

**DESIGN AND IMPLEMENTATION OF DIGITAL REPOSITORY FOR FINAL YEAR
STUDENTS (PDF FILES)**



BY

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**BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF INFORMATION
TECHNOLOGY, FACULTY OF COMPUTING, BAYERO UNIVERSITY KANO IN
PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF
BACHELOR OF SCIENCE DEGREE (B.SC HONOURS) IN INFORMATION
TECHNOLOGY.**

SUPERVISED BY: PROF. ABDULWAHAB LAWAL

MAY 2023

DECLARATION

I, AMINU BELLO ALIYU, solemnly declare that this project is the product of my own endeavor, that all sources have been adequately and duly acknowledged, and that all the inadequacies in this project are the product of my own shortcomings. And that this project has not been submitted to this faculty or elsewhere.

DEDICATION

This project is dedicated to my beloved parents, who brought me into this world and have taken care of me all my life. I pray that they live long enough to witness my success, amen.

APPROVAL PAGE

This project has been read and approved as meeting the requirements for Bachelor of Science in Information Technology project in the Department of Information Technology, Faculty of Computing Bayero University Kano.

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ACKNOWLEDGEMENT

All thanks are due to Almighty Allah, who has given me the opportunity to see this particular day for achieving this milestone without fail. I hope Allah, in his infinite mercy, will continue to guide me through my entire life (Ameen). May peace and salutation of Allah be upon our Prophet Muhammad (S.A.W.), his entire household, his companions in their entirety, and all of us who will follow his path till the Day of Judgment (Ameen).

Lastly, I would like to acknowledge the efforts of my supervisor and the staff of the Faculty of Computing, Bayero University Chapter, for their support and contribution towards the completion of this program, as well as all my friends. I pray they all achieve their desires.

ABSTRACT

This study presents the design and development of a project repository, aimed at benefiting final year students in the Department of Information Technology at Bayero University Kano. The primary objective of the repository is to archive pdf files of projects completed by the final year students, providing a platform for easy access and retrieval of projects, knowledge sharing and preventing project duplication. The system was developed using a combination of HTML, CSS, JavaScript, and PHP technologies.

The project repository serves as a centralized hub, allowing students to showcase their final year projects and enabling other students to build upon and learn from existing work. By providing access to a diverse range of projects, the repository enhances the learning experience by exposing students to various methodologies, techniques, and innovative ideas.

Through the repository, students gain the opportunity to explore and analyze successful projects, extracting valuable insights and applying them to their own work.

The study concludes by recommending the continued support and expansion of the project repository. Suggestions include ongoing updates to the system, conducting workshops and seminars to facilitate effective utilization of the repository, and exploring opportunities to include projects from other departments and universities. These recommendations aim to create a comprehensive and accessible resource that promotes interdisciplinary collaboration and serves as a model for enhancing project-based learning initiatives in the field of Information Technology.

In summary, the design and development of the project repository provide significant benefits to final year students, facilitating easy access and retrieval of projects, knowledge sharing, preventing duplication, and fostering a collaborative learning environment.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

A final year project is a significant assignment that students complete in order to apply the knowledge they have acquired during their academic career to achieve specific goals. In higher education institutions, final year projects are often managed using paper and pen systems and stored in cabinets in offices. However, this manual process poses several challenges for the department and its students.

One major issue is the time and effort required to retrieve a project from the cabinet (Ibiyomi, 2021). This can be particularly cumbersome for staff members who are responsible for managing the project records. Additionally, manual systems are prone to errors, such as lost or misplaced records (Doe, 2019), which can lead to difficulties in tracking student progress over time.

To address these challenges, a digital repository can provide an efficient and effective solution. A digital repository is a mechanism for managing and storing digital content, and it can support research, learning, and administrative processes (Smith, 2018). Repositories use open standards to ensure that the content they contain is accessible and can be searched and retrieved for later use.

The use of digital repositories has been widely adopted in other universities and organizations, and they have been shown to offer several benefits. For example, Digital repositories can be used to manage and share research data, making it more accessible and usable for researchers (Jones, 2018), as well as provide a standard way to access records of students who worked on a particular project. Additionally, Digital repositories can be used to preserve and provide access to cultural heritage materials, such as manuscripts, artifacts, and photographs (Brown, 2016). And Digital repositories can be used to store, manage and share scientific data, such as research data and observational data, which can be used by other scientists for further research and analysis (Parker, 2019)..

The Department of Information Technology at Bayero University, Kano, currently uses a manual system for storing student projects, which is time-consuming and prone to errors. This study

aims to provide the department with a digital repository that will store the soft copies of the projects done by the final students in the department and provide an avenue for easy access and retrieval of the projects.

1.2 Problem statement.

Undergraduate projects should be securely stored and promptly retrieved so that future graduates of the department are aware of the subjects that have been investigated, the focus of the research, and the point at which the investigation was completed. The present technology age is faster moving to the digital level and almost everyone has accessed to the electronic versions of textbooks, projects reports, and notes whether there are online or offline. Many students found it difficult to have access to past project materials due to factors beyond their control, some of those factors may include lack of digital content in schools etc. (Adegbile et al, 2021). Duplication of previously completed final year project is also a problem due to the lack of a content management system or archive Through manual records system provides accountability, It has its inherent challenges with difficulty of access and it is impossible to swiftly share between different office and maintain for a very long time without destruction of the record of the final year projects (Fakoya, Ibiyomi, & Abiyona, 2021). The quality of the research is evaluated and graded by the department upon completion. Over time, the department's academic research is not accessible to people outside the institution because the existing mode of operation is a manual one in which students have their research work kept in the department library and at the same time burn inside a disc (Compact Disk). These works can be lost due to fire outbreaks or floods (Christianah, Babatunde, Johnson, 2021). Due to the volume of projects and the limited human effort, project searching is typically quite frenetic and slow in the existing system. Additionally, because of the formal processes and norms involved in the process, access to projects may be delayed. The department can get rid of these obstacles to timely and effective access to project information by creating and utilizing a web-based project's repository.

1.3 Aims and objectives

The aim of this project is to develop a project repository for final year students at department of information technology Bayero University Kano. This will be achieved by the following objectives:

- I. To analyses the system requirements.
- II. To design and developed the system as web-based platform based on requirements.
- III. To test and validate the proposed system.

1.4 Scope of the study

This project will be designed for the department of information technology at Bayero University in Kano. The scope of this project is to create a web-based repository that will be used to store PDF files of final-year students projects in the department in order to avoid duplication of projects and to allow students and supervisors to view the files and list of previously worked on projects.

1.5 Significance of the study

1. One of benefits of this study is it will prevent projects duplication by students.
2. And, it will also help students to further on previously worked on projects.
3. It will provide Better way of storing projects and retrieval of the projects.

1.6 Project organization

This project report is organized as follows:

Chapter 2 provides the literature review for the project. In Chapter 3, the system analysis and design were performed. In Chapter 4 the implementation of the system was presented and discussed. Chapter 5 rounds off the project by providing a summary, recommendation, and conclusion.

CHAPTER TWO

LITERITURE REVIEW

2.1 Introduction

Project repositories have become an increasingly popular resource for final-year students seeking to showcase their work and gain recognition for their achievements. The goal of this literature review is to look at Existing projects related to project repositories and see how they were addressed.

2.2 Review of existing systems

Adebayo and Omojokun (2019) stated, ease of accessibility while ensuring quality data representation is the onus of modern-day "computerization." In the university system, a project (a term used interchangeably with thesis) is research work done as part of the conditions for awarding a particular degree to students. A student is being assigned to a supervisor, who is to mentor and monitor the student's progress during the period of the research work. In most cases, the head of department determines the assignment of students to supervisors, with the examination officer responsible for the computation of the students' scores. The major challenge of providing a repository for past projects while ensuring that a check is done to eliminate topic duplication is still being actively worked on by researchers. In this paper, we present a project monitoring system that caters for the allocation of students to supervisors, the uploading and archiving of projects, and the tracking of the students' progress while keeping a chat line open for ubiquitous real-time assistance to students.

Adegbile et al (2021) explained, the project work emphasizes the application of the project repository system to educational administration as an alternative to the manual method of storing past project documents and class materials. It uses the Federal College of Animal Health and Production Technology as a case study. However, the application of the project repository system focuses on the past project works of the institution with a view to reducing the stress, errors, loss, and other damages that arise as a result of the manual method of keeping past project works in an educational institution like the Federal College of Animal Health and Production Technology, Ibadan, in particular. This project has been specifically carried out and presented in

a concise manner to cover the necessary background information and satisfy the needs for designing a project repository system. To meet the requirements for designing a project repository system for an institution, the Visual Basic programming language and a Windows form application were used. The developed software will be able to eliminate the difficulties encountered in the old system and make work easier, more timely, reliable, and efficient in work flow, assisting management in decision-making to meet the global challenges of the modern era.

According to Ghedi, Wan Ishak and Katuk (2019), a digital repository is one of the tools for sharing and disseminating knowledge. Through this system, a broader group of users can retrieve the information contained in the repository and utilize it for academic purposes. Through this repository, proceedings articles, specifically articles from the proceedings of the Knowledge Management International Conference (KMICe), can be stored and shared with other academicians. The use of these articles in academic research and publication will increase the citations of each individual article, thus increasing KMICe's visibility around the world. In this paper, the design of the digital repository for proceedings articles is proposed and implemented. The prototype has been tested by selected participants who have familiarity with information systems and software engineering. The finding shows that the participants' acceptance of the system is very encouraging.

Ademola, Adewale and Ike (2013) presented, processes associated with undergraduate final year projects have always been a manual process which requires a lot of paperwork and could sometimes be a cumbersome and tiring task for the personnel in charge. The manual process sometimes leads to time wasting, impeding of project work because the student carrying out the project work is not able to update the lecturer on the level of execution of the project. Also due to unavailability of a content management system or repository, duplicity of previously carried out final year projects is experienced. It could be sensed by the project supervisors or the personnel in charge that this particular project has been done but where is the proof? Where is the system that out rightly bounces the topic back when the student puts it forward or bring forth a list of projects that has keywords present in the chosen project topic? This project work therefore, eliminates or reduces the error of allowing a student to carry out a project that has been done before as well as cutting down on the cost and time required by the student to produce a quality technical report. It also helps to prevent the forgery of signatures usually experienced during the

final clearance stage of the students after the conclusion of the project work. During the clearance stages, the completed stages will be noted by the computer until the final stage of the clearance stage is completed and the print button can be clicked upon by the student to bring forth the completed clearance form. In this work, we developed an intranet portal platform that can integrate all the processes above into one system.

Somefun, Awosope and Sika (2020) presented, the advances of technology resulting in the proliferation of mobile devices have changed the way we live and have necessitated the restructuring of the educational system. This can be employed to aid student's participation in research studies. This study aims at promoting-research in universities amongst students by giving them the opportunity to exercise their scholarly abilities, easy access to research projects carried out by other students, collaboration with other students with similar research inclinations as well as gain visibility before the school management or companies interested in granting scholarships to outstanding works. This project is implemented using JavaScript, HTML and CSS for the front-end; Node.js, a JavaScript framework for the back-end and Mongo DB for the database. It is a web application that enables the students to upload their research works, view the research of others and collaborate with peers. This system has a high potential to enhance student participation in universities' research studies.

Itiol, Iwasokun and Adetooto (2021) presented, Research is part of the fundamental responsibilities needed in an academic institution. Therefore, it is expected that tertiary institutions should take importance in capturing, maintaining, and preserving their student's and staff's intellectual output; It will serve a significant role in disseminating scholarly materials, preserving, and diffusing the institution's research work. Hence, the research developed an institutional repository for academic research work for the Department of Computer Science, Federal University of Technology Akure (FUTA). The design made use of HTML (Hypertext mark-up language), CSS (Cascading style sheet), JAVASCRIPT, PHP (Hypertext pre-processor), and MySQL database. This design is expected to benefit the students and other users regarding the accessibility of materials to users and preserving student research. It will help create global visibility for the research works and collect content in a single location. However, the invention is limited to the sample size. Therefore, it recommends that a more advanced

repository system be developed with time, which will capture studies across all faculties in the institution or across various institutions in the country.

2.3 literature review table

Table 2.1: literature review table

| S/ N | Author(s) | Problem statement | Methodology | Strength | Weakness | Remark |
|---------|---|--|---|---|--|---|
| 1 | Adebayo & Omojokun, (2019) Design and Implementation of Undergraduate Degree Projects Monitoring System. | The current manual method of managing university research projects leads to inefficiency and duplicates of the projects. | The system is developed using Java programming language alongside XML which are all components of Android software development kit (SDK). | The system improves research quality and contributes to knowledge by providing access to past projects, guiding students in choosing research topics, and creating a departmental repository. | The system does not have public access feature for their past projects. It is only limited to be use in a single department of the university. | Adding public access feature to the system can result in recognition and visibility of academic papers of the department. |

| | | | | | | |
|---|--|---|---|--|--|---|
| 2 | Adegbile et al (2021). Design And Implementation of a Virtual Project Repository System | Manual method of keeping past project works leading to stress, errors, loss, and other damages. | Visual Basic programming language and a Windows form application were used | The system has reduce the stress, losses and other damages which arises as result of manual method of keeping past projects. | The system does not categorize projects based on department, making it difficult for users to find the past projects of their choice. | Categorizing the projects based on departments or research area, will make it easier for the users to search for the past projects of their choice. |
| 3 | Ghedi , Wan Ishak and Katuk (2019). Digital Repository For Proceedings Article | Lack of visibility and accessibility of KMICe proceedings articles to a wider audience | The prototype of the digital repository has been developed using PHP and MySQL database | The system will help increase visibility and citations of KMICe proceeding articles. | The system interface design is not responsive. Meaning the system interface cannot fit in on some mobile devices such as, tablets and smartphones | The system interface design needs to be customized to full fill various users' background and needs. |

| | | | | | | |
|---|---|---|---|---|--|--|
| 4 | Fakoya, Ibiyomi, and Abiona (2021). Students' Final Year Projects Record Management System. | Manual method of keeping student final year project is challenging and time consuming. | The system was developed using Visual Basic.Net as the frontend while MS-Access was used as the back end. | The system provided an avenue for both students and lecturers to access past projects and use them as guidance. | The system has no central administration . Meaning all lecturers are administrators , which may cause the system data to be altered. | Providing a separate module for lecturers along with it is functionalities can make the system data more secured. |
| 5 | Ademola, Adewale and Ike (2013). Design and Development of a University Portal for the Management of Final Year Undergraduate Projects | The manual processes associated to undergraduates' final year projects lead to various challenges such as time wasting, difficulty in keeping the supervisor updated of projects. | The system was developed using the following languages; HTML, CSS, ASP.NET, C# and Microsoft SQL server 2005. | The system reduces the likelihood of unsupervised projects and improves the project clearance process. | Users of the system cannot know whether a project has been carried out or not. This may cause duplication. | Adding a feature to the system through which users can know which projects have been completed could reduce the likelihood of duplication. |
| 6 | Somefun, Awosope & Sika, (2020) Development of a research | Lack of projects repositories despite availability of mobile devices such as tablets, | The project was implemented using JavaScript, HTML, and | The system has provided a through which students can access research projects and | The system lacks adequate security, protection of author's | Providing security to the system, intellectual property rights to |

| | | | | | | |
|---|--|---|--|---|--|--|
| | project repository | laptops, etc. | CSS for the front-end, Node.js for the back-end and Mongo DB for the database. | collaborate with peers. | intellectual rights, and plagiarism checks. | authors and plagiarism checks before projects are uploaded will attract more participation in the system. |
| 7 | Itiol, Iwasokun and Adetooto (2021). Development of an Online Repository for Academic Research Works in FUTA. | Lack of a proper way of storing past projects and making them accessible to outside people in the department of computer science FUTA., because of existing mode of operation is manual | The system was developed using HTML, CSS, JavaScript, PHP and MySQL. | The system has provided a proper way of storing past projects and it also provide a proper way of accessing them by outside people. | The system is only capable of storing researches conducted by FUTA students in the department of computer science. | A more advanced development of the system that will capture studies across all faculties in the institution is recommended . |

2.4 Research gaps

Because the manual process is cumbersome, earlier studies have concentrated more on the storage and retrieval of projects using digital repositories. Digital repositories have been developed and are being used, but there are still gaps that need to be filled. Because most schools don't provide public access to their repositories, their articles may not be seen and accessible to a wider audience. Additionally, the majority of sites that allow public access give users the option

to download the full version of the content or document, which could lead to plagiarism in other academic settings or anywhere else that research, is applicable.

Hence, this project is aimed at addressing the gaps listed above; the system will have a public access feature and also give priority to files when viewing the pdf files of the projects. The system will give its users a percentage-based priority to view certain chapters in the papers. The chapters depend on the user accessing the system. Initially, the system has three users: students, lecturers, and the HOD. The students have a priority of 30%. The lecturers have a priority of 40%. HOD has a priority of 100%. The intent behind this is to make project has minimal plagiarism.

2.5 Conclusion

In this chapter, some the gaps in the existing systems were identified and the proposed system was described in detail, highlighting its ability to allow for a view of documents based on priority. The proposed system has been designed to serve as a reference tool for students working on projects.

Additionally, the chapter has presented a review of the relevant literature related to the project, providing insight into how other authors have addressed similar problems. By presenting this information, the chapter has effectively set the foundation for the development of the proposed system, demonstrating the need for a solution and how it aims to address the identified gap. In summary, this chapter has successfully presented the problem and solution, as well as relevant literature, providing a comprehensive understanding of the project at hand.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 Introduction

In this chapter, we will delve into the system analysis and design of the proposed project repository for final year students, which primarily consist of PDF files. Unified Modeling Language (UML) was used to model the system operation, which allowed us to accurately capture and visualize the system's behavior and structure.

By utilizing UML, a clear and concise representation of the system's functionality was created, making it easier to communicate with stakeholders and ensure that all parties involved have a comprehensive understanding of the project.

3.2 System analysis

System analysis is a process of studying an organization's business processes to determine the requirements for a new system. It involves identifying problems, goals, and stakeholders, gathering data, and developing a detailed system design. The design is refined based on feedback and testing to ensure that the system is effective and efficient. System analysis is a crucial step in the development of any new system and requires collaboration from various stakeholders for the success of the project.

3.2.1 Method of system analysis.

The system analysis of the Project Repository System involved a comprehensive study of the requirements and specifications of the system. This process aimed to understand the needs of the final year students, faculty members, and administrators, and to design a robust and user-friendly repository system. The following steps were undertaken:

1. **Requirements Gathering:** The analyst conducted interviews, surveys, and discussions with final year students, faculty members, and administrators to gather their requirements and expectations from the project repository system. This step ensured that the system addressed the specific needs of the Department of Information Technology at Bayero University Kano.

2. **System Modeling:** Various modeling techniques were employed to represent the system's structure and behavior. This included creating use case diagrams, entity-relationship diagrams, and data flow diagrams. These models helped visualize the system's functionality, database structure, and information flow, facilitating effective communication with stakeholders.
3. **Database Design:** The structure and organization of the database were designed to efficiently store and retrieve project-related data. The relationships between entities and the necessary tables, fields, and constraints were defined. The database design aimed to ensure data integrity, security, and optimal performance

3.2.1 Investigation and analysis of the existing system

Prior to initiating this project, a thorough investigation and analysis of the existing system in the Department of Information Technology at Bayero University Kano were conducted. During the investigation, various system analysis techniques were employed, including interviews with personnel responsible for managing the projects and gathering feedback from students in the department. The findings revealed that the current system was manual, leading to significant difficulties for department members in accessing, retrieving, and utilizing documents. The system required extensive paperwork before accessing a single project, impeding students from building upon existing work and leading to duplication and potential plagiarism. Recognizing these challenges, this study was proposed with the aim of addressing the identified issues and providing effective solutions.

3.2.2 Problem with the existing system

The existing system was manual, which meant that personnel had to go through a cabinet to find projects. This made it difficult for students and personnel in charge, to access and retrieve the projects. The process involved hectic paperwork, thus preventing students from continuing the work of other students. Furthermore, there was no specific method that personnel used to keep records of projects, making it challenging to prevent duplication.

3.3 system design

System Design involves defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. In the case of “Digital Repository for final year students (pdf files)”, the system design section includes:

- I. **Interface Design:** This involves designing the user interface of the system. The interfaces were designed with a user-friendly layout and navigation system that allows users to easily access and manage their activities.
- II. **Data Design:** This involves defining the data structures and storage mechanisms used by the system. The system uses a database to store information about donor, patients’ activities
- III. **Component Design:** This involves defining the individual components of the system and how they interact with each other. The system includes various components, such as a donor login module, donor dashboard module, patient login module, doctor login module, doctor dashboard module and admin login module, which will work together to provide a seamless user experience

3.3.1 The proposed system

The proposed system is a web-based application primarily designed to store pdf files of final year students in the department of information technology Bayero University, Kano.

Features:

The system features includes:

- I. Storing the pdf files of student’s projects providing an avenue for easy access and retrieval using the name of author, publication year, project title or supervisor’s name.
- II. Priority view on the pdf files, where HOD has the most priority to view 100% of the file, followed by lecturers with priority of 40%, then students and guests with 30% priority.

Functional requirements include:

- i. The system should allow admin to sign in.
- ii. The system should allow admin to add projects.
- iii. The system should allow admin to view projects.
- iv. The system should allow students to view supervisors
- v. The system should allow supervisors to sing up and sign in
- vi. The system should allow supervisors to view forty percent of a project.
- vii. The system should let students view thirty percent of a project

Non-functional requirements include:

- i. The system should be easy to understand.
- ii. The system should be user-friendly.
- iii. The system should have a quick response time.
- iv. The system must be secure.

3.3.2 Database specification

Database Design is a collection of processes that facilitate the designing, development, implementation and maintenance of enterprise data management systems. Properly designed database are easy to maintain, improves data consistency and are cost effective in terms of disk storage space. The database designer decides how the data elements correlate and what data must be stored (Peterson, 2023).

Below are the lists of tables that will be in the database:

- i. Supervisors table
- ii. Projects table
- iii. Admin table

Table 3.1: The projects table

| FIELDS | DATA TYPES | LENGTH Of CHARACTERS | NOT NULL | ATTRIBUTES | EXTRA |
|----------|------------|----------------------|----------|-------------|-------|
| Id | INT | 12 | YES | PRIMARY KEY | |
| Name | VARCHAR | 20 | YES | | |
| Email | VARCHAR | 255 | NO | | |
| Username | VARCHAR | 10 | YES | | |
| Password | VARCHAR | 10 | YES | | |

Table 3.2: The project table

| FIELDS | DATA TYPES | LENGTH Of CHARACTERS | NOT NULL | ATTRIBUTES | EXTRA |
|------------------|------------|----------------------|----------|-------------|----------------|
| Id | INT | | YES | | AUTO_INCREMENT |
| Project tittle | VARCHAR | 255 | YES | | |
| Author's name | VARCHAR | 50 | YES | PRIMARY KEY | |
| Supervisor 'name | VARCHAR | 10 | YES | | |
| Pdf file | VARBINARY | | YES | | |
| Year | DATE | | YES | | |

Table 3.3: The admin table

| FIELDS | DATA TYPES | LENGTH OF CHARACTERS | NOT NULL | ATTRIBUTES | EXTRA |
|----------|---------------|-------------------------|----------|------------|-------|
| Username | VARCHAR | 10 | YES | | |
| Password | VARCHAR | 10 | YES | | |

3.3.3 Choice of programming languages.

- I. HTML: Hypertext Markup Language, the basic function is creating web pages. The goal of the web browser is to read the documents as web pages; and it is also possible to include scripts written in several languages, such as JavaScript, which an impact on the behavior of web pages (Wikipedia, 2013).
- II. PHP: A scripting language that is integral part of HTML to add functionality that native HTML is unable to do. Originally designed for web development to produce dynamic web pages, “PHP allows you to collect processes and utilize data to create a desired output” (Bradley, 2013).
- III. MySQL: A database system, queries, and features easily paired with PHP because it works side by side with ease. Uses MSQL to store many kinds of data, information and graphics. Also, it is easily accessible from anywhere in the world (Bradley, 2013).
- IV. JavaScript: A programming language developed for the design of interactive sites and creating web applications. JavaScript can interact effectively with HTML source code, enabling web authors access to their sites with dynamic content (QuinStreet Inc, 2013).

3.3.4 Unified Modeling Language (UML)

Unified Modeling Language (UML) is a general purpose modeling language. The main aim of UML is to define a standard way to visualize the way a system has been designed. It is quite similar to blueprints used in other fields of engineering (Geeksforgeeks, 2022).

UML is not a programming language; it is rather a visual language. We use UML diagrams to portray the behavior and structure of a system. UML helps software engineers, businessmen and system architects with modeling, design and analysis.

There are many UML diagrams. However in this project these four will be utilized.

- i. Use case diagram
- ii. Sequence diagram
- iii. Activity diagram
- iv. Class diagram

3.3.4.1 The use case diagram

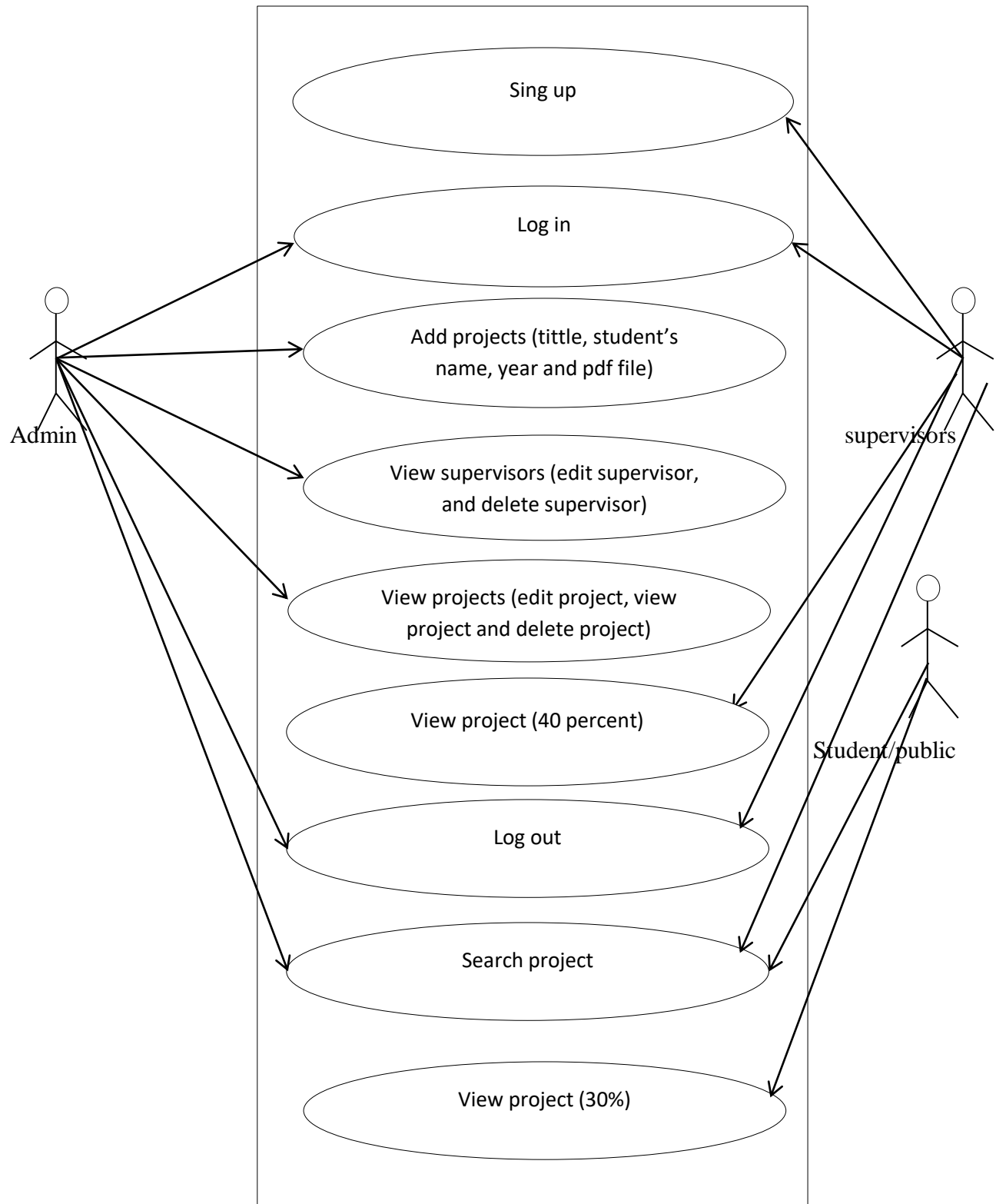


Figure 3.1: Use case diagram

3.3.4.2 Sequence diagram

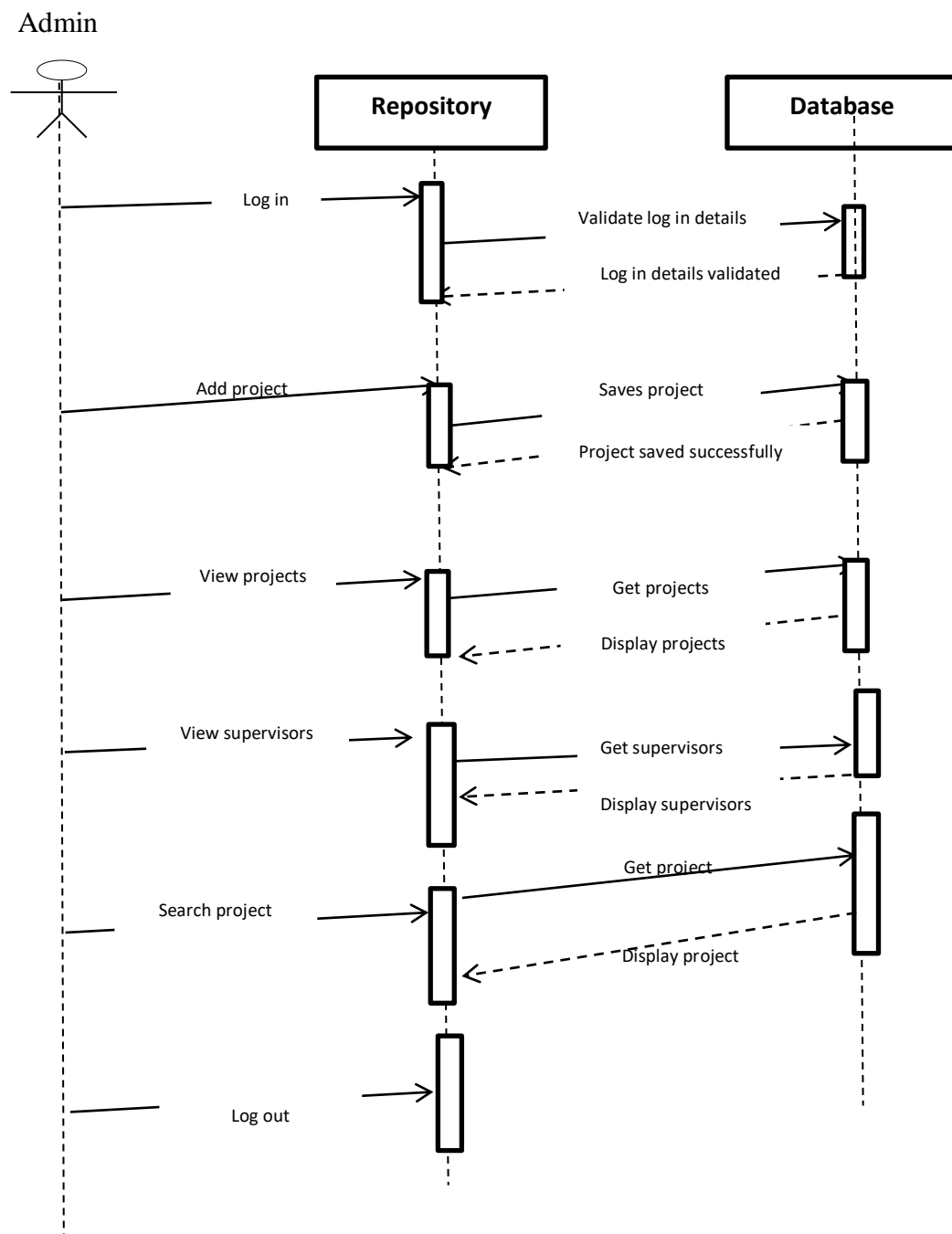


Figure 3.2: Sequence diagram for HOD

Student

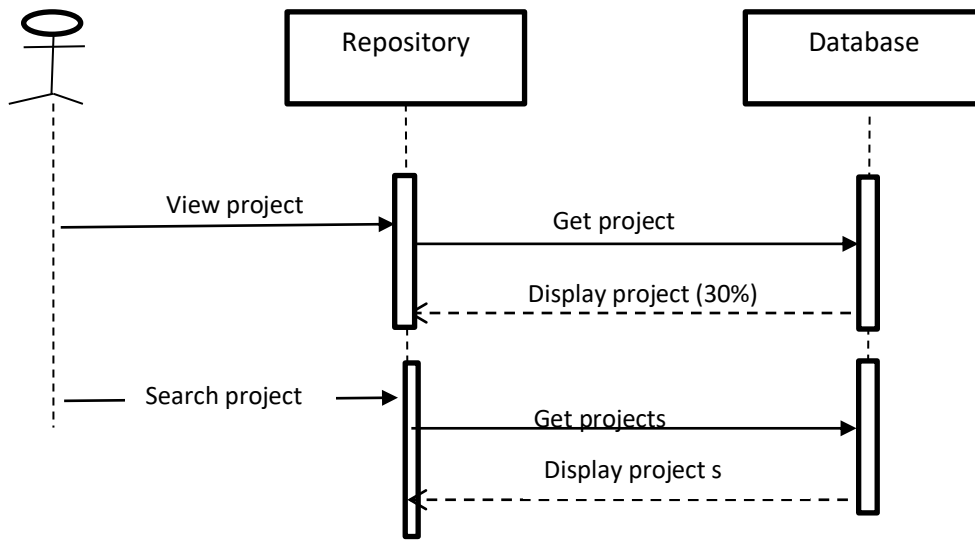


Figure 3.3: Sequence diagram for students

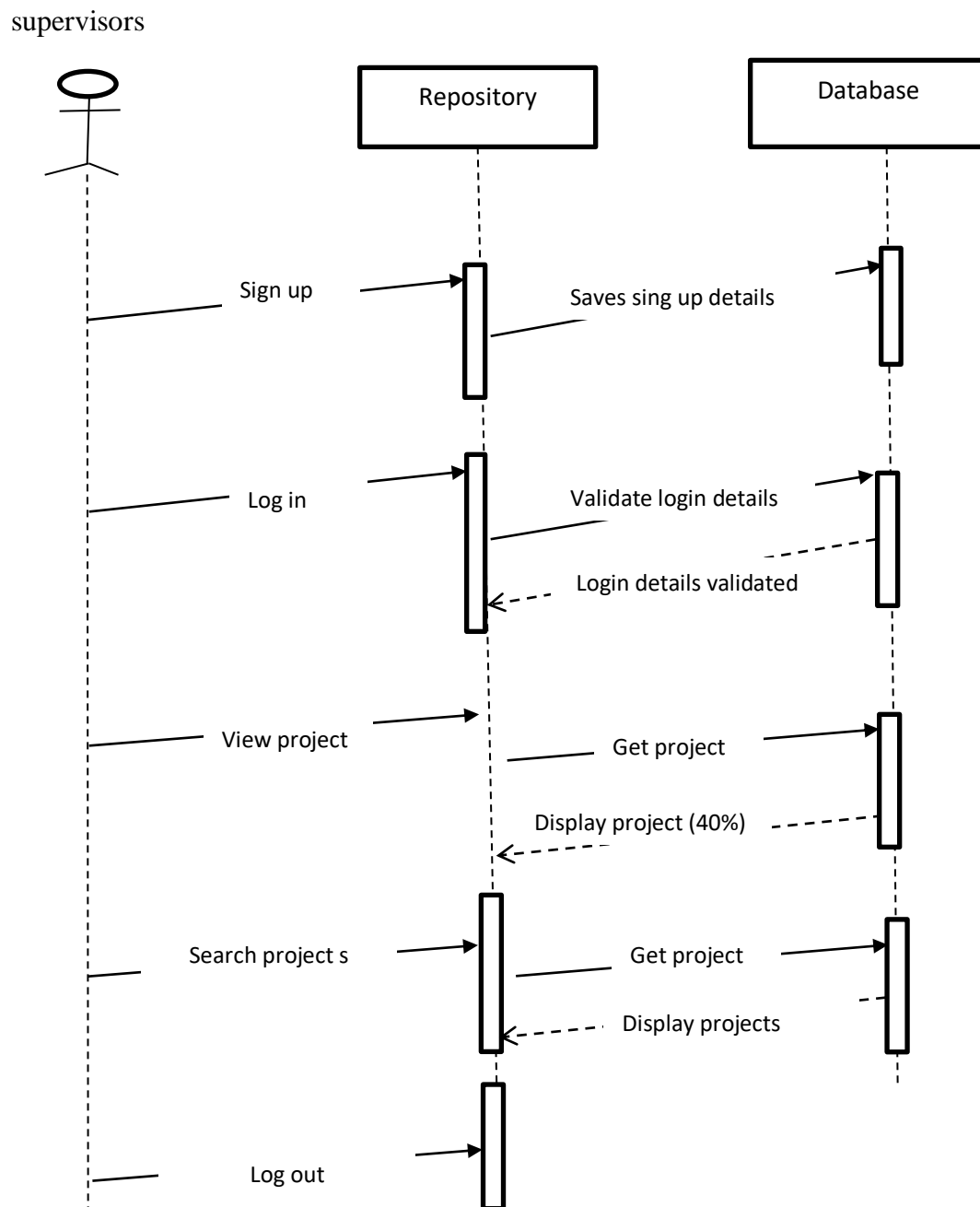


Figure 3.4: Sequence diagram for supervisor

3.3.4.3 Activity diagram

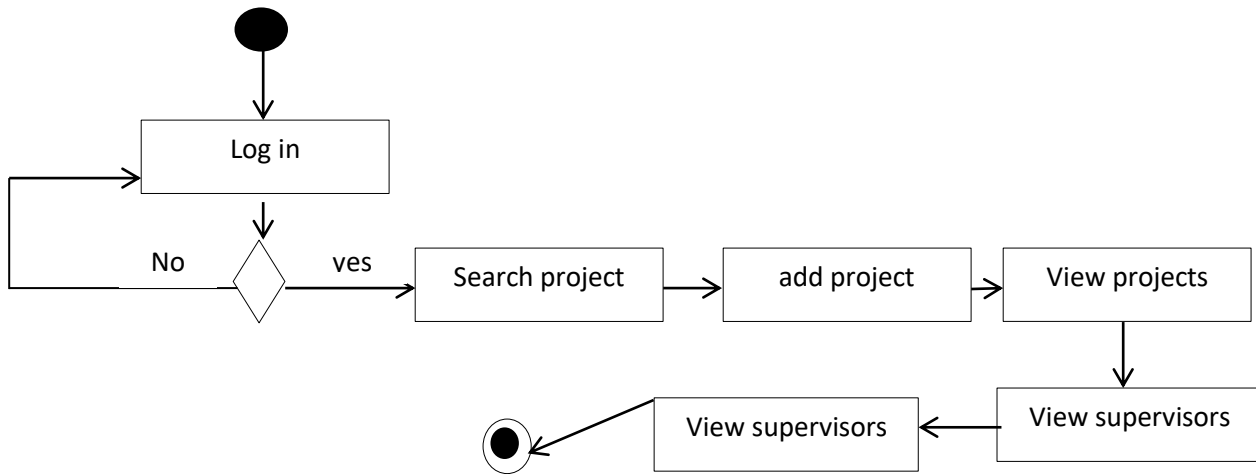


Figure 3.5: Activity diagram for admin

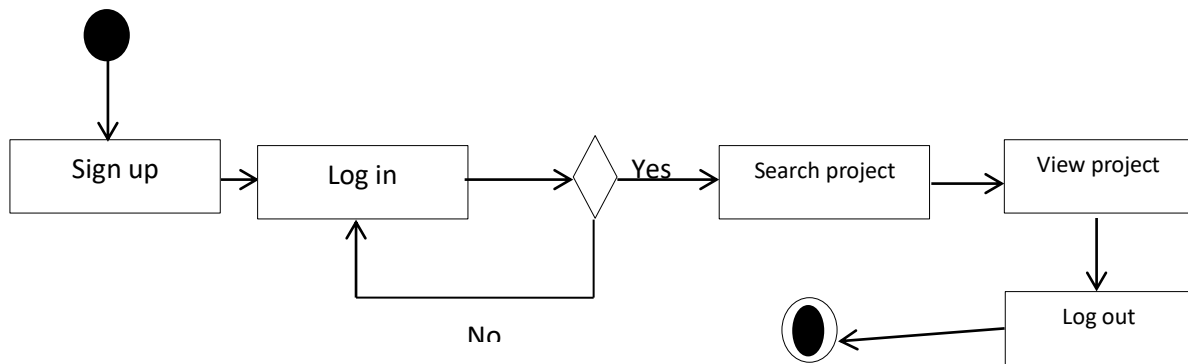


Figure 3.6: Activity diagram for supervisors

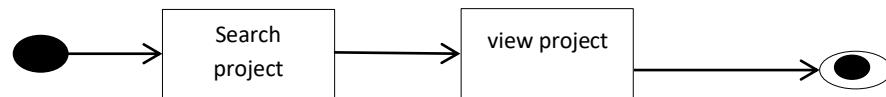


Figure 3.7: Activity diagram for student

3.3.4.4 The class diagram

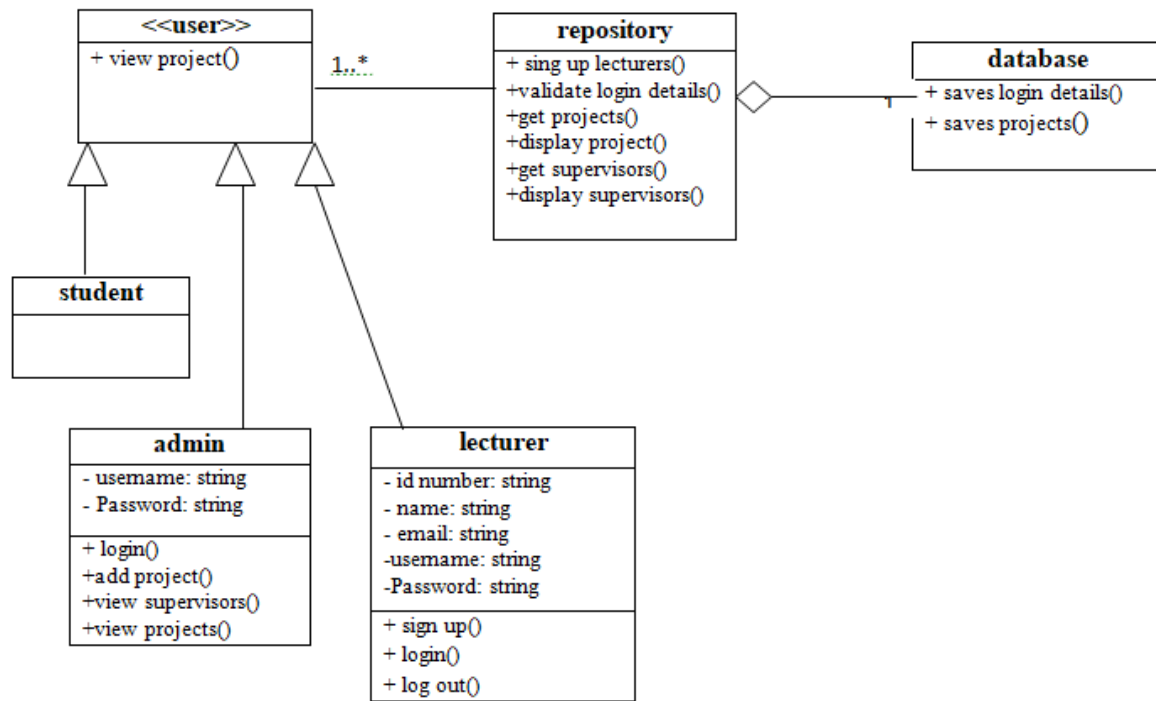


Figure 3.8 system class diagrams

3.4 System requirements

3.4.1 Software requirements

Table 3.4: The Software Requirements

| Software | Information |
|----------------------|------------------------------|
| Operating system | WINDOWS >= 8 |
| Database | MYSQL |
| Programming language | HTML,CSS, JAVASCRIPT AND PHP |
| Code editor | VISUAL STUDIO |

3.4.2 Hardware requirements

Table 3.2: The hardware requirements table

| Hardware | Information |
|-----------|-------------|
| RAM | >= 1 GB |
| Processor | >= 1.0GHz |
| ROM | >= 4GB |

CHAPTER FOUR

SYSTEM IMPLEMENTATION

4.1 Introduction

This chapter will focus on the implementation of the system project repository for final-year students (pdf files). In this chapter, the tools used will be mentioned, and the system features will also be shown or displayed.

4.2 System implementation

4.2.1 Platform and tools for implementation

- I. HTML: Hypertext Markup Language, the basic function is creating web pages. The goal of the web browser is to read the documents as web pages; and it is also possible to include scripts written in several languages, such as JavaScript, which an impact on the behavior of web pages.
- II. PHP: A scripting language that is integral part of HTML to add functionality that native HTML is unable to do. Originally designed for web development to produce dynamic web pages, “PHP allows you to collect processes and utilize data to create a desired output”.
- III. MySQL: A database system, queries, and features easily paired with PHP because it works side by side with ease. Uses MSQL to store many kinds of data, information and graphics. Also, it is easily accessible from anywhere in the world.
- IV. JavaScript: A programming language developed for the design of interactive sites and creating web applications. JavaScript can interact effectively with HTML source code, enabling web authors access to their sites with dynamic content.
- V. **Visual Studio Code (Vscode):** Visual Studio Code is a free and open-source code editor developed by Microsoft. It is available for Windows, macOS, and Linux, and supports many programming languages, including JavaScript, Python, C++, and Java, among others. Vscode is designed to be highly customizable, with a wide range of extensions and themes available to enhance the editor's functionality and appearance. It includes features such as code highlighting, auto-completion, debugging, Git integration, and IntelliSense, which provides smart code completion and suggestions based on the code being written. One of the strengths of Vscode is its extensibility. Developers can install

extensions to add new functionality or customize the editor to their specific needs. Extensions can be created by anyone using the Vscode Extension API, and there are thousands of extensions available in the Visual Studio Marketplace, covering a wide range of use cases.

4.2.2 Description of the developed system

The developed Project Repository System is a comprehensive solution specifically designed to efficiently archive projects within the Department of Information Technology at Bayero University Kano. This system encompasses multiple components, including a user interface, a database, and various system functionalities.

The user interface has been thoughtfully crafted to ensure an intuitive and user-friendly experience, allowing users to navigate the system with ease. Within the system, there are three distinct user roles: students, supervisors, and the Head of Department (HoD), each assigned with specific privileges and responsibilities.

For students, the system enables them to search for projects and gain access to a restricted 30% of project details, providing them with valuable insights and inspiration for their own academic pursuits.

Supervisors, on the other hand, have the ability to sign up and log in to the system. They can search for projects and have an expanded view of project details, with access to approximately 40% of the project content. This enhanced access empowers supervisors to effectively guide and mentor students in their project endeavors.

The HoD, as the key administrative figure, possesses distinct roles within the system. These roles include logging in, uploading projects to the repository, viewing all projects available in the system, as well as accessing information regarding supervisors enrolled in the system. This comprehensive oversight enables the HoD to effectively manage and ensure the quality of projects within the department.

By implementing this Project Repository System, the department aims to streamline project management, facilitate seamless collaboration between students and supervisors, and enhance the

overall efficiency of project archiving. The system's tailored features for each user role provide a cohesive and structured platform for effective project tracking, monitoring, and academic advancement within the department.

4.3.3 Program modules and interfaces

This section contains screenshots that show the different interfaces of the system and their functionalities.

4.3.3.1 Landing page

The landing page is the first page that users will see when they are using the system. Using the login button, both the supervisor and the administrator can login to the system.

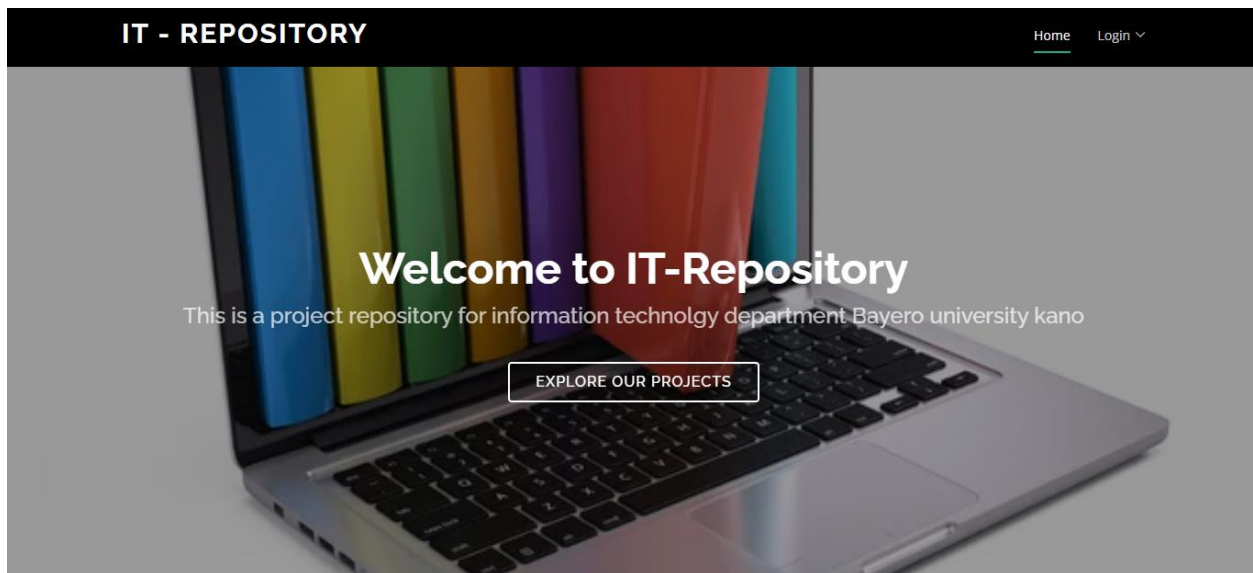


Figure 4.1 Landing Page

4.3.3.2 Students/ public projects page

This page displays all the projects in the repository, and they can be searched by project title, author, or year.

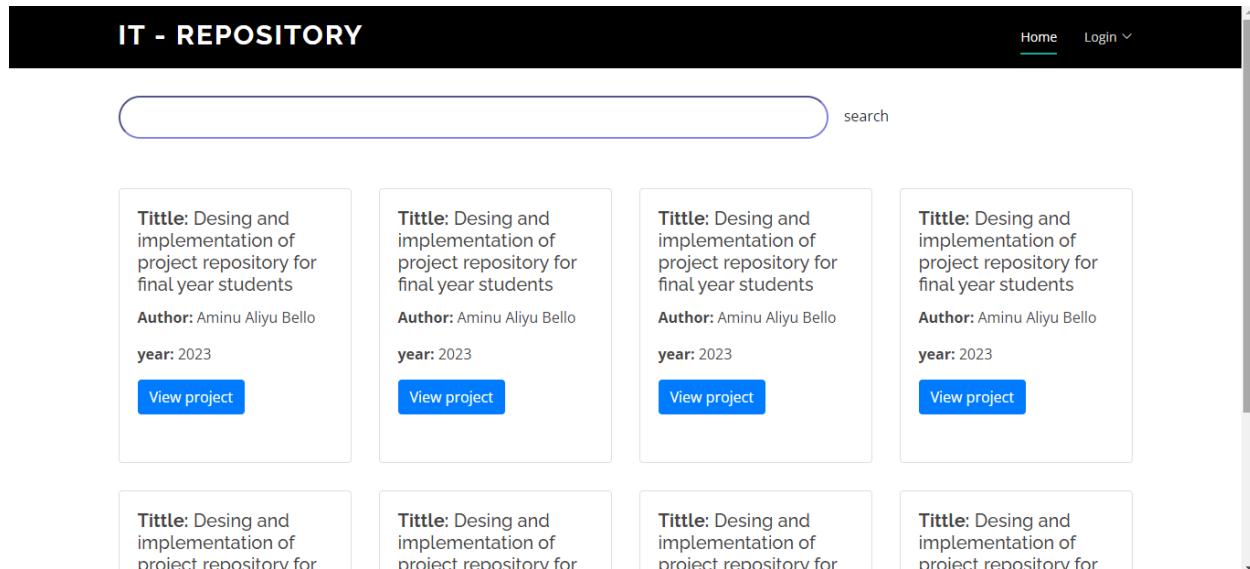


Figure 4.2 Students and public Projects page

4.3.3.3 Supervisor's login page

This page will be used by the supervisors to log on to the system by providing valid login details. After logging in, they will have access to 40% of the project.

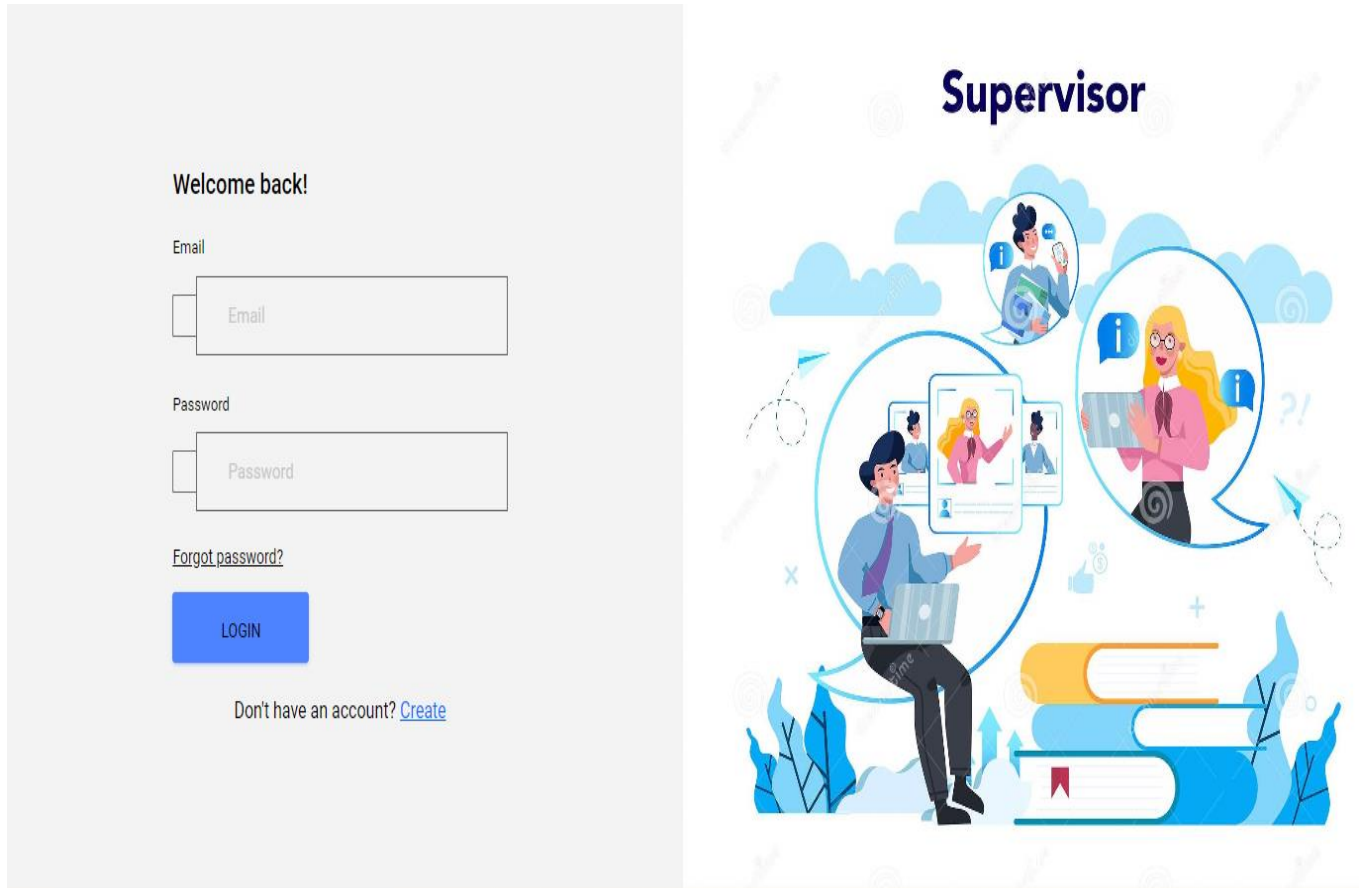


Figure 4.3 supervisor login page

4.3.3.4 Supervisor register page

For the supervisors who are first-timers, they have to register using the register page. The register is used to record personal information such as name, email address, password, etc.

New here?
Sign Up! It takes only few steps

Full name

Email

Staff id No.

Password

SIGN UP

Already have an account? [Login](#)



Figure 4.4 Supervisor register page

4.3.3.5 Supervisor project page

This is a page that is displayed after the supervisor has logged in. It gives the supervisor the ability to view 40% of a project. It also has a logout button through which supervisors can exit the page.

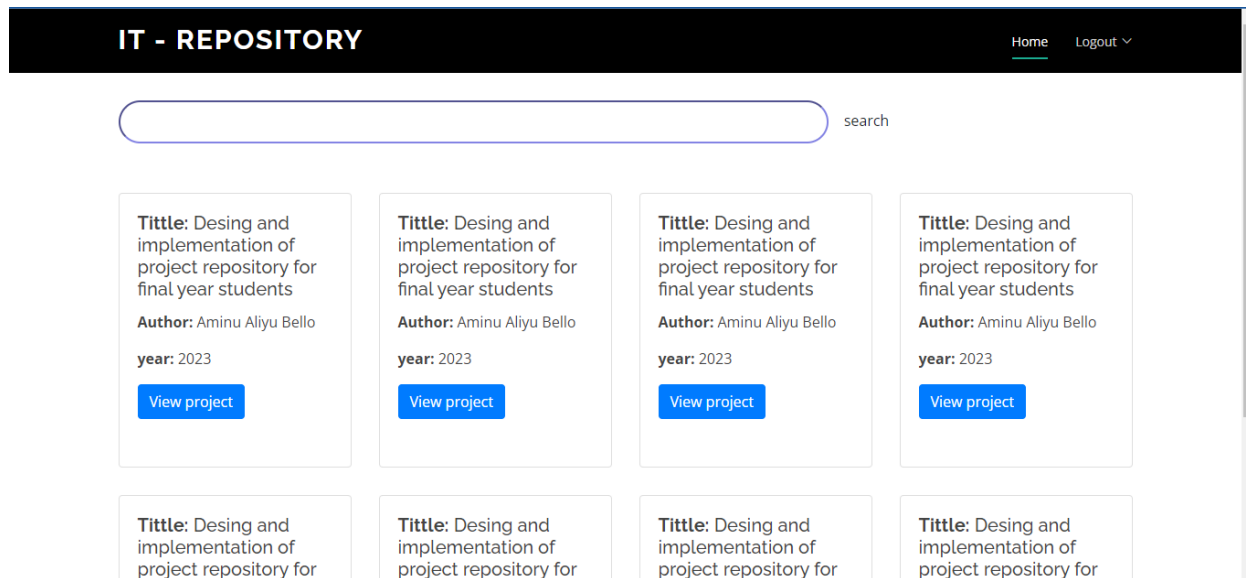


Figure 4.5 Supervisor project page

4.3.3.6 HOD(super user) login page

The HOD login page is the interface through which HOD gain access to the system using their valid log-in credentials.

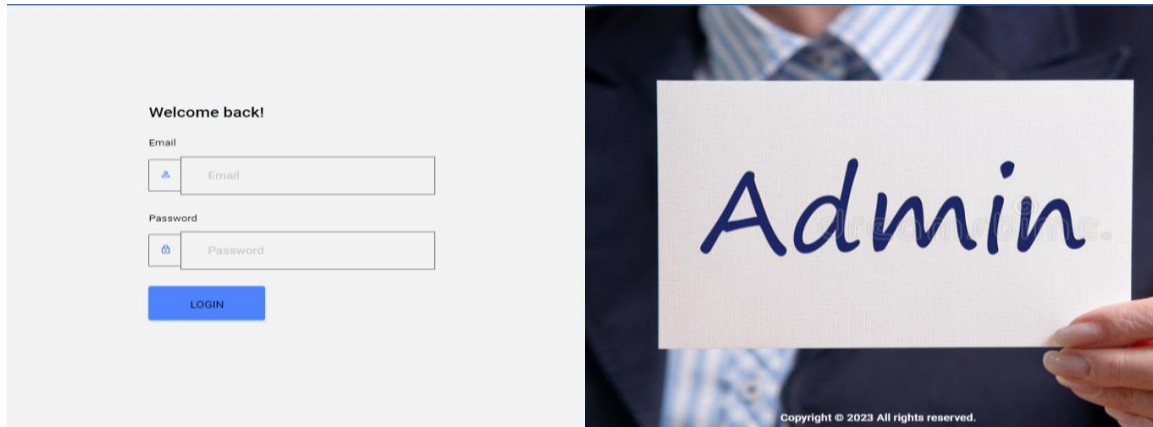


Figure 4.6 HOD login page.

4.3.3.7 H.O.D dashboard page

The admin dashboard page is the HOD's management page. It allows him to upload projects, view list of projects, and view list of supervisors enrolled in the system. It also shows the HOD number of projects, and the supervisors that are on the system.

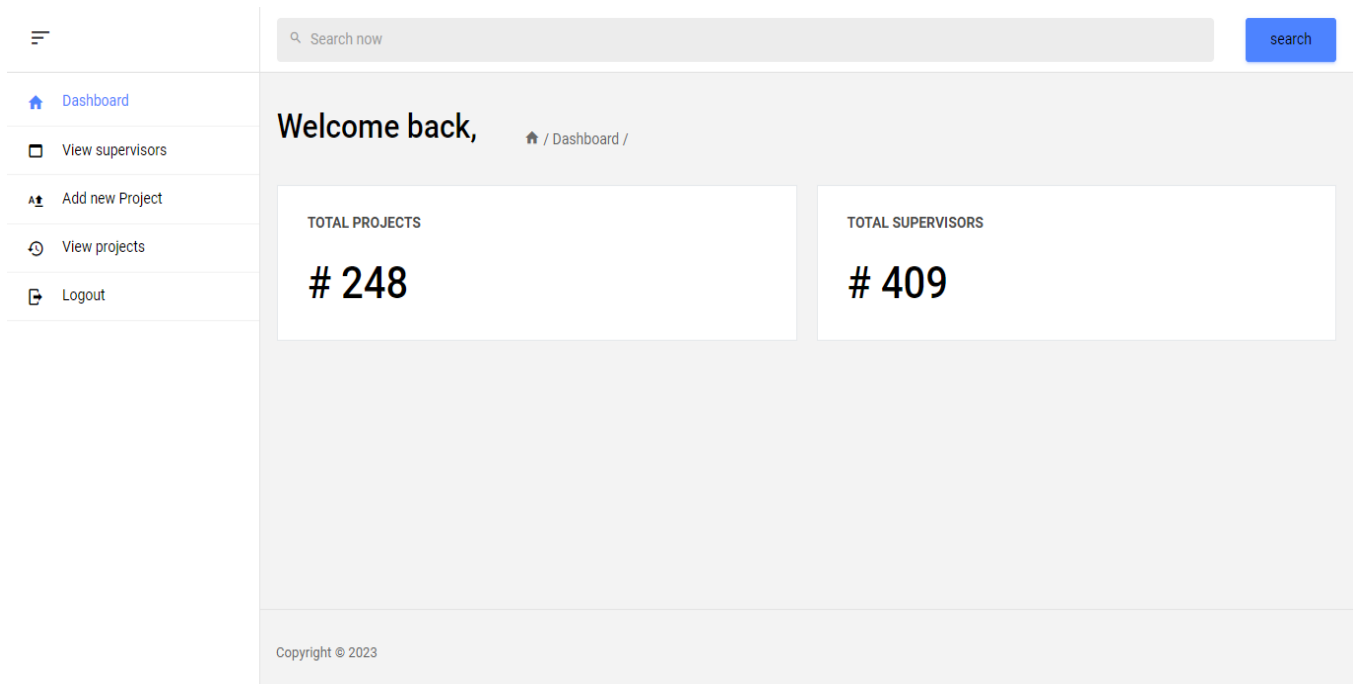
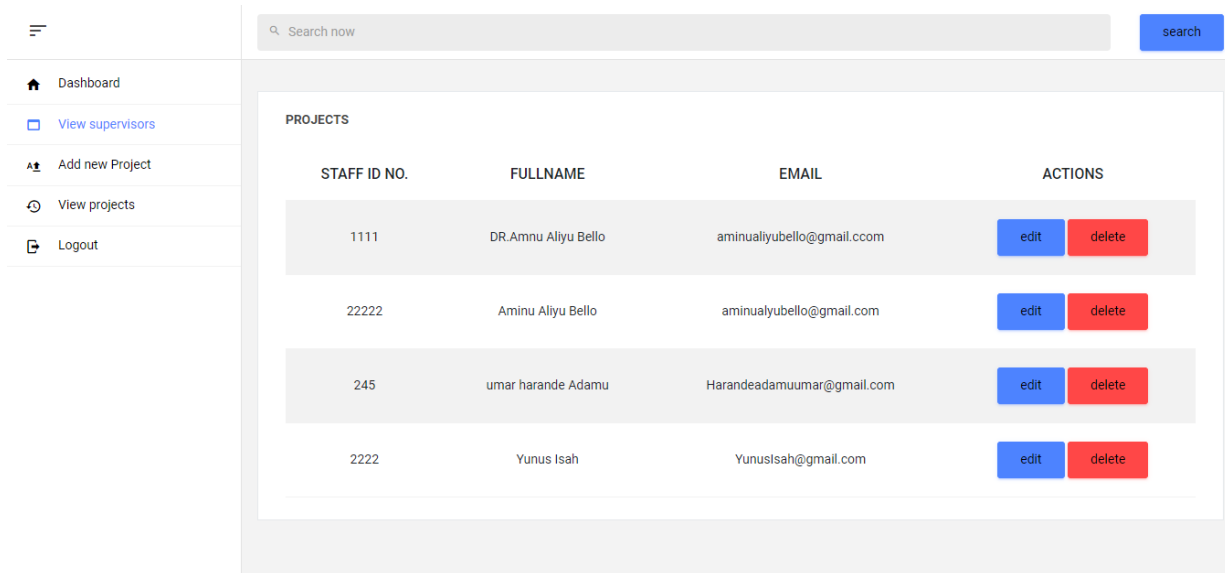


Figure 4.7 H.O.D dashboard

4.3.3.8 Supervisors page

This is a page that shows the list and details of supervisors and gives the HOD the privilege to edit and delete the supervisor's details from the system.



The screenshot displays a web application interface for managing supervisors. On the left is a sidebar with navigation links: Dashboard, View supervisors (highlighted), Add new Project, View projects, and Logout. The main content area features a search bar at the top with the text 'Search now' and a 'search' button. Below the search bar is a table titled 'PROJECTS' (though it lists supervisors). The table has four columns: STAFF ID NO., FULLNAME, EMAIL, and ACTIONS. There are four rows of supervisor data, each with an 'edit' button (blue) and a 'delete' button (red) in the ACTIONS column.

| STAFF ID NO. | FULLNAME | EMAIL | ACTIONS |
|--------------|---------------------|---------------------------|---|
| 1111 | DR.Amnu Aliyu Bello | aminualiyubello@gmail.com | <button>edit</button> <button>delete</button> |
| 22222 | Aminu Aliyu Bello | aminualiyubello@gmail.com | <button>edit</button> <button>delete</button> |
| 245 | umar harande Adamu | Harandadamuumar@gmail.com | <button>edit</button> <button>delete</button> |
| 2222 | Yunus Isah | YunusIsah@gmail.com | <button>edit</button> <button>delete</button> |

Figure 4.8 supervisors page

4.3.3.9 Projects pages

This page displays all projects in the repository. HOD has the privilege to edit, view, and delete projects.

| PROJECTS | | | | | |
|----------|---|-------------------|------|----------------------|---|
| S/N | PROJECT TITTLE | STUDENT NAME | YEAR | ACTIONS | |
| 1 | Design and implementation of Digital repository for final year students (pdf files) | Aminu Aliyu Bello | 2023 | edit | view delete |
| 2 | Design and implementation of Student activity planner | Yunus Isah | 2023 | edit | view delete |
| 3 | Design and implementation of Student activity planner | Yunus Isah | 2023 | edit | view delete |
| 4 | Design and implementation of Student activity planner | Yunus Isah | 2023 | edit | view delete |

Figure 4.9 projects page

4.3.3.10 Upload projects page

This is a page used by HOD to add projects to the repository. It has fields such as project title, author name, year, name of the supervisor, etc.

The screenshot displays a web interface for uploading projects. On the left, there is a sidebar with a hamburger menu icon, a refresh icon, a document icon, and a right-pointing arrow. The main content area features a search bar at the top with the placeholder text 'Search now'. Below the search bar, the form is organized into sections: 'Project Title' with a text input field containing 'project Title'; 'Students' Full name' with a text input field containing 'Student name'; 'Supervisor's name' with a text input field containing 'supervisors name'; 'Project Year' with a text input field containing 'mm/dd/yyyy' and a calendar icon on the right; and 'File upload' with a 'Choose File' button and the text 'No file chosen'. At the bottom of the form is a blue 'Upload' button.

Figure 4.10 upload projects page.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights the summary, conclusion, and recommendations of the study.

5.2 Summary

The primary goal of this project was to design and develop a project repository for final year students in the Department of Information Technology at Bayero University Kano. The repository was created to archive projects completed by final year students, providing a platform for other students to build on existing projects while preventing duplication. The system was developed using a range of web development tools and technologies, including HTML, CSS, JavaScript, and PHP.

By creating a centralized repository of final year projects, this system will provide a valuable resource for students and faculty members alike. Students can use the repository to explore previous projects, learn from successful approaches, and identify areas for improvement in their own projects.

5.3 Conclusion

In conclusion this project has successfully achieved its objectives by providing a valuable resource for students and faculty members alike. The repository enables students to learn from previous projects, identify best practices, and innovate on their work.

Furthermore, the repository will allow students to share works and build on each other's work, creating a culture of innovation and fostering a dynamic learning environment. As such, the

project has the potential to improve the quality of project-based learning initiatives at the Department of Information Technology and serve as a model for other departments and universities looking to enhance their project-based learning initiatives.

In summary, the project has been a success, and the repository will continue to serve as a valuable resource for current and future students and faculty members. With further development and expansion, the repository could become a leading platform for sharing knowledge and promoting innovation in the field of information technology.

5.4 Limitations

It is important to note that this project repository has certain limitations. Some of the limitations include:

1. **Limited scope:** The repository focuses solely on final year projects in the Department of Information Technology at Bayero University Kano. It does not include projects from other departments or universities, limiting its overall coverage.
2. **Technical constraints:** While the repository utilizes various web development tools and technologies, its functionalities and capabilities may be constrained by the chosen technologies. Future updates and enhancements may be necessary to address technical limitations and accommodate evolving requirements.
3. **User adoption:** The success of the repository depends on the active participation and engagement of students and faculty members. Encouraging widespread adoption and usage of the repository may require promotional efforts and ongoing support.

Despite these limitations, the project repository represents a significant step forward in the provision of a comprehensive repository for final year projects in the Department of Information Technology at Bayero University Kano. It has the potential to make a significant impact on the

learning outcomes of future students and to serve as a model for other departments and universities seeking to enhance their project-based learning initiatives.

5.5 Recommendations

Based on the success of this project in creating a repository for final year projects in the Department of Information Technology at Bayero University Kano, we recommend that the university explore opportunities to expand and enhance the platform further.

One potential area for development could be to incorporate additional features and functionalities to the repository. For example, machine learning algorithms could be used to recommend projects to students based on their interests and academic background. Social networking functionalities could be added to encourage collaboration among students and faculty members. The platform could also be expanded to include projects from other departments and universities, creating a more comprehensive and accessible resource for students and researchers.

In addition, efforts could be made to promote the repository among students and faculty members to increase its usage and impact. This could be achieved through targeted marketing campaigns, workshops, and training programs.

Overall, the project has demonstrated the potential of a centralized project repository for enhancing project-based learning initiatives in the Department of Information Technology. With further development and promotion, the repository has the potential to become a valuable resource for students and faculty members across the university and beyond.

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Appendix