with a chatbots can be implemented to improve the efficiency of the exam cell and provide better support to students.

Automation chatbots have become an essential tool in many sectors, providing benefits such as increased efficiency, cost savings, and improved customer service. Here are some of the main reasons why automation chatbots are needed in all sectors:

1. 24/7 availability: Automation chatbots can provide instant responses to customers' queries and are available 24/7, which means that customers can get the help they need at any time of the day or night. This is especially important in sectors such as healthcare, finance, and e-commerce, where customers may have urgent questions or require assistance outside of normal business hours.
2. Cost Savings: Automation chatbots can help reduce labor costs by handling repetitive and routine tasks, such as answering frequently asked questions and handling simple transactions. This can free up staff to focus on more complex and value-added tasks.
3. Increased Efficiency: Automation chatbots can handle a large volume of requests simultaneously, without any need for breaks or downtime. This can help increase the efficiency of operations and reduce the waiting time for customers.
4. Personalization: Automation chatbots can be designed to provide personalized responses to customers, based on their individual needs and preferences. This can help improve the customer experience and increase customer satisfaction.
5. Data Collection and Analysis: Automation chatbots can collect and analyze data on customer interactions, providing valuable insights into customer behavior, preferences, and needs. This data can be used to improve products, services, and customer experiences.

In conclusion, automation chatbots are needed in all sectors to improve efficiency, reduce costs, and provide better customer service. They can provide 24/7 availability, cost savings, increased efficiency, personalization, and data collection and analysis. By using automation chatbots, businesses can improve their operations and provide better experiences for their customers, which can lead to increased customer loyalty and business growth.

SOFTWARE ENVIRONMENT

FRONT END

VISUAL STUDIO.NET Visual Studio .NET is Microsoft's visual programming environment for creating web services based on the use of Extensible Mark Up Language(XML).The product suite provides a visual interface for identifying a program as a web service, forms for building a user interface(including support for mobile device interfaces),features for integrating existing application data, and for debugging .Visual Studio .NET comes with the .NET Framework, including the common language runtime, and includes several programming languages including Visual Basic, Visual C#.BACK END

SQL SERVER EXPRESS Microsoft SQL Server Express, a freely downloadable and distributable version of Microsoft's SQL Server relational database management system, comprises a database specifically targeted for embedded and smaller-scale applications. The product traces its roots to the Microsoft Database Engine (MSDE) product, which was shipped with Research Article Volume 7 Issue No.3 International Journal of Engineering Science and Computing, March 2017 6017 <http://ijesc.org/> SQL Server 2000. The " Express" branding has been used since the release of SQL Server 2005. IV. PROPOS ED S YS TEM 1. US ER FRIENDLY This system is user friendly for the retrieval and storing of data. And it is fast to store the data. It is maintained efficiently. The graphical user interface is implemented in this proposed system. It is more efficient than existing system.

2. REPORTS ARE EAS ILY GENERATED Reports like seating arrangements can be easily generated in this proposed system by that user can generate the report as per the requirement and their wish for the duration of month or the day.

3. VERY LESS PROJECT WORK The proposed system requires very less project work. All the data is entered into the computer immediately and reports can be generated by the help of computers. So that work will become very easy because there is no need to keep data on more projects.

4. COMPUTER OPERATOR CONTROL Computer operator control is available so rate of errors will be less. Storing and retrieving of information is simple. So work can be done correct time and also good in speed.

One way to generate test cases automatically is model-based testing through use of a model of the system for test case generation, but research continues into a variety of alternative methodologies for doing so.[citation needed] In some cases, the model-based approach enables non-technical users to create automated business test cases in plain English so that no programming of any kind is needed in order to configure them for multiple operating systems, browsers, and smart devices.[3]

What to automate, when to automate, or even whether one really needs automation are crucial decisions which the testing (or development) team must make.[4] A multi-vocal literature review of 52 practitioner and 26 academic sources found that five main factors to consider in test automation decision are: 1) System Under Test (SUT), 2) the types and numbers of tests,

3) test-tool, 4) human and organizational topics, and 5) cross-cutting factors. The most frequent individual factors identified in the study were: need for regression testing, economic factors, and maturity of SUT.[5]

A growing trend in software development is the use of unit testing frameworks such as the xUnit frameworks (for example, JUnit and NUnit) that allow the execution of unit tests to determine whether various sections of the code are acting as expected under various circumstances. Test cases describe tests that need to be run on the program to verify that the program runs as expected.

Test automation, mostly using unit testing, is a key feature of extreme programming and agile software development, where it is known as test-driven development (TDD) or test-first development. Unit tests can be written to define the functionality before the code is written. However, these unit tests evolve and are extended as coding progresses, issues are discovered and the code is subjected to refactoring.[6] Only when all the tests for all the demanded features pass is the code considered complete. Proponents argue that it produces software that is both more reliable and less costly than code that is tested by manual exploration.[citation needed] It is considered more reliable because the code coverage is better, and because it is run constantly during development rather than once at the end of a waterfall development cycle. The developer discovers defects immediately upon making a change, when it is least expensive to fix. Finally, code refactoring is safer when unit testing is used; transforming the code into a simpler form with less code duplication, but equivalent behavior, is much less likely to introduce new defects when the refactored code is covered by unit tests.

Some software testing tasks (such as extensive low-level interface regression testing) can be laborious and time-consuming to do manually. In addition, a manual approach might not always be effective in finding certain classes of defects. Test automation offers a possibility to perform these types of testing effectively.

Once automated tests have been developed, they can be run quickly and repeatedly many times. This can be a cost-effective method for regression testing of software products that have a long maintenance life. Even minor patches over the lifetime of the application can cause existing features to break which were working at an earlier point in time.

While the reusability of automated tests is valued by software development companies, this property can also be viewed as a disadvantage. It leads to the so-called "Pesticide Paradox", where repeatedly executed scripts stop detecting errors that go beyond their frameworks. In such cases, manual testing may be a better investment. This ambiguity once again leads to the conclusion that the decision on test automation should be made individually, keeping in mind project requirements and peculiarities.

Test automation tools can be expensive and are usually employed in combination with manual testing. Test automation can be made cost-effective in the long term, especially when used repeatedly in regression testing. A good candidate for test automation is a test case for common flow of an application, as it is required to be executed (regression testing) every time an enhancement is made in the application. Test automation reduces the effort associated with manual testing. Manual effort is needed to develop and maintain automated checks, as well as reviewing test results.

In automated testing, the test engineer or software quality assurance person must have software coding ability since the test cases are written in the form of source code which when run produce output according to the assertions that are a part of it. Some test automation tools allow for test authoring to be done by keywords instead of coding, which do not require programming.

API testing

API testing is also being widely used by software testers as it enables them to verify requirements independent of their GUI implementation, commonly to test them earlier in development, and to make sure the test itself adheres to clean code principles, especially the single responsibility principle. It involves directly testing APIs as part of integration testing, to determine if they meet expectations for functionality, reliability, performance, and security.[7] Since APIs lack a GUI, API testing is performed at the message layer.[8] API testing is considered critical when an API serves as the primary interface to application logic.

Continuous testing

Continuous testing is the process of executing automated tests as part of the software delivery pipeline to obtain immediate feedback on the business risks associated with a software release candidate.[10][11] For Continuous Testing, the scope of testing extends from validating bottom-up requirements or user stories to assessing the system requirements associated with overarching business goals.

Graphical User Interface (GUI) testing

Main article: Graphical user interface testing

Many test automation tools provide record and playback features that allow users to interactively record user actions and replay them back any number of times, comparing actual results to those expected. The advantage of this approach is that it requires little or no software development. This approach can be applied to any application that has a graphical user interface. However, reliance on these features poses major reliability and maintainability problems. Relabelling a button or moving it to another part of the window may require the test to be re-recorded. Record and playback also often adds irrelevant activities or incorrectly records some activities.[citation needed]

A variation on this type of tool is for testing of web sites. Here, the "interface" is the web page. However, such a framework utilizes entirely different techniques because it is rendering HTML and listening to DOM Events instead of operating system events. Headless browsers or solutions based on Selenium Web Driver are normally used for this purpose.

Another variation of this type of test automation tool is for testing mobile applications. This is very useful given the number of different sizes, resolutions, and operating systems used on mobile phones. For this variation, a framework is used in order to instantiate actions on the mobile device and to gather results of the actions.

Another variation is script-less test automation that does not use record and playback, but instead builds a model[clarification needed] of the application and then enables the tester to

create test cases by simply inserting test parameters and conditions, which requires no scripting skills.

Automation describes a wide range of technologies that reduce human intervention in processes, namely by predetermining decision criteria, subprocess relationships, and related actions, as well as embodying those predeterminations in machines.[1] Automation has been achieved by various means including mechanical, hydraulic, pneumatic, electrical, electronic devices, and computers, usually in combination. Complicated systems, such as modern factories, airplanes, and ships typically use combinations of all of these techniques. The benefit of automation includes labor savings, reducing waste, savings in electricity costs, savings in material costs, and improvements to quality, accuracy, and precision.

Automation includes the use of various equipment and control systems such as machinery, processes in factories, boilers,[2] and heat-treating ovens, switching on telephone networks, steering, and stabilization of ships, aircraft, and other applications and vehicles with reduced human intervention.[3] Examples range from a household thermostat controlling a boiler to a large industrial control system with tens of thousands of input measurements and output control signals. Automation has also found a home in the banking industry. It can range from simple on-off control to multi-variable high-level algorithms in terms of control complexity.

In the simplest type of an automatic control loop, a controller compares a measured value of a process with a desired set value and processes the resulting error signal to change some input to the process, in such a way that the process stays at its set point despite disturbances. This closed-loop control is an application of negative feedback to a system. The mathematical basis of control theory was begun in the 18th century and advanced rapidly in the 20th. The term automation, inspired by the earlier word automatic (coming from automaton), was not widely used before 1947, when Ford established an automation department.[4] It was during this time that industry was rapidly adopting feedback controllers, which were introduced in the 1930s.

The World Bank's World Development Report of 2019 shows evidence that the new industries and jobs in the technology sector outweigh the economic effects of workers being displaced by automation.[6] Job losses and downward mobility blamed on automation have been cited as one of many factors in the resurgence of nationalist, protectionist and populist politics in the US, UK and France, among other countries since the 2010.

Perhaps the most cited advantage of automation in industry is that it is associated with faster production and cheaper labor costs. Another benefit could be that it replaces hard, physical, or monotonous work.[44] Additionally, tasks that take place in hazardous environments or that are otherwise beyond human capabilities can be done by machines, as machines can operate even under extreme temperatures or in atmospheres that are radioactive or toxic. They can also be maintained with simple quality checks. However, at the time being, not all tasks can be automated, and some tasks are more expensive to automate than others. Initial costs of installing the machinery in factory settings are high, and failure to maintain a system could result in the loss of the product itself.

Moreover, some studies seem to indicate that industrial automation could impose ill effects beyond operational concerns, including worker displacement due to systemic loss of employment and compounded environmental damage; however, these findings are both convoluted and controversial in nature, and could potentially be circumvented.[45]

The main advantages of automation are:

- Increased throughput or productivity
- Improved quality
- Increased predictability
- Improved robustness (consistency), of processes or product
- Increased consistency of output
- Reduced direct human labor costs and expenses
- Reduced cycle time
- Increased accuracy
- Relieving humans of monotonously repetitive work [46]
- Required work in development, deployment, maintenance, and operation of automated processes — often structured as “jobs”
- Increased human freedom to do other things
- Automation primarily describes machines replacing human action, but it is also loosely associated with mechanization, machines replacing human labor. Coupled with mechanization, extending human capabilities in terms of size, strength, speed, endurance, visual range & acuity, hearing frequency & precision, electromagnetic sensing & effecting, etc., advantages include:[47]
- Relieving humans of dangerous work stresses and occupational injuries (e.g., fewer strained backs from lifting heavy objects)
- Removing humans from dangerous environments (e.g. fire, space, volcanoes, nuclear facilities, underwater, etc.)
- The main disadvantages of automation are:
- High initial cost
- Faster production without human intervention can mean faster unchecked production of defects where automated processes are defective.
- Scaled-up capacities can mean scaled-up problems when systems fail — releasing dangerous toxins, forces, energies, etc., at scaled-up rates.
- Human adaptiveness is often poorly understood by automation initiators. It is often difficult to anticipate every contingency and develop fully preplanned automated responses for every situation. The discoveries inherent in automating processes can require unanticipated iterations to resolve, causing unanticipated costs and delays.

People anticipating employment income may be seriously disrupted by others deploying automation where no similar income is readily available.

CHAPTER – 3

Project Planning

3.1 Members and Capabilities:

Table 3.1: Table of Capabilities

SR. No.	Name of Member	Capabilities
1	Afzal	Database, Backend
2	Manav Aggarwal	UI Design
3	Ankit	Backend, UI Design

Work Breakdown Structure

- All of the members are equally important in developing the project.
- We work on a different part of the project based on one's capability.
- Firstly we came up with documentation, and based on the documentation we set our goal and created a blueprint.
- We then started going hands-on with the project to develop it according to the flow as decided earlier

3.2 Roles and Responsibilities

Table 3.2: Table of Responsibilities

SR No	Name of Member	Role	Responsibilities
1	Afzal	Integration	Database Backend
2	Manav Aggarwal	Frontend	UI Design developing
3	Ankit	Integration	Backend UI Design

3.3 Assumptions and Constraints

- Users of this System must be qualified.
- Users of this System must be an individual of the college who has the authority to access.
- The system doesn't require much time to process the data.

3.4 Project Management Approach

- Planning of project.
- Defining the scope of the project.
- Estimation of time and its management.
- Creating Gantt charts and properly assigning tasks to members.

- Reporting the progress of project with the guide.

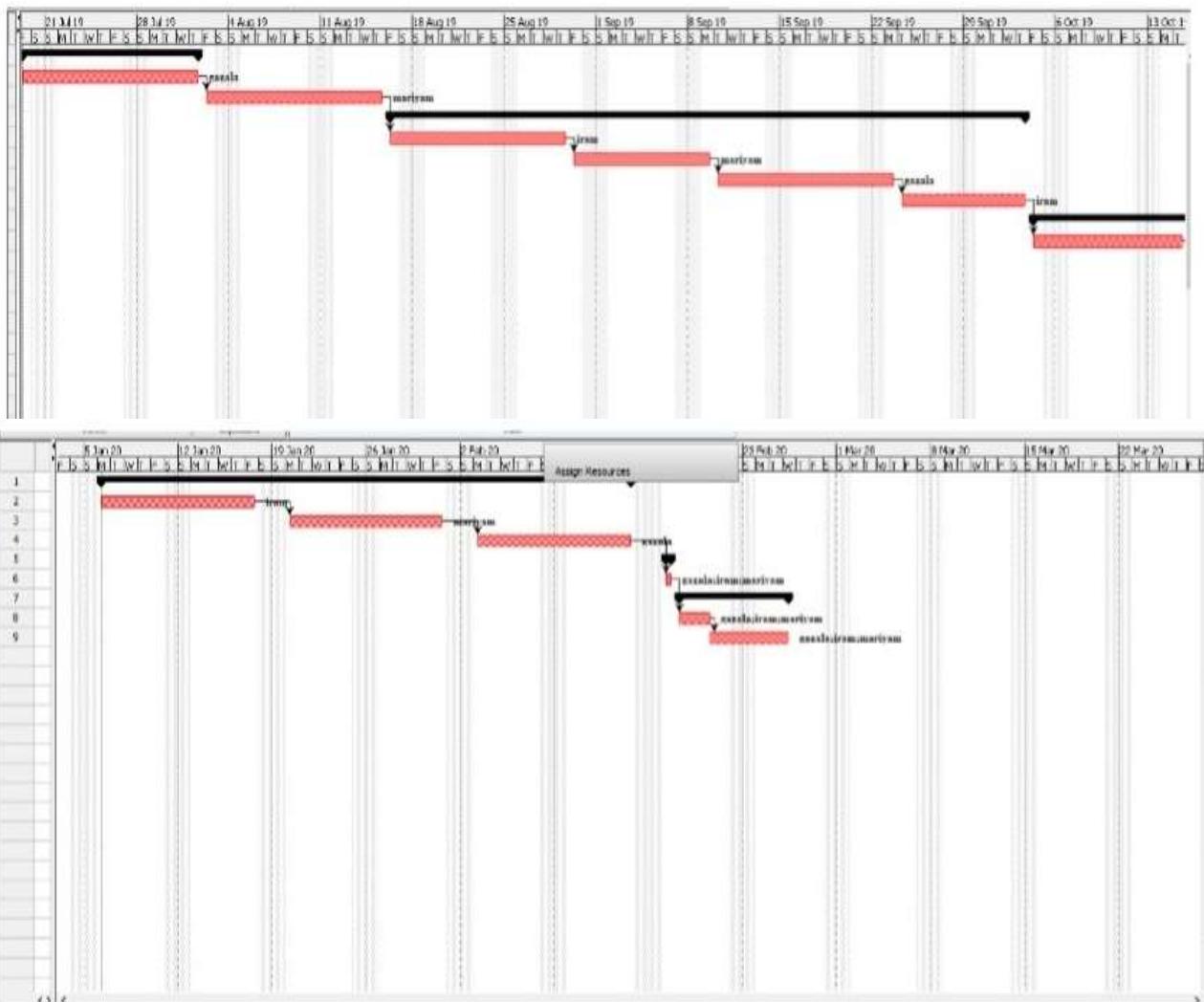
3.5 Ground rules for the project

- Properly planning and gathering relevant information is very important.
- Developing a Blueprint of the project and work accordingly.
- All the members should report to the guide whenever required.
- Setting up small goals every week.
- Achieving the small goal within that span of time.
- Keeping tracks of the progress towards project.

3.6 Project Budget

- It is a web based project.
- Cost of the project is very low and efficient.

3.7 Project Timeline



CHAPTER – 4

Software Requirements Specification

4.1 Overall Description

4.1.1 Product Perspective

Currently Exam cell activity mostly includes a lot of manual calculations and is mostly project based. The project aims to bring in a centralized system that will ensure the activities in the context of an examination that can be effectively managed. This system allows students to enrol themselves into the system by registering like by providing their enrolment number, Name, email, examination, semester, etc. Examination Cell Automation System is developed for the college to simplify the activities of Staff and Students .It facilitates to access the examination information of a particular student in a particular department. The information is stored into the database which will be provided by the teacher for a respective student. Here the admin updates the student details, staff details and can add or delete them.

4.1.2 Product Features

The System will do all of its work digitally. Manual work has been completely avoided to provide ease to the Students and the Staff. Students will get the exam form based on their previous KT's and backlogs automatically as soon as it logs in. All the Data will be stored in the database through which the previous records of the students is fetched. Separate internal and external mark-sheets are provided digitally to the faculties on the website where they have to fill in the marks and submit it on to the exam cell.

4.1.3 User classes and Characteristics

- Faculty - Every faculty will be assigned a privilege through which they will be able to fill in the mark sheets etc.
- HOD - HOD will be assigned a privilege as soon as he logs in so that he can enter the marks and can verify the marks entered by the Faculty.
- Student-As soon as the student logs in he/she will receive a password auto generated by the exam cell and a form of students personal details will be flashed on the screen auto filled. After that student can change his/her password and can fill the necessary exam form available below. The student cannot make any changes in the mark sheets as it will be secure.
- Exam Cell-The Exam Cell will have the full privilege of allotting passwords to the students. They enables and disables the exam form according to the date decided. After getting the mark sheets from the faculties they start making results and gadgets of the individual.

Table 3. Software and Hardware Requirements

	Windows requirements	Mac requirements	Linux requirement
Operating system	Windows 8 or later	macOS Sierra 10.12 or later	64-bit Ubuntu 14.04+, Debian 8+, openSUSE 13.3+, or Fedora Linux 24+
Processor	Intel Pentium 4 or later	Intel	Intel Pentium 4 or later
Memory	2 GB minimum, 4 GB recommended		
Screen resolution	1280x1024 or larger		
Application window size	1024x680 or larger		
Internet connection	Required		

4.1.4 Operating Environment

On server side for Software Requirements- Microsoft Windows 7 or later / Ubuntu 16.0 LTS or later will be required, HTML5 compatible Browser will be required, Bootstrap,opencv.js libraries is needed. For Server side Hardware Requirements- Intel Core i5 3rd gen processor or any equivalent and 8 GB RAM 20 GB Disk Space is needed. For Client side Software Requirement Microsoft Windows XP or later / Ubuntu 12.0 LTS or later/ MAC OS 10.1 or later/Android jellybean or later (For Mobile), HTML 5 compatible Browser are needed. For Client side Hardware Requirement Intel Core i3 3rd gen processor or any equivalent (For Desktop), Qualcomm snapdragon 400 series or any equivalent (For mobile), 4 GB RAM Disk Space (for Desktop)/ 2 GB RAM Disk Space (for Mobile) are required. Online filling of exam form, online generation of mark sheets, online generation of question project format, gazette generation, digital generation of result.

4.1.5 Design and Implementation Constraints

This system does not have any hardware limitation as it is a complete software based product. Exam cell will activate the particular slot as and when the time is decided. It will not be available on the users demand. As it requires a huge database to store all the details of the students, memory requirement will be more and low available memory will lead to a hang or a crash in the system. The software that is been used to make the system is Laravel which is a great software and the database that is used is PhpMyAdmin. The language that will be used is a complete English Language. For security purpose Crypt algorithm is used.

4.2 System Features

This system is totally web based product which will help student and faculties to ease their work and its properly secured so that no student can be able to make changes by their own.

4.2.1 System Feature

Online filling of exam form, online generation of mark sheets, online generation of question project format, gazette generation, digital generation of result.

4.2.2 Description and Priority

The main feature is student can be able to fill their exam form remotely as this issue had a major impact on the student's form as they have to be present physically on the form filling day otherwise this creates a problem but by using this system it would be helpful for the students to fill form remotely from any location.

4.2.3 Stimulus/Response Sequences

- stimulus: student clicks, a form is generated
- response: student fills the form and submit it
- stimulus: student clicks, a hall ticket is generated
- response: student can download the hall ticket
- stimulus: on a click faculties submits the marks
- response: a mark sheet is generated
- stimulus: on a click result is generated response: student can download the result

4.2.4 Functional Requirements

- REQ-1: Login ID and Password must be there for every student and faculty to login.
- REQ-2: If Login Id/Password is incorrect it should create a link on which the students can recover their passwords
- REQ-3: Students can be able to perform their activities only which are permitted to them.
- REQ-4: While inserting the marks the Term work marks should have been verified by the HOD.
- REQ-5: Roll no should be entered correctly to download the hallticket.
- REQ-6: COAttainment chart should be prepared with proper target.

4.3 External Interface Requirements

4.3.1 User Interfaces

On the first page that is the landing page consist of few buttons such as login registration where they can simply login, they can get the exam form, their reveal form on a single click. On the next page the faculties will get the mark sheets of UT1/UT2 where they can enter the marks of every student including their names and roll no. On Scrolling down details of various departments and their courses is made available. In the about us tab all the information related to the college and exam cell is provided where user can ask doubts or queries. There a dashboard on login will give the entry to the user in his/her particular dashboard.

4.3.2 Hardware Interfaces

It doesn't require any external software's, but it requires external hardware devices like keyboard, monitor, mouse it also requires huge memory database to store information of plenty of students, and to quickly access that data.

4.3.3 Software Interfaces

The product only requires good internet connection. For developing this system the Framework used is LARAVEL 6. It doesn't require any external component to communicate with the user, the database used is MYSQL, and operating system used in developing the system is UBUNTU and this system is platform independent. The nature of communication with the system is smooth it doesn't require any external things to get communicated, any special library has not been used. The data will be shared to the exam cell department.

4.3.4 Communication Interfaces

As this system is very vast it requires huge amount of database. We have used MYSQL database, email is been used to reset the password if forgotten by the faculty/student. Databases access has been done globally, Also https standard is used in-order to gain the access. Data is transferred from client to the server using https.

4.4 Non-Functional Requirements

4.4.1 Performance Requirements

- Performance of overall system is very efficient and well optimized as maximum things are done digitally and with proper ease as compared to previous system.
- It can be accessed from anywhere. The manual work has been reduced for the exam cell and the faculties. List of UT is generated automatically and also the question project format made easy to enter marks digitally.

4.4.2 Safety Requirements

This system contain critical data of the student's marks which shouldn't be changed by anyone without any permission. Queries are run such that no permission is given to anyone except the exam cell to change or modify marks if any wrong marks entered by mistakenly by the faculties. No unnecessary access should be given to anyone. System loss can only take place if there is any crash in the system. The modification in the system's design will not lead to any damage in the system.

CHAPTER – 5

System Design

5.1 System Requirement Definition

System requirement definitions specify [1] what the system should do, its functionality and its essential and desirable system properties. The techniques applied to elicit and collect information in order to create system specifications and requirement definitions involve consultations, interviews, requirements workshop with customers and end users. The objective of the requirements definition phase is to derive the two types of requirement.

5.1.1 Functional Requirements

They define the basic functions that the system must provide and focus on the needs and goals of the end users.

- Login and registration system for each and every one in institute for authentication and accessing website from everywhere.
- For login we need auto-roll generation by admin.
- Student can access his previous year records which is already maintained in database by admin.
- Auto form generation based on previous records for both regular/KT examination.
- Subject allotment for each teacher by head of department.
- Hall ticket generation so far every student can take printout of hall ticket from anywhere, he/she does not need to come college to take hall ticket.

5.1.2 Use-Case Diagram

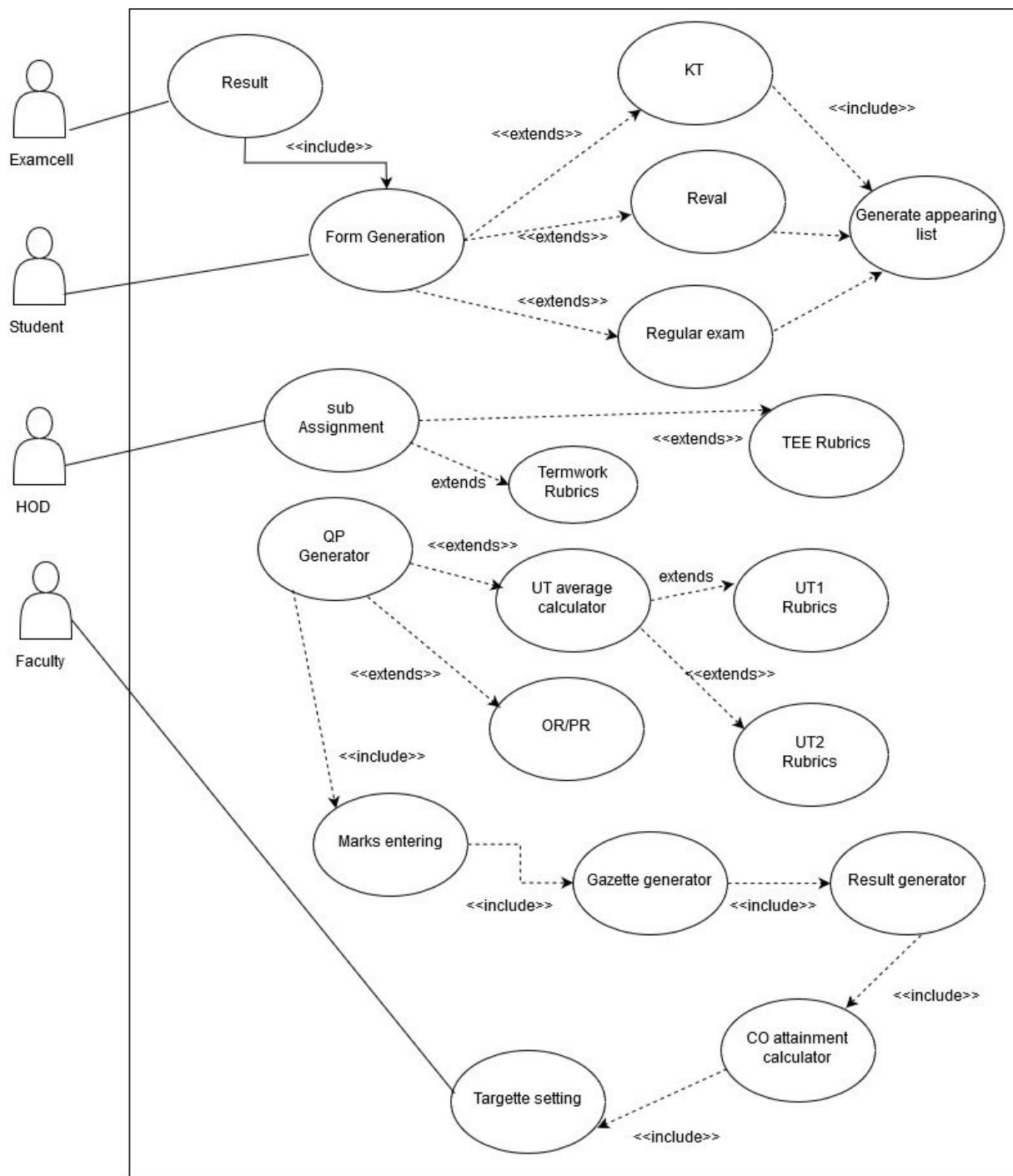


Fig. 5.1: Use case Diagram for exam cell automation

5.1.2 Data-flow Diagram

A data-flow diagram is a way of representing a flow of a data of a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. Given below is Level 0 Level 1 and Level 2 DFD of system.

DFD Level 0 shows the simple management of the student, faculties based on the working of the exam cell. It simply shows the input and output from the exam cell.

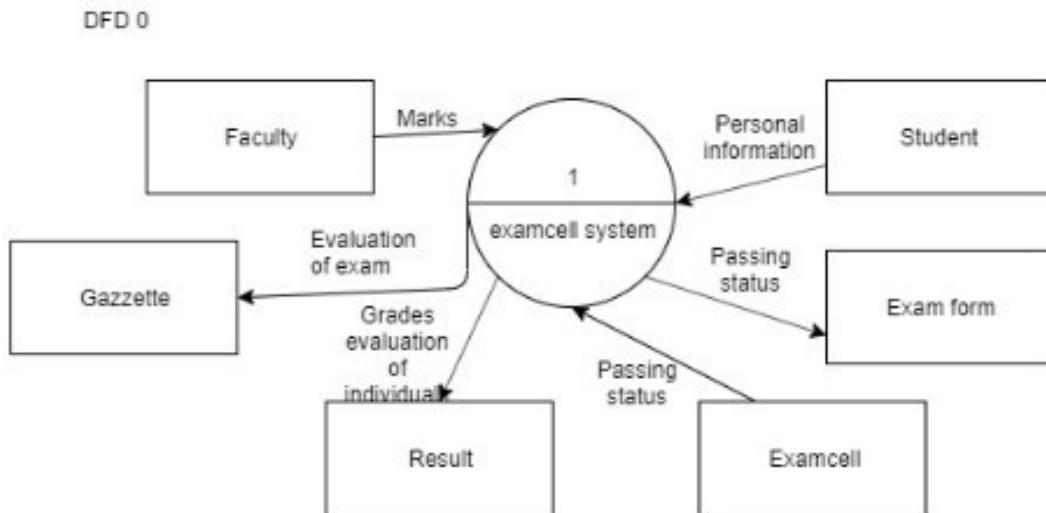


Fig. 5.2: DFD Level 0 for exam cell automation

DFD level 1 will show all the modules of the system. It also shows the input and output of every module. It generally shows the basic flow of the modules.

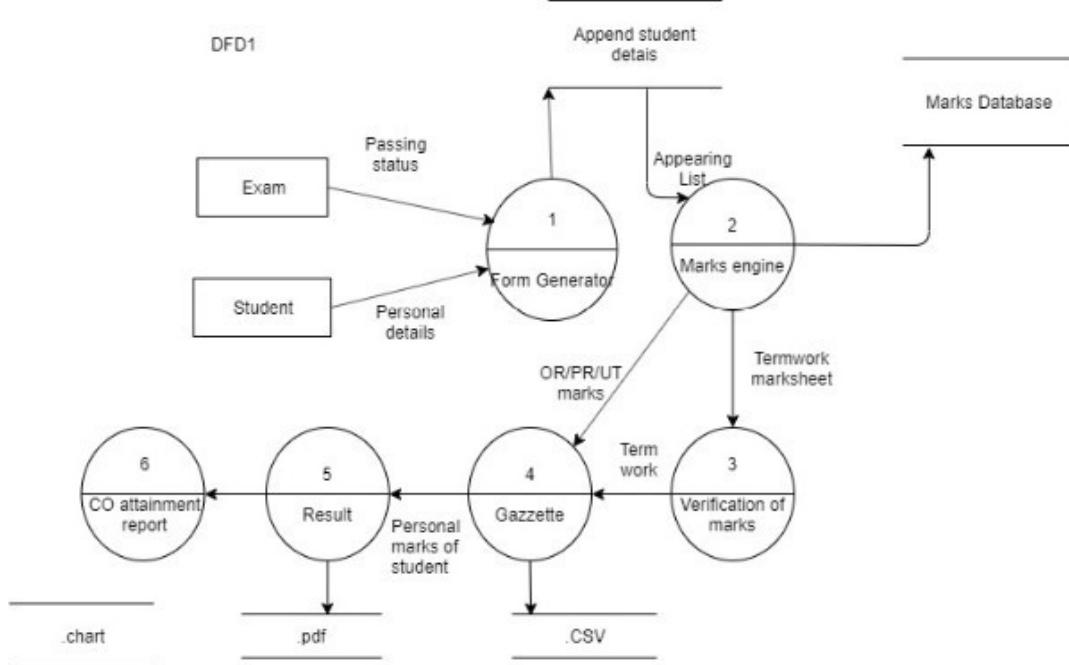


Fig. 5.3: DFD Level 1 for exam cell automation

DFD level 2.1 is an extended DFD for Form Generation which gives details about the form generation and its complete working.

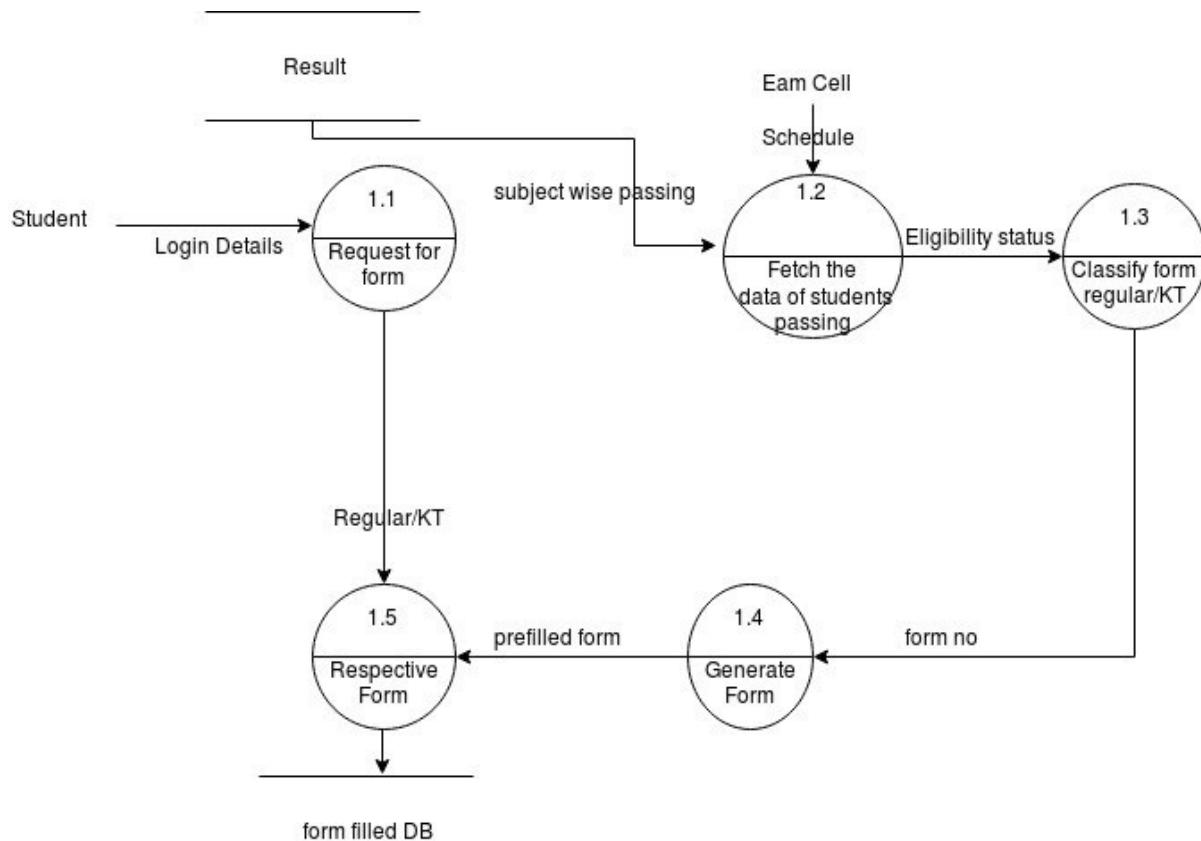


Fig. 5.4: DFD Level 2.1 for exam form generator module

DFD level 2.2 is an extended DFD for Marks Engine Module which gives the detailed working about the overall marks updating through faculty

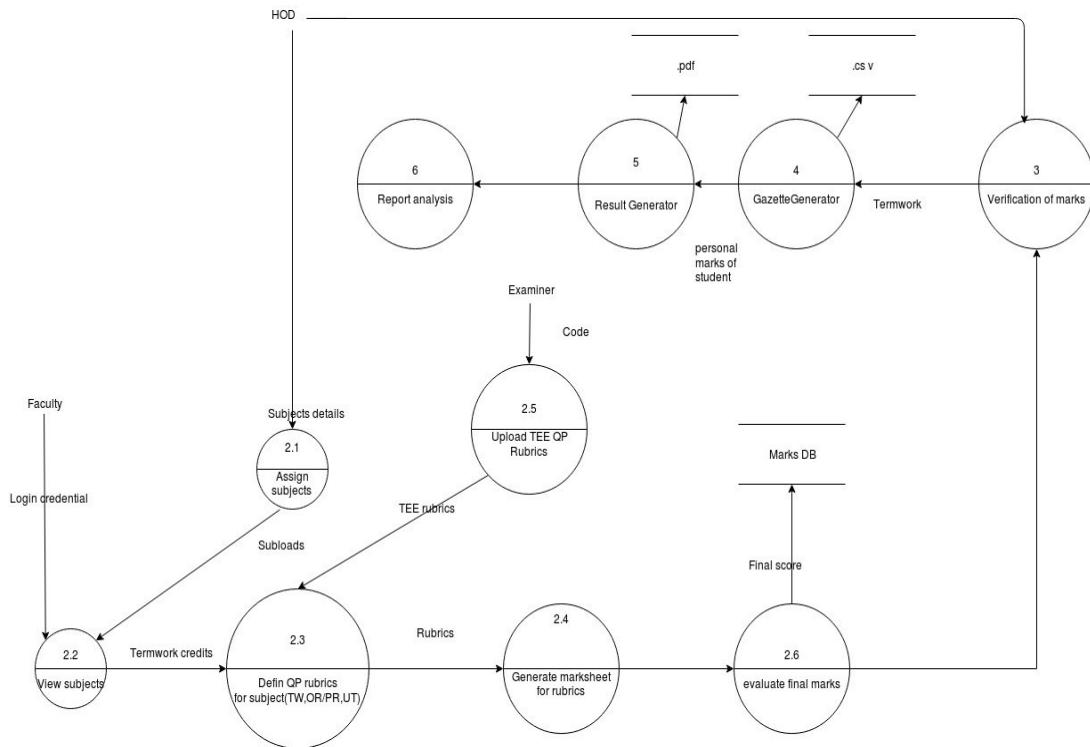


Fig. 5.5 DFD Level 2.2 for marks engine module

5.1.3 System Requirement (Non-functional requirements)

These are non-functional system properties such as availability, performance and safety etc. They define functions of a system, services and operational constraints in detail.

Algorithm:

Bcrypt is a password hashing function designed by Niels Provos and David Mazières, based on the Blowfish cipher, and presented at USENIX in 1999.[1] Besides incorporating a salt to protect against rainbow table attacks, bcrypt is an adaptive function: over time, the iteration count can be increased to make it slower, so it remains resistant to brute-force search attacks even with increasing computation power. The bcrypt function is the default password hash algorithm for OpenBSD [2] and other systems including some Linux distributions such as SUSE Linux.[3] There are implementations of bcrypt for C, C++, C, Go,[4] Java,[5][6] JavaScript,[7] Elixir,[8] Perl, PHP, Python, [9] Ruby and other languages.

5.2 System Architecture Design

Result database will contain result of all the students. According to the passing status of a student form generator will generate forms for regular examination and KT examination. According to the KT examination that cumulative cost will calculate and subject will be decided and for regular form cost will be displayed. For regular form and KT form the information will already be entered by the exam-cell. The students information is already there

in the DB just student have to proceed for the examination. If there is any query for the subject they may ask the question but they don't fill data by their own.

In form generation forms will be available in student's login only when exam celltriggers the process on a particular day than the form of the respected student will move to their login. KT and regular forms will be dealt accordingly. After that the examination form will generate the appearing list from the examination form of the student who proceed to the examination then automatically appearing list will be generated and will be used in the next examination as well.

The Subject assignment will be done by the HOD accordingly the faculty will upload a question project format i.e. a rubrics for the TW/OR/PR/UT. Faculty should upload the rubrics for the final question project before Term End Examination. The marks will be distributed to the term work and assignments accordingly, and according to the performance of the student marks will be provided for term work and assignment. In the Question project format the faculties have to map the questions andmarks to that particular question as per the weight-age. and same mapping has to be done for the experiments as well this over all mapping done will make a co attainment report during the external practical examination the faculty will upload the oral practical marks and term work marks will be referred by the HOD and average will go for the result generation and all this marks of TW/OR/PR/UT will go to the gadget generator.

Whenever the examiner examines the term end examination project they will add marks in Term End Examination mark-sheet and then mark-sheet will upload the marks in result generator than gadget gets generated and will store into result database also from the same data individual result copy of the student will generate and when-ever the results are declared this will go to the login of the student from where it is visible to the student. If any KT found than reveal form will be available to the students where they can feel the form and after the assessment of the form again the result will be generated and previous process will be continued.

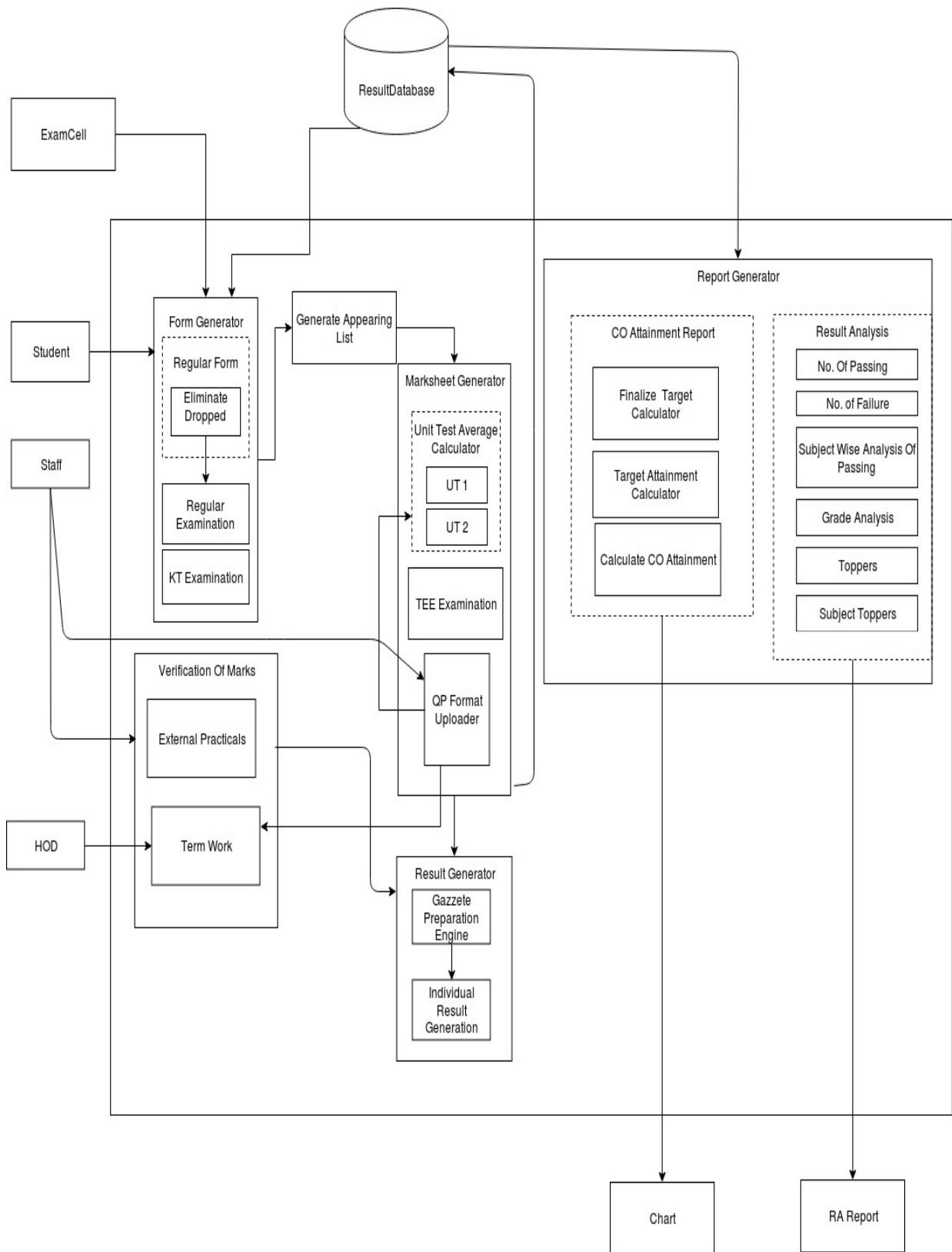


Fig. 5.6: System Architecture for exam cell Automation

5.3 Sub-System Development

The first module is the Login and Registration module where the students will be assigned a unique ID and password which can be changed. The second module is Mark sheet generator where the marks of the students will be entered based in their performance. The third module is gazette generator where all the marks whether it is UT/TW/OR/PR/TEE is been contained. The fourth module is Result generator which will be developed after getting all the marks in the mark sheet.

5.3.1 Sequence Diagram

Sequence diagram for form generation representing how the student will be able to fill the form and all the steps involve while filling the form.

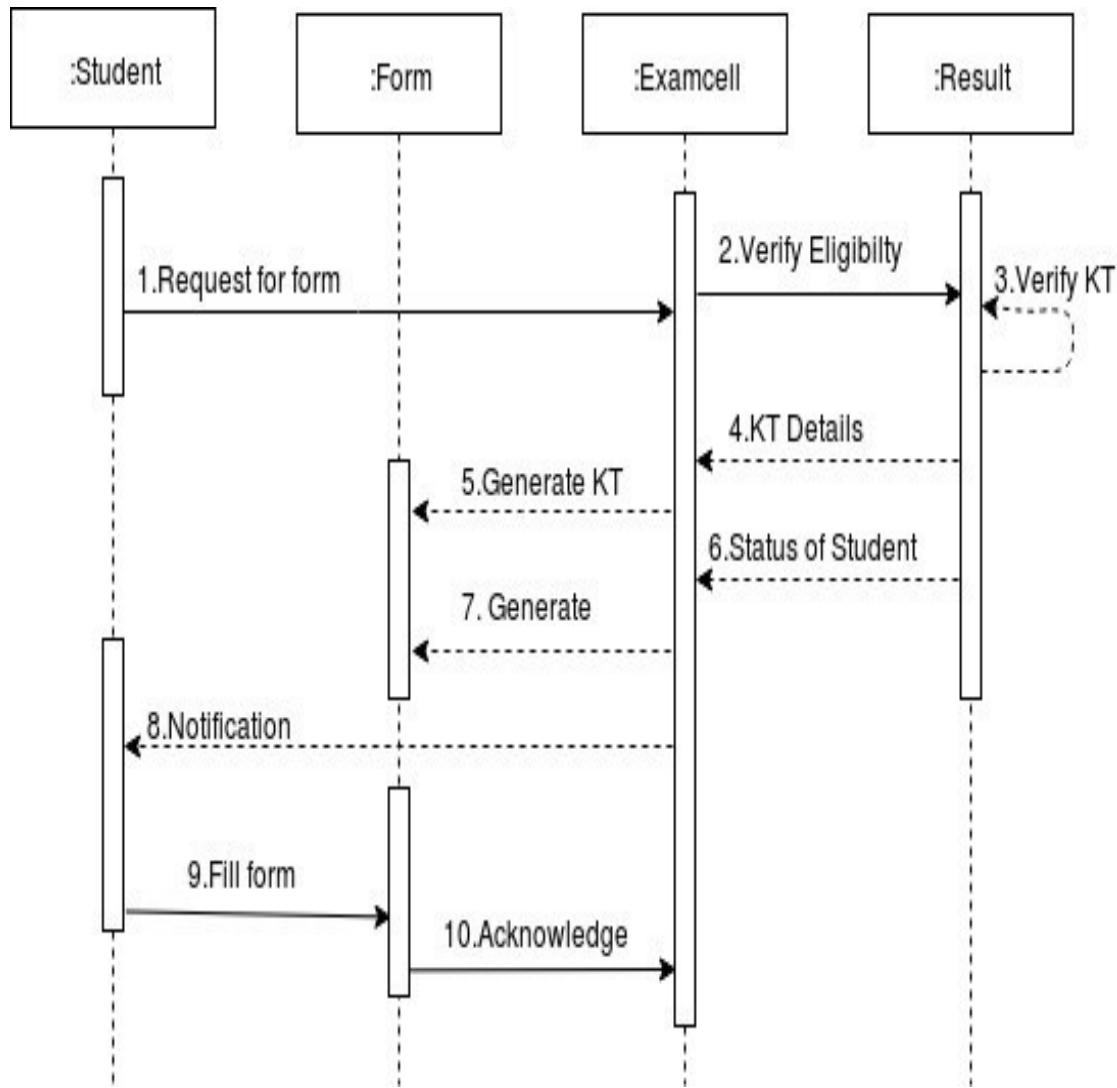


Fig. 5.7 Sequence Diagram for exam form generation

Sequence diagram for Result generation represents the student sequence of asking for the result. Several steps will be performed by the exam cell in displaying the result to the student.

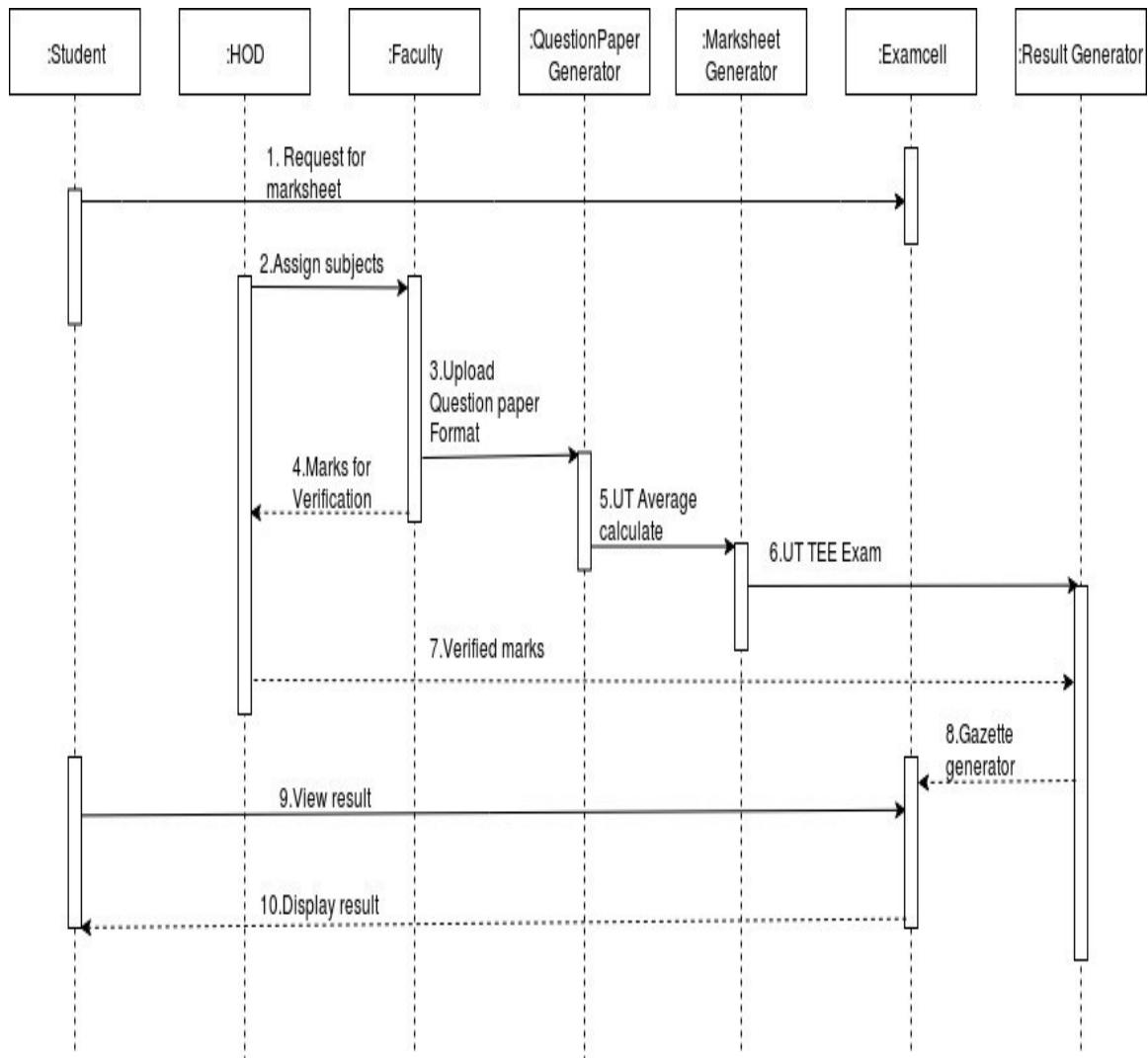


Fig. 5.8: Sequence Diagram for result generation

Educational organizations can use the following methods to automate exam cells using chatbots:

- Identify the Needs: Institutions need to assess their exam-related requirements and decide which tasks may be carried out automatically by chatbots.
- Select a Chatbot Platform: Institutions can select a chatbot platform that satisfies their needs and offers the required technical assistance.
- Build a chatbot: Institutions can build their own chatbots or employ outside developers to build customized chatbots for them.

- **Integration with Existing Systems:** Institutions can interface the chatbot with already-existing systems like learning management and student information systems.

In this case, seat distribution is done using a random generating technique based on several semesters and branches. The implementation plan details every action that has to be taken in order to set up and implement the new system. It establishes who is in charge of the various tasks and creates a schedule for putting the system into action.

The following stages can be used to summarise the algorithm:

1. START ADMINISTRATION PAGE
2. Enter administration Credentials
3. Administration Credentials are verified with the database.
4. IF (credential is valid)
 - Administrator access into all the page
 - Adding/ Updating/Viewing
 - Events are Added Successfully
 - END IF
5. ELSE
6. Display invalid administrator Id Credentials
7. END IF

// how to use chatbot integrated system

1. Initialize the chatbot interface and authentication module.
2. Prompt the user to authenticate themselves.
3. If the user is authenticated, display the main menu options.
4. If the user selects "Schedule Exam" from the menu, prompt them for the exam details (name, date, time, and venue).
5. Add the exam to the examination management system and confirm the schedule with the user.
6. If the user selects "View Exam Results" from the menu, prompt them to enter their roll number or registration number.

7. Fetch the result from the examination management system and display it to the user.
8. If the user selects "Exam Policies" from the menu, display the relevant policies (e.g., eligibility criteria, exam Centre rules, etc.).
9. If the user selects "Report an Issue" from the menu, prompt them to describe the issue and submit the report to the appropriate authority.
10. If the user selects "Feedback" from the menu, prompt them to provide feedback on the exam cell and record their feedback for future improvements.
11. If the user selects "Help" from the menu, display a list of common queries and their answers (e.g., exam schedule, exam policies, eligibility criteria, etc.).

If the user selects "Exit" from the menu, terminate the chatbot session.

CHAPTER – 6

Implementation

6.1 Login Page

In login system we need ID and PASSWORD to login into the system.ID will be our roll no which will be generated automatically when new user adds in the Institute. This no is unique and called as roll no which identifies each and every one in campus.

In the very beginning the passwords will be birth date of the user. User can not directly register himself to the system he will get his user id and password once he takes admission in the campus. After login in to the system he can change his password.

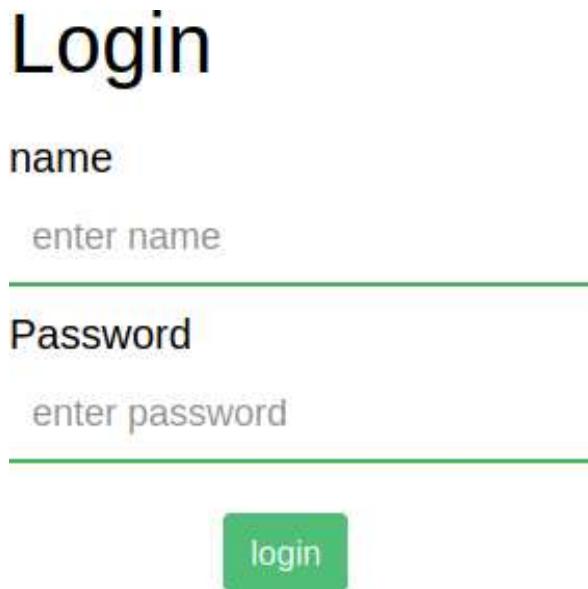


Fig. 6.1: Login Module

```
<?php include('head.php');?>
<?php include('header.php');?>
<?php include('sidebar.php');?>
<?php
    date_default_timezone_set('Asia/Kolkata');
    $current_date = date('Y-m-d');
    $sql_currency = "select * from manage_website";
        $result_currency = $conn->query($sql_currency);
        $row_currency = mysqli_fetch_array($result_currency);
?>
```

```

<div class="page-wrapper">
    <div class="row page-titles">
        <div class="col-md-5 align-self-center">
            <h3 class="text-primary">Dashboard</h3> </div>
        <div class="col-md-7 align-self-center">
            <ol class="breadcrumb">
                <li class="breadcrumb-item"><a href="javascript:void(0)">Home</a></li>
                <li class="breadcrumb-item active">Dashboard</li>
            </ol>
        </div>
    </div>
    <div class="container-fluid">
        <div class="row">
            <div class="col-md-4">
                <div class="card bg-primary p-20">
                    <div class="media widget-ten">
                        <div class="media-left meida media-middle">
                            <span><i class="ti-bag f-s-40"></i></span>
                        </div>
                        <div class="media-body media-text-right">
                            <?php $sql="SELECT COUNT(*) FROM `tbl_teacher`";>
                            $res = $conn->query($sql);
                            $row=mysqli_fetch_array($res);?>
                            <h2 class="color-white"><?php echo $row[0];?></h2>
                            <p class="m-b-0">Total Teachers</p>
                        </div>
                    </div>
                </div>
            </div>
            <div class="col-md-4">
                <div class="card bg-pink p-20">
                    <div class="media widget-ten">
                        <div class="media-left meida media-middle">
                            <span><i class="ti-comment f-s-40"></i></span>
                        </div>
                        <div class="media-body media-text-right">
                            <?php $sql="SELECT COUNT(*) FROM `tbl_student`";>
                            $res = $conn->query($sql);
                            $row=mysqli_fetch_array($res);?>
                            <h2 class="color-white"><?php echo $row[0];?></h2>
                            <p class="m-b-0">Total Student</p>
                        </div>
                    </div>
                </div>
            </div>
        </div>
    </div>

```

```

                </div>
            </div>
        </div>
    <div class="col-md-4">
        <div class="card bg-danger p-20">
            <div class="media widget-ten">
                <div class="media-left meida media-middle">
                    <span><i class="ti-vector f-s-40"></i></span>
                </div>
                <div class="media-body media-text-right">
                    <?php $sql="SELECT COUNT(*) FROM
`tbl_class` ";
                    $res = $conn->query($sql);
                    $row=mysqli_fetch_array($res);?>

```

6.2 Generate roll numbers

Roll no is nothing but an unique number which identify each and every one in campus .in our system we are generating roll no automatically whenever new user get admission in campus a new roll no will be generate or assign to that user based on his personal information.

HOD Details

Name	Email	Date of birth	Joining Year	Department	role
<input type="text"/>					

submit

Faculty Details

Name	Email	Date of birth	Joining Year	Department	role
<input type="text"/>					

submit

Fig. 6.2 Unique generation modules

```

<?php include('head.php');?>
<?php include('header.php');?>
<?php include('sidebar.php');?>
<?php
include('connect.php');
date_default_timezone_set('Asia/Kolkata');
$current_date = date('Y-m-d');

?>

```

```

<div class="page-wrapper">
    <div class="row page-titles">
        <div class="col-md-5 align-self-center">
            <h3 class="text-primary">Allotment Management</h3> </div>
        <div class="col-md-7 align-self-center">
            <ol class="breadcrumb">
                <li class="breadcrumb-item"><a href="javascript:void(0)">Home</a></li>
                <li class="breadcrumb-item active">Allotment Management</li>
            </ol>
        </div>
    </div>
    <div class="container-fluid">
        <div class="row">
            <div class="col-lg-8" style="margin-left: 10%; ">
                <div class="card">
                    <div class="card-body">
                        <div class="input-states">
                            <li class="breadcrumb-item active">Add User Management</li>
                        </ol>
                    </div>
                </div>
            </div>
            <div class="container-fluid">
                <div class="row">
                    <div class="col-lg-8" style=" margin-left: 10%; ">
                        <div class="card">
                            <div class="card-title">
                            </div>
                            <div class="card-body">
                                <div class="input-states">
                                    <form class="form-horizontal"
method="POST" action="pages/save_user.php" name="userform"
enctype="multipart/form-data">
                                        <input type="hidden" name="currnt_date"
class="form-control" value="<?php echo $currnt_date;?>">
                                        <div class="form-group">
                                            <div class="row">
                                                <label class="col-sm-3
control-label">First Name</label>
                                                <div class="col-sm-9">
                                                    <input type="text"
name="fname" class="form-control" placeholder="First Name" id="event"
onkeydown="return alphaOnly(event); " required="">
                                                </div>
                                            </div>
                                        </div>
                                    </form>
                                </div>
                            </div>
                        </div>
                    </div>
                </div>
            </div>
        </div>
    </div>

```

```

        </div>
        <div class="form-group">
            <div class="row">
                <label class="col-sm-3
control-label">Last Name</label>
                    <div class="col-sm-9">
                        <input
type="text" name="lname" id="lname" class="form-control" id="event"
onkeydown="return alphaOnly(event);"
placeholder="Last Name" required="">
                    </div>
                </div>
            <div class="form-group">
                <div class="row">
                    <label class="col-sm-3
control-label">Email</label>
                    <div class="col-sm-9">
                        <input type="text"
name="email" class="form-control" pattern="[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,4}$"
placeholder="Email" required>
                    </div>
                </div>
            </div>
        
```

6.3 Assign subjects

Subject assignment will be done head of each department .assigning subject to individual teacher will be based on their area of interest which head of dept. (HOD) will decide .

For assigning subject firstly HOD will select academic year then department. After selecting department subject will be display in drop down option and then will have to select semester and lastly HOD will select faculty name.

subject Assignment

academic year

first_year

department

computer

subjects

Engineering Mathematics-I

semesters

sem1

faculty name

Name

submit

Fig. 6.3 Image caption

```
<?php session_start();?>
<?php include('head.php');?>
<link rel="stylesheet" href="popup_style.css">
    <?php
        include('connect.php');
    if(isset($_POST['btn_login']))
    {
        $unm = $_POST['email'];
        $passw = hash('sha256', $_POST['password']);
        function createSalt()
        {
            return '2123293dsj2hu2nikhiljdsd';
        }
        $salt = createSalt();
        $pass = hash('sha256', $salt . $passw);
        $sql = "SELECT * FROM tbl_student WHERE semail='".$unm . "' and password =
        '".$pass."'";
        $result = mysqli_query($conn,$sql);
        $row = mysqli_fetch_array($result);
        $_SESSION["id"] = $row['id'];
        $_SESSION["username"] = $row['username'];
        $_SESSION["password"] = $row['password'];
        $_SESSION["semail"] = $row['semail'];
        $_SESSION["fname"] = $row['fname'];
        $_SESSION["lname"] = $row['lname'];
        $_SESSION["image"] = $row['image'];
        $count=mysqli_num_rows($result);
```

```

        if($count==1 && isset($_SESSION["semail"]) &&
isset($_SESSION["password"])) {
    {
        ?>
        <div class="popup popup--icon -success js_success-popup popup--visible">
            <div class="popup__background"></div>
            <div class="popup__content">
                <h3 class="popup__content__title">
                    Success
                </h1>
                <p>Login Successfully</p>
                <p>
                    <?php echo "<script>setTimeout(\"location.href =
'student_panel.php';\",1500);</script>"; ?>
                </p>
            </div>
        </div>
        <?php
    }
}
else {?>
    <div class="popup popup--icon -error js_error-popup popup--visible">
        <div class="popup__background"></div>
        <div class="popup__content">
            <h3 class="popup__content__title">
                Error
            </h1>
            <p>Invalid Email or Password</p>
            <p>
                <a href="student.php"><button class="button button--error" data-
for="js_error-popup">Close</button></a>
            </p>
        </div>
    </div>
    <?php
    }
}
?>
<div id="main-wrapper">
    <div class="unix-login">
        <?php
            $sql_login = "select * from manage_website";
            $result_login = $conn->query($sql_login);
            $row_login = mysqli_fetch_array($result_login);
        ?>

```

6.4 Unit Test marks

In this module average of both unit test will be calculated and will be store in database .this value will be used come in use to generate gazette and mark sheet.

In our UT calculation there is round off value will be there like if the value is 7.5 so it will automatically generate 8 marks.

DEPARTMENT OF ENGINEERING		
ROLLNO	ROLLNO	CLASS
subject	subject	
<u>CLASS TEST 1</u>		
Q.01:Attempt Any 5(10Marks)		Marks
1a)	<input type="text"/>	
1b)	<input type="text"/>	
1c)	<input type="text"/>	
1d)	<input type="text"/>	
1e)	<input type="text"/>	
1f)	<input type="text"/>	
Q.02:Attempt Any 1(05Marks)		
2a)	<input type="text"/>	
2b)	<input type="text"/>	
Q.03:Attempt Any 1(05Marks)		
3a)	<input type="text"/>	
3b)	<input type="text"/>	
total marks of ut1	avg	Total marks
<u>CLASS TEST 2</u>		
Q.01:Attempt Any 5(10Marks)		Marks
1a)	<input type="text"/>	
1b)	<input type="text"/>	
1c)	<input type="text"/>	
1d)	<input type="text"/>	
1e)	<input type="text"/>	
1f)	<input type="text"/>	
Q.02:Attempt Any 1(05Marks)		
2a)	<input type="text"/>	

Fig. 6.4 Unit test mark sheet

```
<?php
include 'connect.php';
session_start();
$sql = "DELETE FROM admin WHERE id='".$GET["id"]."'";
$res = $conn->query($sql) ;
```

```

$_SESSION['success']=' Record Successfully Deleted';
?>
<script>
window.location = "view_user.php";
</script>

<?php include('head.php');?>
<?php include('header.php');?>
<?php include('sidebar.php');?>
<?php
include('connect.php');
date_default_timezone_set('Asia/Kolkata');
$current_date = date('Y-m-d');
if(isset($_POST["btn_submit"]))
{
    extract($_POST);
    $sql = "delete from tbl_permission_role where
role_id='".$._GET['id']."' ";
    $query=$conn->query($sql);
    $sql_update = "UPDATE tbl_group set
name='$assign_name',description='$description' where id='".$._GET['id']."' ";
    $query_update=$conn->query($sql_update);
    $checkItem = $_POST["checkItem"];
    $a = count($checkItem);
    for($i=0;$i<$a;$i++){
        $id = $_GET['id'];
        $sql="insert into
tbl_permission_role(permission_id,role_id)values('$checkItem[$i]','$id')";
        $qq = $conn->query($sql);
    }
}
?>
<script>
    window.location="view_role.php";
</script>
<?php
}
?>

<div class="page-wrapper">
    <div class="row page-titles">
        <div class="col-md-5 align-self-center">
            <h3 class="text-primary">Dashboard</h3> </div>
        <div class="col-md-7 align-self-center">
            <ol class="breadcrumb">
                <li class="breadcrumb-item"><a
href="javascript:void(0)">Home</a> </li>
                <li class="breadcrumb-item active">Dashboard</li>
            </ol>
        
```

```

        </div>
    </div>
    <div class="container-fluid">
        <?php
            $q1 ="SELECT * FROM  tbl_group where id =
'".$_GET['id']."' ";
            $result1 = $conn->query($q1);
            while($row1 = mysqli_fetch_array($result1)){
                $name =  $row1['name'];
                $description
                =  $row1['description'];
            }
        } ?>
        <form method="POST">
            <div class="form-group" style="margin-left: 10%;margin-right: 10%;">
                <label for="exampleInputEmail1">Name</label>
                <input type="text" class="form-control" placeholder="Enter Name" name="assign_name" value="<?php echo
$name;?>" required autocomplete="off">
            </div>
            <div class="form-group" style="margin-left: 10%;margin-right: 10%;">
                <label for="exampleInputEmail1">Description</label>
                <input type="text" class="form-control" placeholder="Enter Description" value="<?php echo $description;?>" name="description" required autocomplete="off">
            </div>
            <div class="form-group">
                <u><h3 style="margin-left: 3%;">Permissions</h3></u>
                <h5 style="color:red;">( While
selecting any sub roles like add,edit,delete you must require to select Main
roles named with Manage Name. )</h5>
                <br><br>
            </div>
            <div class="row">
                <?php
                    $q ="SELECT *
FROM  tbl_permission ";
                    $result = $conn->query($q);
                    while($row =
mysqli_fetch_array($result)){
                        $id = $row["id"];
                    }
                ?>
                <div class="checkbox col-md-3">

```

6.5 Exam form generate

Exam form is major and very important part of exam cell system. We implemented auto exam form generation which has already reduce lot of manual workfor both students as well exam cell staffs.

Purpose of making auto form generation was to reduce manual work. due to examform filling there was huge problem for both students as well as staffs .students needed to bunk their class and would have to stand in long queue for filling the examform that was used to make burden for both .that's why we implemented auto exam form generation .exam form will be generated based on student's previous records which is stored in database.

Exam Form

First name	mary/	Address	jbcsiu/							
Last name	pangarkar/	Admission Date	dd / mm / yyyy							
Father's Name	ni/	HSC/Diploma %	77/							
Mothers Name	kh									
Phone number	7778/									
Email ID	mariyampangarkar259@gmail.com/									
coursecode	Name of the Subject	Avg of 2 test	Theory Marks	TW	PR/OR	OR	SEM	Month and YOP	SeatNo	no.of heads in which the student has failed
CSC301 ▾	Applied Mathematics-3			X	X	X	II			
CSC301 ▾	Applied Mathematics-3			X	X	X	II			
CSC301 ▾	Applied Mathematics-3			X	X	X	II			
CSC301 ▾	Applied Mathematics-3			X	X	X	II			
CSC301 ▾	Applied Mathematics-3			X	X	X	II			

Fig. 6.5 Exam Form

```

<?php
include 'connect.php';
session_start();
$sql = "DELETE FROM `exam` WHERE id='".$GET["id"]."";
$res = $conn->query($sql) ;
$_SESSION['success']=' Record Successfully Deleted';
?>
<script>
window.location = "view_exam.php";
</script>

<?php include('head.php');?>
<?php include('header.php');?>
<?php include('sidebar.php');
date_default_timezone_set('Asia/Kolkata');
$current_date = date('Y-m-d');
?>
```

```

<div class="page-wrapper">
    <div class="row page-titles">
        <div class="col-md-5 align-self-center">
            <h3 class="text-primary"> Exam Report</h3> </div>
        <div class="col-md-7 align-self-center">
            <ol class="breadcrumb">
                <li class="breadcrumb-item"><a href="javascript:void(0)">Home</a></li>
                <li class="breadcrumb-item active">Exam Report</li>
            </ol>
        </div>
    </div>
    <div class="container-fluid">
        <div class="card">
            <div class="card-body">
                <div class="table-responsive m-t-40">
                    <table id="myTable" class="table table-bordered table-striped">
                        <thead>
                            <tr>
                                <th>Exam Name</th>
                                <th>Exam Date</th>
                                <th>Time</th>
                                <th>Class Name</th>
                                <th>Subject Name</th>
                            </tr>
                        </thead>
                        <tbody>
                            <?php
                                include 'connect.php';
                                $sql1 = "SELECT * FROM exam ";
                                $result1 = $conn->query($sql1);
                                while($row = $result1->fetch_assoc()) {
                                    $s2 = "SELECT * FROM `tbl_class` WHERE
id='".$row['class_id']."'";

                                    $sr1 = $conn->query($s2);
                                    $res1 = mysqli_fetch_array($sr1);
                                    $s3 = "SELECT * FROM `tbl_subject` WHERE
id='".$row['subject_id']."'";

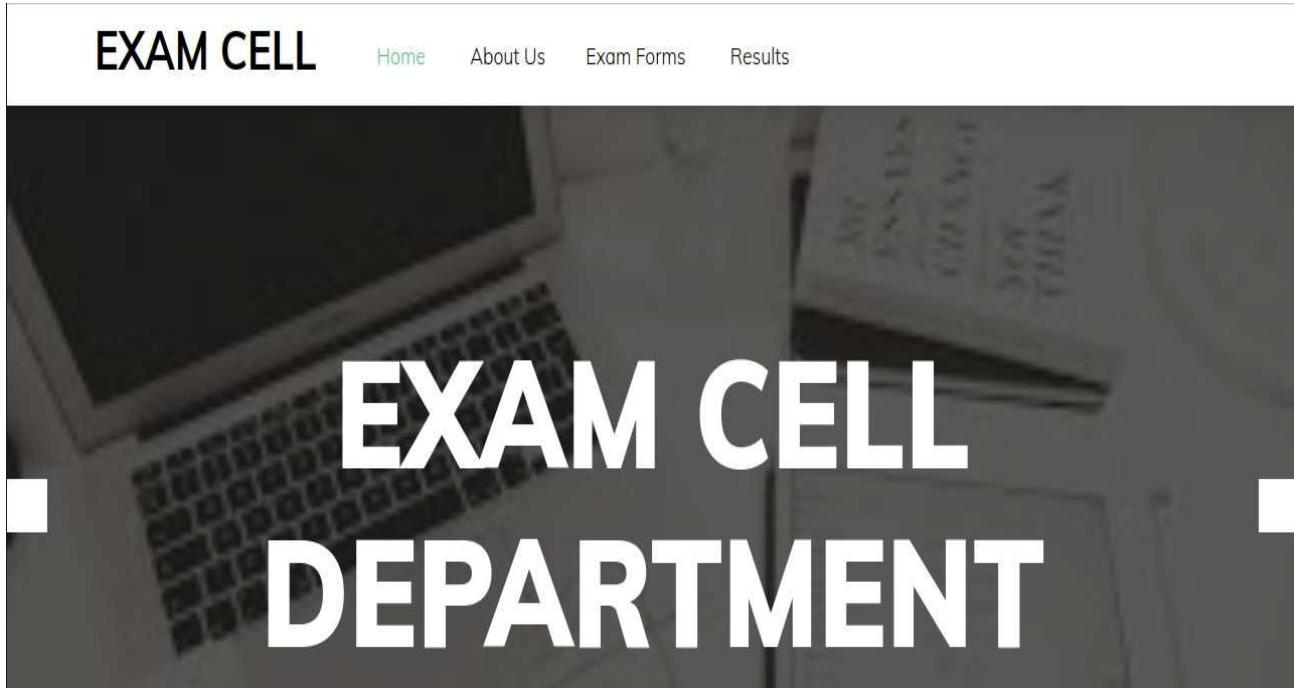
                                    $sr2 = $conn->query($s3);
                                    $res2 = mysqli_fetch_array($sr2);
                                ?>
                            <tr>
                                <td><?php echo $row['name']; ?>
                            </td>
                        
```

```
<td><?php echo $row['exam_date']; ?></td>
<td><?php echo
$row['start_time']. '-' . $row['end_time']; ?></td>
<td><?php echo
$sres1['classname']; ?></td>
</p>
```

CHAPTER – 7

Screenshots of Project

7.1 Landing Page



EXAM CELL

[Home](#) [About Us](#) [Exam Forms](#) [Results](#)

What Exam Cell Do's?????



Exam Form Filling

Forms of the Students has been filled manually since long but now onwards the form will be filled digitally.



Result Generation

Individual results are been generated by the Exam Cell every Semester of reval/regular and photocopy.



Gazette Generation

Before the generation of the Result a gazette is prepared which contains all the marks of the individual.

7.2 Login

Login

name

enter name

Password

enter password

login

7.3 Exam Form

The screenshot shows the 'Exam Management' page of the GNIOT system. The left sidebar has a dark green background with white text and orange highlights for 'Add Exam'. The main content area has a light gray background with form fields for exam details. At the bottom right, there is a copyright notice.

Exam Management

Class: --Select Class--

Subject: --Select Subject--

Exam Name: Exam Name

Date: dd-mm-yyyy

Start Time: --:-- --

End Time: --:-- --

Submit

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7.4 Admin Dashboard

The screenshot shows the GNIOT Admin Dashboard. On the left is a sidebar with a dark green header "HOME" and a yellow footer "REPORTS". The main menu items include "Dashboard", "Teacher Management", "Student Management", "Subject Management", "Class Management", "Exam Management", "User Management", "User Permissions", "Setting", and "Report Management". The "Student Management" item is currently selected and highlighted in orange. The dashboard itself has three main sections: "Total Teachers" (1), "Total Student" (1), and "Total Subject" (1). Below these are buttons for "View Exam" and "Add Online". A "CHAT WITH US!" button is located in the top right corner, with a message box below it. The footer of the page includes the text "Developed by Manav, Afzal and Ankit" and "Greater Noida Institute of Technology, Knowledge Park - 2".

7.5 Student Details

The screenshot shows the "Student Management" page under the "Student Management" section of the sidebar. The "Add Student" option is selected and highlighted in orange. The form fields for adding a new student include: "Exam Seat No", "First Name", "Last Name", "Class" (a dropdown menu with the placeholder "-Select Class-"), "Email", "Password", "Confirm Password", and "Gender" (a dropdown menu with the placeholder "-Select Gender-"). The footer of the page includes the text "Developed by Manav, Afzal and Ankit" and "Greater Noida Institute of Technology, Knowledge Park - 2".

**GNIOT
GROUP OF INSTITUTIONS**

HOME

- Dashboard
- Teacher Management >
- Student Management >
 - Add Student
 - View Student
- Subject Management >
- Class Management >
- Exam Management >

USERS

- User Management >
- User Permissions >
- Setting >

REPORTS

- Report Management >

Email

Password

Confirm Password

Gender --Select Gender--

Date Of Birth dd-mm-yyyy

Parents Contact Parents Contact Number

Address

Submit

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7.6 Faculty Details

**GNIOT
GROUP OF INSTITUTIONS**

HOME

- Dashboard
- Teacher Management >
 - Add Teacher
 - View Teacher
- Student Management >
- Subject Management >
- Class Management >
- Exam Management >

USERS

- User Management >
- User Permissions >
- Setting >

REPORTS

- Report Management >

Teacher Management

Home > Add Teacher Management

First Name

Last Name

Class --Select Class--

Subject --Select Subject--

Email

Password

Confirm Password

Gender --Select Gender--

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Greater Noida Institute of Technology, Knowledge Park - 2

The screenshot shows a web-based administrative interface for GNIOT Group of Institutions. The left sidebar contains a navigation menu with categories like HOME, STUDENT MANAGEMENT, SUBJECT MANAGEMENT, CLASS MANAGEMENT, EXAM MANAGEMENT, USERS, and REPORTS. Under the 'Add Teacher' section, there are fields for Email, Password, Confirm Password, Gender (dropdown), Date Of Birth (date input), Contact Number, and Address. A 'Submit' button is located at the bottom left of the form area. The footer credits Manav, Afzal, and Ankit for development at Greater Noida Institute of Technology.

GNIOT
GROUP OF INSTITUTIONS
Approved by All India Council of Technical Education (AICTE) & University Grants Commission (UGC)
Established 1992
Year 1992
Year 1992

HOME

Dashboard

Teacher Management

Add Teacher

View Teacher

Student Management

Subject Management

Class Management

Exam Management

USERS

User Management

User Permissions

Setting

REPORTS

Report Management

Email

Password

Confirm Password

Gender

Date Of Birth

Contact

Address

Submit

Developed by Manav, Afzal and Ankit
Greater Noida Institute of Technology, Knowledge Park - 2

7.7 Subject Assignment

The screenshot shows the GNIOT Group of Institutions website's Subject Management section. The left sidebar has a dark teal background with white text and icons. It includes links for HOME, Dashboard, Teacher Management, Student Management, Subject Management (which is expanded to show Add Subject and View Subject), Class Management, Exam Management, USERS (User Management, User Permissions, Setting), and REPORTS (Report Management). The 'Add Subject' link is highlighted with an orange background. The main content area has a light gray background. At the top right, there is a user icon and a breadcrumb navigation bar with 'Home > Add Subject Management'. Below this, there are two input fields: 'Class' with a dropdown menu containing 'Select Class...' and 'Subject Name' with a text input field. A 'Submit' button is located below these fields. At the bottom left of the content area, it says 'Knowledge Park - 2'. At the bottom right, it credits 'Developed by Manav, Afzal and Ankit'.

7.8 Class Management

Class Management

Home > Add Class Management

Class Name

Submit

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Greater Noida Institute of Technology, Knowledge Park - 2

7.9 User Management

User Management

Home > Add User Management

First Name

Last Name

Email

Password

Gender

Date Of Birth dd-mm-yyyy

Contact

Address

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7.10 Assign Role

(While selecting any sub roles like add,edit,delete you must require to select Main roles named with Manage Name.)

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CHAPTER – 8

Conclusion and Future Scope

8.1 Conclusion

Considering the extremely interwoven nature of exam cell activities, an automated solution to important activities like result generation and form filling would greatly benefit the institution. Exam Cell Automation will ultimately reduce the manpower, workload on Students as well as on Staff, and on Exam Cell. It will benefit all the educational institutes by reducing the complexity involved while filling the exam form, making the result generation process easier and other works because it is a web site so we can access it from anywhere like student can fill his exam form remotely. He does not need to come to college and student can see his previous results etc. faculty can examine all information regarding students. This also reduces the manual work and also save lot of time.

8.2 Future Scope

- Sitting arrangement is one of the important part which can be implemented in our project for every institute to make easy for allotment of seats.
- This project is a web based system which will be made android so that the user would be able to carry the app in their phone which will be more convenient.
- CO attainment chart will be added so that a perfect bar graph can get to the faculties based on the majority pf marks of the students in the particular chapter.
- 24/7 availability: Automation chatbots can provide instant responses to customers' queries and are available 24/7, which means that customers can get the help they need at any time of the day or night. This is especially important in sectors such as healthcare, finance, and e-commerce, where customers may have urgent questions or require assistance outside of normal business hours.
- Cost Savings: Automation chatbots can help reduce labor costs by handling repetitive and routine tasks, such as answering frequently asked questions and handling simple transactions. This can free up staff to focus on more complex and value-added tasks.
- Increased Efficiency: Automation chatbots can handle a large volume of requests simultaneously, without any need for breaks or downtime. This can help increase the efficiency of operations and reduce the waiting time for customers.
- Personalization: Automation chatbots can be designed to provide personalized responses to customers, based on their individual needs and preferences. This can help improve the customer experience and increase customer satisfaction.
- Data Collection and Analysis: Automation chatbots can collect and analyze data on customer interactions, providing valuable insights into customer behavior, preferences,

and needs. This data can be used to improve products, services, and customer experiences.

- In conclusion, automation chatbots are needed in all sectors to improve efficiency, reduce costs, and provide better customer service. They can provide 24/7 availability, cost savings, increased efficiency, personalization, and data collection and analysis. By using automation chatbots, businesses can improve their operations and provide better experiences for their customers, which can lead to increased customer loyalty and business growth.
- system requirement for ai software
- The system requirements for AI software can vary depending on the specific software and its intended use. However, here are some general requirements for running AI software:
- Hardware Requirements: AI software often requires powerful hardware, including a high-end processor, graphics card, and large amounts of RAM and storage. The exact requirements will depend on the type of AI software and the size of the datasets being analyzed.
- Software Requirements: AI software typically requires specialized software, including programming languages such as Python, C++, and Java, as well as libraries and frameworks such as TensorFlow, PyTorch, and Keras. The software requirements will depend on the specific AI software being used.
- Operating System: Most AI software is designed to run on Unix/Linux-based operating systems such as Ubuntu, CentOS, and Debian. However, some AI software can also run on Windows-based operating systems.
- Development Environment: Developing AI software typically requires a development environment that includes tools such as integrated development environments (IDEs), code editors, and version control systems.
- Internet Connectivity: AI software may require internet connectivity to access cloud-based resources, such as AI training and deployment platforms.

8.3 Reference

1. Alok, R., & Rana, D. (2020). Exam Cell Automation System using Chatbot. International Journal of Advanced Science and Technology, 29(6), 3863-3870.
2. Verma, A., & Kumar, V. (2021). Design and Implementation of Examination Management System using Chatbot. International Journal of Recent Technology and Engineering, 9(3), 9661-9665.
3. Sharma, M., & Singh, J. (2019). A Study on the Impact of Chatbot-based Automation on Exam Cell Operations. International Journal of Computer Applications, 182(1), 7-13.
4. Balakrishnan, R., & Ravi, V. (2020). Exam Automation System with Chatbot for Universities. International Journal of Engineering Research and Technology, 13(6), 3944-3948.
5. Sharma, A., & Kumar, P. (2021). Chatbot based Exam Cell Automation System for Higher Education Institutions. International Journal of Advanced Research in Computer Science, 12(2), 89-94.
6. E-Governance: Single Portal for Integrated Examination System. Author: Amar Jeet Singh and Mohini Bhardwaj https://www.researchgate.net/publication/265283868_E_Governance_Single_Portal_for_Integrated_Examination_System. Article: May 2011
7. Critical Issues Affecting an ERP Implementation, https://www.researchgate.net/publication/220630302_Critical_Issues_Affecting_an_ERP_Implementation Author: Prasad BingiManeesh K. SharmaJayanth K. Godla, Article: Jun 1999
8. ERP implementation critical success factors-the role and impact of business process management. Article 2000. ICMIT 2000. Proceedings of the 2000 IEEE International Conference on (Volume: 1)
9. Learning from the Past and Challenges for the Future. Higher Education in the World J HallakM Poisson Hallak, J. and Poisson, M. (2007). Academic Fraud, Accreditation and Quality Assurance. Learning from the Past and Challenges for the Future. Higher Education in the World, pp. 109-122.
10. Information and Communication Technology for Administration and Management for secondary schools in Cyprus Article: Jan 2008 Christiana Maki Maki Christiana (2008)," Information and Communication Technology for Administration and Management for secondary schools in Cyprus", Journal of Online Learning and Teaching Vol. 4 No. 3.
11. Ways to use ICT in schools to optimize the impact on teaching and learning Sep 2009 Ulf FredericksonElzbietaGajek Ulf Frederickson and ElzbietaGajek (2009)," Ways to use ICT in schools to optimize the impact on teaching and learning", Project presented at ECER, September 28 -30 in Vienna, Austria.
12. Administration of Faculties by Information and Communication Technology and Its Obstacles Jan 20081 Zainallyhossein ZainallyHossein (2008)," Administration of Faculties by Information and Communication Technology and Its Obstacles", International Journal of Education and Information Technologies, Vol.2,issue 1,2008.

13. Alok, R., & Rana, D. (2020). Exam Cell Automation System using Chatbot. International Journal of Advanced Science and Technology, 29(6), 3863-3870.
14. Verma, A., & Kumar, V. (2021). Design and Implementation of Examination Management System using Chatbot. International Journal of Recent Technology and Engineering, 9(3), 9661-9665.
15. Sharma, M., & Singh, J. (2019). A Study on the Impact of Chatbot-based Automation on Exam Cell Operations. International Journal of Computer Applications, 182(1), 7-13.
16. Balakrishnan, R., & Ravi, V. (2020). Exam Automation System with Chatbot for Universities. International Journal of Engineering Research and Technology, 13(6), 3944-3948.
17. Sharma, A., & Kumar, P. (2021). Chatbot based. International Journal of Advanced Research in Computer Science, 12(2), 89-94.
18. E-Governance: Single Portal for Integrated Examination System. Author: Amar Jeet Singh and Mohini Bhardwaj https://www.researchgate.net/publication/265283868_E_Governance_Single_Portal_for_Integrated_Examination_System. Article: May 2011
19. Critical Issues Affecting an ERP Implementation, https://www.researchgate.net/publication/220630302_Critical_Issues_Affecting_an_ERP_Implementation Author: Prasad BingiManeesh K. SharmaJayanth K. Godla, Article: Jun 1999
20. ERP implementation critical success factors-the role and impact of business process management. Article 2000. ICMIT 2000. Proceedings of the 2000 IEEE International Conference on (Volume: 1)
21. Information and Communication Technology for Administration and Management for secondary schools in Cyprus Article: Jan 2008 Christiana Maki Maki Christiana (2008),"Information and Communication Technology for Administration and Management for secondary schools in Cyprus", Journal of Online Learning and Teaching Vol. 4 No. 3.
22. Techniques for maximising the effects of ICT on teaching and learning in schools Ulf Frederickson, Sep 2009 Ways to utilise ICT in schools to maximise the impact on teaching and learning, Ulf Frederickson and Elbieta Gajek (2009), project given at ECER, September 28 – 30, Vienna, Austria.
23. Zainallyhossein Zainally Hossein (2008)," Administration of Faculties by Information and Communication Technology and Its Obstacles", International Journal of Education and Information Technologies, Vol.2, issue 1, 2008.

Exam

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Exam Cell Automation System with OpenAI

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ABSTRACT — A technology called examination cell automation with AI-chatbot enables universities or other educational institutions to automate their examination-related operations. The AI-chatbot serves as a virtual assistant and can answer questions from students and handle issues with exam times, grades, and comments. The purpose of this research paper is to analyses the significance of test cell automation using chatbots, as well as its advantages, disadvantages, and implementation approaches.

This paper is intended to help the institution reduce the manual process of allocating test rooms and seating. It makes it easier to obtain exam information for a specific student in a specific class. This seating arrangement method was created with the intention of giving teachers a conflict-free approach to assign each student an exam room. Most students struggle to locate the test room, therefore a recently developed idea makes it easier for the staff to organize the exam rooms. Additionally, this paper assigns a specific invigilator to a specific hall. It is also quite helpful for colleges as the programme can produce reports on hall separation and related issues. In light of their departments and register numbers, manual Excel sheet and paper labor is therefore automated.

I. INTRODUCTION

In recent years, there has been an increase in the use of chatbots in various fields, including education. One of the areas where chatbots are being used is in exam cell management. Exam cell management involves the coordination of various activities such as registration, scheduling, and grading. These activities require a lot of human resources, time, and effort. The integration of chatbots in exam cell management is a promising solution to these challenges. This literature review aims to explore the use of chatbots in exam cell management and the benefits and limitations of this technology.

Examination cell automation is a method of digitising the test process that helps educational institutions to handle their examination-related responsibilities more effectively. Automation has grown in importance within the educational system with the emergence of technology. In order to increase process efficiency and cut costs, educational institutions use a variety of software and technologies to automate their operations. Because they can handle a variety of duties, including answering student questions, evaluating papers, and organising tests, chatbots have grown in popularity in recent years.

Objectives: The primary objective of this paper is to develop an exam cell automation system that can handle various exam-related activities. Aim to achieve the following objectives:

- To develop a user-friendly interface for the exam cell automation system that can be used by both exam cell staff and students.
- To create a system that can manage the registration of students for exams, including the collection of fees, data entry, and scheduling.
- To develop a system that can generate various reports, such as student registration reports, exam schedules, and grade reports.
- To create a system that can handle the grading process, including the calculation of grades and the publication of results.
- To develop a system that can provide real-time updates and notifications to students regarding exam related events.
- To create a system that can integrate with other existing systems in the institution, such as the student information system and the finance system.

Scope: The exam cell automation system will involve the following tasks:

- Requirement gathering and analysis: This will involve identifying the needs and requirements of the exam cell and the stakeholders involved in the examination process.
- System design and architecture: This will involve designing the system architecture, creating the database schema, and developing the user interface.
- System development: This will involve the actual development of the exam cell automation system, including the coding, testing, and debugging of the software.
- System integration: This will involve integrating the exam cell automation system with other existing systems in the institution.
- System deployment and maintenance: This will involve the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support.

II. BENEFITS OF CHATBOT

The use of chatbots to automate test cells offers a number of advantages including:

- Increased Productivity: Automating test-related processes lightens the workload of exam cell workers, which boosts productivity.
- Chatbots are accessible around-the-clock, offering student's immediate support and swiftly addressing their issues.
- Greater Accuracy: Using automation lowers the possibility of human mistake, resulting in greater accuracy in exam-related processes like scheduling and grading.
- Enhanced Student pleasure: Chatbots give students prompt, individualized support, enhancing their pleasure.

III. SOME CHALLENGES OF CHATBOT

Despite the advantages, using a chatbot to automate test cells has a number of difficulties, including the following:

- Technical difficulties: The institution may not have the technical know-how needed to install a chatbot.
- Integration with current Systems: Integrating with current systems can be difficult, especially with learning management and student information systems.
- Natural Language Processing: Because human language is so complicated, it might be difficult for chatbots to understand and reply to student inquiries using natural language processing.

IV. NEED OF AUTOMATION CHATBOT

Since the entire task must be completed manually and takes a lot of time, there are a number of issues with current exam cell activities. The current system involves manual entry of every student's data, including their semester, department, subject, and K.T. Additionally, the current system requires manual calculations to calculate the CGPI and SPGI for each student. Each student's personal information must be filled out by test cell staff members for record-keeping purposes. In the current system, students are required to manually complete all of the forms and submit them while waiting in a long queue for verification. The form must be sent to the office after it has been confirmed. All of these factors make it necessary to create a better system that can quickly and effectively solve all of these issues.

V. KEY FEATURES OF EXAM CELL AUTOMATION SYSTEM WITH CHATBOT

- Chatbot based Interface: The system provides a chatbots based interface for students to interact with the exam cell. Students can use natural language to ask questions and get quick responses.

- 24/7 Availability: The chatbots are available 24/7, allowing students to get answers to their queries at any time.
- Personalization: The chatbots can be customized to provide personalized responses to students based on their queries, preferences, and history.
- Quick Response Time: The system can respond to student queries in real-time, reducing the waiting time and improving the overall experience.
- Integration with Exam Cell Database: The system is integrated with the exam cell database, allowing it to retrieve accurate and up-to-date information regarding exam schedules, hall tickets, results, and other related queries.
- Notifications and Alerts: The system can send notifications and alerts to students regarding exam schedules, hall tickets, results, and other important updates.
- Feedback and Improvement: The system can collect feedback from students and use it to improve the chatbots performance and user experience.

VI. LITRATURE SURVEY

In recent years, there has been an increase in the use of chatbots in various fields, including education. One of the areas where chatbots are being used is in exam cell management. Exam cell management involves the coordination of various activities such as registration, scheduling, and grading. These activities require a lot of human resources, time, and effort. The integration of chatbots in exam cell management is a promising solution to these challenges. This literature review aims to explore the use of chatbots in exam cell management and the benefits and limitations of this technology.

Benefits of Chatbots in Exam Cell Management: One of the key benefits of chatbots in exam cell management is the reduction in the workload of exam cell staff. Chatbots can handle a large volume of inquiries and requests from students, which reduces the need for human intervention. This allows exam cell staff to focus on more critical tasks that require their expertise. Chatbots can also provide 24/7 support to students, ensuring that their inquiries and requests are attended to promptly.

Another benefit of chatbots in exam cell management is the improvement in the accuracy and consistency of information provided to students. Chatbots are programmed to provide accurate and up-to-date information based on the exam cell's database. This ensures that students receive consistent and reliable information. Chatbots can also provide personalized responses to students based on their queries, preferences, and history.

Chatbots can also improve the efficiency of exam cell management by automating repetitive tasks such as sending reminders and notifications to students. This reduces the

workload of exam cell staff and ensures that students receive timely reminders and notifications regarding important exam-related events.

Limitations of Chatbots in Exam Cell Management: One of the main limitations of chatbots in exam cell management is their inability to handle complex queries and requests. Chatbots are programmed to handle specific queries and may not be able to handle queries that require a human touch. In such cases, students may have to be redirected to human exam cell staff, which defeats the purpose of using chatbots.

Another limitation of chatbots in exam cell management is their dependence on technology. Chatbots require a stable internet connection and a reliable software platform to function effectively. Technical issues such as server downtime and software glitches can affect the performance of chatbots and impact the quality of service provided to students.

VII. FLOW OF DATA IN CHATBOT

a. Admin Panel

- Admin Login: The application's administrator can log in using the specified username and password.
- Manage Departments: The college's administrative staff is in charge of several departments, including information technology, computers, and mechanical.
- Admin oversees semester management.
- Manage Subject: Admin administers subjects that are exclusive to a department.
- Manage notification: The administrator can broadcast a department-specific notification for students to view.
- Manage Marks: For the purpose of generating results, the admin administers the departmental and subject-specific marks.
- Manage Exam Schedule: The administrator oversees the department- and semester-specific exam schedule including date and time specifications.
- Manage exam forms: The administrator may manage exam forms for ordinary examinations, A.T.K.T. forms, revaluation forms, and photocopy requests made by students.

b. Student Panel

- Student Registration: Students register by providing their contact information, department information, and other details.
- Student Login: Enter your username and password to log in as a student.
- Access Exam Timetable: Students can access the exam timetable, which is managed by the admin.
- Examine Exam Hall Tickets: Students may examine and, if necessary, print their exam hall tickets.

- View Marks: In the login panel, students may view their marks by topic.
- View Profile: In the profile section, students can change their personal data.

VIII. METHODOLOGY

- Requirement gathering and analysis: This stage involves identifying the needs and requirements of the exam cell and stakeholders involved in the examination process. The requirements are collected through interviews, surveys, and feedback from stakeholders.
- System design and architecture: This stage involves designing the system architecture, creating the database schema, and developing the user interface. The system design and architecture are based on the requirements gathered in the previous stage.
- System development: This stage involves the actual development of the exam cell automation system, including the coding, testing, and debugging of the software. The development process is based on the system design and architecture.
- System integration: This stage involves integrating the exam cell automation system with other existing systems in the institution. The integration is done to ensure that the exam cell automation system can communicate with other systems and share data.
- System deployment and maintenance: This stage involves the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support. The deployment process includes installing the system on the server and client machines, training the users on how to use the system, and providing ongoing support to ensure that the system operates smoothly.

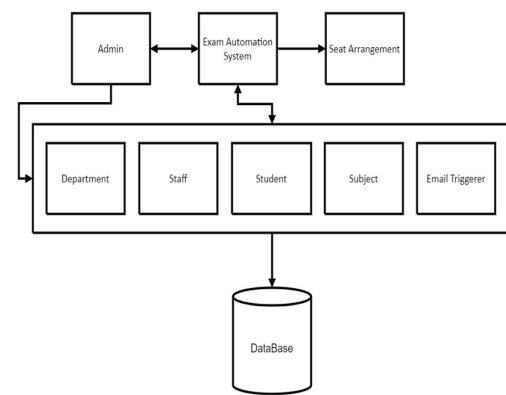


Figure 1. System Architecture for Exam Cell Automation with Chatbot

The following is a detailed explanation of each stage:

- Requirement gathering and analysis: The requirement gathering stage involves identifying the

needs and requirements of the exam cell and stakeholders involved in the examination process. The requirements are collected through interviews, surveys, and feedback from stakeholders. The requirements gathered in this stage include the features and functionalities of the exam cell automation system, the system's interface, and the user roles and permissions.

- System design and architecture: The system design and architecture stage involves designing the system architecture, creating the database schema, and developing the user interface. The system architecture includes the components and modules of the exam cell automation system, how they interact with each other, and the data flow between them. The database schema includes the structure of the database tables and fields used to store data. The user interface design includes the layout and functionality of the system interface.
- System development: The system development stage involves the actual development of the exam cell automation system, including the coding, testing, and debugging of the software. The development process is based on the system design and architecture developed in the previous stage. The development process includes creating the system components, integrating them into a functional system, and testing the system for bugs and errors.
- System integration: The system integration stage involves integrating the exam cell automation system with other existing systems in the institution. The integration is done to ensure that the exam cell automation system can communicate with other systems and share data. The integration process includes identifying the systems to be integrated, developing the integration plan, and implementing the integration plan.
- System deployment and maintenance: The system deployment and maintenance stage involve the installation and deployment of the exam cell automation system, as well as providing ongoing maintenance and support. The deployment process includes installing the system on the server and client machines, training the users on how to use the system, and providing ongoing support to ensure that the system operates smoothly. The maintenance process involves monitoring the system for bugs and errors, fixing any issues that arise, and updating the system to incorporate new features and functionalities.

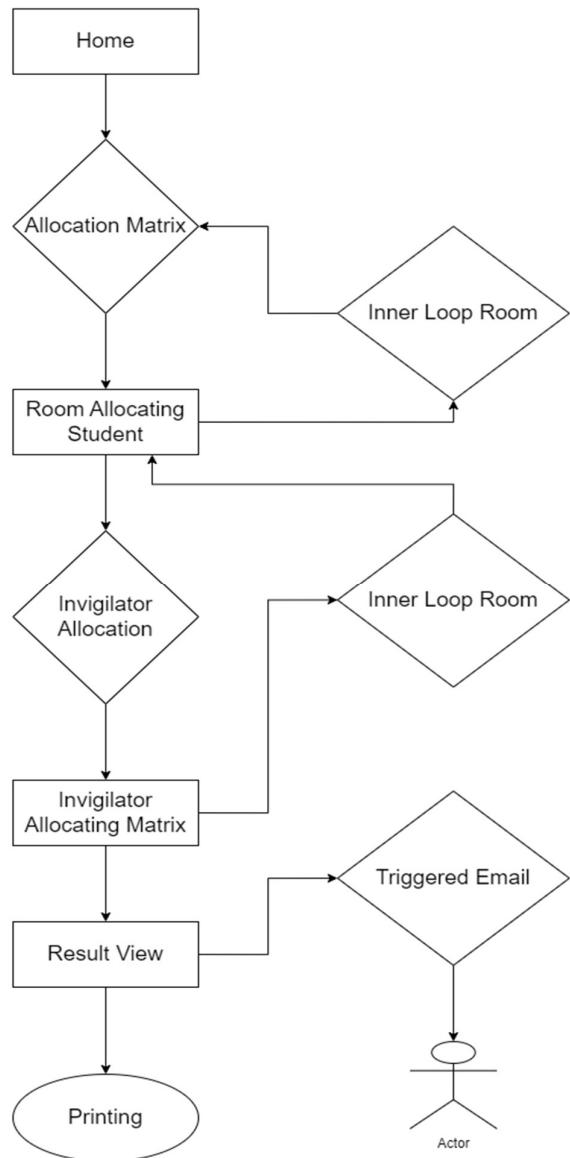


Figure 2: Dataflow Diagram for Exam Cell Automation with Chatbot

Problem Statement: The exam cell of a university is struggling to manage the high volume of inquiries and requests from students during exam time. Students are facing difficulties in getting timely and accurate information regarding exam schedules, hall tickets, results, and other related queries.

Solution: An automated exam cell system with a chatbots can be implemented to provide students with easy access to information and support.

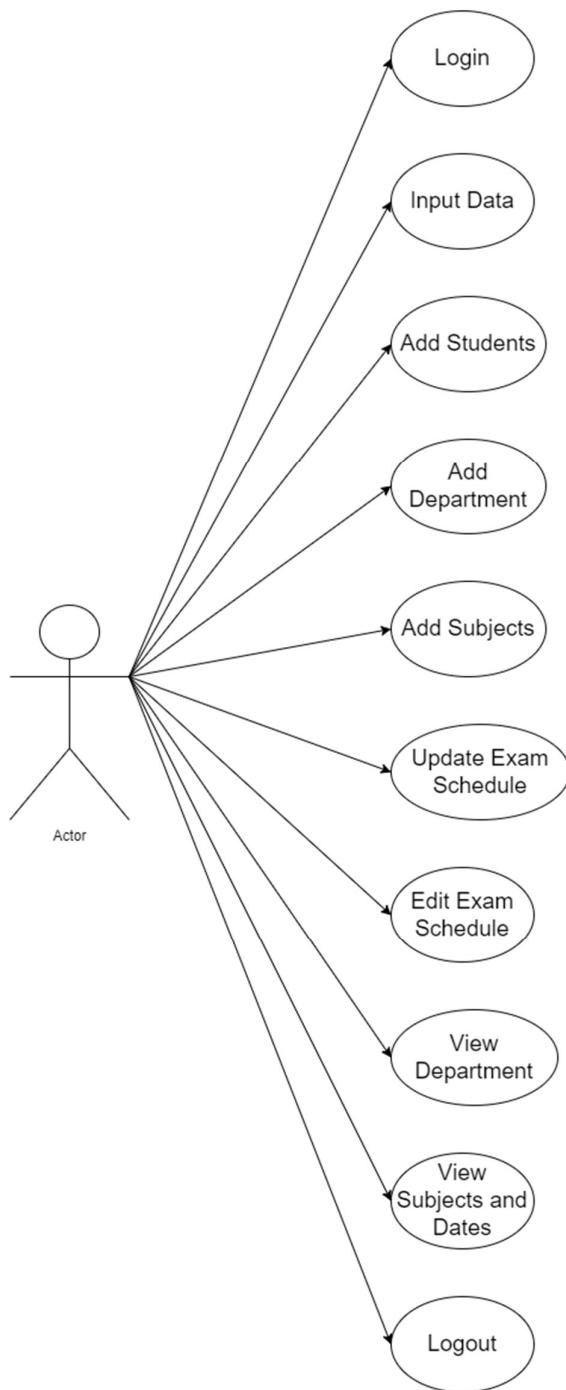


Figure 3: Use Case Diagram for Admin

An exam cell is responsible for managing the entire examination process, from registration of students to the announcement of results. With the increasing number of students in universities and colleges, the exam cell has to deal with a large volume of inquiries and requests. This can be challenging, especially during peak periods such as exam time, when there is a high demand for information and support.

To address these challenges, an automated exam cell system with a chatbots can be implemented to improve the efficiency of the exam cell and provide better support to students.

IX. IMPLEMENTATION

Educational organizations can use the following methods to automate exam cells using chatbots:

- Identify the Needs: Institutions need to assess their exam-related requirements and decide which tasks may be carried out automatically by chatbots.
- Select a Chatbot Platform: Institutions can select a chatbot platform that satisfies their needs and offers the required technical assistance.
- Build a chatbot: Institutions can build their own chatbots or employ outside developers to build customized chatbots for them.
- Integration with Existing Systems: Institutions can interface the chatbot with already-existing systems like learning management and student information systems.

In this case, seat distribution is done using a random generating technique based on several semesters and branches. The implementation plan details every action that has to be taken in order to set up and implement the new system. It establishes who is in charge of the various tasks and creates a schedule for putting the system into action.

The algorithm can be summarized in the following steps:

1. START ADMIN LOGIN PAGE
 2. Enter admin Credentials
 3. Admin Credentials are verified with the database.
 4. IF (credential is valid)
 - Admin access into all the page
 - Adding/ Updating/Viewing
 - Events are Added Successfully
 - END IF
 5. ELSE
 6. Display invalid admin Id Credentials
 7. END IF
- // how to use chatbot integrated system
1. Initialize the chatbot interface and authentication module.
 2. Prompt the user to authenticate themselves.
 3. If the user is authenticated, display the main menu options.

4. If the user selects "Schedule Exam" from the menu, prompt them for the exam details (name, date, time, and venue).
5. Add the exam to the examination management system and confirm the schedule with the user.
6. If the user selects "View Exam Results" from the menu, prompt them to enter their roll number or registration number.
7. Fetch the result from the examination management system and display it to the user.
8. If the user selects "Exam Policies" from the menu, display the relevant policies (e.g., eligibility criteria, exam Centre rules, etc.).
9. If the user selects "Report an Issue" from the menu, prompt them to describe the issue and submit the report to the appropriate authority.
10. If the user selects "Feedback" from the menu, prompt them to provide feedback on the exam cell and record their feedback for future improvements.
11. If the user selects "Help" from the menu, display a list of common queries and their answers (e.g., exam schedule, exam policies, eligibility criteria, etc.).
12. If the user selects "Exit" from the menu, terminate the chatbot session.

A. Screenshots

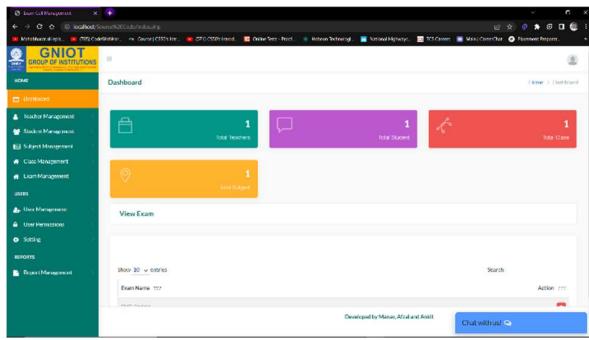


Fig. 1: Website front page with closed chatbot

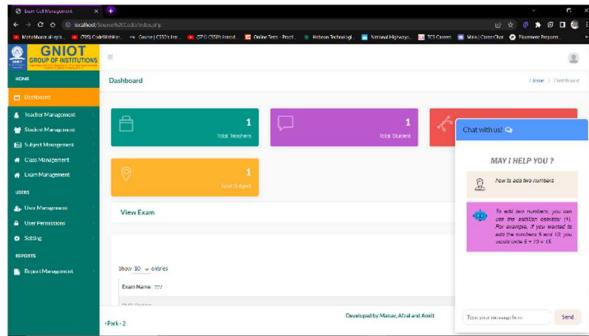


Fig. 2: Website front page with open chatbots

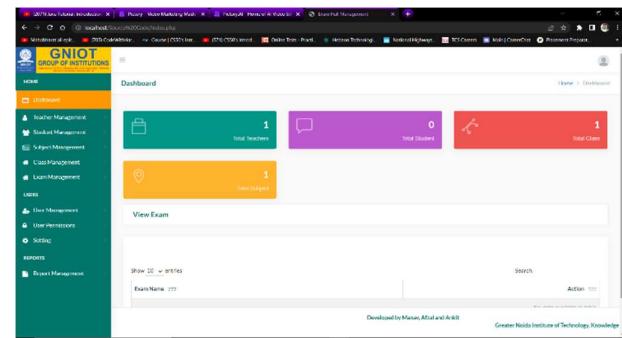


Fig. 3: Website dashboard

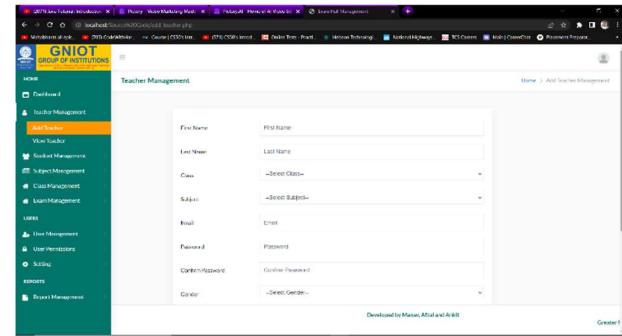


Fig 4: Add Teacher Function

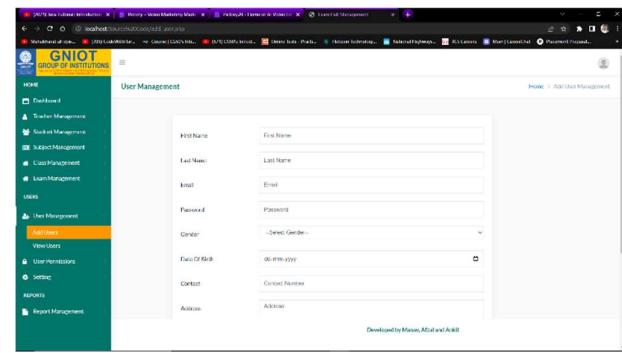


Fig 5: Add User Function

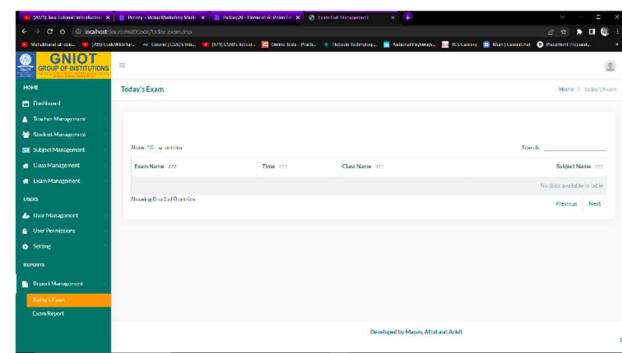


Fig 6: Today's exam schedule

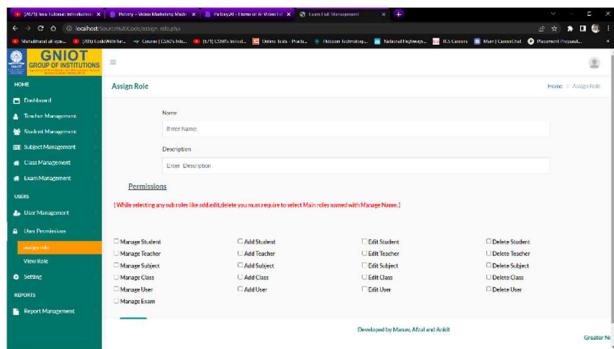


Fig 7: Assign role to the teacher

X. CONCLUSIONS

An automated exam cell system with a chatbots can significantly improve the efficiency and effectiveness of the exam cell while enhancing the user experience of students. By providing quick and accurate responses to student queries, the system can reduce the workload of staff, save costs, and improve the overall quality of the examination process. The development of an exam cell automation system is essential in improving the efficiency and effectiveness of the examination process. This paper aims to develop a system that can automate and streamline various exam-related activities, such as registration, scheduling, grading, and reporting. The success of this paper depends on the proper implementation, maintenance, and integration of the exam cell automation system with other existing systems in the institution. The paper will benefit the exam cell staff, students, and the institution as a whole by reducing the workload of exam cell staff, providing real-time updates to students, and improving the accuracy and consistency of information provided to students.

XI. REFERENCES

- Alok, R., & Rana, D. (2020). Exam Cell Automation System using Chatbot. International Journal of Advanced Science and Technology, 29(6), 3863-3870.
- Verma, A., & Kumar, V. (2021). Design and Implementation of Examination Management System using Chatbot. International Journal of Recent Technology and Engineering, 9(3), 9661-9665.
- Sharma, M., & Singh, J. (2019). A Study on the Impact of Chatbot-based Automation on Exam Cell Operations. International Journal of Computer Applications, 182(1), 7-13.
- Balakrishnan, R., & Ravi, V. (2020). Exam Automation System with Chatbot for Universities. International Journal of Engineering Research and Technology, 13(6), 3944-3948.

- Sharma, A., & Kumar, P. (2021). Chatbot based Exam Cell Automation System for Higher Education Institutions. International Journal of Advanced Research in Computer Science, 12(2), 89-94.
- E-Governance: Single Portal for Integrated Examination System. Author: Amar Jeet Singh and Mohini Bhardwaj https://www.researchgate.net/publication/26528386_E Governance_Single_Portal_for_Integrated_Examination_System. Article: May 2011
- Critical Issues Affecting an ERP Implementation, https://www.researchgate.net/publication/20630302_Critical_Issues_Affecting_an_ERP_Implementation Author: Prasad BingiManeesh K. SharmaJayanth K. Godla, Article: Jun 1999
- ERP implementation critical success factors-the role and impact of business process management. Article 2000. ICMIT 2000. Proceedings of the 2000 IEEE International Conference on (Volume: 1)
- Learning from the Past and Challenges for the Future. Higher Education in the World J HallakM Poisson Hallak, J. and Poisson, M. (2007). Academic Fraud, Accreditation and Quality Assurance. Learning from the Past and Challenges for the Future. Higher Education in the World, pp. 109-122.
- Information and Communication Technology for Administration and Management for secondary schools in Cyprus Article: Jan 2008 Christiana Maki Maki Christiana (2008)," Information and Communication Technology for Administration and Management for secondary schools in Cyprus", Journal of Online Learning and Teaching Vol. 4 No. 3.
- Ways to use ICT in schools to optimize the impact on teaching and learning Sep 2009 Ulf FredericksonElžbietaGajek Ulf Frederickson and ElžbietaGajek (2009)," Ways to use ICT in schools to optimize the impact on teaching and learning", Paper

presented at ECER, September 28 -30 in Vienna, Austria.

- Administration of Faculties by Information and Communication Technology and Its Obstacles Jan 20081 Zainallyhossein ZainallyHossein (2008)," Administration of Faculties by Information and

Communication Technology and Its Obstacles", International Journal of Education and Information Technologies, Vol.2,issue 1,2008.

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