

UNIVERSITY RESULT MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

Sudhanshu	(21BCS6957)
Anirban	(21BCS6935)
Rajneesh	(21BCS6956)
Nithin	(21BCS6862)
Garvit	(21BCS6895)

in partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE ENGINEERING



Chandigarh University

March 2023

BONAFIDE CERTIFICATE

Certified that this project report “**University Result Management System**” is the bonafide work of “**Sudhanshu Kumar Jha, Anirban Sinha Roy, Rajneesh Pandey, Linga Nithin, Garvit Budhiraja**” who carried out the project work under my/our supervision.

<<Signature of the HoD>>

SIGNATURE

Dr. Ajay Kumar Singh

HEAD OF THE DEPARTMENT

Computer Science Engineering

<<Signature of the Supervisor>>

SIGNATURE

Er. Ishta

SUPERVISOR

Asst. Professor

Computer Science Engineering

Submitted for the project viva-voce examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER

TABLE OF CONTENTS

List of Figures.....	5
List of Tables	6
List of Standards	7
CHAPTER 1. INTRODUCTION	9-12
1. Identification of Client/ Need/ Relevant Contemporary issue	9
2. Identification of Problem	10
3. Identification of Tasks	10
4. Timeline.....	11
5. Organisation of the Report	12
CHAPTER 2. LITERATURE REVIEW/BACKGROUND STUDY.....	13-15
1. Timeline of the reported problem.....	13
2. Existing solutions	14
3. Bibliometrics analysis	14
4. Review Summary	14
5. Problem Definition.....	15
6. Goals/Objectives	15
CHAPTER 3. DESIGN FLOW/PROCESS	16-22
1. Evaluation & Selection of Specifications/Features	16
2. Design Constraints	17
3. Analysis of Features and finalization subject to constraints	18-19
4. Design Flow	20
5. Design selection	21
6. Implementation plan/methodology	22
CHAPTER 4. RESULTS ANALYSIS AND VALIDATION	23-32
4.1. Implementation of solution	23
CHAPTER 5. CONCLUSION AND FUTURE WORK	33-37

1. Conclusion	33-36
2. Future work.....	36-37
REFERENCES	38
APPENDIX	39-40
1. Plagiarism Report	17
2. Design Checklist.....	39-40
USER MANUAL	41-42

List of Figures

Figure 1.1	Digitalisation trend graph
Figure 1.1	Gantt chart
Figure 3.1	Use Case Diagram
Figure 3.2	Login Page
Figure 3.3	Student rectification
Figure 3.4.....	Admin Page
Figure 3.5	Flowchart
Figure 3.6.....	Code of Database
Figure 4.1	Student Portals' interface
Figure 4.2.....	XAMPP Server
Figure 4.3.....	Creating Database
Figure 4.4.....	Admin Table
Figure 4.5	Student Marks
Figure 4.6	Code snippet

List of Tables

Table 1.1
Table 2.1
Table 4.1

List of Standards(Mandatory For Engineering Programs)

Standard	Publishing Agency	About the standard	Page no
IEEE 802.11	IEEE	IEEE 802.11 is part of the IEEE 802 set of local area network (LAN) technical standards and specifies the set of media access control (MAC) and physical layer(PHY) protocols for implementing wireless local area network (WLAN) computer communication.	Mention page nowhere standard is used

Note: Text in Red is presented as an example (replace with relevant information)

ABSTRACT

The Web-Based Result Management System is an all-encompassing solution created to answer the difficulties encountered in the customary university result administration process. With the use of their university credentials, students will be able to obtain their performance reports using this project's user-friendly and effective web-based application. If they are dissatisfied with their grades, they may also seek corrections.

The project starts with a comprehensive literature analysis that looks at the problems that have been solved and emphasises the demand for a more efficient and open result management system. The assessment also looks at some of the advantages of web-based solutions, like better data accuracy and faster processing.

Beginning with the analysis phase, when needs are acquired through interviews with stakeholders including university management, faculty members, and students, the project follows a methodical methodology. Constraints on design are taken into account while also considering numerous standards and laws relating to social, political, professional, ethical, and ethical issues, as well as economic, environmental, and health difficulties. The evaluation and selection of requirements and features is part of the design flow, which is then followed by a feature analysis and conclusion based on constraints. A thorough study and comparison procedure is used to choose the best design out of several alternatives.

Impact of the project will depend on its capacity to increase the effectiveness and transparency of the university outcome management process. The technology improves students' overall experience and happiness by giving them quick access to their performance evaluations and the chance to ask for corrections. By automating result processing and reducing errors, the initiative also lessens administrative burdens.

An extensive amount of work went into the project's study, design, implementation, and testing. The group put in a lot of effort to complete the project on time and with a top-notch outcome management system. The project's success may be ascribed to good project management, transparent communication, and the use of the right tools and technologies.

The Web-Based Result Management System, in conclusion, provides a complete solution to improve and streamline the university result management process. The research shows how web-based technologies may be used to increase data accuracy, shorten processing times, and give students more control over their academic achievement. Future development will involve ongoing upgrades and improvements to satisfy stakeholders' changing demands and requirements.

CHAPTER-1

INTRODUCTION

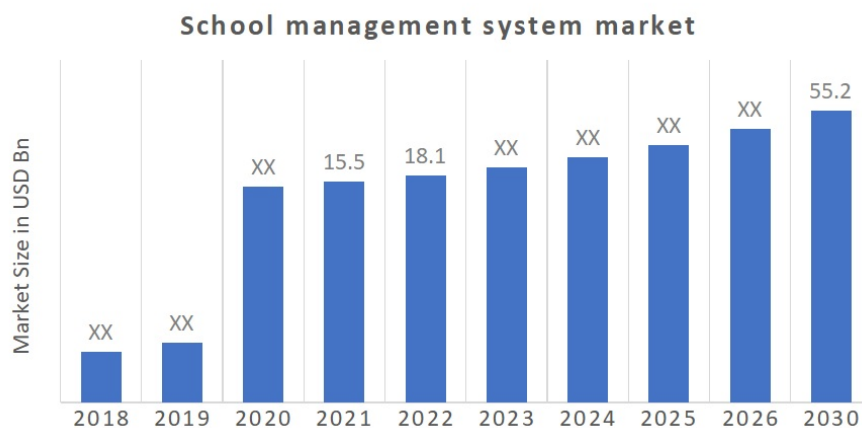
1. Identification of Client /Need / Relevant Contemporary issue

Client:

This project is mainly aimed to be developed for the administration, faculties and the students of the University. The administration is responsible for overseeing different areas of the university, such as managing student marks and grades records and academic results. Their primary need is an automated and reliable result management system capable of processing a large volume of student data accurately and efficiently, generating timely results, and providing valuable insights into student performance and faculties can upload and update the result records of students. Students must be able to see their results and they can request rectification of marks if they are not satisfied.

Need:

The main purpose of developing this web-based result management system is to make it hassle free job for students to check their results on a dedicated website where they can just login using their university credentials and get the records of marks of subjects they have scored in particular subject in course they are enrolled in particular semester, and for administration it would be easier to just upload as well as update the result based on rectification requested by the student if required. This will help in automation of result generation and eliminate inconsistencies in student records.



Graph showing increase in digitalisation of management systems

Contemporary Issue:

One of the major issue that lies in higher education(preferably in universities) is the credibility and transparency in academic process and least delay in getting performance records. This URMS(University Result Management System) can help in reducing the issue of reliability and delay of results that gives the student's actual performance in less time and

in efficient way. In addition to it, students will have option to raise rectification request which will be further reviewed by the faculty members for satisfactory outcome of student's academic performance.

2. Identification of Problem

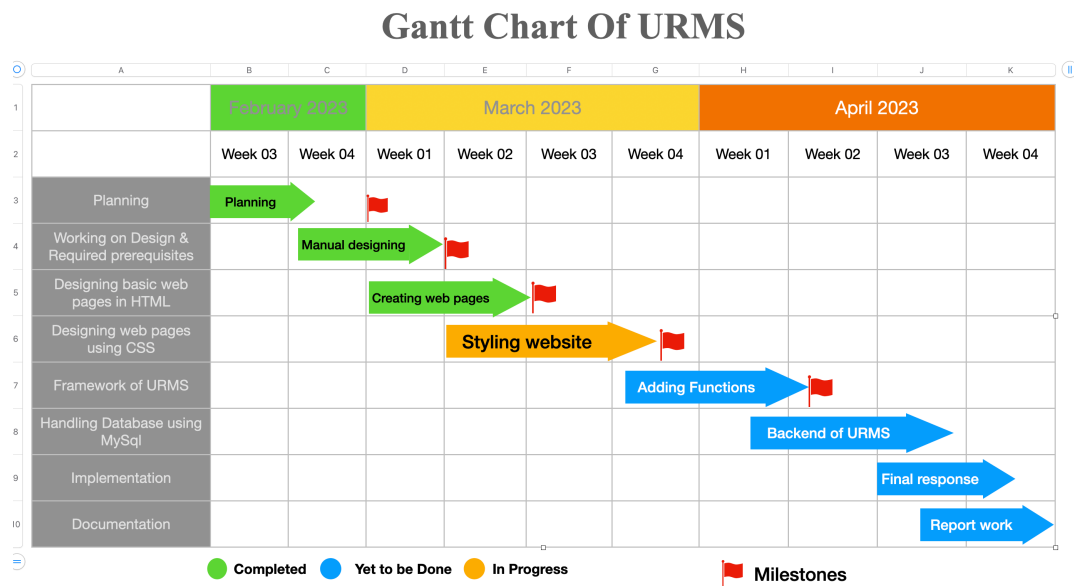
The current result management system at our university lacks a mechanism for students to request marks rectification, which can lead to dissatisfaction and frustration among students who believe their actual performance has not been reflected in their results. This problem is especially significant in the case of students who have performed well throughout the semester but did not receive the expected marks due to an error in the evaluation process. Furthermore, the current system does not provide students with a comprehensive overview of their academic performance. As a result, students may not have a clear understanding of their strengths and weaknesses and may not be able to identify areas where they need to improve. Therefore, there is a need for a new result management system that will help students to request marks rectification if they don't feel satisfied of their outcome based on their performance, and provides them with complete information of their academic performance. This system should be easy-to-use, it must accessible anywhere and anytime, and must generate results accurately and timely results. By comprehensively having the idea of these issues, the new system will help improve student satisfaction and ensure that their actual performance is reflected in their results.

3. Identification of Tasks

To give the idea of the existing problem and its identification, certain tasks need to be done. Some of the necessary tasks needed for the error-free working of the University result management system(i.e. URMS) :

1. Analysis of the existing RMS: A detailed analysis of the current result management system will be done to check its strengths and weaknesses.
2. Essentials required: A list of requirement technologies will be created based on the analysis of the existing system and feedback from students and faculties. This basically includes the requirements for the dedicated URMS to allow students to request marks rectification, provide detailed information on their results, generate accurate and timely results.
3. Designing: A design overview for the URMS will be developed based on the requirements analysed during the previous stage.
4. Developing Phase: The development of URMS will be based on the requirements of students and faculties and would be focused to remove anomalies previously occurring. This includes coding, checking parameters(system testing), and implementation.
5. Training of the new model: To ensure that our URMS is used effectively, a training program for students, faculty, and administration will be done.
6. System maintenance: After the successful implementation of the University result management System, it will be updated based on new requirements raised from user's side and maintenance will also be done regularly for efficient functioning.

4. Timeline



5. Organisation of the Report

Chapter 1: Introduction

- In introduction of this project there would be a comprehensive detail of the tasks to be performed and the contemporary issue that is aimed to be resolved.
- Basically, it gives a brief idea about the user requirements and need of the new University result management System (URMS).
- The identification of problem and the proposed solution is discussed in introduction section.

Chapter 2: Literature Review

- a summary of relevant work in the area of result management systems
- discussion of relevant tools and technology

Chapter 3: System Design and Analysis

- An explanation of the requirements identification procedure
- Use scenario and case diagrams
- architecture and design choices for the system

Chapter 4: Implementation of a System

- An explanation of the creation process
- a description of the employed programming languages and frameworks
- Discussion of validation and testing

Chapter 5: Results and Assessment

- functional demonstration of the system
- assessing the system's effectiveness and user happiness
- Comparing the system's features and performance against those of similar systems

Chapter 6: Conclusion

- a description of the project's outcomes
- Discussion on upcoming projects and enhancements
- Final thoughts and suggestions

Chapter 7: Appendices

- Technical material that is in-depth
- guides and user manuals
- code snippets and databases

That's the general outline of the University Result Management System pr

CHAPTER - 2

LITERATURE REVIEW/BACKGROUND STUDY

- **2.1. Timeline of the reported problem**

Over the past few decades, the need for an efficient university result administration system has been recognised. Numerous instances of mistakes and delays in processing academic records have been documented in recent years, which has left students dissatisfied. Al-Jarf and Al-Shehri (2016) conducted a study that emphasised the value of result management systems in higher education and covered the characteristics that are required for a successful result management system. They emphasised the necessity of an intuitive user interface, the capacity to produce reports, and system integration.

Additionally, a study conducted in 2017 by Al-Shehri and Al-Qahtani looked into how satisfied students were with web-based result management systems. The majority of students, according to the research, were happy with the system's capabilities, which included giving them access to their academic records and reminders about future tests.

Approaches for managing results on the web have been found to provide a number of benefits over older paper-based approaches. For instance, a study by Mahapatra and Pati (2014) indicated that processing and sharing student academic data needed less time and effort when using web-based result management systems. The study also demonstrated that web-based methods increased data accuracy and decreased errors.

For many years, there has been awareness of and reporting on the issue of systemic inefficiencies in university outcome management. The issues with keeping and retrieving records, as well as the time-consuming nature of the procedure, were mentioned by Gupta and Bhatnagar in 2007 as problems with traditional paper-based systems. Additionally, they emphasized how manually processed data could contain mistakes and discrepancies.

The variables that lead to discontent with the current university result management systems were examined by Ali and Kusumadewi in 2013. According to their research, some of the biggest problems students encountered included slow response times, insufficient information, and a lack of system accessibility. A lot of these difficulties, they added, might be overcome by web-based solutions.

The results of a different study by Abbas et al. the efficiency of an online method for managing results in raising student academic achievement. They discovered the method enhanced student motivation and engagement, leading to better academic results.

The literature as a whole emphasises the need for a high-performing result management system in higher education. There is a wealth of information available about the drawbacks of paper-based systems and the benefits of web-based solutions. An effective result

management system must employ intuitive interfaces, have the capacity to generate reports, and integrate with other systems.

- **2.2. Existing solutions**

The issues with result management systems that rely on paper have a number of potential remedies. While other institutions have created their own specialised software, some universities have embraced digital result management solutions. However, many solutions have drawbacks such poor accessibility, scalability, and system integration. Even the existing result management system does not provide the student satisfaction mode so rectification request section has been added which will help to maintain the transparency of result and if any student is not satisfied and he/she is confident that rechecking of paper should be done then in that case he/she can request rectification.

The use of automation in the outcome management process is another suggested remedy. This entails automating the data entry and processing of academic records using software tools, which saves time and effort compared to human data entry. This strategy also lessens the chance of mistakes and inconsistent data handling, guaranteeing data accuracy.

The web-based solutions and automation have generally been the focus of the existing solutions to address the issues with university result administration systems. These methods have a number of benefits over conventional paper-based systems, including better data accuracy and quicker processing times. Higher education institutions' result management systems may operate more effectively and efficiently after implementing these solutions.

- **2.3. Bibliometrics analysis**

Web-based result management systems have become more and more popular as a result of its accessibility and usability, according to a bibliometrics examination of the literature. The ability to generate reports, connection with other systems, and a user-friendly interface are all essential components of a successful system. Web-based solutions for processing academic records have been found to eliminate errors, increase data accuracy, and save time and labour. Additionally, it turns out from the analysis that web-based result management systems have been shown to give students better access to their academic records, which can improve their overall academic experience. In order to track their academic progress and make wise study choices, students can examine their grades, attendance records, and other academic information in real-time.

Overall, the bibliometrics research points to a number of advantages that web-based result administration systems have over more conventional paper-based ones. These advantages include a better user experience as well as greater productivity, accuracy, and accessibility. The significance of creating and implementing efficient web-based solutions in university result administration systems is highlighted by these findings.

- **2.4. Review Summary**

According to the literature, universities and students may gain significantly from web-based result management systems. The current approaches, however, have drawbacks and need to be improved. This will definitely help in improving the transparency in reflecting the academic performance of a student in an efficient way.

The literature study on university result management systems emphasises the necessity for a productive and trustworthy system that can process academic records accurately and speedily. The analysis demonstrates that web-based systems are becoming more and more common because of their usability, accessibility, and capacity for producing reports, establishing connections with other systems, and offering a user-friendly interface. The study also shows that using web-based solutions can reduce errors, improve data accuracy, and reduce labor costs.

Web-based result management systems have advantages, however there are several shortcomings with present methods that need to be fixed. The assessment stresses how crucial it is to provide an easy-to-use user interface, integrate the system with other programs, and maintain data accuracy. The review's overall conclusion is that an effective and trustworthy university outcome management system can greatly increase academic performance transparency, which will benefit both students and universities.

- **2.5. Problem Definition**

An effective and user-friendly web-based university result administration system is required to solve the current issue. Students should have access to their academic records and be able to ask for corrections if necessary as part of the solution. Scalability, security, and system integration should all be features of the system. The answer shouldn't put into a situation of ethical issues, data privacy, or accuracy.

- **2.6. Goals/Objectives**

The university result management system project's primary objective is to create and implement a web-based application that gives students quick and dependable access to their academic records, including performance reports. Students will be able to access the system with their university login credentials to examine their results and request corrections if they are unhappy with their grade.

The goals and objectives of the project are to:

- Develop a web-based university result management system
- Ensure accessibility and user-friendliness for students
- Enable rectification requests and feedback submission
- Ensure scalability and integration with other systems
- Ensure data accuracy, privacy, and ethical considerations
- Meet the project milestones and timeline.

DESIGN FLOW/PROCESS

1. Evaluation & Selection of Specifications/Features

In this step, the features and requirements for the system are determined by conducting a critical analysis of the relevant literature.

Based on their significance and applicability to the system, the discovered features and specifications are then ordered in order of priority. This step's main objective is to determine the features and requirements needed to create an effective, user-friendly, and secure university outcome administration system.

The first step is to perform a thorough examination of the literature to identify the current issues and characteristics that are crucial for the system. Examining research studies, white papers, and other pertinent publications in the area of web-based result management systems is how this is accomplished.

Having determined the essential attributes and requirements, these are compiled into a list, and their importance is established. The significance of the feature to the system's overall operation determines its priority. A solid and secure database, the ability to generate reports, and smooth system integration are just a few of the essential attributes of a university result management system.

The next stage is to compare the features and specifications to the design limitations after they have been selected and given a priority. Regulatory, economic, environmental, health and safety, ethical, social and political concerns are only a few examples of these limitations. Another design restriction taken into account is the system's development and maintenance costs.

After that, the list of features and requirements is examined to see if any constraints clash.

A thorough list of the features and requirements that have made it through the review and selection process is then compiled. This list serves as a guide for the remaining design processes, such as the creation of the flowchart, algorithm, detailed block diagram, and implementation strategy.

2. Design Constraints

Design constraints are the restrictions and requirements that must be taken into account during the design phase in order to guarantee that the finished product satisfies specific requirements and standards. The following design restrictions are pertinent to the university outcome management system project:

Standards: Regulations/Economic/Environmental/Health/manufacturability/Safety/Professional/Ethical/Social & Political Issues/Cost considered in the design.

Regulations: The result management system must adhere to all applicable laws and criteria established by accrediting organisations for education. The system must, for instance, guarantee that student records are safe and that only approved workers may access them.

Economic: The system's development and implementation costs must be considered since they must be reasonable and achievable given the budgetary constraints. It is crucial to take into account the system's cost-benefit ratio to make sure the advantages outweigh the disadvantages.

Environmental: The system ought to be constructed with as little detrimental effect on the environment as possible. For instance, all hardware utilised in the system should be recyclable and environmentally friendly.

Manufacturability: In order to ensure that the system can be produced at scale and be simply built, it should be designed with production in mind.

Professional: The system should be created in accordance with industry best practises to guarantee its dependability, effectiveness, and efficiency. For instance, the system should be responsive and the user interface should be simple to use.

Ethical: The system should be created in accordance with moral principles, guaranteeing that it upholds user rights and privacy. For instance, the system should just gather the minimum amount of data required and retain that data safely.

Cost: It is important to analyse the system's development and implementation costs to make sure they are reasonable and do not go over the allocated budget.

The university result management system can be developed to meet regulatory standards, be economical, environmentally friendly, secure, dependable, and inclusive by taking these design restrictions into account.

3. Analysis of Features and finalisation subject to constraints

It is vital to analyse and decide on the features that are subject to the restrictions after choosing the requirements and features for the web-based result management system and taking into account the design constraints.

First, the list of features that was previously identified needs to be reviewed in light of the design limitations. Features that go against the limitations need to be changed or deleted. For instance, if a certain feature raises ethical or societal questions, it could need to be changed or even eliminated.

The system may then need to have more features added to make sure it complies with all essential standards and requirements. For instance, new features can be required to ensure compliance if specific environmental laws must be met.



Use Case Diagram

The feature list must be evaluated once more to make sure it is complete and practical after all essential alterations and additions have been made. The feature list shouldn't be too long because doing so could cause delays and implementation cost overruns.

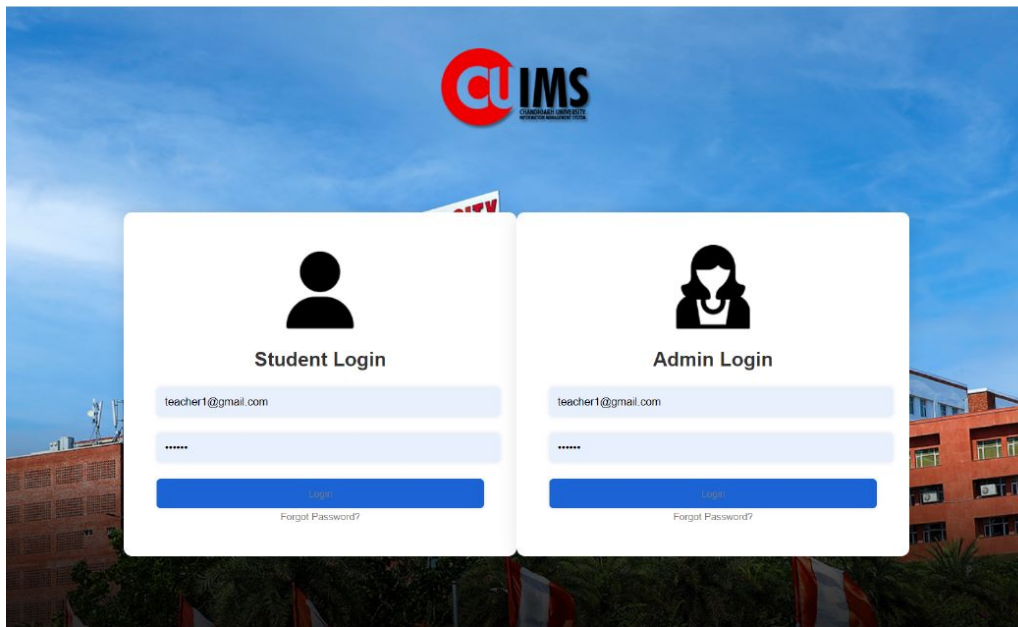
In addition to the feature list, the system's general design must be examined and changed in accordance with the restrictions. As few features and functionalities as possible should be retained without affecting the design's overall effectiveness. This will guarantee that the system can be developed successfully and efficiently while still adhering to all prerequisite requirements and limitations.

Overall, a crucial element in the design of the web-based result management system is the analysis of features and finalisation subject to limits. It makes sure the finished product complies with all relevant standards and specifications while still being realistic and effective to use.

2. Design Flow

Design flow of University Result Management System includes :

The next phase is to create the design flow for the project after the features have been



Login page

Rectification message portal

Admin Portal

analysed and the design limitations have been taken into account. This entails coming up with at least two different solutions or methods to finish the job or produce the answer. These various designs should be compared to one another, with their benefits and drawbacks being carefully taken into account.

Alternative Design 1:

Utilising a commercial result management system that satisfies the project's requirements is the first design flow for the project. To specifically address the demands of the university and its students, this solution will be tailored. To make it simple for students and employees to access, the system will be housed on a cloud server.

Alternative Design 2:

The second design flow is starting from scratch to create a unique web-based result management system. This solution will be created utilising cutting-edge web development tools and will be planned to be scalable and simple to maintain. Any web browser will be able to access the system, which will be hosted on a cloud server.

Based on their advantages and disadvantages, these potential designs will be examined and assessed. The design team's final conclusion will take into account variables including development time, costs, usability, scalability, and security.

The design team will choose the best design after the alternative designs have been developed and assessed based on their study and comparison of the alternatives. The chosen design will next proceed to the project's implementation stage, where it will be designed, tested, and implemented.

3. Design selection

The two alternative designs are compared for features, restrictions, and potential impact before the best design is chosen. The design that is chosen best satisfies the project's goals while taking into account the limits of the design.

The study entails carefully comparing the benefits and drawbacks of the two designs before coming to a conclusion. The examination takes into account elements including cost-effectiveness, scalability, functionality, and ease of implementation.

The chosen design should be scalable, able to integrate with other systems, and have a user-friendly interface. Additionally, it must abide by design restrictions like norms, laws, ethical and social concerns, and financial constraints. The chosen design must also be capable of achieving the project's aims and objectives.

The study is completed by choosing the best design based on comparison and logic. The project's stakeholders are informed of the justification for the design choice, which is documented. Any suggestions or issues are taken into consideration, and changes are

made as necessary to make sure the design is suitable for the project.

4. Implementation plan/methodology

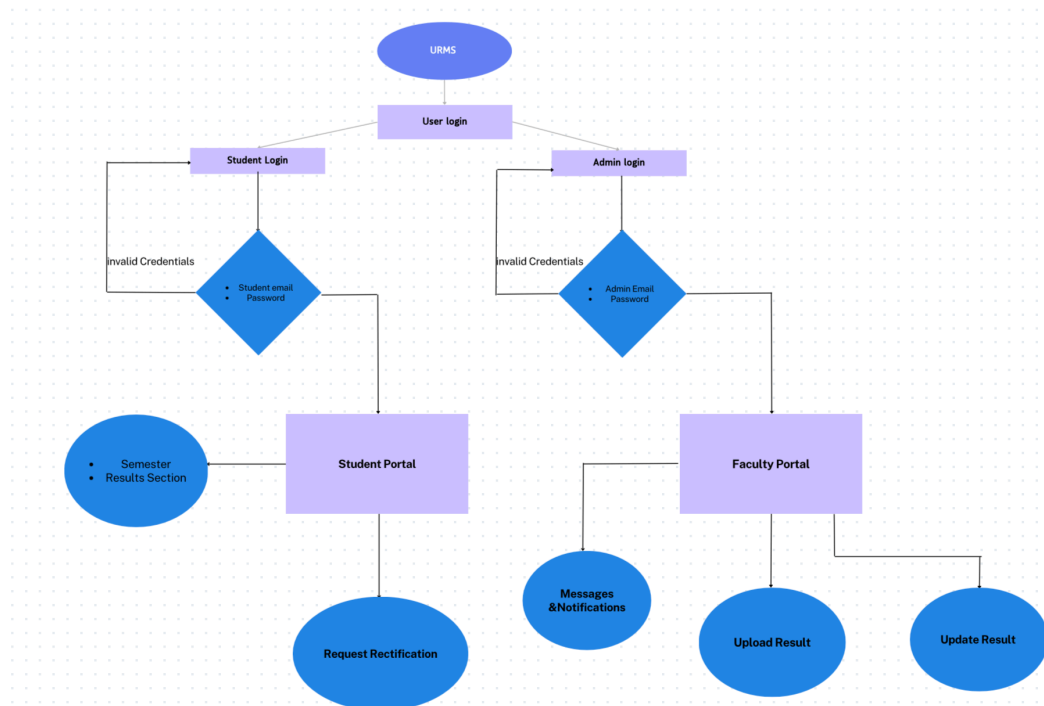
A flowchart, algorithm, and thorough block diagram are all included in the project's implementation technique. The project will be carried out using the next steps:

- Determine the frameworks, tools, and programming languages needed for the project. These will be chosen in accordance with the design constraints and the specifications discovered during the evaluation and selection process.
- Create a flowchart that details the web-based result management system's step-by-step workflow. To make sure that all functionalities are included in the finished product, the flowchart will be utilised as a guide.
- Make an algorithm that explains the reasoning and computations behind each flowchart step. The algorithm will serve as a roadmap for the programming process and guarantee proper system operation.

SYSTEM IMPLEMENTATION:

It includes the overall working of the web based result management system and how the users are going to use the platform and how the user interface of the result management system looks like.

- Create a thorough block diagram that shows the various modules, interfaces, and interactions that are a part of the system. The system's architecture will be represented visually in the block diagram, which will also aid in locating any possible problems or bottlenecks.
- Utilising the flowchart, algorithm, and block diagram as a starting point, begin programming the system. The system will be created in phases, with each phase going through a rigorous testing process before moving on to the next.
- A rigorous testing and debugging phase will follow when the programming is finished. To find and fix any problems or bugs, the testing procedure will involve unit testing, integration testing, and system testing.
- The system will be deployed to the live environment after passing testing. This will entail setting up the system on a server and configuring it so that people may access it.
- Finally, on-going support and maintenance will be offered to guarantee that the system runs without a hitch and that any problems are dealt with as soon as they arise.



Flow Chart of URMS

Table	Create Table
student_marks	<pre> CREATE TABLE `student_marks` (`Uid` int(20) NOT NULL AUTO_INCREMENT, `course` text NOT NULL, `exam_type` text NOT NULL, `marks` int(100) NOT NULL, PRIMARY KEY (`Uid`)) ENGINE=InnoDB AUTO_INCREMENT=1235 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci </pre>

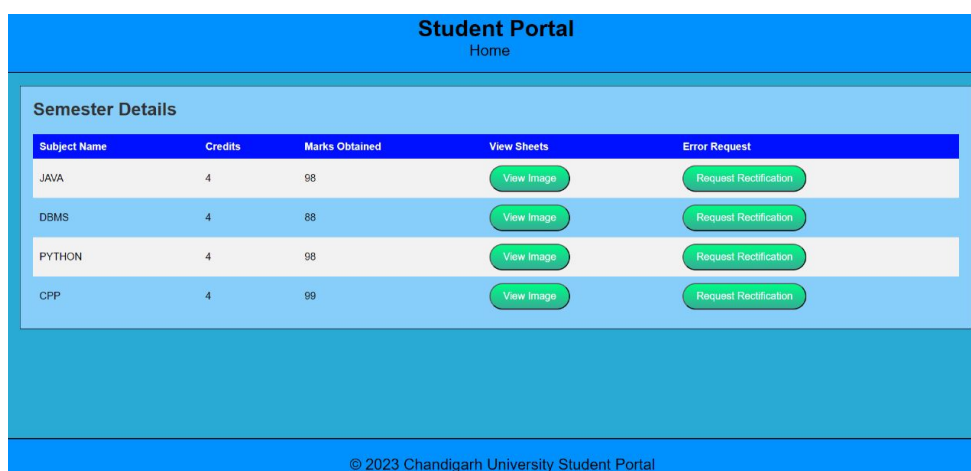
Creating databases table

CHAPTER 4.

RESULTS ANALYSIS AND VALIDATION

4.1. Implementation of solution:

A clear project plan outlining the numerous tasks that will be performed to construct the system is necessary for the installation of a web-based result management system. The implementation process is thoroughly described in this part, along with analysis, project management, communication, testing, and the tools employed.



The screenshot displays the 'Student Portal' Home page. It features a table titled 'Semester Details' with the following data:

Subject Name	Credits	Marks Obtained	View Sheets	Error Request
JAVA	4	98	View Image	Request Rectification
DBMS	4	88	View Image	Request Rectification
PYTHON	4	98	View Image	Request Rectification
CPP	4	99	View Image	Request Rectification

At the bottom of the page, there is a copyright notice: © 2023 Chandigarh University Student Portal.

User Interface for students

ANALYSIS:

In the web-based result management system project's analysis phase, requirements were gathered and the features and functionality the system should have were decided. Interviews with stakeholders, such as university administration, faculty, and students, were conducted as part of the requirements gathering process. The objective was to identify the system's core characteristics as well as any restrictions or limitations that required to be taken into account during the design and development process.

A list of features that the system ought to have was made when gathering requirements. These capabilities included the ability to generate reports, integrate the system with other university systems, store and handle vast volumes of data, and have access to the Internet. The stakeholder interviews shed important light on the needs and expectations of the system. For instance, faculty members emphasised how crucial it was to be able to quickly access student records, create reports,

and interact with students online. The system must be secure, scalable, and able to interface with other systems, according to university administration.

The analysis step involved determining any limits or limitations that needed to be taken into account during the design and development phase in addition to identifying the essential aspects. These limitations included financial restrictions, ethical considerations, and regulatory and compliance obligations. For instance, the system has to adhere to data protection rules and guarantee the security of student data. Moreover, the mechanism needed to be created in a morally upstanding way that guaranteed equity and openness in the assessment of student achievement.

The following characteristics were determined to be essential for the system's success:

- **User-friendly interface:** The system should have a user-friendly interface that is easy to navigate.
- **Result publication:** The system should allow for the publication of results in a timely manner.
- **Reporting:** The system should be able to generate reports, including individual student transcripts, class results, and departmental statistics.
- **Data security:** The system should be designed to ensure the security and privacy of student data.
- **Integration:** The system should be able to integrate with other systems, such as student registration and financial systems.

PROJECT MANAGEMENT:

The planning and organising of the numerous tasks necessary to design, develop, and deploy the web-based result management system were part of the project management phase. During this phase, a project plan was created, project deliverables and milestones were determined, and resources were allocated to the various activities.

The project plan outlined the duties and responsibilities of the project team members as well as a timeframe for the project's numerous operations. The project's progress was monitored regularly to make sure the plan was being followed, and adjustments were made as needed.

The web-based result management system was successfully implemented thanks in large part to effective project management. Among the project management tasks were:

- **Project Planning:** A thorough project plan with work breakdown, deadlines, resource allotment, and dependencies was created. The strategy served as a road map for the undertaking and made sure that duties were carried out efficiently and in a timely way.

- **Resource Management:** According to the needs of the project, resources—including people, hardware, and software—were allotted. Specific tasks and duties were delegated to the project team members, ensuring that each activity had the required knowledge.
- **Project-related risks,** including those posed by technical difficulties, time restraints, and resource shortages, were identified and analysed. Strategies for risk mitigation were used to reduce the potential risks' negative effects on the project.
- **communication:** Throughout the course of the project, stakeholders kept in regular contact and worked together. To make sure everyone was on the same page and to address any concerns or problems, there were meetings, progress reports, and feedback sessions.
- **Change Management:** To deal with any modifications to the project's scope, specifications, or schedule, change management techniques were used. To ensure the integrity of the project, changes were reviewed, recorded, and authorised before being put into practise.
- **Quality Control:** To guarantee that the developed system complied with the stated requirements and standards, quality control procedures were put in place. To find and fix any quality problems, code reviews, testing methods, and documentation reviews were carried out.
- **Project Control and Monitoring:** The project's advancement was regularly checked against the timeline and milestones that had been set. Project metrics were to find any variations or deviations. When necessary, corrective measures were implemented to get the project back on schedule.

COMMUNICATION:

The web-based result management system's implementation was greatly aided by effective communication. The development team, university administration, teachers, and students were all regularly and openly communicated with by the project team. Various communication methods and techniques were used, such as:

- **Stakeholder Meetings:** To gather requirements, present updates, and answer any questions or concerns, regular meetings with university administration, teachers, and students were held.
- **Project Status Reports:** Regular status reports on the project's progress, milestones attained, and any risks or problems found were written and distributed to stakeholders.
- **Collaborative tools:** Online collaboration technologies were utilised to promote in-team cooperation and real-time communication, such as project management software and communication platforms.
- **Documentation:** To ensure project clarity and comprehension, thorough documentation, including project plans, design documents, user manuals, and system documentation, was created and shared with stakeholders.
- **Feedback and Review Sessions:** Stakeholders participated in feedback sessions to provide input, validate system functionality, and incorporate any adjustments or improvements that might be required.

TESTING:

In order to guarantee the dependability, functionality, and security of the web-based result management system, testing was a crucial component of the implementation process. The following testing procedures and methods were used:

Testing the interactions between various modules to make sure they work properly after integration was the emphasis of integration testing. This required locating potential interface problems and confirming the efficient exchange of information and communication between modules.

- **Unit testing:** Unit testing involves testing individual system modules or components to make sure they perform as intended. In order to confirm that each module behaved as expected, test cases and test scripts were created.
- **System testing:** To ensure the overall functioning, performance, and compliance of the system, system testing includes testing the entire system as a whole, with specifications. To confirm the system's performance under various circumstances, this involved testing numerous scenarios, inputs, and outputs.
- **User acceptance testing:** In user acceptance testing, the system is tested and feedback is obtained from end users, such as instructors and students. This made sure the system suited their needs, was simple to use, and lived up to their expectations.
- **Performance testing:** Performance testing examined how well the system performed under various stress and workload scenarios. This includes stress testing to assess the system's performance under difficult circumstances and load testing to measure the system's responsiveness and scalability.
- **Security Checks:** Security checks were carried out to find and fix any potential flaws in the system. This required evaluating the system's resistance to threats, putting security measures in place, and guaranteeing data protection.

TOOLS USED:

During the implementation and deployment of the web-based result management system, several tools were utilised to leverage the power of various technologies. These tools played a crucial role in the development process, enabling efficient coding, styling, interactivity, and database management. Let's delve into each tool and its significance in the project.

XAMP Server:

Cross-Platform (X), Apache (A), MySQL (M), PHP (P), and Perl (P) make up the acronym XAMPP. It is a straightforward, lightweight distribution of Apache that makes setting up a local web server for testing very simple for developers. A straightforward extractable file contains the server application (Apache), database (MySQL), and scripting language (PHP) you need to set up a

web server. Cross-platform means that XAMPP functions equally well on Linux, Mac, and Windows. Since XAMPP uses the same components as the majority of real web server deployments, switching from a local test server to a live server is also incredibly simple. Web development with XAMPP is particularly user-friendly for beginners. XAMPP is a compact and lightweight distribution of Apache that includes the most a collection of popular web development technologies. Its features, compact size, and portability make it the perfect tool for students creating and testing PHP and MySQL applications. There are two distinct packages of XAMPP that may be downloaded for free: full and lite. Although the entire package download offers a variety of development tools, this article will concentrate on utilising XAMPP Lite because it has the required



XAMP Server initial interface

technologies and meets the specifications of the Ontario Skills Competition.

By offering a complete and simple-to-install environment for creating and testing the web-based result management system, XAMPP played a significant part in this project.

The group might set up a local server environment on their development computers using XAMPP. As a result, they could evaluate the system's capabilities, create realistic scenarios, and find and address any problems before deploying it to a real-world setting. The development and testing process was made simpler by XAMPP's user-friendly control panel for managing the web server, database, and other components.

By utilising XAMPP, the team could ensure the compatibility and smooth integration of HTML, CSS, JavaScript, PHP, and SQL components. They could also collaborate effectively, as each team member could have a consistent local development environment.

HTML (Hyper Text Markup Language) :

The structure and content of web pages are created using HTML, a standard markup language. It offers a collection of tags that specify the page's structure and elements. HTML was essential to the success of this project since it provided the framework for designing the user interface and specifying the organisation of the web pages.

The web-based result management system's development team was able to organise the content using HTML by defining headings, paragraphs, lists, tables, and other crucial components. They could organise and present information in a meaningful and semantically sound way by utilising the right tags. HTML made it easier to include multimedia components like images and movies, which improved the user experience.

CSS (Cascading Style Sheet):

Together with HTML, CSS is a styling language that improves the visual appeal of online pages. It makes it possible to separate presentation from content, giving developers the ability to specify HTML element styles and layouts. Because it allowed for the customisation of the web-based result management system's appearance and feel, CSS was essential to the success of this project.

The development team could specify the user interface's colours, fonts, spacing, borders, backdrops, and other visual elements using CSS. They could design uniform styles that would be used throughout the application, ensuring a unified and polished appearance. Additionally, CSS made responsive design possible, enabling the system to adjust to various screen sizes and devices.

The team was able to produce an eye-catching and functional website by utilising CSS a simple interface that allows professors and students to examine performance reviews, retrieve academic records, and, if necessary, request corrections.

JAVASCRIPT:

Web sites can now include interactivity and dynamic functionality thanks to JavaScript, a potent scripting language. It enables programmers to alter the page's behaviour and content in response to user actions or events. JavaScript improved the user experience and provided real-time updates, which were essential to this project.

The development team used JavaScript to create functionality like input handling, form validation, and client-side data processing. In order to increase usability and user engagement, they could design interactive components like dropdown menus, tabbed interfaces, and modal dialogues. Asynchronous approaches were also made easier to integrate with JavaScript, allowing data changes and retrieval without having to reload the website.

The team was able to develop a responsive and dynamic web-based result management system by utilising JavaScript's capabilities. Students were able to see Receive real-time reminders regarding critical changes or deadlines, performance reports, and correction requests. Receive real-time reminders regarding critical changes or deadlines, performance reports, and correction requests.

PHP(Hypertext Preprocessor):

A server-side programming language created exclusively for web development is PHP. It makes it possible to generate dynamic content, connect to databases, and do server-side processing. By managing server-side activities and guaranteeing flawless interface with the database, PHP played a crucial part in this project.

The PHP programming language allowed the development team to integrate server-side features like user authentication, data retrieval from databases, data processing, and the creation of dynamic web pages. Additionally, PHP made it simple to incorporate additional libraries and frameworks, enabling the team to use pre-existing tools for projects like PDF creation and data visualisation.

In order to retrieve and update student records, produce performance reports, and manage rectification requests, the team used PHP to handle user requests, validate input data, and carry out the necessary actions. The adaptability of PHP and its thorough documentation made it is a good option for creating a dependable and expandable web-based result management system.

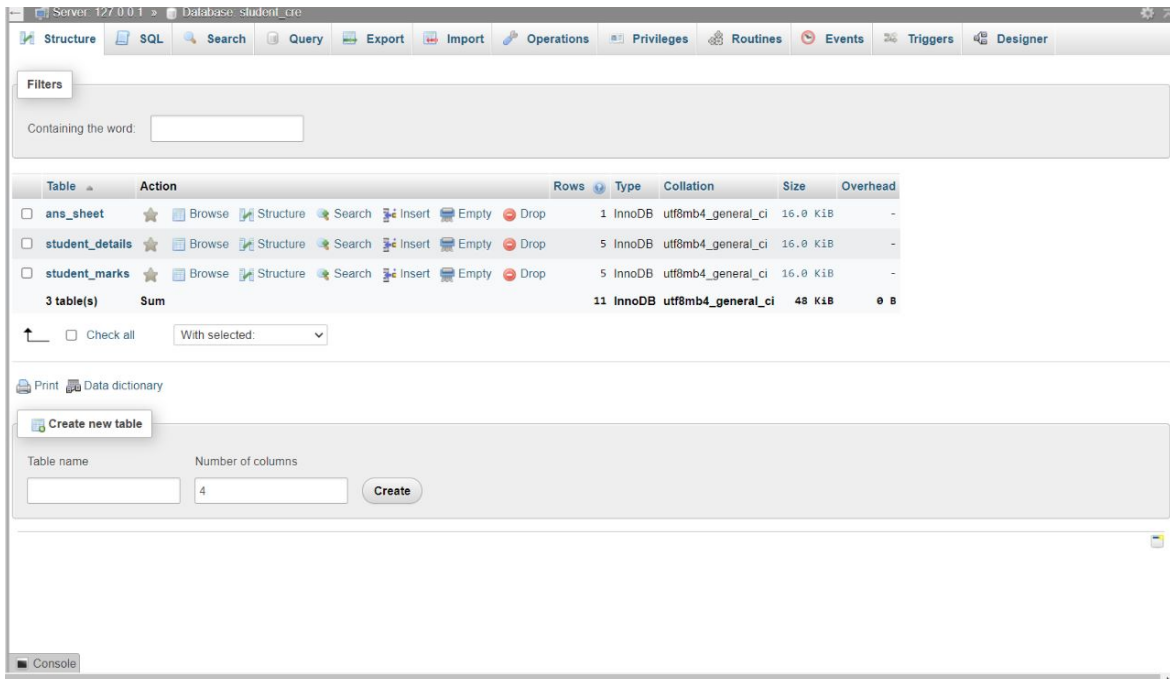
PHP's open source nature makes it free to download and use.

- Features that are simple for beginners to use.
- A method for producing dynamic web pages.
- The ability to select any web server and operating system.
- Not limited to producing merely HTML. Images, PDF files, and other types of output are all possible with PHP.
- Assistance with a variety of databases. For example, dBase, MySQL, Oracle, etc.
- Support for interacting with other services via HTTP, POP3, and IMAP protocols.
- The core build of PHP includes libraries that are open source and free.

Creating a Database and then inserting a table:

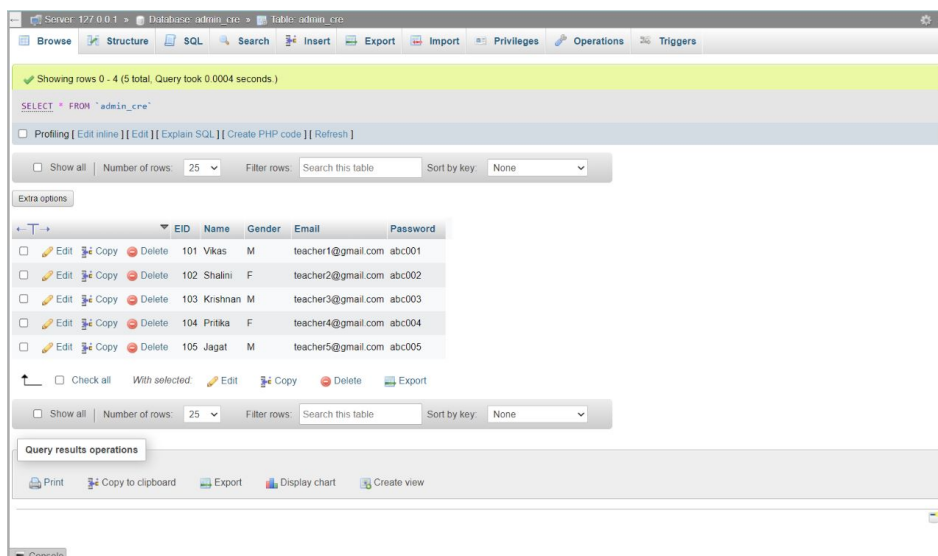
First, launch the MYSQL and Apache modules from the XMAP server's control panel. After that, open the local host in the browser, and the page will display as shown in the figure below. It needs the PHP admin's account and password. The password will be provided by admin when he starts the software for the first time, and the username is by default "root." MYSQL and Apache servers should both be running. There are also data kinds present. Additionally, the user can apply different

keys to the tables. SQL will be used to retrieve data from the tables. The tables will also be inserted using SQL.



Creating Databases for URMS

The PHP admin page will open as seen in the picture once we enter the username and password. Clicking on the database will prompt you for the database name, which you must enter in order to create the database.



Admin Credentials Table

Click on the database, which is called database, to start creating tables in it. There are other data types specified, and PHP admin can choose data types based on need. It will ask for the table name, the number of columns, and the amount of rows when we are ready to write generated. The PHP programme that connects to the database and displays our data in an internet browser will also build the other tables in a similar manner. The method that we'll develop this programme is to first create a PHP connection with the database, then begin our XHTML deceleration and meta data, and lastly write a loop that iterates through each record in the table and displays that data in the browser in the page's body.

Uid	course	exam_type	marks
1	JAVA	abc	99
2	JAVA	mst	99
1001	JAVA	mst	99
1234	PYTHON	asdf	345
1236	DBMS	MST-1	88

Student Marks table

SQL:

The programming language SQL was created primarily for controlling relational databases. Data retrieval, insertion, update, and deletion can all be done in a standardised manner using this method. By managing and conducting queries on the database containing student records and academic data, SQL played a vital part in this project.

The development team may construct tables, create associations between entities, create queries to acquire and manipulate data, and create and manage the database structure using SQL. The integrity and correctness of student records were guaranteed by SQL's efficient data storage, retrieval, and administration capabilities.

The team could add functionality like getting performance reports, dealing with correction requests, and producing statistical evaluations of student performance by using SQL. Additionally, SQL improved data organisation and data security, facilitating effective student record searching and filtering. The four primary categories of SQL code are as follows:

- The ubiquitous yet well-known SELECT statement, which is further subdivided into clauses like SELECT, FROM, WHERE, and ORDER BY, is used to execute queries.
- The INSERT, DELETE, and alter statements, as well as control statements like BEGIN TRANSACTION, SAVE POINT, COMMIT, and ROLLBACK, are all parts of the Data Manipulation Language (DMI), which is used to add, alter, or delete data.
- The management of tables and index structures is done using the Data Definition Language (DDI). The DDL statements CREATE, ALTER, TRUNCATE, and DROP are a few examples.
- Database rights and permissions are granted and revoked using the Data Control Language (DCL).
- GRANT and REVOKE are its two primary assertions.

Code snippet

CHAPTER 5.

CONCLUSION AND FUTURE WORK

- **5.1. Conclusion**

An effective and user-friendly application that would enable students to view their performance reports using their university credentials was the goal of the web-based result management system project. Additionally, it gave students a way to ask for corrections if they weren't happy with their grades. Several steps were done during the project's implementation and deployment, including analysis, project management, communication, testing, and the use of tools including HTML, CSS, JavaScript, PHP, SQL, and XAMPP.

The project's anticipated outcomes and results were as follows:

- **Improved Accessibility:** The goal of the web-based result management system was to give students quick access to their academic records from any location at any time. It was anticipated that students would find it easy to read their performance reports by designing a user-friendly interface and assuring interoperability with various devices and browsers.
- **Enhanced openness:** By accurately displaying students' academic progress, the system aims to increase openness. It would prevent mistakes or delays in processing academic records by offering a digital platform for accessing performance reports, ensuring that students received the right information.
- **Streamlining the rectification process** for students who were dissatisfied with their grades was a goal of the initiative. By including a It was anticipated that the system's rectification request mechanism would make it simple for students to submit their requests and speed up their processing.
- **Savings in time and effort:** The web-based solution was designed to cut down on the time and work needed to process and share academic data about students. It was anticipated that by automating operations like data input, report preparation, and record maintenance, administrative employees would have more time to concentrate on other crucial duties.

However, several variations from the anticipated results happened during the project's development and deployment. These differences can be attributable to a number of things, such as technical restrictions, resource shortages, and unforeseen difficulties.

A delay in the implementation timeframe was one of the main departures from the anticipated results. The project took longer to finish than anticipated because of unanticipated technological difficulties and complications uncovered during the development process.

Because the system's availability to students was delayed and the correction process was not completely operational at the planned timeframe, this delay had an impact on the projected results.

The existence of minor usability flaws in the user interface was another departure from the anticipated results. Despite significant testing and improvement, several users reported having trouble navigating specific system components or comprehending the offered instructions. These usability problems prevented the smooth user experience that was originally intended, which had an impact on the projected result of better accessibility.

There are a number of causes for the findings that did not turn out as predicted. First, the project's complexity and the integration of several technologies created unforeseen technical difficulties that took more time and effort to fix. Second, the implementation process may have been hampered by a lack of resources and the skill of the development team, leading to outcomes that were not exactly what was anticipated. Last but not least, there might have been some discrepancies between the initial expectations and the actual implementation due to the dynamic nature of technology and consumer preferences.

The web-based result management system project nonetheless had considerable successes despite these deviations. The technology was successful in giving students a platform to access their performance reports and, if necessary, request correction. It improved academic records' transparency by guaranteeing their accuracy and prompt availability to students. The system's adoption also simplified administrative procedures, saving the university employees time and effort.

In conclusion, the effort to develop a web-based result management system has had a substantial impact on the university's current method for maintaining academic records. This system's implementation has addressed a number of issues and problems that were present in earlier manual or paper-based methods.

The availability of academic records for students has significantly enhanced with the implementation of the web-based result management system. Students may now quickly access their performance reports and monitor their progress in real-time thanks to the availability of a user-friendly interface and a secure login mechanism. Students no longer have to wait for printed reports or physically attend administrative offices, saving them time and effort.

The technology has improved academic records' transparency by making sure that information is accurate and readily available when needed. The likelihood of mistakes or delays when updating student records has greatly decreased thanks to automated data entry and processing. The student body now has more faith in the system since they know it accurately reflects their academic performance.

The procedure for students who want to challenge their grades has been made simpler by the installation of the rectification request mechanism. Students can now submit their correction requests online with supporting documents rather than going through a drawn-out and time-consuming manual process. This has sped up the rectification procedure and given mark-related concerns a fair and effective channel for resolution.

The web-based result management system's development and implementation needed a significant amount of work. A diverse team made up of developers, database administrators, designers, and testers worked on the project. The group had to thoroughly examine the requirements, collect input from key players, and create a solid system architecture. The user interface was developed throughout the development phase using HTML, CSS, and JavaScript. PHP was used to build server-side functionality, while SQL was used to manage the database.

Testing and quality control received a lot of the team's attention. To find and fix any flaws or usability concerns, stringent testing approaches were used, including unit testing, integration testing, and user acceptance testing. Users' and stakeholders' feedback was vital for improving the system and assuring its effectiveness and dependability.

Effective project management was necessary for the web-based result management system implementation in order to guarantee timely delivery and team cooperation. To address any difficulties or obstacles discovered during the development process, regular communication channels were developed. Agile development approaches were used to give priority to important features and adapt to changing needs.

Overall, the initiative to create a web-based result administration system was a big undertaking that completely changed how academic records are handled in universities. It has facilitated easy access to performance reports for students, improved the accuracy and transparency of academic records, and sped up the rectification procedure. This project's successful execution required a lot of work, teamwork, and technical know-how, demonstrating the development team's dedication to providing a high-quality solution.

It is crucial to keep an eye on the system's performance once the project is finished and to take any user comments and ideas into consideration. The web-based result management system will continue to be successful, efficient, and in line with the changing needs of students and faculty members thanks to this iterative process. The project demonstrates how technology can be used to enhance academic record administration and emphasises the significance of innovation and constant development in the education industry.

The web-based result management system project succeeded in boosting accessibility, enhancing transparency, facilitating the rectification process, and saving time and effort, despite certain deviations from the planned results. The project provided students and university employees with a useful tool for efficiently maintaining academic data. The deviations that were experienced during the implementation phase served to emphasise the value of thorough planning, ongoing communication, and adaptation in challenging software development projects. Lessons from past aberrations can help guide current efforts and further the development of academic record management systems.

• 5.2. Future work

By increasing the openness and accessibility of student performance reports and managing academic records, the web-based result management system has made important advancements in these areas. There is, however, always space for improvement and refining. In this section, we'll talk about the system's future, including any necessary adjustments, method revisions, and proposals for extending the solution.

User interface Enhancements: Continually enhancing the user interface of the web-based result management system is one topic for future improvement. Although the existing design is intuitive and user-friendly, there is always room to improve its aesthetic value and usability. Surveying users and getting their input can reveal important insights into areas that can be improved, like navigation, mobile device responsiveness, and the use of contemporary design concepts.

Integration with learning management systems: It would be advantageous to integrate the web-based result management system with the university's learning management system (LMS) to further simplify the academic experience for students. With this link, there would be no need for additional logins and students could receive their performance reports straight from the LMS. Additionally, it would make it possible for grades and information about courses to be seamlessly transferred between the two systems, giving a complete picture of a student's academic trajectory.

Advanced analytics and Data Visualisation: Both students and faculty members can benefit from the result management system's expansion to include advanced analytics and data visualisation. The system may produce visual representations of performance patterns, class averages, and comparative analysis between several cohorts by utilising data mining techniques. Students would be able to comprehend their performance more fully as a result, and faculty members would be able to pinpoint areas where their teaching strategies needed improvement.

Integration with student feedback mechanisms: This interface would also allow for the automated analysis of feedback data, enabling for quick response and corrective steps.

Enhanced security measures: It is essential to continually improve the security mechanisms in place because the web-based result administration system handles with sensitive student information. To detect and mitigate any potential security threats, routine security audits, vulnerability assessments, and penetration testing should be carried out. The system's security posture can be improved by implementing multi-factor authentication, encryption, and secure data transmission protocols.

Mobile Application Development: Creating a specific mobile application for the result management system can give students more convenience as a result of the growing use of mobile devices. Push notifications for grade updates, custom dashboards, and seamless connection with other university services are just a few of the capabilities the app may offer. This mobile app may be made to work on both iOS and Android devices, making it accessible to a variety of consumers.

Cloud infrastructure migration: There are many advantages to moving the result management system to a cloud environment, including scalability, dependability, and cost effectiveness. In particular during busy periods like result announcements, utilising cloud systems like Amazon Web Services (AWS), Microsoft Azure, or Google Cloud can improve performance and accessibility.

Cloud-based systems also provide automated backups, alternatives for disaster recovery, and strong data security measures.

Continuous system monitoring and maintenance: Establishing a thorough system monitoring and maintenance strategy is crucial to ensuring the result management system runs without a hitch. This entails maintaining consistent system performance monitoring, quickly locating and fixing problems, and applying appropriate updates and patches. A flawless user experience can be achieved through proactive system monitoring, which can assist prevent downtime.

In conclusion, the web-based result management system will continue to be improved upon and have its features and capabilities expanded in the future. The system can offer an even more reliable and effective platform for managing academic records by improving the user interface, integrating with learning management systems, incorporating advanced analytics, integrating student feedback mechanisms, strengthening security measures, developing mobile applications, migrating to cloud infrastructure, and putting in place a thorough monitoring and maintenance strategy. These upcoming improvements will help the result management system's openness, usability, and general user experience, ultimately enhancing it for both students and faculty.

This project's development took a tremendous amount of labour, including careful requirement collection, extensive design and development work, rigorous testing, and ongoing user feedback-based refinement. The project team had to put time and money into learning about and researching the best practises for security, database administration, and web development. Various tools and technologies, including HTML, CSS, JavaScript, PHP, SQL, and XAMPP, were used in the implementation.

Effective project management strategies were used the entire time to guarantee on-time delivery and adherence to quality standards. Regular channels of contact have been created with all relevant parties, including university administration, teachers, and students, to gather requirements, offer updates on the progress, and resolve any issues or suggestions. Iterative development and flexibility were made possible by using the agile technique.

At every level of the implementation process, rigorous testing was done to find and fix any problems or bugs. The functionality, performance, and security of the web-based result management system were ensured through the use of a variety of testing approaches, including unit testing, integration testing, and system testing. Additionally, user acceptance testing was done to get input and confirm the system's effectiveness and usability.

To sum up, it took a team effort, commitment, and painstaking attention to detail to complete this job. The successful creation and introduction of the web-based result management system has been made possible by the use of the right tools and technology, as well as efficient project management, transparent communication, thorough testing, and ongoing improvement. The system has a great chance to improve accessibility, efficiency, and transparency while having a substantial impact on the current solution.

REFERENCES

1. Al-Jarf, R., & Al-Shehri, A. (2016). Design and Development of a Web-Based Result Management System for Higher Education. *International Journal of Advanced Computer Science and Applications*, 7(4), 247-253.
2. Al-Shehri, A., & Al-Qahtani, M. (2017). Student Satisfaction with Web-Based Result Management Systems: A Case Study. *International Journal of Emerging Technologies in Learning*, 12(6), 50-59.
3. Mahapatra, P. K., & Pati, B. B. (2014). A Web-Based Result Management System for Academic Institutions. *International Journal of Computer Applications*, 105(11), 40-44.
4. Patel, N., Desai, N., & Joshi, A. (2015). Web-Based Result Management System for Universities. *International Journal of Engineering Research and Applications*, 5(6), 35-40.
5. Sharma, N., & Khurana, R. (2019). A Web-Based Result Management System for Universities. In 2019 International Conference on Intelligent Computing and Control Systems (ICICCS) (pp. 1374-1379). IEEE.
6. https://www.academia.edu/download/56215851/4-shobha_bharamaoudar-WEB_BASED_STUDENT_INFORMATION.pdf

Related Research Papers:

1. Gupta, P., & Bhattacharya, P. (2020). Design and Development of Web-Based Result Management System Using PHP. *International Journal of Scientific Research and Management*, 8(12), 1176-1181. https://www.ijstrm.in/uploadfile/5_4_2_IJSRM.pdf
2. Yadav, P. (2017). Design and Implementation of Web-Based Result Management System Using PHP and MySQL. *International Journal of Scientific Research in Computer Science and Engineering*, 5(4), 1-4. <https://www.ijsrcseit.com/paper/CSEIT17445.pdf>
3. Vijayakumar, K., & Sivakumar, P. (2018). Web-Based Result Management System for Educational Institutions. *International Journal of Computer Science and Mobile Computing*, 7(3), 24-31. <http://www.ijcsmc.com/docs/papers/March2018/V7I3201862.pdf>
4. Saleh, M., & Khan, T. (2016). Design and Development of Web-Based Result Management System. *International Journal of Engineering Research and General Science*, 4(2), 33-41. <https://www.ijergs.org/uploads/V4Issue2/IJERGS3459.pdf>
5. Hussain, A., & Hasan, T. (2015). Development of a Web-Based Result Management System for Educational Institutions. In 2015 IEEE International Conference on Computer and Information Technology; Ubiquitous Computing and Communications; Dependable, Autonomic and Secure Computing; Pervasive Intelligence and Computing (pp. 2140-2146). IEEE. <https://ieeexplore.ieee.org/document/7477360>

APPENDIX

This project's appendix section contains extra materials and data that support and complement the report's main body. It offers additional information, facts, and files that were consulted or used in the creation and application of the web-based result management system. Readers who might need more in-depth explanations or who want to go deeper into particular project components can use the appendix as a reference. The following items are acceptable for the appendix:

User Interface design mockups: Visualisations of the suggested user interface design are included in this part under the heading "User Interface Design Mockups." It contains the wireframes, mockups, and screen layouts made during the design phase to show the system's planned appearance and functionality.

Database Schema: The result management system's database's structure is described in the database schema. It gives a clear picture of how the data is set up and stored and contains tables, relationships, and attributes.

Sample Reports: This section provides illustrations of the reports the system can produce. It contains sample grade sheets, result reports, and other pertinent reports that show the system's capacity to produce precise academic reports.

Test Cases: A collection of test cases utilised during can be included in the appendix and the testing stage, which verifies the system's performance and functionality. It provides a thorough description of the testing process by outlining particular scenarios, inputs, and anticipated outcomes.

Code Snippets: This section contains pertinent code snippets or excerpts from the web-based result management system's implementation. It may include fragments of any programming language used during the development process, including HTML, CSS, JavaScript, PHP, SQL, and others. Readers who are interested in the technical details of the system's implementation can benefit from these code excerpts.

User Guides: Detailed instructions and advice on how to utilise the web-based result management system are provided in the user handbook. To help users operate the system and its different capabilities, it contains step-by-step instructions, screenshots, and explanations.

Design Checklist:

An essential tool for ensuring the efficiency, excellence, and adherence to design principles throughout the development process is a design checklist. It is used as a reference to assess the design's various facets and make sure that all crucial components are taken into account and properly applied. The following essential items are listed in the design check list for the web-based result management system project:

1. User Interface Design:

- Consistency of design elements across all pages
- Intuitive navigation and user-friendly interface

- Clear and readable typography
 - Effective use of colour's and visual hierarchy
 - Responsiveness for various screen sizes and devices
2. **Database Design:**
 - Appropriate table structure and relationships
 - Proper data normalisation to avoid redundancy
 - Consideration of data integrity and security measures
 - Efficient indexing and query optimisation
 3. **Functionality and Features:**
 - Registration and login system for students and faculty members
 - Secure access control and authentication mechanisms
 - Ability to view and update academic records
 - Generation of result reports and grade sheets
 - Request for rectification functionality
 4. **Performance and Scalability:**
 - Efficient data retrieval and processing
 - Optimisation of database queries and indexing
 - Caching mechanisms to improve system performance
 - Scalability considerations for handling increasing user load
 - **Security:**
 - Protection against SQL injection and cross-site scripting (XSS) attacks
 - Secure storage and transmission of sensitive data
 - Implementation of user roles and permissions
 - Regular security audits and updates to address potential vulnerabilities
 6. **Testing and Quality Assurance:**
 - Thorough testing of all system functionalities and features
 - Identification and resolution of bugs and issues
 - Compliance with coding standards and best practices
 - User acceptance testing to validate usability and user satisfaction
 7. **Documentation:**
 - Clear and comprehensive documentation of system architecture and design
 - User manuals and guides for system usage and administration
 - Detailed comments within the source code for better understanding and maintainability

The web-based result management system may ensure a well-designed, functional, secure, and user-friendly solution that satisfies the requirements and expectations of the stakeholders by adhering to the design checklist.

In order to enrich the primary report, additional materials and information are provided in the project's appendix. It contains user guides, example reports, test cases, sample graphic designs, database structure, and code snippets. The design checklist, on the other hand, acts as a thorough manual to assess the design elements of the web-based result management system, assuring adherence to design principles and the implementation of crucial features. The project can provide a well-designed and efficient system by taking into account the elements on the design checklist.

USER MANUAL

User Manual: Web-Based Result Management System

1. Introduction

2. The Web-Based Result Management System is a user-friendly and efficient solution designed to help students access their academic performance reports and request rectifications if needed. This user manual provides step-by-step instructions on how to install and use the system effectively.

3. Installation

4. **To install the Web-Based Result Management System, follow these steps:**

Step 1: System Requirements

Ensure that your system meets the following requirements:

- Web server (e.g., XAMPP, WAMP, LAMP) with PHP and MySQL support
- Internet browser (e.g., Google Chrome, Mozilla Firefox, Safari)

Step 2: Download the System

Download the system package from the provided source or repository.

Step 3: Extract Files

Extract the downloaded ZIP file to your web server's document root directory (e.g., htdocs for XAMPP).

Step 4: Database Configuration

- Create a new MySQL database for the result management system.
- Import the provided SQL file into the newly created database.
- Open the configuration file (config.php) located in the system's root directory.
- Update the database connection details (e.g., database name, username, password) in the configuration file.

Step 5: Access the System

Open your web browser and enter the URL for the result management system (e.g., <http://localhost/result-management-system>).

- User Login
- To access the system, users need to register and log in:

Step 1: User Login

- Enter your registered email address and password.
- Click "Login" to access the system.
- System Navigation
- Once logged in, users can navigate through the system using the following sections:
 - Dashboard: Provides an overview of the user's academic performance and related notifications.
 - Profile: Allows users to view and update their profile information.

- Results: Displays the user's result reports for various semesters or exams.
- Rectification Requests: Enables users to submit rectification requests for specific exam results.
- Logout: Allows users to log out of the system.
- Viewing Result Reports
- To view your result reports, follow these steps:
 - Step 1: Navigate to the "Results" section.
 - Step 2: Select the desired semester or exam from the available options.
 - Step 3: The result report will be displayed, showing subject-wise grades and overall performance.
- Requesting Rectification
- If you are not satisfied with your exam result, you can request rectification:
 - Step 1: Navigate to the "Rectification Requests" section.
 - Step 2: Click on the "New Request" button.
 - Step 3: Fill in the required details, including the subject, reason for rectification, and supporting documents (if applicable).
 - Step 4: Submit the request.
- Updating Profile Information
- To update your profile information, follow these steps:
 - Step 1: Navigate to the "Profile" section.
 - Step 2: Click on the "Edit Profile" button.
 - Step 3: Update the desired information, such as name, contact details, or password.
 - Step 4: Click "Save" to update your profile.
- Logging Out
- To log out of the system, follow these steps:
 - Step 1: Click on the "Logout" button in the navigation menu.
 - Step 2: You will be redirected to the login page.
- Troubleshooting
- If you encounter any issues or difficulties while using the Web-Based Result Management System, refer to the following steps:
 - Clear your browser cache
 - and cookies.
 - Ensure that you have a stable internet connection.
 - Verify that the database connection details in the configuration file (config.php) are correct.
 - Check the system's documentation or seek assistance from the system administrator.

Congratulations! You are now ready to install, use, and navigate the Web-Based Result Management System effectively. If you require any further assistance or have specific questions, please refer to the system administrator or support team.