

PROJECTXPRT

ASHISH ANU JOHN (Reg No:32022803017)

LEKSHMI CHANDJRAN (Reg No:32022803032)

BHARTH OS (Reg No: 332218270)

AISWARYA A (Reg No:32022803007)

COLLEGE OF APPLIED SCIENCE, MAVELIKKARA

(Affiliated to University of Kerala)

Managed by

INSTITUTE OF HUMAN RESOURCE DEVELOPMENT

(Established by Govt. of Kerala)



**SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF
BACHELOR OF COMPUTER APPLICATION
DEGREE OF
UNIVERSITY OF KERALA**

2025

COLLEGE OF APPLIED SCIENCE, KARTHIKAPPALLY

(Affiliated to University of Kerala)

Managed by

INSTITUTE OF HUMAN RESOURCE DEVELOPMENT

(Established by Govt. of Kerala)



Certificate

Certified that this report titled “**PROJEXPERT**” is record of the project work done by **ASHISH ANU JHON (Reg No:32022803017)**, **LEKSHMI CHANDHRAN (Reg No:320222803032)**, **BHARATH OS (Reg No:33221827021)**, **AISWARYA A (Reg No:33221827044)**, under our supervision and guidance, towards partial fulfillment of the requirements for the award of the degree of **BSc Computer Science** of the “**University of Kerala**”.

Mrs. SANGEETHA SAGAR

Asst Prof in CS

Mrs. LATHA NAIR J

HOD, CS

Dr. AYISHA V

PRINCIPAL

External Examiners:

1:

2:

DECLARATION

We, hereby declare that, this project report entitled “**PROJECTXPRT**” is the bonafide work of ours carried out under the supervision of our project guide **Mrs. Sangeetha Sagar (Asst. Prof in Computer Science), College of Applied Science, Mavelikkara** and declared further that to the best of our knowledge, the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion to any other candidate. The content of this report is not being presented by any other student to this or any other University for the award of a degree.

Signature:

AHISH ANU JOHN (Reg No:32022803017)

LEKSHMI CHANDHRAN (Reg No:332218270)

BHARTH OS (Reg No:332218270)

AIWARYA A (Reg No: 33221827044)

Countersigned:

Head, Department of Computer Science

College of Applied science, Mavelikkara

ACKNOWLEDGEMENT

First and foremost, we thank the almighty God who gave us the knowledge and strength to complete this project successfully.

We express our deep sense of gratitude to Principal **Dr. AYISHA V** for providing us with all the necessary facilities, which helped us, a lot in the successful completion of this project.

It is a great pleasure for us to acknowledge the assistance of **Mrs. Latha Nair j (Head of the Department, Computer Science)** and our project guide **Mrs. Sangeetha Sagar (Asst Prof in Computer Science)** for her valuable advice and kind support during the period of this project.

We are extremely grateful to our external guide for her valuable guidance, advice and support for the completion of this project.

AHISH ANU JOHN

LEKSHMI CHANDHRAN

BHARTH OS

AIWARYA A

ABSTRACT

ProjeXpert is an advanced project management platform designed to enhance the submission and evaluation process in educational institutions. The system simplifies project handling by enabling student groups to submit multiple project abstracts, which are then systematically extracted and organized for evaluation.

To ensure fair and efficient assessment, the platform employs an automated ranking mechanism that evaluates projects based on feasibility, innovation, and clarity. Project guides can review ranked abstracts, approve or reject submissions, and provide constructive feedback. Approved projects move forward to the next stage, where guides can schedule review sessions and track student progress.

The system also integrates feedback tracking, allowing guides to monitor whether students have addressed previous comments. Automated email notifications keep students informed about project decisions, comments, and review schedules. Additionally, an admin dashboard enables institution heads to oversee project activities and generate reports, ensuring a structured and transparent evaluation process.

ProjectXpert offers a seamless, user-friendly approach to project management, improving communication and efficiency in academic settings

TABLE OF CONTENTS

Sno	Title	Page Number
1	INTRODUCTION	
	1.1 INTRODUCTION	1
	1.2 SCOPE	2
	1.3 OVERVIEW	2
2	SYSTEM ANALYSIS	3
	2.1 EXISTING SYSTEM	4
	2.1.1 LIMITATIONS OF EXISTING SYSTEM	4
	2.2 PROPOSED SYTEM	4
	2.2.1 ADVANTAGES OF PROPOSED SYSTEM	5
	2.3 FEASIBILITY STUDY	5
	2.3.1 TECHNICAL FEASIBILITY	6
	2.3.2 OPERATIONAL FEASIBILITY	6
	2.3.3 ECONOMICAL FEASIBILITY	6
	2.3.4 LEGAL FEASIBILITY	7
3	PROBLEM DESCRIPTION	
	3.1 PROBLEM STATEMENT	8
	3.2 PROBLEM SOLUTION	8
	3.3 MODULE DESCRIPTION	9

4	SYSTEM SPECIFICATION	
	4.1 SYSTEM SPECIFICATION	11
	4.1.1 HARDWARE SPECIFICATION	11
	4.1.2 SOFTWARE SPECIFICATION	11
	4.2 SOFTWARE TECHNOLOGY OVERVIEW	12
	4.2.1 OVERVIEW OF PYTHON	12
	4.2.2 PYTHON DJANGO	14
	4.2.3 MYSQL	14
	4.2.4 HTML	14
	4.2.5 CSS	15
	4.2.6 JAVASCRIPT	15
	4.2.7 XAMPP	16
	4.2.8 NORMALIZATION	16
5	SYSTEM DESIGN \$ DEVELOPMENT	
	5.1 INFRASTRUCTURE DESIGN	17
	5.2 INPUT DESIGN	18
	5.3 OUTPUT DESIGN	19
	5.3.1 FORM DESIGN	19
	5.4 DATA FLOW DAIGARM	22
	5.4.1 LEVEL 0	24
	5.4.2 LEVEL 1	25
	5.4.3 LEVEL 2	26
	5.5 ANALYSIS TOOL	27
	5.6 DATABASE DESIGN	28
	5.7 TABLE DESIGN	29
	5.8 E-R DAIGARM	34

6	SYSTEM TESTING	
	6.1 INTRODUCTION	37
	6.1.1 TYPE OF TESTING	37
	6.2 TEST CASE	39
7	SYSTEM IMPLEMENTATION	
	7.1 INTRODUCTION	40
	7.2 IMPLEMENTAION PROCEDURE	41
8	SOFTWARE MAINTANACE	
	8.1 CORRECTIVE MAINTANACE	44
	8.2 ADAPTIVE MAINTANANCE	44
	8.3 PERFECTIVE MAINTANAVE	44
	8.4 PREVENTIVE MAINTANANACE	44
9	CONCLUSION	45
10	FUTURE ENHANCEMENT	46
11	APPENDEIX	
	11.1 SCREENSHOTS	47
	11.2 SAMPLE SOURCE	50
	11.3 GANTT CHART	64
12	REFERENCE	
	12.1 TEXT BOOKS	65
	12.2 WEBSITES	65

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

In a world where innovation drives progress and education shapes futures, ProjectXpert emerges as a transformative force in academic project management. At the heart of our vision lies a belief in the power of structured guidance, transparent evaluation, and collaborative growth—a belief that fuels our commitment to bridge the gap between students, guides, and institutions. Our mission is to streamline the journey from project ideation to completion, empowering academic excellence and fostering a culture of innovation and accountability.

In today's fast-paced educational environment, we recognize that managing multiple project submissions, evaluations, and feedback loops can be complex and overwhelming. Yet, the desire to nurture talent, encourage creativity, and maintain fairness remains constant within academic communities. This is where ProjectXpert steps in, serving as a dynamic platform designed to simplify, organize, and elevate the project management process.

For students aspiring to bring their ideas to life, ProjectXpert provides an intuitive and supportive space to submit project abstracts, receive timely feedback, and track their progress seamlessly. Our user-friendly interface ensures that the process of turning innovative ideas into impactful projects is smooth and empowering. Project guides, who play a pivotal role in shaping young minds, find in ProjectXpert a reliable companion that aids in fair evaluation, systematic ranking based on feasibility, innovation, and clarity, and efficient feedback management—all designed to support and strengthen mentorship.

Institution heads and administrators, entrusted with maintaining quality and transparency, benefit from an insightful dashboard that offers real-time oversight, comprehensive reporting, and efficient management of academic project activities. With automated email notifications and integrated feedback tracking, ProjectXpert ensures that no communication is missed, no progress goes unnoticed, and every student receives the guidance they deserve.

As you embark on this journey with ProjectXpert, know that every project you

nurture, every idea you support, and every piece of feedback you offer carries the potential to inspire innovation and build a brighter academic future. Welcome to ProjectXpert—where every project is a step toward excellence, and every evaluation is a milestone in the journey of learning.

1.2 SCOPE

The scope of this project is to create an advanced web-based platform that can be used by educational institutions to streamline the submission, evaluation, and monitoring of student projects. The platform will allow student groups to submit multiple project abstracts, which will be organized and ranked automatically based on feasibility, innovation, and clarity. The system will have three main types of users: admin, project guide, and student, each with their own specific features and capabilities. Students can submit and track their project progress, guides can review, rank, approve, or reject submissions, provide feedback, and schedule reviews, while admins can oversee all activities and generate institutional reports. Automated notifications and feedback tracking will enhance communication and ensure transparency. The goal of the project is to create a structured, efficient, and supportive environment that fosters innovation and improves project management within educational settings.

1.3 OVERVIEW OF THE PROJECT

This project aims to create a web-based platform that streamlines the submission, evaluation, and management of student projects in educational institutions. The platform will allow student groups to submit multiple project abstracts, which will be automatically ranked based on feasibility, innovation, and clarity. There will be three main types of users: admin, project guide, and student, each with its own set of features and capabilities. The platform will allow users to interact in a way that best suits their roles, whether it be submitting projects, evaluating and giving feedback, or monitoring overall progress. The goal of the project is to simplify project handling, improve communication, and ensure a transparent evaluation process. Overall, this project has the potential to greatly enhance the academic project experience for both students and faculty.

CHAPTER 2

SYSTEM ANALYSIS

System analysis is a logical process; it is an important activity that takes place when a new system is being built. The objective of this phase is not actually to solve the problem but to determine what must be done to solve the problem. It is the central intact of system development and it includes gathering and interpreting facts, diagnosing and using this information to recommend improvements to the system. System analysis gives the structure and functioning of the system and it specifies what the system should do. It is helpful to understand the problem and emphasize what is needed from the system.

Before designing an application which will help its users, it is important that the way it currently operates should be clearly identified. The process of system investigation includes several methods of gathering the required information. It is important that the approach is appropriate to the application under consideration and the user of the system. System analysis should be creative and imaginative in producing new solutions to meet the user requirements. In short the system is analyzed by gathering various information such as system functionality, problems encountered, requirements by the proposed system, users, their tasks and responsibilities. Here in the system analysis phase, the system is viewed as a whole and inputs to the system are defined, and also the output from the system is traced through the various data collected.

A detailed study of these processes must be made by the various techniques like interviews, questionnaires, etc. The data collected by these sources must be scrutinized to arrive at a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now, the existing system is subject to close study and the problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that weighed with the existing faces. The solutions given on a proposal. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for any endorsement by the user. The proposal is reviewed on user request and suitable changes that are made. This is a loop that ends as soon as the user is satisfied with the proposal.

2.1 EXISTING SYSTEM

In many educational institutions, the project submission and evaluation process is manual and time-consuming. Students submit project abstracts through email or printed documents, making it difficult for guides to track and manage submissions efficiently. The evaluation process lacks a standardized ranking system, leading to delays in feedback and decision-making. Additionally, students often struggle to receive timely responses from their guides, and there is no structured way to monitor project progress or previous feedback.

2.1.1 Limitations of Existing System

- Existing project submission methods like email and printed documents are manual and time-consuming, making the submission process inefficient and prone to delays.
- Guides face difficulty in tracking and managing multiple student submissions, leading to confusion and loss of information.
- There is no standardized ranking system for evaluating project abstracts, resulting in inconsistent and delayed feedback.
- Students often struggle to receive timely responses from their guides, affecting their project progress.
- There is no structured system to monitor project progress or review previous feedback, which leads to miscommunication and lack of clarity.

2.2 PROPOSED SYSTEM

The proposed system is designed to provide a comprehensive and efficient platform for managing the submission, evaluation, and tracking of student projects within educational institutions. It brings together three main user types: Admin, Project Guide, and Student, each with distinct roles and responsibilities. The Admin will have full control over the platform, including managing user accounts, approving submissions, and overseeing project evaluations. Project Guides will be responsible for evaluating student projects, providing feedback, and monitoring the overall progress of their students' work. Students will be able to submit their project abstracts, view feedback from their guides, and track their project's status and progress. The system focuses on enhancing transparency, simplifying the evaluation process, and fostering better communication between students and faculty, ensuring an efficient and streamlined project experience for all users.

2.2.1 ADVANTAGES OF PROPOSED SYSTEM

- **Centralized Platform:**
ProjectXpert handles submission to evaluation in one place. It avoids confusion and keeps everything organized.
- **Transparent Evaluation:**
Projects are ranked automatically using clear criteria. Students and guides can track progress and feedback easily.
- **Efficient Project Management:**
Guides can manage multiple projects with ease. It ensures quick feedback and smooth communication.
- **Role-Based Access:**
Users get access based on their role—Admin, Guide, or Student. This keeps the system secure and user-friendly.
- **Automated Ranking and Feedback:**
Projects are ranked without manual effort. Instant feedback saves time and boosts response speed.
- **User-Friendly Interface:**
The system is easy to use for all users. Even non-technical users can navigate it comfortably.
- **Project Tracking:**
Students and guides can monitor project progress. Feedback and history are easy to view.
- **Flexible and Scalable:**
It supports all types of academic projects. Suitable for various courses and institution

2.3 FEASIBILITY STUDY

An initial investigation led to a proposal to develop a centralized web-based platform for project submission, evaluation, and management within educational institutions. Once the proposed system was conceptualized and approved, a feasibility study was conducted. The purpose of the feasibility study is to explore various candidate systems and assess their practicality by evaluating technical, economical, operational, and legal aspects. After careful evaluation, ProjectXpert was identified as the best candidate system to streamline project handling, improve communication, and ensure a transparent evaluation process.

2.3.1 Technical Feasibility

Technical feasibility study deals with the hardware as well as the software requirements. The scope was whether the work for the project is done with the current equipment and the existing software technology. The outcome was found to be positive. The system "ProjectXpert" is said to be technically feasible because the software and hardware required to develop this system are already available. For this system, we use Python as the technology, Django as the framework, and MySQL as the back end.

2.3.2 Operational Feasibility

The proposed project would be beneficial to the organization, satisfying the objectives when developed and installed. One of the main problems faced during the development of a new system is getting acceptance from the users. There is support from the management of the institution towards the development of the project. All the operational aspects are considered carefully. Thus, the project ProjectXpert is operationally feasible.

2.3.3 Economic Feasibility

The developing system must be justified by cost and benefit, ensuring that the effort taken on the project provides the best return at the earliest. One of the important factors affecting the development of a new system is the cost involved. Since ProjectXpert is developed as part of a project work, there is no manual cost required for the proposed system. All necessary resources, including software and hardware, are already available, indicating that the system is economically feasible for development. The system ProjectXpert is said to be economically feasible because the required technologies like Python, Django, MySQL are freely available or already accessible. No additional purchases or external tools are necessary. Furthermore, the maintenance cost of the system is very low. As this project is carried out as part of our academic curriculum, the overall development cost is minimized, making ProjectXpert a highly cost-effective and economically feasible system.

2.3.4 Legal Feasibility

Legal feasibility ensures that the system complies with laws regarding data privacy, intellectual property, and other regulations. The ProjectXpert system adheres to all applicable laws, ensuring no violations of intellectual property or data privacy. It complies with data protection laws to maintain the confidentiality and safety of student and faculty information. Additionally, all user data will be securely stored and processed according to relevant legal guidelines. The system will also respect licensing agreements for any third-party tools or software used. Therefore, ProjectXpert is legally sound and poses no legal risks.

CHAPTER 3

PROBLEM DESCRIPTION

3.1 PROBLEM STATEMENT

In many educational institutions, the process of managing student project submissions and evaluations is often manual, time-consuming, and unstructured. Students face confusion in submission deadlines, feedback tracking, and project approvals, while guides struggle with organizing multiple project abstracts, giving timely feedback, and monitoring student progress. Additionally, Heads of Departments and administrators lack real-time visibility into departmental project activities, making it difficult to ensure fairness, transparency, and efficiency. This fragmented system leads to communication gaps, delays in evaluations, and poor coordination among students, guides, and institutional heads. Therefore, there is a need for an integrated digital platform that simplifies project submission, automates evaluations, and improves communication between all stakeholders involved.

3.2 PROBLEM SOLUTION

ProjectXpert offers a complete digital solution to streamline and simplify the project submission and evaluation process in educational institutions. It provides a centralized platform where students can easily submit multiple abstracts, receive feedback, and track approval status in real-time. Guides are empowered to evaluate projects efficiently using automated ranking criteria and structured feedback tools. Heads of Departments and administrators gain clear visibility into departmental activities through dashboards and reports, enabling them to monitor progress, manage guide workloads, and ensure fair evaluations. With features like automated notifications, feedback tracking, and review scheduling, ProjectXpert enhances communication, transparency, and overall efficiency in academic project management.

3.3 MODULE DESCRIPTION

The system has three users namely; Admin, Student module ,HOD module and Project Guide module.

Admin

The Admin Module of ProjectXpert provides institution administrators with complete control over the project workflow. It allows managing users, assigning guides, monitoring project status, and generating reports. Admins can track submissions, approvals, and student progress through a centralized dashboard. The module also ensures timely communication with automated email notifications and monitors whether students have addressed feedback. With features like system configuration, feedback tracking, and secure access logs, the Admin Module ensures a smooth, transparent, and efficient project evaluation process.

Student module

The Student Module of ProjectXpert is designed to streamline the project submission and communication process for student groups. Students can create and manage project teams, submit multiple abstracts, and view their evaluation status. The platform allows students to receive feedback from guides, track approval status, and respond to comments. Automated email notifications keep them updated on approvals, rejections, feedback, and review schedules. The module also helps students stay organized by providing a clear view of their project timeline, feedback history, and upcoming review sessions, ensuring a smooth and guided project journey.

HOD module

The HOD Module in ProjectXpert provides department heads with a comprehensive view of all project activities within their department. HODs can monitor project submissions, guide allocations, approval statuses, and overall student progress. The module enables them to review performance reports of both students and guides, ensuring timely evaluations and feedback. HODs can also manage departmental deadlines, oversee guide workloads, and ensure fair project distribution. With access to real-time dashboards and reporting tools, the HOD Module ensures efficient supervision and maintains transparency throughout the project process.

Project Guide Module

The Project Guide Module in ProjectXpert enables faculty guides to efficiently manage and evaluate student project submissions. Guides can view and rank submitted abstracts based on feasibility, innovation, and clarity, then approve or reject them with constructive feedback. Approved projects move to the next phase, where guides can schedule review sessions and monitor student progress. The module also tracks whether students have responded to previous feedback and allows guides to update comments or request revisions. With integrated notifications and a clear project overview, the module supports guides in ensuring a structured and effective mentoring process.

CHAPTER 4

SYSTEM SPECIFICATION

4.1 SYSTEM SPECIFICATIONS

4.1.1 HARDWARE SPECIFICATIONS

The selection of hardware configuration is a very important task related to software development. Insufficient random-access memory may affect adversely on speed and efficiency of the entire system. The process should be powerful to handle the entire operations. The hard disk should have sufficient capacity to store the file and application.

- Processor : 12.0 GHz Intel Core i5 or equivalent
- Hard Disk : Minimum 500 GB Storage
- RAM : 4 GB or higher
- Input Devices : Standard Keyboard and Mouse
- Output Devices : High Resolution monitor

4.1.2 SOFTWARE SPECIFICATIONS

- Operating System : Windows 7 or above
- Web Server : XAMPP
- Web Browser : Chrome/Microsoft edge/Firefox
- Front End : HTML,JAVASCRIPT, Boot Strap
- Back End : MYSQL(Data Base),Python
- Frame work : Django

4.2 SOFTWARE TECHNOLOGY OVERVIEW

4.2.1 Overview of Python:

Python is a high-level, interpreted, and general-purpose programming language known for its simplicity, readability, and versatility. It has become one of the most popular languages for web development, data science, artificial intelligence, automation, and more.

- Python was created by Guido van Rossum in the late 1980s at the Centrum Wiskunde & Informatica (CWI) in the Netherlands. Van Rossum wanted to create a language that was easy to read and simple to use.
- The first official release, Python 0.9.0, was launched in 1991. It included classes with inheritance, exception handling, and core data types like strings, lists, and dictionaries.
- Python 2.0 was released in 2000, introducing features like list comprehensions and garbage collection through reference counting. It made Python more powerful but also introduced issues that led to breaking changes later.
- Python 3.0, also called "Python 3000" and "Py3k", was released in 2008. It was a major revision that was not backward compatible with Python 2. It focused on removing redundant programming constructs and modules.
- Over the years, Python has seen numerous updates: Python 3.4, 3.5 (asyncio added), Python 3.6 (f-strings introduced), Python 3.7, Python 3.8 (walrus operator `:=`), and Python 3.9, 3.10, 3.11 (pattern matching).
- Python 3.12 (latest versions) continue to improve speed, memory management, and new programming constructs.
- Today, Python powers web applications, artificial intelligence systems, data analytics, scientific computing, and even Internet of Things (IoT) devices. It has a vibrant ecosystem and a massive developer community.

Most Important Python Features and How to Use them:

In today's technology-driven world, Python is essential not just for developers but also for engineers, analysts, researchers, and even non-programmers. It offers a balance between simplicity and powerful capabilities, making it a popular choice for diverse applications.

Python Features and Advantages

- **Simple and Easy to Learn:**

Python's syntax is designed to be readable and clean. It looks similar to English language, allowing even beginners to learn quickly. There are no complicated symbols, making it a perfect start for new programmers.

- **Interpreted Language:**

Python code is executed line-by-line, which makes debugging easier and faster. There's no separate compilation step needed.

- **Dynamically Typed:**

In Python, you don't need to declare the type of variables. The interpreter automatically infers the type at runtime.

- **High-Level Language:**

Python handles low-level operations like memory management internally. Developers can focus on solving problems rather than dealing with system internals.

- **Object-Oriented and Functional:**

Python supports object-oriented programming (classes, objects, inheritance) and functional programming (functions, lambda, map, filter) giving flexibility in designing applications.

- **Extensive Standard Library:**

Python comes with a rich set of built-in libraries and modules like math, datetime, os, sys, re, csv, and more — saving time for developers.

- **Portable and Cross-Platform:**

Python programs can run on Windows, Linux, Mac, Android, and other platforms without modification.

- **Third-Party Libraries and Frameworks:**

Python has a rich ecosystem of third-party libraries like:

- Web: Django, Flask
- Data Science: Pandas, NumPy, Matplotlib
- AI/ML: TensorFlow, Scikit-Learn
- Automation: Selenium, PyAutoGUI

4.2.2 Python Django

Django is a free and open-source, Python-based web framework that runs on a web server. It follows the model–template–views (MTV) architectural pattern. It is maintained by the Django Software Foundation (DSF), an independent organization established in the US as a 501(c)(3) non-profit.

Django's primary goal is to ease the creation of complex, database-driven websites. The framework emphasizes reusability and "pluggability" of components, less code, low coupling, rapid development, and the principle of "don't repeat yourself." Python is used throughout, even for settings, files, and data models. Django also provides an optional administrative create, read, update, and delete interface that is generated dynamically through introspection and configured via admin models.

Some well-known sites that use Django include Instagram, Mozilla, Disqus, Bitbucket, Nextdoor, and Clubhouse.

4.2.3 MySQL

MySQL is a powerful and widely-used open-source relational database management system (RDBMS) that plays a critical role in the backend infrastructure of the ProjectXpert project. It is responsible for storing, organizing, and managing the vast amounts of data generated by users, including their profiles, published artworks, detailed project descriptions, and client transactions. MySQL's robust querying capabilities and support for complex data relationships allow ProjectXpert to efficiently handle data retrieval and storage, ensuring that information is both accessible and secure. Additionally, MySQL's scalability and performance make it an ideal choice for ProjectXpert, as it can easily accommodate the platform's growth and increasing user interactions while maintaining high levels of reliability and speed.

4.2.4 HTML

HTML, or Hypertext Markup Language, is a standard programming language used to create and structure content on the World Wide Web. HTML code is used to create web pages and is interpreted by web browsers to display the content on the internet.

HTML uses a set of tags and attributes to describe the structure and content of a web page. Tags are enclosed in angled brackets (< >) and are used to markup different elements such as headings, paragraphs, images, links, and tables. Attributes provide additional information

about an element and are used in conjunction with tags to define characteristics such as the size, colour, and location of an element on the page.

One of the strengths of HTML is its flexibility and simplicity. HTML code can be easily edited and updated using basic text editors, and can be used to create a wide range of content, from simple web pages to complex web applications. It is also designed to be compatible with a wide range of browsers and operating systems, making it an ideal language for creating web content that can be accessed by a diverse range of users.

HTML has evolved over time, with new versions and updates being released periodically. The latest version, HTML5, includes new features such as improved multimedia support, new input types, and support for mobile devices. HTML5 is also designed to be more semantic, which means it provides more information about the meaning of the content on a page, making it easier for search engines to index and categorize the content.

Overall, HTML is a key technology for creating and sharing content on the web. Its simplicity, flexibility, and compatibility make it an essential tool for web developers and designers, and it will continue to be a vital part of the internet for years to come.

4.2.5 CSS

CSS, or Cascading Style Sheets, is a language used to describe the presentation of HTML documents. CSS allows web designers and developers to control the layout, colors, fonts, and other visual aspects of a web page. By separating the presentation from the content, CSS makes it easier to update the visual style of a web page without changing the underlying HTML code. CSS works by selecting HTML elements and applying styles to them. The styles are defined in a separate CSS file or embedded directly in the HTML code using the `<style>` tag. CSS styles consist of one or more properties and their values, which define the visual characteristics of the selected elements.

4.2.6 JAVASCRIPT

JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. As of 2022, 98% of websites use JavaScript on the client side for webpage behaviour, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices. JavaScript is a high-level, often just-in-time compiled language that conforms to the ECMAScript standard. It has dynamic typing, prototype-based object-orientation, and first-class functions.

It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

4.2.7 XAMPP

XAMPP is an open-source, cross-platform web server solution that plays an essential role in the development of the ProjectXpert project by enabling local hosting during the development phase. It integrates Apache, MySQL, PHP, and Perl, providing a complete and easy-to-use environment for testing and debugging web applications before deployment. By using XAMPP, developers can run ProjectXpert on their local machines, allowing them to simulate a live server environment without the need for an external hosting service. This setup facilitates quick iterations, real-time testing, and seamless database management, ensuring that the ProjectXpert platform functions correctly before it is moved to a production server. XAMPP's simplicity and all-in-one package make it an invaluable tool for developers working on the backend, helping to streamline the development process and ensure the project is stable and secure.

4.2.8 Normalization:

Normalization is the process of decomposing the attributes in an application, which results in a set of tables with very simple structure. The purpose of normalization is to make tables as simple as possible; Normalization is carried out in this system for the following reasons.

- To structure the data so that there is no repetition of data, this helps in saving space
- To permit simple retrieval of data in response to query and report requests.
- To simplify the maintenance of the data through updates, insertions and deletions.

To reduce the need to restructure or reorganize data which new application requirements arise. Primary Key is assigned for this purpose. The primary Key fields in almost all the tables help to ease the search and improve efficiency. The proposed system is using a second Normal form as it is found most suitable. The second normal form each row must contain an associated field that describes an attribute of the entry that the table describes.

CHAPTER 5

SYSTEM DESIGN & DEVELOPMENT

5.1 INFRASTRUCTURE DESIGN

System design provides an understanding of the procedure details, necessary for implementing the system recommended in the feasibility study. Basically it is all about the creation of a new system. This is a critical phase since it decides the quality of the system and has a major impact on the testing and implementation phases. Design is the second phase in the system development life cycle. Software design is the first of the three technical activities in the software development process such as design, code writing and testing.

During this phase, the analyst schedules design activities, works with the user to determine the various data inputs to the system, plans how data will flow through the system, designs required outputs and writes program specifications. Again the analyst's activities focus on solving a user's problem in logical terms.

During this second step, analysts employ a variety of tools such as data flow diagrams, entity-relationship diagrams, data dictionaries and Gantt charts. The system's design converts the theoretical solution introduced by the feasibility study into a logical reality.

During design the analyst:

- Draws a model of the new system, using data flow and entity-relationship diagrams
- Develop methods for collecting and inputting data
- Defines the detailed data requirements with a data dictionary
- Writes program specifications
- Specifies control techniques for the system's outputs, databases and inputs.
- Identifies and orders any hardware or software that the system will need.

In the physical design phase, necessary software is developed to accept input from the user, to perform necessary calculations through the manipulation of data stored in the databases to produce the appropriate result.

5.2 INPUT DESIGN

Input Design is the process of converting a user-oriented description of the inputs to a computer based business system into a programmer-oriented specification. The aim of making input design is to make the data entry as easy, logical and free from errors as possible. An input format should be logical and easy to understand. In the design, the user oriented inputs are converted into computer recognizable format.

The collection of data is the most expensive part of the system in terms of the equipment used, time and no. of clients involved etc. in the input design data is accepted and it can be readily used for data processing or can be stored in a database for further use. The activities used for inputs are very user friendly. Different names are associated with each data entry activity item makes data entry an easy job. Each data entry contains separate buttons for submitting the form and proper validation checking is carried out and necessary message will be presented to the user in case of improper data entry. The proposed system satisfies the following input design objectives

- A cost effective method of input
- The highest possible level of accuracy
- The input is acceptable to and understood by the user.

Input objectives are

- **Student Registration and Login** – To allow students to securely register and access the platform.
- **Guide Registration and Allocation** – To input and manage guide profiles and assign them to student groups.
- **Project Abstract Submission** – To enable students to upload multiple abstracts for evaluation.
- **Abstract Evaluation Inputs** – To allow guides to input ratings and feedback based on predefined criteria (feasibility, innovation, clarity).

- **Feedback and Revision Updates** – To collect student responses to guide feedback for continuous improvement.
- **Review Schedule Entry** – To input dates and times for project review sessions by guides.
- **Admin and HOD Controls** – To input academic year settings, evaluation rules, and monitor all activities.
- **Notification Triggers** – To set up automatic email alerts based on project status updates or schedule changes.

5.3 OUTPUT DESIGN

The output design of ProjectXpert focuses on providing accurate, clear, and efficient information to all users, ensuring effective decision-making and smooth interaction with the system. It includes carefully designed screen layouts, such as dashboards, feedback displays, and project status reports. These outputs are simple, descriptive, and easy to interpret, making it easy for students, guides, HODs, and administrators to access key information. The system generates various outputs like project approval statuses, review schedules, and progress reports, all presented in a structured format to improve transparency and user engagement. Each output is crafted with the objective of maintaining neatness, clarity, and relevance, ensuring users can quickly make informed decisions based on the data presented.

5.3.1 FORM DESIGN

LOGIN FORM

Welcome Back Sign in to access your ProjectXpert dashboard
<input type="text" value="Email"/>
<input type="password" value="Password"/>
Forgot password?
<input type="button" value="Login"/>
Don't have an account? Create Account

FORGOT PASSWORD FORM

Find Your Account	
Please enter your email address or mobile number to search for your account.	
<input type="text" value="Email address or Mobile number"/>	
<input type="button" value="Cancel"/>	<input type="button" value="Search"/>

REGISTRATION FORM

Create Account	
<input type="text" value="Full Name"/>	<input type="text" value="Email"/>
<input type="text" value="Password"/>	<input type="text" value="Contact Number"/>
<input type="text" value="Role"/>	
<input type="text" value="Department"/>	<input type="text" value="Course"/>
<input type="text" value="Project Type"/>	
<input type="button" value="Register"/>	
Already have an account? Login Here	

PROJECT SUBMISSION FORM

Submit Project
Project Type
Select Type
Project Title
Enter Project Title
Upload Project File
Choose File
Submit Project

PROJECT SUBMISSION FORM

Send Us Message	
Your Name	
Your Email	
Subject	
Your Message	
Send Message	

Output Types

External Outputs: These outputs are directed outside the educational institution and represent the official communication of the system. They include automated emails, reports, and notifications sent to students, guides, and external stakeholders, reflecting the institution's project management process.

Internal Outputs: These outputs are for internal use within the institution, primarily for guides, administrators, and Heads of Departments (HODs). They include dashboards, progress reports, feedback summaries, and project status updates, which are critical for efficient project evaluation and tracking within the organization.

Interactive Outputs: These outputs actively engage the user in real-time communication with the system. They include interactive elements like project submission forms, feedback submission interfaces, and scheduling options for reviews, allowing users (students, guides, or administrators) to directly interact with the platform and update project statuses or provide inputs.

5.4 DATA FLOW DIAGRAM



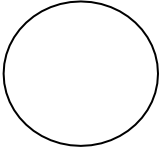
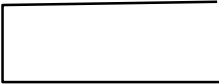
A DFD, also known as a "bubble chart" has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. A DFD consists of a series of bubbles joined by lines. The bubbles represent data transformations and the lines represent data flow in the system.

A data flow diagram may be used to represent a system or software at any level of abstraction DFD's can be partitioned into levels that represent increasing information flow and functional details. A Data Flow Diagram (DFD) is a diagram that describes the flow of data and the processes that change or transform data throughout a system. It is a structured analysis and design tool that can be used for flowcharting in place of or in association with, information oriented and process oriented system flowcharts.

When analysts prepare the DFD, they specify the user needs at a level of detail that virtually determines the information flow into and out of the system and the required data

resources. This network is constructed by using a set of symbols that do not imply a physical implementation. The DFD reviews the current physical system, prepares input and output specification, specifies the implementation plan etc.

Basic data flow diagram symbols are:

-  A “Rectangle” defines a source or destination.
-  An “Arrow” identifies data flow. It is a pipeline through which information flows.
-  A “Circle” represents a process that transforms incoming data flow(s) into outgoing data flow(s).
-  An “Open Rectangle” is a data store

Steps to Construct Data Flow Diagrams:

Three steps are commonly used to construct a DFD.

- Processes should be named and numbered for easy reference; each name should be representative of the process.
- The direction of flow is from top to bottom and from left to right.
- When a process is exploded into lower level details they are numbered.

5.4.1 LEVEL 0 DFD (CONTEXT DIAGRAM)

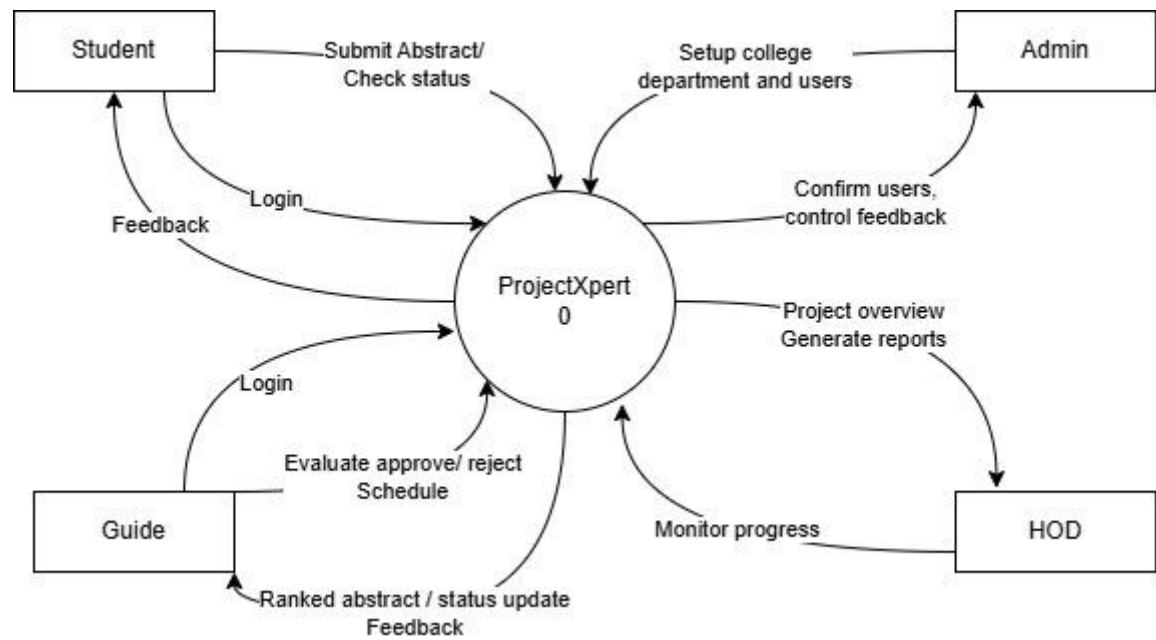


Fig: 5.4.1 Context Diagram

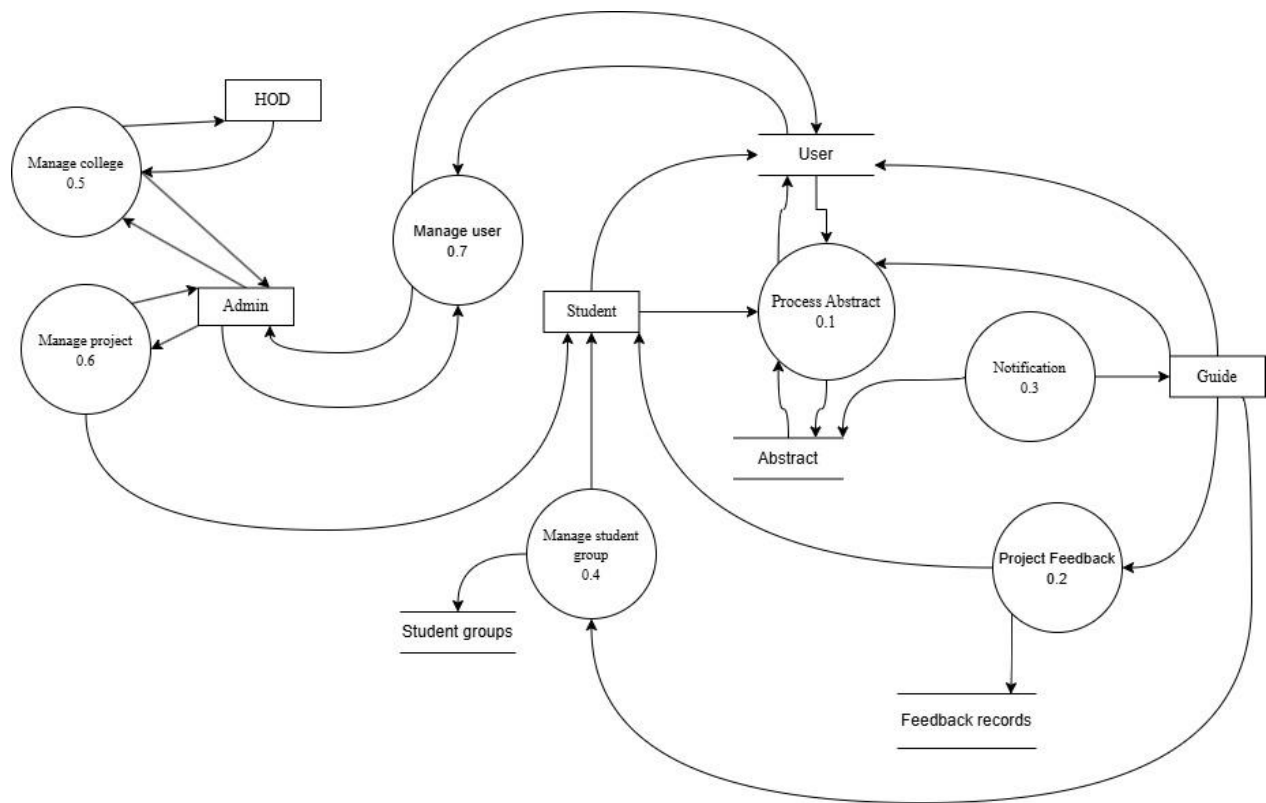


Fig: 5.4.2 Level 1 DFD

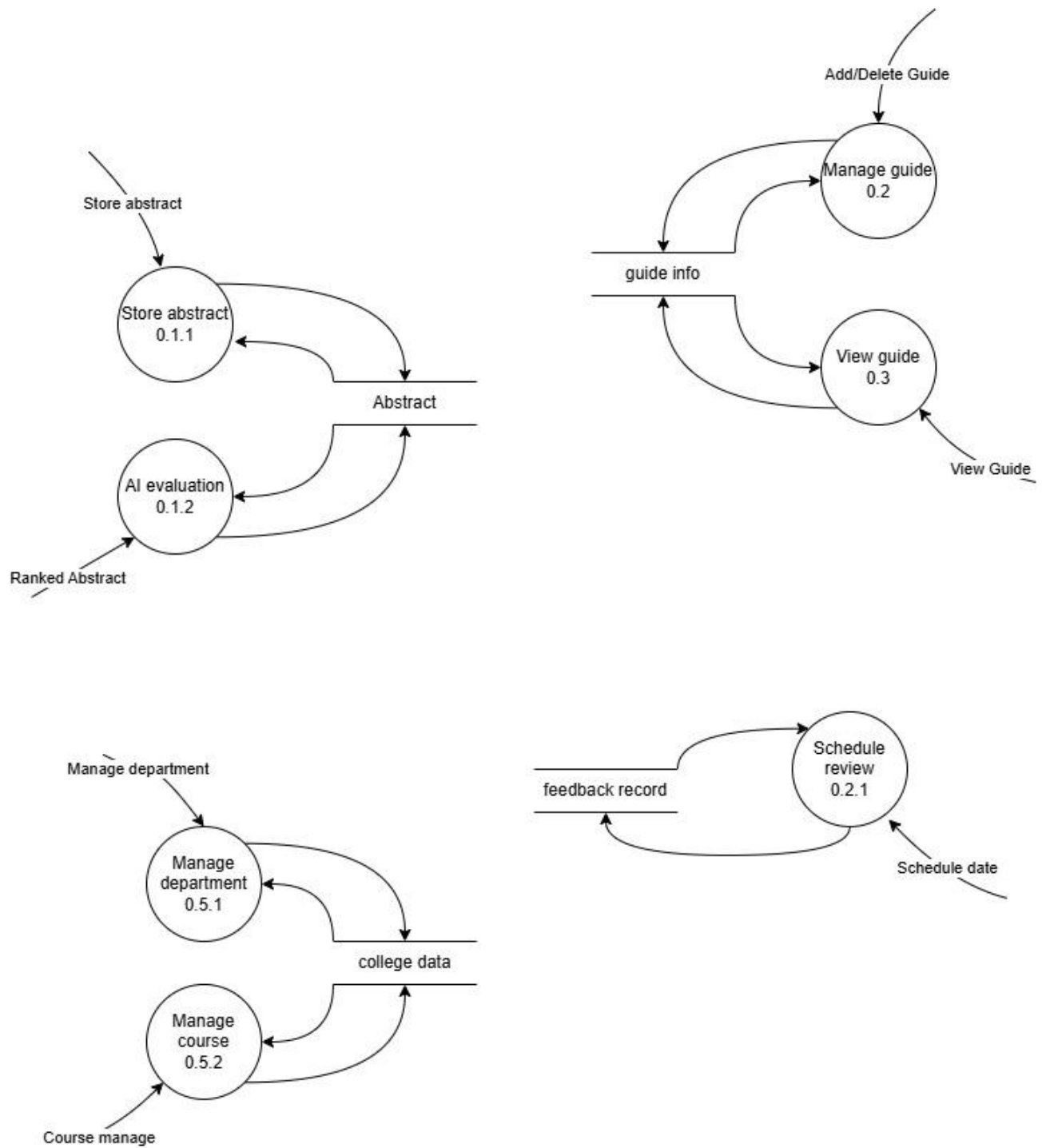


Fig: 5.4.3 Level 2 DFD

5.5 ANALYSIS TOOLS

System analysis is the process of collecting and interpreting facts, understanding problems and using this information to suggest improvements in the system. This will help to understand the existing system and determine how computers make their operations more effective.

In software engineering, a use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-Case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals, and any dependencies between those use cases.

The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted. The use case diagram shows the position or context of the use case among other use cases. As an organizing mechanism, a set of consistent, coherent use cases promotes a useful picture of system behavior, a common understanding between the customer/ owner/ user and the development team.

Use Case is a technique for capturing functional requirements of systems and systems-of-systems. Each use case provides one or more scenarios that convey how the system should interact with the users called actors to achieve a specific business goal or function. Use case actors may be end users or other systems. Use cases typically avoid technical jargon, preferring instead the language of the end user.

The UML (Unified Modeling Language) standard uses graphical symbols to show relationships in a system. In a use case diagram, use cases (the system's main functions or features) are shown as ovals, while the actors (users or other systems interacting with it) are shown as stick figures. These diagrams help to understand how different users interact with the system. For this application, a use case diagram is provided to visually represent these interactions in a simple and clear way.

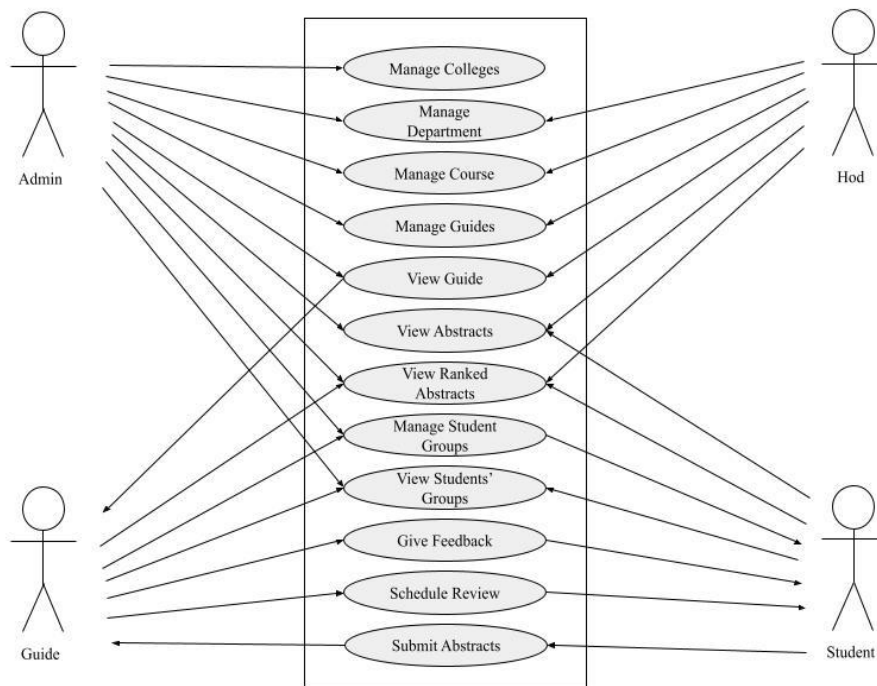


Fig: 5.5.1 Use Case Diagram

5.6 Database Design

After designing the input and output activities, the designer moves to concentrate on database design. How data are organized depends on the data and response requirements that determine hardware configurations. The database is organized to ensure that the system resources are not wasted. The objective of the database design is to provide the effective auxiliary storage and contribute to the overall efficiency to the computer program components of the proposed system. The database design translates the data models that were developed for the system users during the definition phase into the data structures supported by the chosen database technology. The goals of database design are as follows:

- A database should provide for the efficient storage, update and retrieval of data.
- A database should be reliable; the stored data should have high priority to promote user trust in that data.
- A database should be adaptable and scalable to new and unforeseen requirements and applications.

The techniques used to improve a data model in preparation for database design is called data analysis. Data analysis is a process that prepares a data model for implementation

as a simple, non-redundant and adaptable database. The specific technique is called Normalization. Normalization is a technique that organizes the data attributes such that they are grouped to form stable, flexible and adaptive entities. The table involved in inspection process along with attributes, data types, constraints and brief description about the fields are stated in the below mentioned table.

4.5.1 Normalization

Normalization is the process of decomposing the attributes in an application, which results in a set of tables with very simple structure. The purpose of normalization is to make tables as simple as possible. Normalization is carried out in this application for the following reasons.

- To structure the data so that there is no operation of data, this helps in saving space.
- To permit simple retrieval of data in response to query and report request.
- To simplify the maintenance of the data through updates, insertions and deletions.
- To reduce the need to restructures or recognize data which new application requirements arise.

Primary key is assigned for this purpose. The primary key fields in the tables help to ease the search and improve efficiency. The proposed system is using second normal form as it is found most suitable. In second normal form each row must contain associated field that describes an attribute of the entry that the table describes.

5.7 TABLE DESIGN

Table 5.7.1 **tbl_college**

Column	Type	Constraints	Description
id	int	Primary key,Auto increment	Unique college identifier
college_name	varchar(100)	Nullable	Name of the college
Location	Varchar(20)	Nullable	Location of the college

Table 5.7.2 **tbl_department**

Column	Type	Constraints	Description
id	int	Primary key, Auto-increment	Unique department identifier
department_name	varchar(100)	Nullable	Name of the department
college_id	int	Foreign Key (tbl_college)	Associated colleg

Table 5.7.3 **tbl_course**

Column	Type	Constraints	Description
id	int	Primary key, Auto-increment	Unique course identifier
course_name	Varchar(100)	Nullable	Name of the course
Batch	varchar(100)	Nullable	Name of the batch/year
Dept_id	int(11)	Foreign Key (tbl_department)	Associated Department

Table 5.7.4 **tbl_users**

Column	Type	Constraints	Description
id	int	Primary Key, Auto-increment	Unique user identifie
name	varchar(100)	Nullable	Name of the user
email	Varchar(50)	Nullable	Email address of the user
Password	varchar(10)	Nullable	Hashed password
Contact_number	Varchar(10)	Nullable	Contact phone number
User_role_choice	varchar(20)	Nullable	Role (Student/Guide/HOD)
Department_id	int	Foreign Key (tbl_course)	Associated Department
Course_id	int	Foreign key(tbl_course)	Associated Course
Profile_picture	Varchar(255)	Nullable	Path to profile picture

Table 5.7.5 **tbl_student_groups**

Column	Type	Constraints	Description
id	int	Primary key, Auto-increment	Unique group identifier
student_group_no	varchar(20)	Nullable	Student Group Number
user_id	int	Foreign key(tbl_users)	Associated student members

Table 5.7.6 **tbl_abstract**

Column	Type	Constraints	Description
id	int	Primary key, Auto increment	Unique Abstract identifier
project_type	varchar(50)	Nullable	Type(Major/Minor)
abstract_title	varchar(30)	Nullable	Title of project
abstract_file_name	varchar(100)	Nullable	Name of uploaded pdf file
guide_message	varchar(500)	Nullable	Comments from guide
rank	int	Nullable	Automated ranking score
group_id	int	Foreign key(tbl_student_groups)	Submitting group

Table 5.7.7 **tbl_project_reviews**

Column	Type	Constraints	Description
id	int	Primary key, Auto-increment	Unique review identifier
review_date	date	Nullable	Scheduled review date
feedback	varchar(100)	Nullable	Guide's feedback comments
project_status	varchar(16)	Default="NOT_SUBMITTED"	Current status of project
review_choices	varchar(10)	Nullable	Review decision
group_id	int	Foreign key(tbl_users)	Reviewing guide
abstract_id	int	Foreign key(tbl_abstract)	Reviewed abstract
purpose	longtext	Not Null	purpose of donee
date	timestamp	Not Null	date of registration

E-R DIAGRAM

An entity-relationship (ER) diagram is specialized graphic that illustrates the interrelationship between entities in a database. Boxes are commonly used to represent entity. Diamonds are normally used to represent relationships and ovals are used to represent attributes.

An entity is piece of data is shared between entities.

- **Classifying Relationships**

Relationships are classified by their degree, connectivity, cardinality, direction, type and existence.

- **Degree of Relationships**

The degree of a relationship is the number of entities associated with the relationship. The n- array relationship is there general form for degree n. Special cases are binary, ternary where the degree is 2 and 3 respectively.

- **Connectivity and Cardinality**

The connectivity of a relationship describes the mapping of associated entity instances in the relationship. The values of connectivity are "one" or "many". The cardinality of a relationship is the actual number of related occurrences for each of the two entities. The basic types of connectivity of relations are: One-to-one, one-to-many, many-to-many.

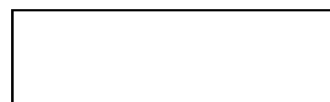
A one-to-one (1:1) is when at most one instance of an entity A is associated with one instance of entity B.

0-to-many (1: N) Is when for an instance of an entity A, there are zero, one or many instances of entity B, but for instance of the entity B, there is only one instance of the entity A.

A many-to-many (M: N) relationship, sometimes called non-specific, is when for one instance of entity A, there are zero, one or more instances of entity B and for one instance of entity B there are zero, one or many instances of entity A.

The symbols used ER

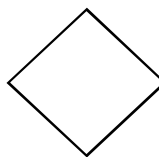
Diagram is Entity



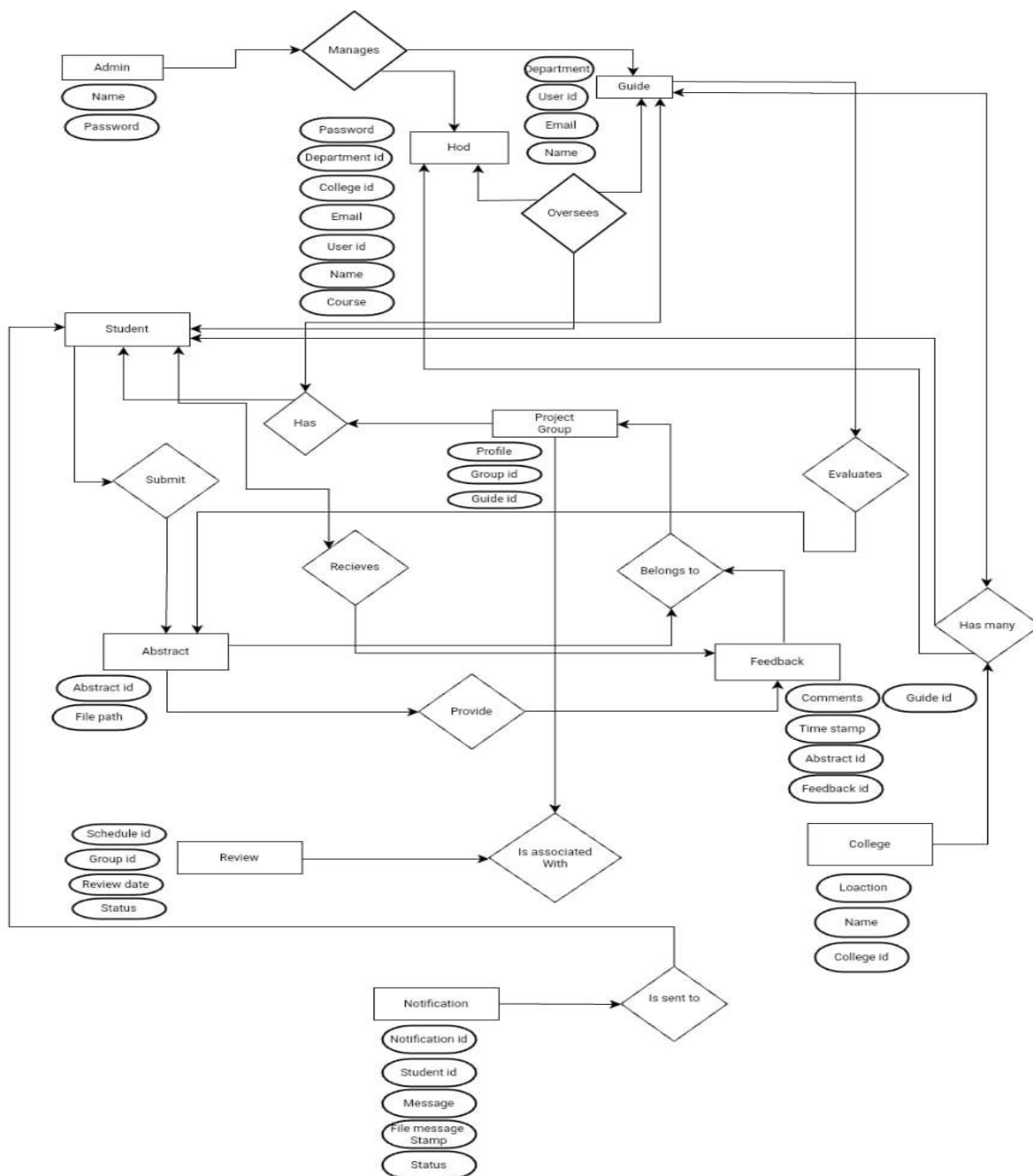
Attributes



Relationships



Li

**E-R DIAGRAM**

CHAPTER 6

SYSTEM TESTING

6.1 INTRODUCTION

System testing is actually a series of different tests whose primary purpose is to fully exercise the computer based system. Although each test has a different purpose, all work together to verify that the system elements have been properly integrated and perform all functions clearly.

System testing makes logical assumptions that if all parts of the system are correct, the goal will be successfully achieved. Testing is the process of executing the program with the intent of finding errors. Testing cannot show the absence of defects, it can only show that software errors are present.

Testing on this project can be done in many ways, such as module testing, where every single program module is examined thoroughly, this project is also divided into many modules such as service, user interface, viewing schedules and deleting schedules etc. Also, the whole unit will be tested as every data entered and searched will also be tested; all the runtime errors can be detected and corrected accordingly. There are also other types of testing such as integration testing; validation testing etc. the whole project is integrated so it has to be tested at each and every point.

Testing is a process of checking whether the developed system is working according to the original objectives and requirements. A test case is one that has a possibility of finding as yet undiscovered error. A successful test is one that uncovers as yet undiscovered error. The developed system is tested whether it works efficiently and whether it satisfies all the user requirements by taking a series of test cases.

6.1.1 Types of Testing

The software, which has been developed, has to be tested to prove its validity. Testing is considered to be least creative phase of the whole cycle of the system design. In the real sense it is the phase, which helps to bring out the creativity of the phases. No system design is

ever perfect. Errors occur due to communication problems, programmer's negligence or time constraints. All these must be eliminated before the system is ready for user acceptance testing. Different levels of testing are employed during different stages of the system development.

6.1.1.1 White Box Testing

By using this technique, it was tested that all the individual logical paths were executed at least once as logical decisions were tested on both their true and false sides. All the loops were tested with data in between the ranges and especially at the boundary values.

6.1.1.2 Black Box Testing

By the use of this technique, the missing functions were identified and placed in their positions. The errors in the interfaces were identified and corrected. This technique was used to identify the initialization and termination errors and correct them.

6.1.1.3 Unit Testing

In the lines of this strategy, all the individual functions and modules were put to the test independently. By following this strategy, all the errors in coding were identified and corrected. This method was applied in combination with the White Box and Black Box testing techniques to find the errors in each module.

6.1.1.4 Integration Testing

This testing strategy has two different approaches namely the top down approach, in which the integrations are carried out from the top level module to the bottom and bottom up approach in which the integration is carried out from the low level module to the top. The modules were tested using the bottom up approaches by introducing stubs for the top-level functions. This test was used to identify the errors in the interfaces, the errors in passing the parameters between the functions and to correct them.

6.1.1.5 Validation Testing

Validation testing can be defined in many ways, but a simple definition that validation succeeds when the software in a manner that is reasonably expected by the customer.

Software validation is achieved through a series of black box test that demonstrate conformability with requirements. After validation test have conducted, one of the two possible conditions exists.

6.1.1.5.1 The function or performance characterized confirm the specification and are accepted.

6.1.1.5.2 Deviation from specification is found and a deficiency list is created.

6.1.1.6 Output Testing

After performing the validation testing, the next step is output testing of the proposed system since no system could be useful if it does not produce the required output in a specific format. Asking the users about the format required by them tests the outputs generated or displayed by the system under consideration.

The output format of a screen is found to be correct as the format was designed in the system design phase according to the user needs. For the hard copy also, output comes out as the specified requirements by the user. Hence output testing does not result in any correction in the system.

6.2 TEST CASES

A specific set of steps and data along with expected results for a particular test objective. A test case should only test one limited subset of a feature of functionality. Test case documents for each functionality/ testing areas will be written, reviewed and maintained separately in Excel sheets.

In system testing, test data should cover the possible values of each parameter based on the requirements. Since testing every value is impractical, a few values should be chosen from each equivalence class. An equivalence class is a set of values that should all be treated the same. Ideally, test cases that check error conditions are written separately from the functional test cases and should have steps to verify the error message s and logs. Realistically, if error test cases are not yet written, it is OK for testers to check for error conditions when performing normal functional test cases. It should be clear which test data, if any, is expected to trigger errors.

CHAPTER 7

SYSTEM IMPLEMENTATION

7.1 INTRODUCTION

Implementation is the stage of project when the theoretical design is turned into a working system. At this stage, the main workload, the greatest upheaval and the major impact on existing practices shift to the user department. If the implementation stage is not carefully planned and controlled, it can cause chaos. The implementation stage is a system project in its own right. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover, training of staff in the changeover procedure and evaluation of changeover methods.

The implementation is the final and important phase. It involves user training system testing in order to ensure successful running of the proposed system. Once the system design phase is over, the next stage is to implement and monitors the operation of the system to ensure that it continues the work effectively and efficiently.

The three main phases in implementation take place in series. These are the initial installation, the test of the system as a whole and evaluation maintenance and control of the system. The implementation plan and action to implement should be bound closely together. The implementation plan is a function of line management at least as far as key decision or alternative plans are concerned. The implementation plan was to convert the existing clerical files to the computer. The implementation plan listed all sub tasks so that individuals in the organization may be assigned specific responsibilities.

The installation of the new system that is bound to replace the current one may require a major revision of computer facilities as well as completely new after space. Space planning took into account the space occupied by the people, space by equipment and the movement of people and equipment in the working investment. After conduction the initial testing the system is loaded on the client office's computer. Some of the user employees in this case are selected. These users are trained first and they run the system. A detailed documentation is prepared to this set of employees. There may be slight modifications to meet the organization.

After all modifications specified by the users in the documentation are made, the computer system is run along with manual system. Even though this kind of parallel run make extra burden to the employees and management, the system is run in parallel for the sake of checking reliability and efficiency.

After this document which compares the result of the manual system with those of the computerized is prepared. In the case of management many of whom participated in the development of the system short seminars were given. Particular attention was paid to the training of end users. The training sessions were aimed at giving the user staff the specific skills required in their new jobs. Education involved creating the right atmosphere and motivation of user staff. It explained the need for changes and helped to overcome the resentment caused by the feeling that computers took away the responsibility from individual departments.

Various measures have been taken by department officials in order to find suitable solutions by the following issues

- About the skill to be acquired.
- Reduction of man power in department.
- About the new form having all required option.

7.2 IMPLEMENTATION PROCEDURE

Implementation is the stage of the project where the theoretical design is turned into a working system. At this stage, the main work load, the greatest upheaval and the major impact on the existing system shifts to the department. If the implementation is not carefully planned and controlled, it can cause confusion. Implementation includes all those activities that take place to convert from the old system to the new one. Proper implementation is essential to provide a reliable system to meet the organizational requirements.

Successful implementation may guarantee improvement in the organization using the new system, but improper installation will prevent it. The process of putting the developed system into the actual use is called system implementation. This includes all those activities that take place to convert from the old system to the new system. The system can be implemented only after through testing is done and if it is found to be working according to

the specification of the system.

The most crucial stage is achieving a new successful system and giving confidence on the new system for the user that it will work efficiently. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover. The more the complex system being implemented is, the more involved will be the system analysis and the design effort required for its implementation.

6.1.1 EQUIPMENT ACQUISITION

Here, the necessary equipment is acquired to implement the system. Major steps involved in the implementation are installation of software. In case of this system there is no special hardware requirement for the working of the software. In addition to basic hardware requirements one thing that is essential is the software requirements with an operating system that has server support. The proposed system can run on any PC, which works on android and any versions of it. Our software is platform dependent and will run only on the windows platform after installing the software, it is essential to ensure that the software is working accordingly with the existing software.

6.1.2 TRAINING

For this system, it was explained to the users how to use the system, what details are to be given while creating a new profile, how to use it so that we get the maximum output out of it. The proposed system may be entirely new, replacing an existing one or it may be modifications to the existing system. In either case, proper implementation is necessary to provide a reliable system to meet organizational requirements.

6.1.3 EVALUATION

Evaluation of the system is performed to identify its strength and weaknesses.

6.1.3.1 OPERATIONAL EVALUATION

Assessment of the manner in which the system functions, including ease of use, response time, overall reliability and level of utilization.

6.1.4 ORGANIZATIONAL IMPACT

Identification and measurement of benefits to the organization in such areas like financial concerns, operational efficiency and competitive impact.

6.1.5 USER MANAGEMENT ASSESSMENT

Evaluation of attitude of senior and user managers within the organization, as well as end users.

6.1.6 DEVELOPMENT PERFORMANCE

Evaluation of the development process based on overall development time and effort, conformance to budgets and standards, and other project management criteria includes assessment of development methods and tools.

6.1.7 DOCUMENTATION

After the testing and implementation was completed, the whole system was presented and documented in a readable manner. This was done to ensure that any corrections, manipulations or updating are performed in future, the users would face no problem in performing those changes. Documentations include the source code, the tables that were used to construct the base for the system, the framework which is bound to the programs .

CHAPTER 8

SOFTWARE MAINTENANCE

Software maintenance denoted any changes made to a software product after it has been delivered to the customer. Maintenance is inevitable for almost any kind of product. Most products need maintenance due to wear and tear by use. Although software does not wear out like a piece of hardware it “ages” and eventually fails to perform. So maintenance becomes necessity. Types of software maintenance:

8.1 CORRECTIVE MAINTENANCE

Corrective maintenance of a software product is necessary either to rectify the bugs observed while the system is in use.

8.2 ADAPTIVE MAINTENANCE

A software product might need maintenance when the customers need the product to run on new platforms, on new operating systems, or when they need the product to interface with new hardware or software.

8.3 PERFECTIVE MAINTENANCE

A software product needs maintenance to support the new features that users want it to support, to change different functionalities of the system according to customer demands, or to enhance the performance of the system.

8.4 PREVENTIVE MAINTENANCE

Modification of a software product after delivery to detect and correct latent faults in the software product before they become effective faults.

CHAPTER 9

CONCLUSION

The project was successfully completed within the time span allotted. Every effort has been made to present the system in a more –user friendly manner. All the activities provide a feeling like an easy walk over to the user who is interfacing with the system. The system has been developed with much care and free of errors and at the same time it is efficient and less time consuming. The purpose of this project was to develop a web application for social welfare activities.

This project helped us in gaining valuable information and practical knowledge on several topics likes deigning web pages using PHP, usage of responsive templates and customized user forms. The project is created using MySQL as back end which also helped to study about the various operations associated with MySQL. The system as a whole is secured. Also the project helped us in understanding about the development phases of a project and software development life cycle. This project has given greater satisfaction because we developed a project which helps to promote the welfare activities in Kerala.

CHAPTER 10

FUTURE ENHANCEMENT

Every application has its own merits and demerits. The project has covered almost all the requirements. Further requirements and improvements can easily be done since the coding is mainly structured or modular in nature. Changing the existing modules or adding new modules can append improvements. Further enhancements can be made to the application, so that the website functions very attractive and useful manner than the present one. The project also helps in doing a global level social welfare activities.

Future enhancements for this website could include the development of a mobile application for greater accessibility, integration of geolocation features to find nearby assistance requests, real-time chat functionality for improved user communication, seamless payment gateway integration for enhanced donation processes, and the implementation of machine learning algorithms to refine matching between donors and recipients. Additionally, features like volunteer management, blockchain-based transparency, gamification elements, multilingual support, and accessibility features could further elevate the user experience. These enhancements aim to expand the platform's capabilities, user base, and impact in facilitating medical support, financial aid, and blood donation, ultimately creating a more connected and supportive community.

As with any software in any field, there is always room for improvement and changes that should be made over time in order to incorporate constantly evolving technology and also to continuously engage people who quickly adopt to those new tools.

CHAPTER 11

APPENDIX

11.1 SCREENSHOTS

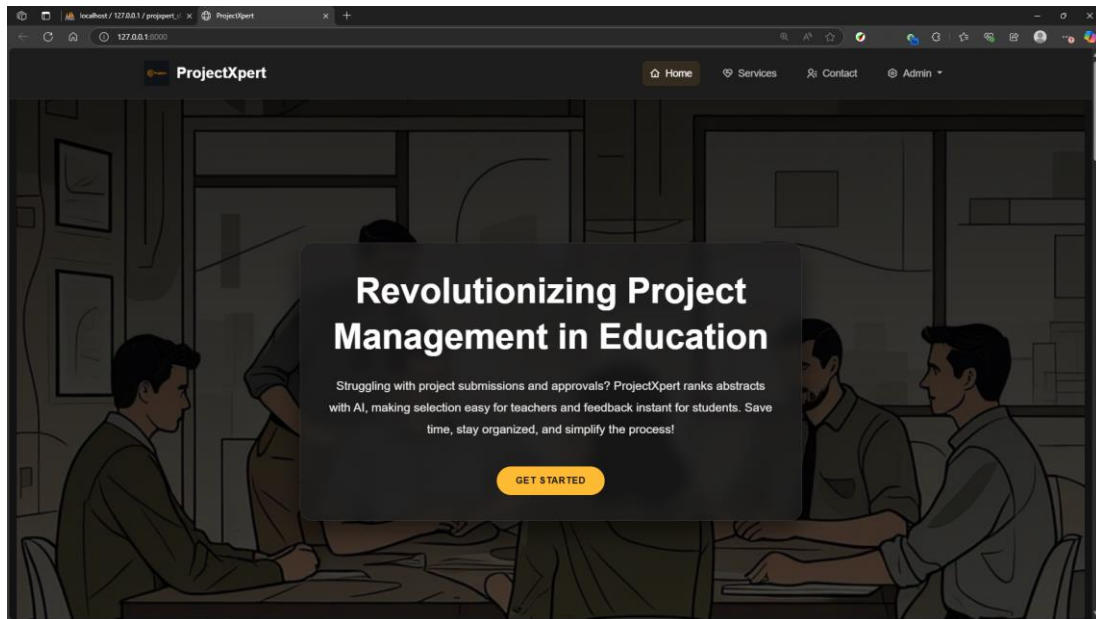


Fig: 11.1.1 Home Pages

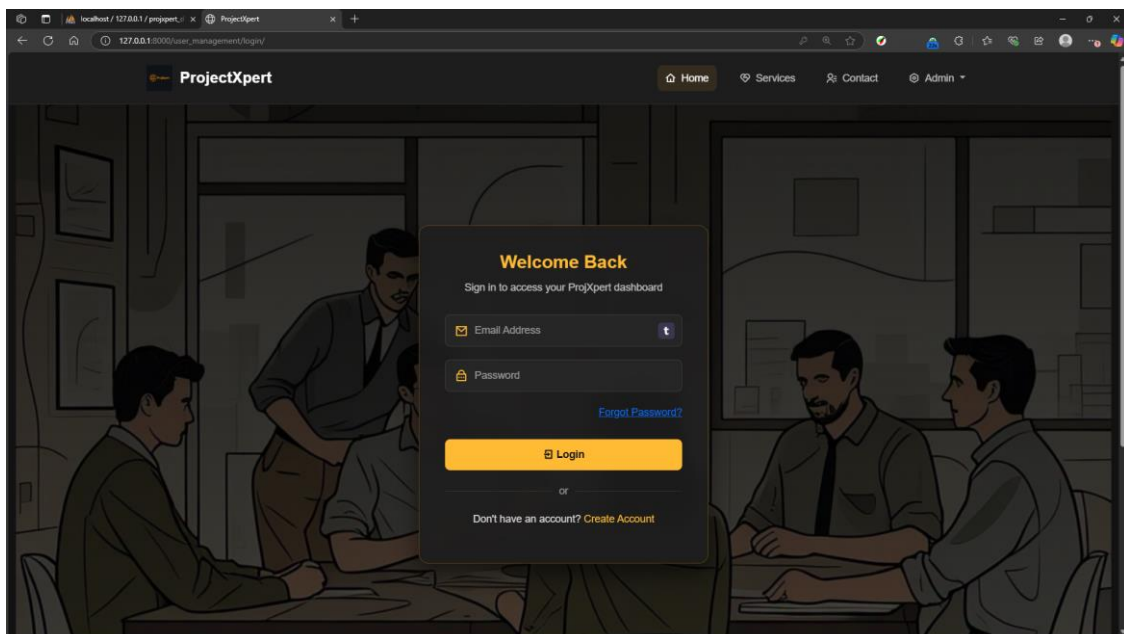
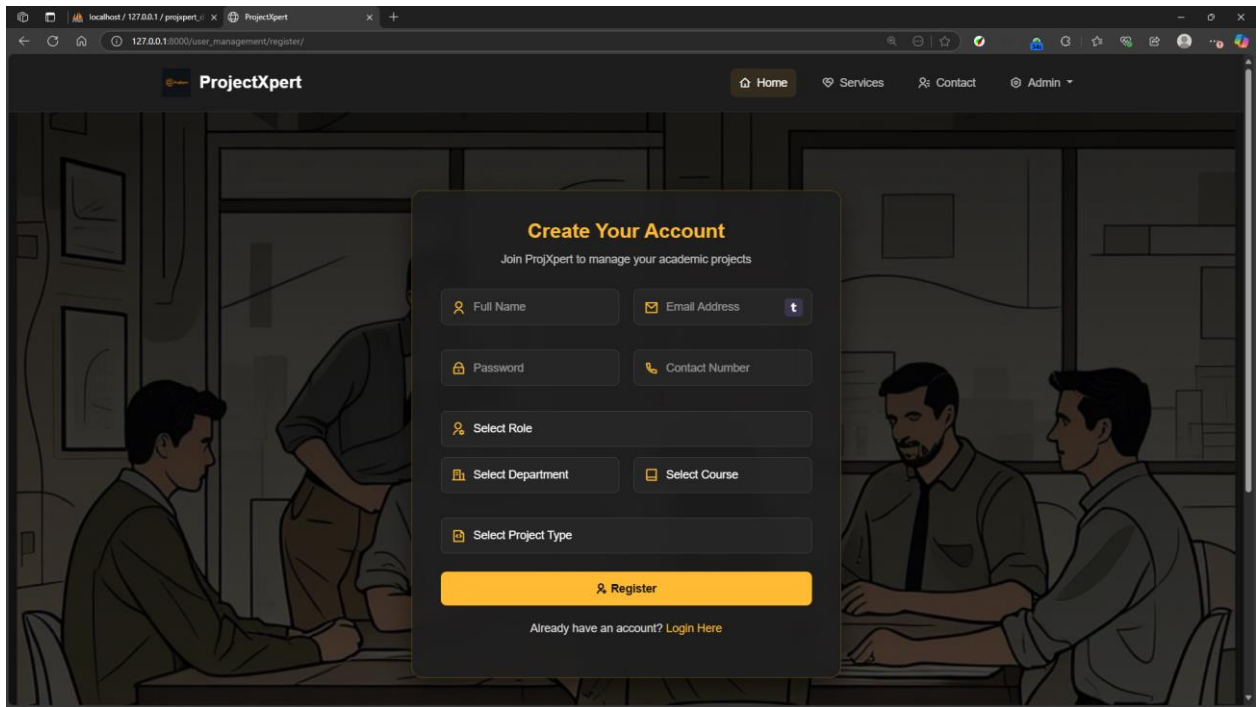
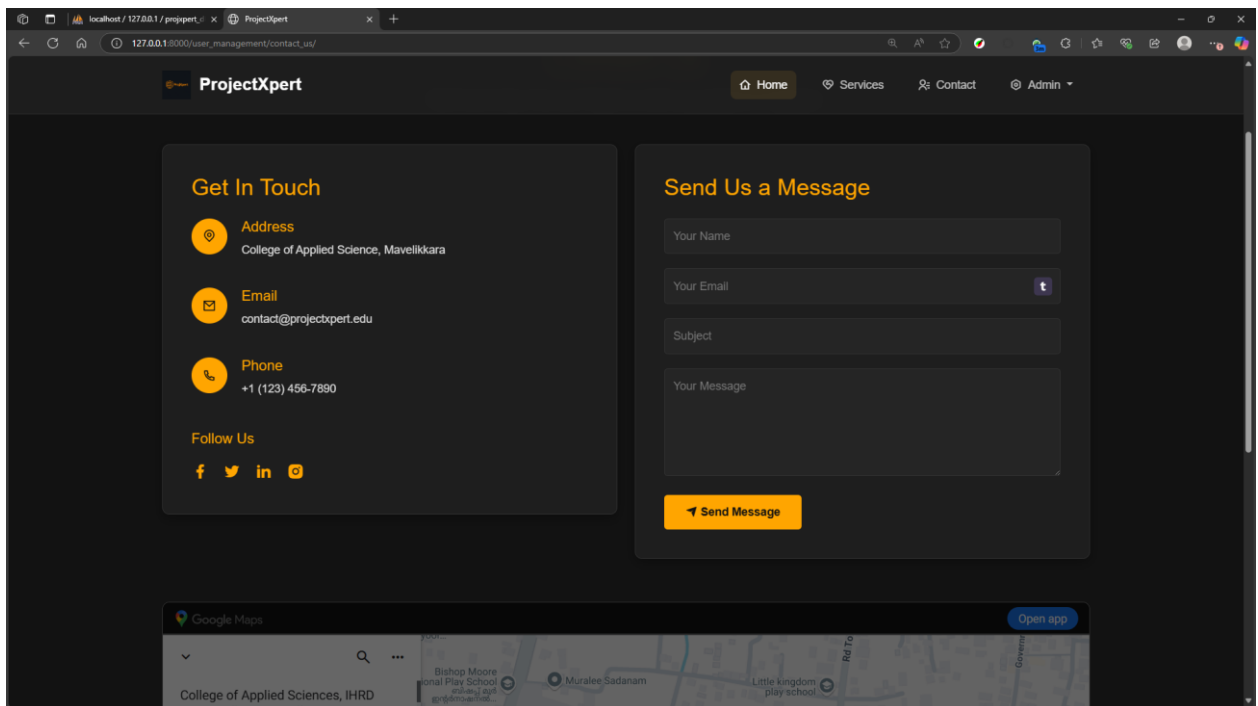


Fig: 11.1.2 Login Page



The screenshot shows the ProjectXpert registration page. The browser address bar displays 'localhost / 127.0.0.1 / projectxpert' and the URL '127.0.0.1:8000/user_management/register/'. The page features a dark theme with a background illustration of people in an office. A central modal form titled 'Create Your Account' prompts users to 'Join ProjXpert to manage your academic projects'. The form includes input fields for 'Full Name', 'Email Address', 'Password', and 'Contact Number'. It also has dropdown menus for 'Select Role', 'Select Department', and 'Select Project Type', along with a 'Select Course' button. A prominent yellow 'Register' button is at the bottom, with a link to 'Login Here' for existing users. The top navigation bar includes links for 'Home', 'Services', 'Contact', and 'Admin'.

Fig: 11.1.3 Registration Page



The screenshot displays the ProjectXpert contact page. The browser address bar shows 'localhost / 127.0.0.1 / projectxpert' and the URL '127.0.0.1:8000/user_management/contact_us/'. The page has a dark theme and features two main sections: 'Get In Touch' and 'Send Us a Message'. The 'Get In Touch' section lists contact details: 'Address' (College of Applied Science, Mavelikkara), 'Email' (contact@projectxpert.edu), and 'Phone' (+1 (123) 456-7890). It also includes a 'Follow Us' section with icons for Facebook, Twitter, LinkedIn, and Instagram. The 'Send Us a Message' section contains input fields for 'Your Name', 'Your Email', 'Subject', and 'Your Message', followed by a yellow 'Send Message' button. At the bottom, there is a Google Maps embed showing the location of the College of Applied Sciences, IHRD, with an 'Open app' button. The top navigation bar includes links for 'Home', 'Services', 'Contact', and 'Admin'.

Fig: 11.1.4 Contact Us Page

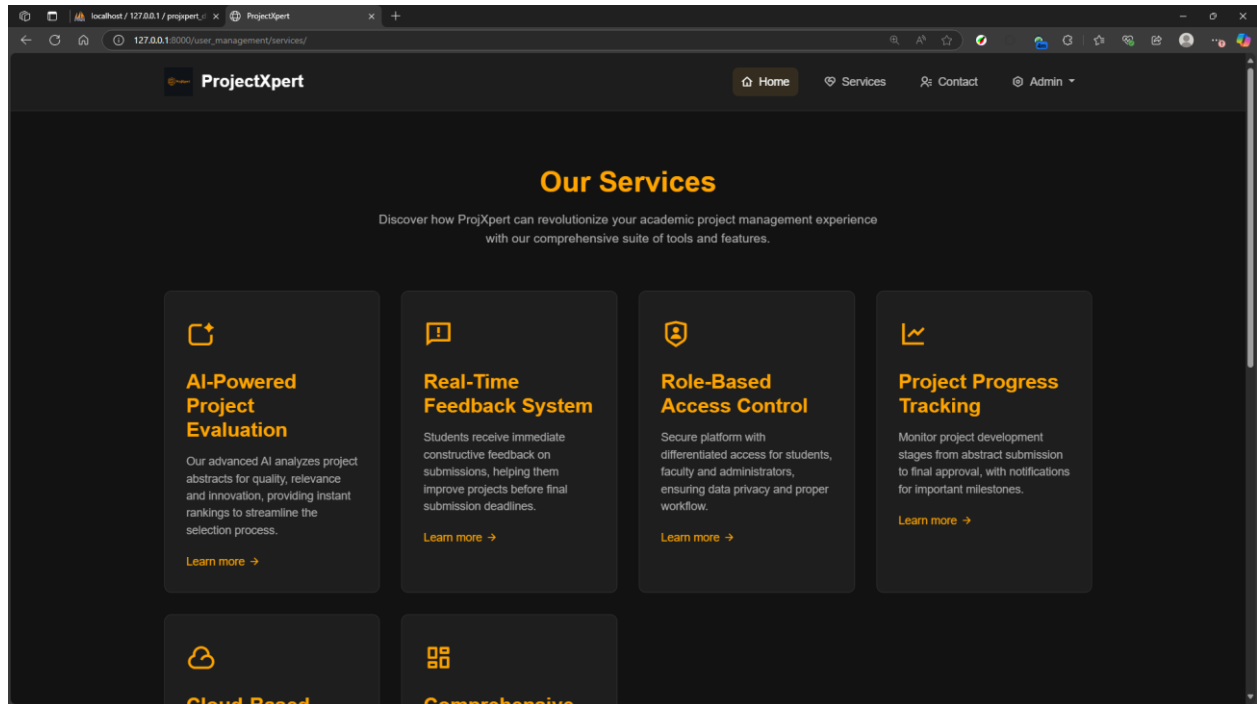


Fig: 11.1.5 Our Services page

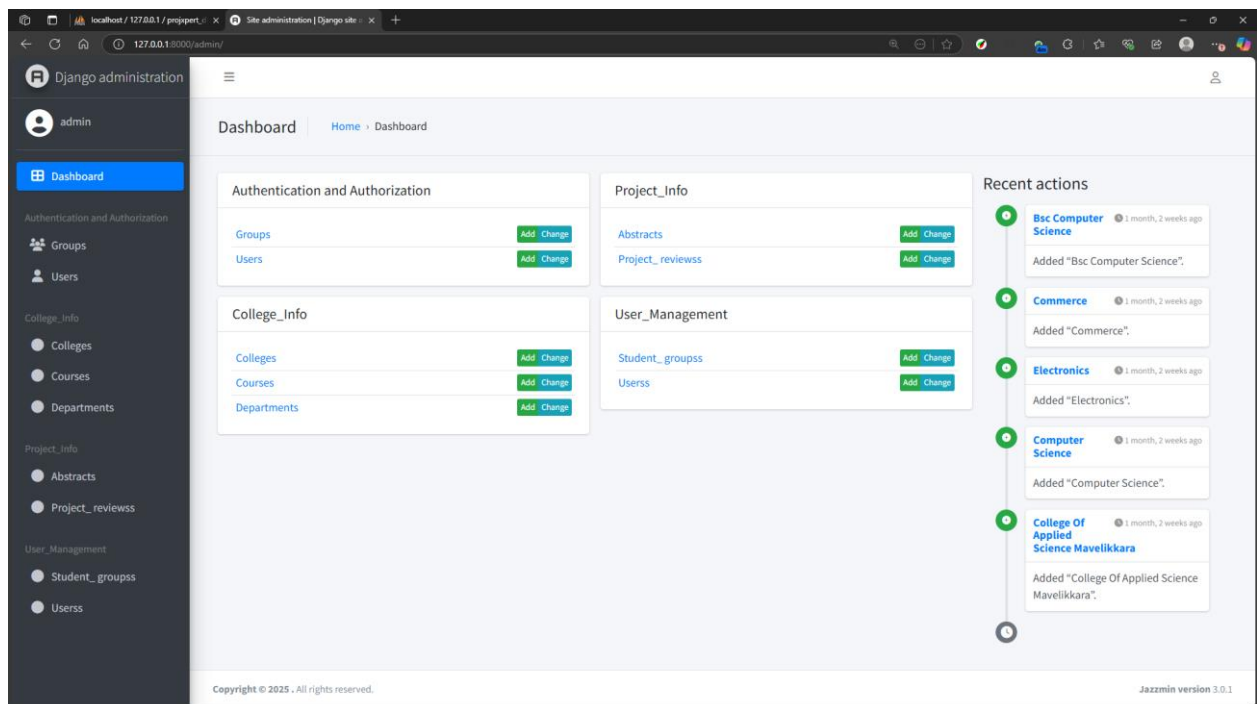


Fig: 11.1.6 Admin page

11.2 SAMPLE SOURCE

Index.html

```
{% extends 'base.html' %}
{% load static %}

{% block content %}

<style>
/* Global Section Styles */
section {
  min-height: 100vh;
  padding: 80px 0;
  position: relative;
  overflow: hidden;
}

.section-container {
  width: 100%;
  max-width: 1200px;
  margin: 0 auto;
  padding: 0 20px;
}

.section-title {
  font-size: clamp(2rem, 5vw, 3rem);
  font-weight: 700;
  margin-bottom: 2rem;
  color: var(--primary-a30);
  position: relative;
  display: inline-block;
}

.section-title::after {
  content: ";
  position: absolute;
  bottom: -10px;
  left: 0;
  width: 60px;
  height: 4px;
  background: var(--primary-a30);
  border-radius: 2px;
}

.section-text {
  font-size: clamp(1rem, 2vw, 1.2rem);
  line-height: 1.8;
  color: rgba(255, 255, 255, 0.9);
```

```

    margin-bottom: 2rem;
}

/* Home Section */
#home {
    background: linear-gradient(rgba(0, 0, 0, 0.85), rgba(0, 0, 0, 0.7)),
        url('{% static "images/bg3.jpeg" %}') no-repeat center center;
    background-size: cover;
    display: flex;
    align-items: center;
    justify-content: center;
    text-align: center;
    color: white;
}

.home-content {
    max-width: 800px;
    width: 90%; /* Added for better responsiveness */
    margin: 0 auto; /* Ensures horizontal centering */
    padding: 40px;
    background: rgba(30, 30, 30, 0.7);
    backdrop-filter: blur(10px);
    border-radius: 20px;
    border: 1px solid rgba(255, 255, 255, 0.1);
    box-shadow: 0 15px 35px rgba(0, 0, 0, 0.5);
}

.home-heading {
    font-size: clamp(2rem, 6vw, 3.5rem);
    font-weight: 700;
    margin-bottom: 1.5rem;
    line-height: 1.3;
}

.home-text {
    font-size: clamp(1rem, 2vw, 1.2rem);
    line-height: 1.8;
    margin-bottom: 2rem;
    color: rgba(255, 255, 255, 0.9);
}

/* About Section */
#about {
    background: var(--surface-a0);
    padding: 100px 0;
}

.about-container {
    display: flex;

```

```

    flex-wrap: wrap;
    align-items: center;
    gap: 40px;
}

.about-image {
    flex: 1 1 45%;
    min-width: 300px;
    border-radius: 15px;
    overflow: hidden;
    box-shadow: 0 15px 35px rgba(0, 0, 0, 0.3);
}

.about-image img {
    width: 100%;
    height: 100%;
    object-fit: cover;
    transition: transform 0.5s ease;
}

.about-image:hover img {
    transform: scale(1.05);
}

.about-content {
    flex: 1 1 45%;
    min-width: 300px;
}

.about-highlight {
    color: var(--primary-a30);
    font-weight: 600;
}

/* Features Section */
#features {
    background: linear-gradient(135deg, rgba(30, 30, 30, 0.95), rgba(20, 20, 20, 0.95));
}

.features-container {
    display: flex;
    flex-wrap: wrap-reverse;
    align-items: center;
    gap: 40px;
}

.features-list {
    flex: 1 1 45%;
    min-width: 300px;

```

```

}

.feature-item {
  display: flex;
  align-items: flex-start;
  margin-bottom: 25px;
  padding: 20px;
  background: rgba(40, 40, 40, 0.7);
  border-radius: 10px;
  transition: all 0.3s ease;
  border-left: 4px solid transparent;
}

.feature-item:hover {
  background: rgba(50, 50, 50, 0.8);
  border-left: 4px solid var(--primary-a30);
  transform: translateX(5px);
}

.feature-icon {
  font-size: 1.5rem;
  color: var(--primary-a30);
  margin-right: 15px;
  min-width: 30px;
}

.feature-title {
  font-size: 1.2rem;
  font-weight: 600;
  margin-bottom: 5px;
  color: white;
}

.feature-description {
  color: rgba(255, 255, 255, 0.7);
  font-size: 0.95rem;
  line-height: 1.6;
}

.features-image {
  flex: 1 1 45%;
  min-width: 300px;
  border-radius: 15px;
  overflow: hidden;
  box-shadow: 0 15px 35px rgba(0, 0, 0, 0.4);
}

.features-image img {
  width: 100%;

```

```

    height: auto;
    object-fit: cover;
}

/* Testimonials Section */
#testimonials {
    background: linear-gradient(rgba(20, 20, 20, 0.95), rgba(30, 30, 30, 0.95));
}

.testimonials-container {
    display: grid;
    grid-template-columns: repeat(auto-fit, minmax(300px, 1fr));
    gap: 30px;
    margin-top: 50px;
}

.testimonial-card {
    background: rgba(40, 40, 40, 0.7);
    padding: 30px;
    border-radius: 15px;
    transition: all 0.3s ease;
    position: relative;
    overflow: hidden;
    border: 1px solid rgba(255, 255, 255, 0.05);
}

.testimonial-card::before {
    content: "";
    position: absolute;
    top: 0;
    left: 0;
    width: 100%;
    height: 5px;
    background: var(--primary-a30);
}

.testimonial-card:hover {
    transform: translateY(-10px);
    box-shadow: 0 10px 30px rgba(0, 0, 0, 0.3);
}

.testimonial-img {
    width: 80px;
    height: 80px;
    border-radius: 50%;
    object-fit: cover;
    margin: 0 auto 20px;
    display: block;
    border: 3px solid var(--primary-a30);
}

```

```

}

.testimonial-name {
  font-size: 1.2rem;
  font-weight: 600;
  text-align: center;
  margin-bottom: 5px;
  color: white;
}

.testimonial-role {
  font-size: 0.9rem;
  text-align: center;
  color: var(--primary-a30);
  margin-bottom: 20px;
  display: block;
}

.testimonial-text {
  font-style: italic;
  color: rgba(255, 255, 255, 0.8);
  text-align: center;
  position: relative;
}

.testimonial-text::before,
.testimonial-text::after {
  content: "";
  font-size: 2rem;
  color: var(--primary-a30);
  opacity: 0.3;
  position: absolute;
}

.testimonial-text::before {
  top: -20px;
  left: -10px;
}

.testimonial-text::after {
  bottom: -30px;
  right: -10px;
}

/* FAQ Section */
#faq {
  background: linear-gradient(rgba(15, 15, 15, 0.95), rgba(25, 25, 25, 0.95));
}

```

```

.faq-container {
  max-width: 800px;
  margin: 0 auto;
}

.accordion-item {
  background: rgba(40, 40, 40, 0.7);
  border: none;
  border-radius: 8px !important;
  margin-bottom: 15px;
  overflow: hidden;
}

.accordion-button {
  background: rgba(50, 50, 50, 0.7) !important;
  color: white !important;
  font-weight: 600;
  padding: 20px;
  border: none !important;
  box-shadow: none !important;
}

.accordion-button:not(.collapsed) {
  background: rgba(60, 60, 60, 0.8) !important;
  color: var(--primary-a30) !important;
}

.accordion-button::after {
  filter: brightness(0) invert(1);
}

.accordion-button:not(.collapsed)::after {
  filter: brightness(0) invert(0.8) sepia(1) saturate(5) hue-rotate(10deg);
}

.accordion-body {
  background: rgba(35, 35, 35, 0.7);
  color: rgba(255, 255, 255, 0.8);
  padding: 20px;
}

/* Buttons */
.btn-primary {
  background: var(--primary-a30);
  color: #121212;
  border: none;
  padding: 12px 30px;
  font-weight: 600;
  border-radius: 30px;
}

```

```

transition: all 0.3s ease;
text-transform: uppercase;
letter-spacing: 1px;
font-size: 0.9rem;
display: inline-block;
margin-top: 10px;
}

.btn-primary:hover {
  background: var(--primary-a50);
  color: #121212;
  transform: translateY(-3px);
  box-shadow: 0 10px 20px rgba(255, 193, 7, 0.3);
}

.btn-secondary {
  background: transparent;
  color: var(--primary-a30);
  border: 2px solid var(--primary-a30);
  padding: 10px 25px;
  font-weight: 600;
  border-radius: 30px;
  transition: all 0.3s ease;
}

.btn-secondary:hover {
  background: var(--primary-a30);
  color: #121212;
}

/* Responsive Adjustments */
@media (max-width: 992px) {
  .about-container,
  .features-container {
    flex-direction: column;
  }

  .about-image,
  .about-content,
  .features-list,
  .features-image {
    flex: 1 1 100%;
    min-width: 100%;
  }

  .features-container {
    flex-wrap: wrap;
  }
}

```



```

@media (max-width: 768px) {
  section {
    padding: 60px 0;
  }

  .home-content {
    padding: 30px 20px;
  }

  .feature-item {
    padding: 15px;
  }

  .testimonials-container {
    grid-template-columns: 1fr;
  }
}
</style>

<!-- Home Section -->
<section id="home">
  <div class="section-container">
    <div class="home-content">
      <h1 class="home-heading">Revolutionizing Project Management in Education</h1>
      <p class="home-text">
        Struggling with project submissions and approvals? ProjectXpert ranks abstracts with
        AI,
        making selection easy for teachers and feedback instant for students. Save time, stay
        organized,
        and simplify the process!
      </p>
      <a href="{% url 'user_management:login' %}" class="btn btn-primary">
        Get Started
      </a>
    </div>
  </div>
</section>

<!-- About Section -->
<section id="about">
  <div class="section-container">
    <h2 class="section-title">About ProjectXpert</h2>

    <div class="about-container">
      <div class="about-image">
        
      </div>
    </div>
  </div>
</section>

```

```

<div class="about-content">
  <p class="section-text">
    Are you tired of the endless paperwork and time-consuming project approvals? <span
    class="about-highlight">ProjectXpert</span> revolutionizes the way students submit project
    abstracts and how teachers evaluate them. Using AI-powered ranking, we streamline the
    selection process, ensuring the best projects get noticed quickly while reducing the burden on
    faculty.
  </p>
  <p class="section-text">
    With real-time feedback, automated approvals, and transparency at every stage, <span
    class="about-highlight">ProjectXpert</span> enhances collaboration between students,
    mentors, and college administrators. Say goodbye to inefficiency—embrace a smarter way to
    manage academic projects.
  </p>
  <a href="{% url 'user_management:login' %}" class="btn btn-secondary">
    Learn More
  </a>
</div>
</div>
</div>
</section>

```

```

<!-- Features Section -->
<section id="features">
  <div class="section-container">
    <h2 class="section-title">Key Features</h2>

    <div class="features-container">
      <div class="features-list">
        <div class="feature-item">
          <div class="feature-icon">
            <i class="ri-ai-generate"></i>
          </div>
          <div>
            <h3 class="feature-title">AI-Powered Abstract Evaluation</h3>
            <p class="feature-description">Our advanced AI analyzes project abstracts for
            quality, relevance, and innovation, providing instant rankings to streamline the selection
            process.</p>
          </div>
        </div>

        <div class="feature-item">
          <div class="feature-icon">
            <i class="ri-feedback-line"></i>
          </div>
          <div>
            <h3 class="feature-title">Real-time Feedback System</h3>
            <p class="feature-description">Students receive immediate constructive feedback on
            their submissions, helping them improve their projects before final submission.</p>
          </div>
        </div>
      </div>
    </div>
  </div>

```

```

    </div>
  </div>

  <div class="feature-item">
    <div class="feature-icon">
      <i class="ri-shield-user-line"></i>
    </div>
    <div>
      <h3 class="feature-title">Role-Based Access Control</h3>
      <p class="feature-description">Secure platform with differentiated access for
students, faculty, and administrators, ensuring data privacy and proper workflow.</p>
    </div>
  </div>

  <div class="feature-item">
    <div class="feature-icon">
      <i class="ri-line-chart-line"></i>
    </div>
    <div>
      <h3 class="feature-title">Project Progress Tracking</h3>
      <p class="feature-description">Monitor project development stages from abstract
submission to final approval, with notifications for important milestones.</p>
    </div>
  </div>
</div>

<div class="features-image">
  
</div>
</div>
</div>
</section>

<!-- Testimonials Section -->
<section id="testimonials">
  <div class="section-container">
    <h2 class="section-title">What Our Users Say</h2>

    <div class="testimonials-container">
      <!-- Testimonial 1 -->
      <div class="testimonial-card">
        
        <h3 class="testimonial-name">Emily Carter</h3>
        <span class="testimonial-role">Computer Science Student</span>
        <p class="testimonial-text">ProjectXpert made project submissions effortless. The AI
feedback helped me improve my abstract significantly before final submission, saving me
from potential rejection.</p>
      </div>
    </div>
  </div>

```

```

<!-- Testimonial 2 -->
<div class="testimonial-card">
  
  <h3 class="testimonial-name">Dr. Mark Robinson</h3>
  <span class="testimonial-role">Professor & Evaluator</span>
  <p class="testimonial-text">The automated ranking system saves me hours of
evaluation time each semester. I can now focus on mentoring students rather than
administrative tasks.</p>
</div>

<!-- Testimonial 3 -->
<div class="testimonial-card">
  
  <h3 class="testimonial-name">Sophia Lee</h3>
  <span class="testimonial-role">Final Year Student</span>
  <p class="testimonial-text">ProjectXpert transformed our entire project workflow. No
more confusion about deadlines or requirements. The transparency helped our team stay on
track throughout the semester.</p>
</div>
</div>
</div>
</section>

<!-- FAQ Section -->
<section id="faq">
  <div class="section-container">
    <h2 class="section-title">Frequently Asked Questions</h2>
    <p class="section-text text-center mb-5">
      Find answers to common questions about ProjectXpert. If you need further assistance,
      our support team is always ready to help.
    </p>

    <div class="faq-container">
      <div class="accordion" id="faqAccordion">
        <!-- Question 1 -->
        <div class="accordion-item">
          <h3 class="accordion-header" id="headingOne">
            <button class="accordion-button collapsed" type="button" data-bs-toggle="collapse"
data-bs-target="#collapseOne" aria-expanded="false" aria-controls="collapseOne">
              What is ProjectXpert and how does it work?
            </button>
          </h3>
          <div id="collapseOne" class="accordion-collapse collapse" aria-
labelledby="headingOne" data-bs-parent="#faqAccordion">
            <div class="accordion-body">
              ProjectXpert is an AI-powered platform designed to streamline the project

```

management process in educational institutions. It provides students with a structured way to submit project abstracts, offers faculty AI-assisted evaluation tools, and gives administrators oversight of the entire process. The system uses natural language processing to analyze and rank project abstracts based on predefined criteria.

</div>

</div>

</div>

<!-- Question 2 -->

<div class="accordion-item">

<h3 class="accordion-header" id="headingTwo">

<button class="accordion-button collapsed" type="button" data-bs-toggle="collapse" data-bs-target="#collapseTwo" aria-expanded="false" aria-controls="collapseTwo">

Who can use ProjectXpert?

</button>

</h3>

<div id="collapseTwo" class="accordion-collapse collapse" aria-labelledby="headingTwo" data-bs-parent="#faqAccordion">

<div class="accordion-body">

ProjectXpert is designed for three main user groups: Students can submit projects and receive feedback; Faculty members can evaluate and approve projects with AI assistance; Administrators can monitor the entire process and generate reports. The platform is ideal for colleges, universities, and other educational institutions that manage student projects.

</div>

</div>

</div>

<!-- Question 3 -->

<div class="accordion-item">

<h3 class="accordion-header" id="headingThree">

<button class="accordion-button collapsed" type="button" data-bs-toggle="collapse" data-bs-target="#collapseThree" aria-expanded="false" aria-controls="collapseThree">

How does the AI-powered ranking system work?

</button>

</h3>

<div id="collapseThree" class="accordion-collapse collapse" aria-labelledby="headingThree" data-bs-parent="#faqAccordion">

<div class="accordion-body">

Our AI analyzes project abstracts based on multiple criteria including clarity, innovation, feasibility, relevance to discipline, and proper formatting. The system compares submissions against successful projects from previous years and disciplinary benchmarks. Faculty can adjust the weighting of these criteria based on their specific requirements.

</div>

</div>

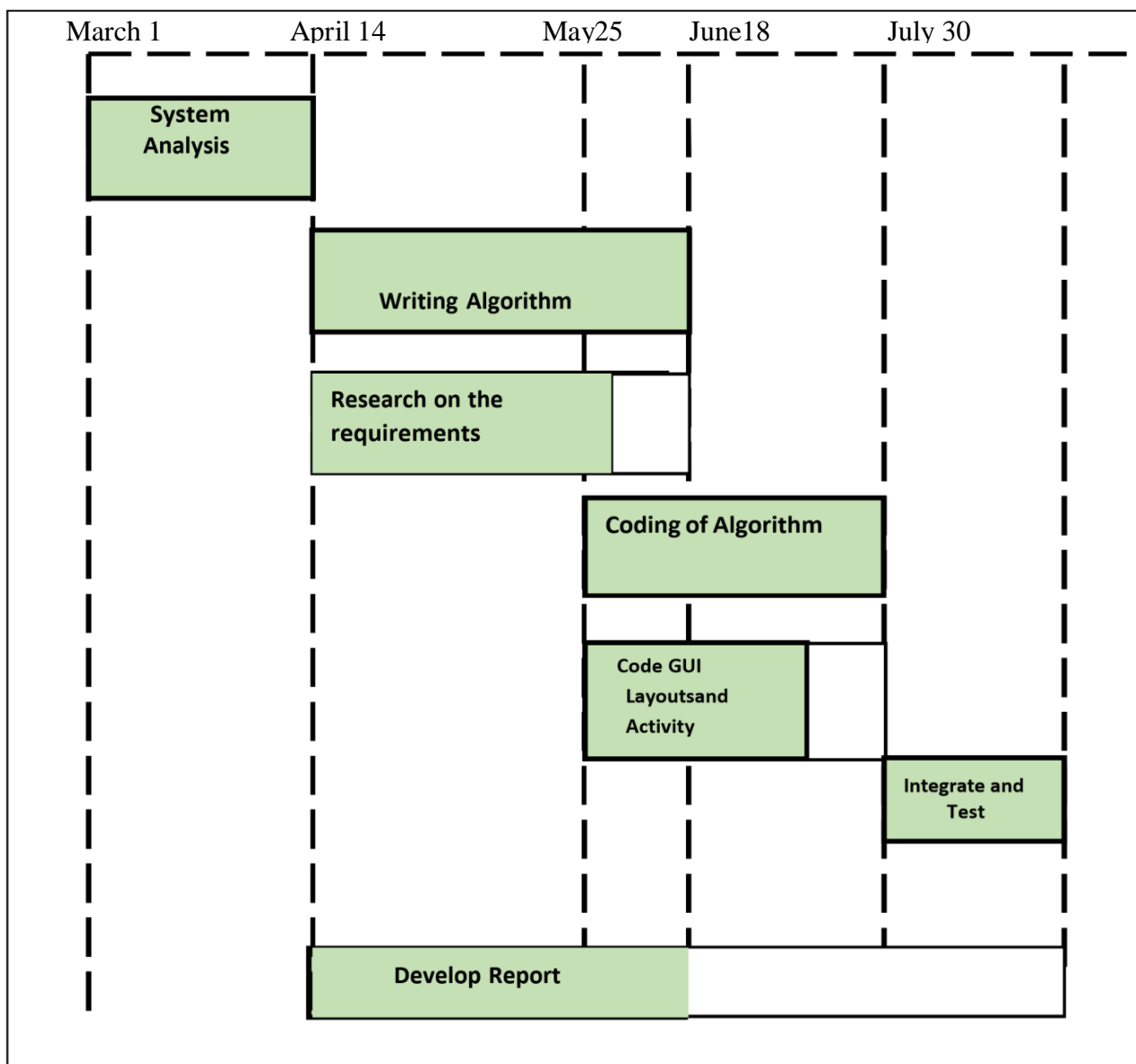
</div>

<!-- Question 4 -->

<div class="accordion-item">

11.3 GANTT CHART

The Gantt chart was developed by Henry Gantt. Those are used in software project management and enhanced version of standard Gantt chart. These are mainly allocating resources to activities. It is a special type of bar chart. Each bar represents an activity. Bars are drawn along a time line. Length of each bar is proportional to duration of time planned for corresponding activity.



CHAPTE 12

REFERENCE

12.1Text Books:

12.1.1Fundamentals of Software Engineering, Fifth Edition, Rajib Mall- PHI 2018

12.1.1 Software Engineering: A Practitioner's Approach
(IRWIN COMPUTER SCIENCE) Hardcover – 16 March
2014

12.1 Websites:

12.1.2 https://www.tutorialspoint.com/uml/uml_class_diagram.htm

12.1.3 <https://www.w3schools.com/php/>

12.1.4 <https://www.geeksforgeeks.org/what-is-dfddata-flow-diagram/>

12.1.5 <https://myiee.org/documentation-requirements>

12.1.6 <https://www.w3schools.com/mysql/default.asp>