

761074

## Virtual Classroom

### AN INTERNSHIP REPORT

Submitted by

**Priyrajsinh Parmar**

**221293107014**

**In partial fulfilment for the award of the degree of**

**BACHELOR OF ENGINEERING**

**In**

**COMPUTER ENGINEERING**

**Gyanmanjari Institute of Technology, Bhavnagar**



**Gujarat Technological University, Ahmedabad**

**MAY, 2025**



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2024-2025

Date of certificate generation : 18 April 2025 (12:41:11)

This is to certify that, **Priyrajsinh Shailendrasinh Parmar** ( Enrolment Number - 221293107014 ) working on project entitled with **Virtual Classroom** from **Computer Engineering** department of **GYANMANJARI INSTITUTE OF TECHNOLOGY** had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : P r i y r a j s i n h  
Shailendrasinh Parmar

Name of Guide : Mrs. Nishaba Y Jadeja

Signature of Student :

\*Signature of Guide :

#### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



**Gyanmanjari Institute of Technology**  
Survey No: 30, near iscon eleven, Sidsar Road, Bhavnagar-364060

## CERTIFICATE

This is to certify that **Priyrajsinh Parmar** has carried out the internship report submitted under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2024-25.

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**Prof. Nishaba Y. Jadeja**  
Internal Guide.

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**Prof. Prashant J Viradiya**  
Head Of The Department



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**(Established under Gujarat Act No. 20 of 2007)**

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

**Annexure 2**

**Feedback Form by Industry expert**

Student Name:

Date:

Work Supervisor:

Title:

Company/Organization:

Enrollment No.:

Internship Address:

Dates of Internship: From \_\_\_\_\_ to \_\_\_\_\_

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				
Produces high quality work and accepts responsibility				
Uses technical knowledge and expertise				
Analyzes problems effectively				
Communicates well and writes effectively				

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Signature of Industry person with name and Stamp:

For, Blackbuck IT Solutions  
N.V. Dhemela<sup>ji</sup>  
Proprietor

Signature of the Faculty Mentor



# BlackBuck IT Solutions

BLACKBUCK IT SOLUTION

314, Silver Empire,  
Opp Power House, VIP Circle,  
Utran, Surat - 394105

10/01/2025

## TO WHOM IT MAY CONCERN

Dear Priyrajsinh,

This is the letter to **Mr. Priyrajsinh Shailendrasinh Parmar**, who is studying at **Gyanmanjari Institute of Technology** on behalf of BlackBuck IT Solutions. We are excited to extend an offer to you for an internship position. This position is located in Utran, Surat Gujarat. The position is for a **Trainee Web Developer**.

Your starting date will be from **17th January 2025 to 19th April 2025**. The duration of this Internship is 12 weeks. In this role, you will report directly to the supervisor or Team leader. This offer is contingent upon the successful completion of the Trainee Web Developer.

During your temporary employment with BlackBuck IT Solutions, you may have access to trade secrets and confidential or proprietary business information belonging to BlackBuck IT Solutions. By accepting this offer, you acknowledge that this information must remain confidential and agree to refrain from using it for your own purposes or disclosing it to anyone outside of BlackBuck IT Solutions. Also if you resign or leave the company you are not eligible for the certificate/experiences letter from our company side.

Please review this letter in full, and sign & confirm your acceptance of the position. We look forward to having you begin your career at BlackBuck IT Solutions and wish you a successful internship. Welcome to our team!

For, BlackBuck IT Solutions

N.V. Dhemela  
Proprietor

Regards,

BlackBuck IT Solutions



+91 88663 11053



[www.blackbuckit.com](http://www.blackbuckit.com)



[nikunj@blackbuckit.com](mailto:nikunj@blackbuckit.com)



# BlackBuck IT Solutions

**BLACKBUCK IT SOLUTION**  
314, Silver Empire,  
Opp Power House, VIP Circle,  
Utran, Surat - 394105

19/04/2025

## INTERNSHIP COMPLETION CERTIFICATE

TO WHOM IT MAY CONCERN

This is to certify that **Mr. Priyrajsinh Shailendrasinh Parmar**, a student of **Gyanmanjari Institute of Technology**, has successfully completed his internship at **BlackBuck IT Solutions** as a **Trainee Web Developer**.

The internship was held from **17th January 2025 to 19th April 2025**, at our office located in **Utran, Surat, Gujarat**, for a duration of **12 weeks**.

During this period, Mr. Priyrajsinh demonstrated a strong understanding of web development concepts, showed keen interest in learning, and contributed positively to the assigned tasks. He reported directly to the team leader and performed his responsibilities with dedication and professionalism.

We appreciate his efforts and wish him all the best for his future endeavors.

For, Blackbuck IT Solutions

*N.V. Dhameliya*  
Proprietor

Regards,

BlackBuck IT Solutions



+91 88663 11053



[www.blackbuckit.com](http://www.blackbuckit.com)



[nikunj@blackbuckit.com](mailto:nikunj@blackbuckit.com)



## Gyanmanjari Institute of Technology

Survey No: 30, near iscon eleven, Sidsar Road, Bhavnagar-364060

### **DECLARATION**

I hereby declare that the Internship report submitted along with the Project entitled Virtual Classroom submitted in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad, is a Bonafide record of original internship work carried out by me at BlackBuck IT Solutions under the supervision of Nikunj Dhamelia and that no part of this report has been directly copied from any student's reports or taken from any other source, without providing due reference.

Name of Student

Priyrajsinh Parmar

Sign of Student

---

## ACKNOWLEDGEMENT

I extend my sincere gratitude to my internship guide, Prof. Nishaba Y. Jadeja , for their invaluable guidance, encouragement, and expertise throughout this project. Their insightful feedback and constant support have been instrumental in the successful completion of this work.

I would also like to express my appreciation to Prof. Prashant Viradiya, Head of the Department, and the faculty members of Gyanmanjari Institute of Technology for their continuous support and constructive suggestions during the development of this project. Their knowledge and mentorship have significantly contributed to my learning experience.

Lastly, I am grateful to Gyanmanjari Institute of Technology for providing the necessary resources and infrastructure that facilitated the smooth execution of this project.

Priyrajsinh Parmar

221293107014

## ABSTRACT

**Virtual Classroom,** The main idea of Virtual Classroom System is to overcome the disadvantages of traditional classroom interaction of student and faculty. The Virtual Classroom System replaces the manual system with online Interactive Classroom using RMI. In Virtual Classroom System the students and faculty need not attend the classes physically, the teaching sessions are carried out through online. All that one need is a PC or laptop. The clients were provided with Login ID and passwords at the time of registration that helps them to get connected to the server. Here the student has the freedom of choosing the faculty and class he wants to attend.

Modules included in this Project: The Virtual Classroom System has two main modules they are

1. Teacher module (server side)
2. Student module (Client side)

### Teacher Module

The teacher modules has functionalities like passing text files to students, communicating and interacting with them, accepting or denying their requests, clarifying their doubts etc.

### Student Module

The student module has the functionalities like storing the notes, making requests, clarifying the doubts with the respective faculty etc. The Virtual Classroom System provides virtual classroom environment that does not require any room physically. The student has to attend the online sessions. He can attend them from any part of the world, he can even view the previous sessions of class for his convenience .All these sessions will be recorded and stored in the databases ,students can make best use of these recorded sessions.

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# Chapter 1

## OVERVIEW OF THE COMPANY

### 1.1 Introduction

BlackBuck IT Solutions is a leading technology company that specializes in development and digital solutions. Our team of skilled developers and digital experts work together to create innovative solutions that empower businesses and drive success.

At BlackBuck IT Solutions, we believe that the power of technology can be harnessed to build a better future. We strive to stay at the forefront of technological advancement and are always looking for new and exciting ways to leverage dev and digit to drive progress.

Whether we're creating custom software solutions, developing cutting-edge websites and apps, or providing expert digital consulting services, our team is dedicated to delivering top-quality results for our clients.

## **1.2 SCOPE OF WORK**

At BlackBuck IT Solutions, we are a growing technology startup committed to delivering innovative digital solutions across various domains. We specialize in web development, Python, and AI-driven solutions to help businesses scale efficiently.

Our expertise includes AI & Machine Learning, Web Automation, API Development, Web Development and E-commerce Solutions, ensuring businesses adopt modern, scalable, and cost-effective technologies. With a team of dedicated tech professionals and an R&D-driven approach, we strive to provide customized, high-quality solutions that cater to diverse business needs.

At BlackBuck IT Solutions, we focus on innovation, efficiency, and client satisfaction, delivering future-ready technology solutions with a commitment to excellence.

### 1.3 Organization chart

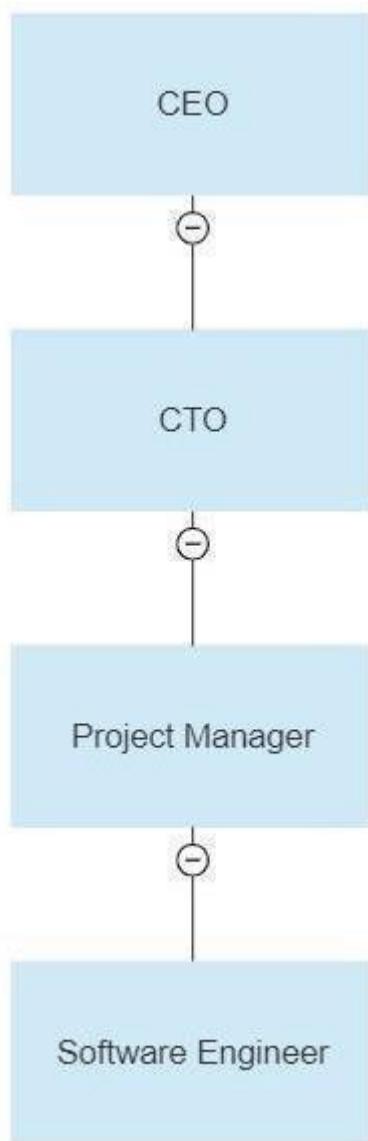


Fig 1.1Organization Chart.

## Chapter 2

### OVERVIEW OF DIFFERENT PROCESS CARRIED OUT IN THE COMPANY

#### **2.1 IT INCLUDES THE DETAILS ABOUT THE WORK BEING CARRIED OUT IN EACH DEPARTMENT.**

In the company, the process is like firstly the company gets the requirement from the client the requirement may be in any form like in figures or rough works.

The client and the company person will discuss the sketches and after one meeting the company person will create a document on the features list showing how many features there will be in the project.

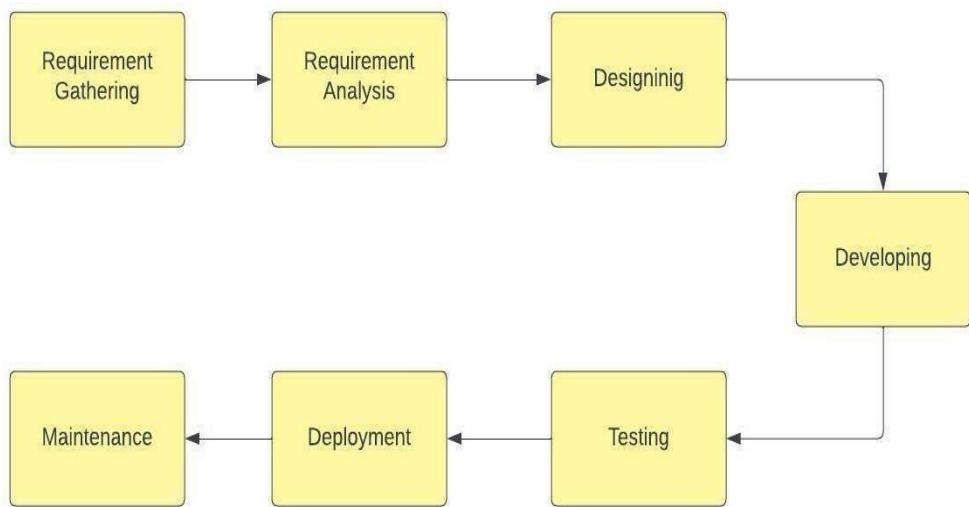
Then they have a meeting with the client and the client and company person will be discussed the features. Then the project will start.

#### **2.2 EACH STAGE OF PRODUCTION**

- 1) **Project Plan:** Initial Contact with the client and get the project description. Introduction presentation and partner visibility verification. provide goal and objective to learn the requirement and understand the client business and prepare brief project requirements. Then to a business development consultant to analyze the requirement and feasibility with the technical team analysis questions and assumptions and suggestions and then requirement and estimation approval and present the project plan including a details specification timeline and cost.

- 2) **Discovery:** Internal analysis with project manager and specification finalization is done. Details Q and A on specification and content requirement content delivery timeline, scope change, implement schedule finalization. Then Initial system structure and content placement and finalization are done.
- 3) **Design and Scope:** The client gives some objectives and preference lead designer sketch that is designed and analyzed by the developer and the project manager's feedback is provided to the client and an initial layout draft is done then client feedback and layout finalization and final specification, timeline cost and project plan approval are done.
- 4) **Implementation and launch:** The project manager and developer team start developing the system and it is seen by the client to get the feedback and add some more functionality in its finalize project is reviewed by the client and is launched.

- 2.3 PREPARE SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT.



**Fig 2.1** Schematic Layout.

## Chapter 3

### INTRODUCTION

#### 3.1 INTERNSHIP SUMMARY

The Virtual Classroom System is an interactive web application designed to enhance the online learning experience. It provides a seamless virtual learning environment that overcomes the limitations of traditional classroom interactions, enabling students and faculty to engage in remote education efficiently.

The system utilizes Remote Method Invocation (RMI) to facilitate real-time communication between teachers and students. It includes functionalities such as live interactive sessions, recorded lectures, digital notes storage, and query resolution, ensuring a comprehensive online learning experience. The platform also integrates the Zoom API for conducting virtual meetings, providing a familiar and efficient interface for live classes.

Developed using HTML, CSS, JavaScript, XAMPP, and SQL, the system ensures structured data management and an intuitive UI. It features user authentication, role-based access for teachers and students, and automated assignment submissions, contributing to an organized and effective educational platform.

This project demonstrates the potential of technology in revolutionizing education, with future enhancements planned for AI-based tutoring, automated attendance tracking, and real-time performance analytics to further optimize the learning experience.

#### 3.2 PURPOSE

The Virtual Classroom System aims to provide an efficient and accessible online learning platform, replacing traditional classroom methods with an interactive virtual alternative. By leveraging remote connectivity, real-time communication, and digital resource sharing, the system ensures an engaging and productive learning environment.

### 3.3 OBJECTIVE

- The objective of this internship was to gain hands-on experience in developing a Virtual Classroom System using web technologies and database management techniques.

#### **The key goals included:**

- Implementing an interactive online learning system using Remote Method Invocation (RMI) for real-time communication.
- Developing a user-friendly web interface using HTML, CSS, and JavaScript, ensuring intuitive navigation and accessibility.
- Establishing a structured database using SQL and XAMPP for efficient data management, including user authentication and role-based access control.
- This internship provided valuable insights into online education platforms, real-time communication technologies, and web-based system development.

### 3.4 SCOPE

The Virtual Classroom System is designed to facilitate online education by providing a fully interactive and accessible learning platform. By integrating Remote Method Invocation (RMI) and real-time communication features, it enhances the learning experience for students and faculty alike.

The project supports essential features such as online lectures, recorded sessions, digital notes management, and student-teacher interactions. Additionally, it incorporates the Zoom API to enable seamless virtual meetings. The system is structured to categorize users based on branch and semester, ensuring organized course management and resource distribution.

Furthermore, this project serves as an opportunity for practical learning, allowing the implementation of theoretical knowledge in real-world applications. It provides hands-on experience in database management, web development, and secure online communication technologies.

With its open-source nature and customizable components, the Virtual Classroom System stands out as a lightweight and easy-to-adapt alternative to existing learning platforms like Microsoft Teams and Google Classroom, offering enhanced usability and security.

### 3.5 TECHNOLOGY USED

#### Frontend Technologies:

HTML & CSS – Used for designing and structuring the user interface, ensuring an aesthetically appealing and responsive layout. These technologies provide an intuitive and accessible learning environment for students and faculty.

JavaScript – Used for interactive elements, including dropdown menus, dynamic UI updates, and query resolution. JavaScript ensures a smooth and engaging user experience.

#### Backend Technologies:

XAMPP – A cross-platform web server solution that includes Apache, MySQL, and PHP, used for managing the backend operations of the Virtual Classroom System. It ensures seamless integration between the database and web interface.

MySQL – Used for structured data storage and management, facilitating user authentication, role-based access, assignment submissions, and resource management.

Remote Method Invocation (RMI) – Enables real-time communication between faculty and students, ensuring an interactive and responsive learning environment.

#### API Integration:

Zoom API – Integrated to facilitate virtual meetings and online classes, providing a familiar and efficient platform for conducting live sessions and discussions.

## **3.5 INTERNSHIP PLANNING**

### **3.5.1 Internship Development Approach and Justification**

My internship at BlackBuck IT Solutions followed a structured development approach, ensuring a progressive learning experience in HTML, CSS, JS, PHP and MYSQL .

Each task was assigned with a clear objective and timeline, allowing for a systematic understanding of web applications.

I received guidance and mentorship throughout the internship, ensuring that I could apply theoretical concepts to real-world projects. Daily progress tracking and feedback sessions helped in identifying areas of improvement and refining the implementation process.

Additionally, continuous exploration of new AI techniques and optimization strategies contributed to the successful execution of the project.

### **3.5.2 Project Effort and Time, Cost Estimation Effort and Time Estimation:**

**Effort:** Allocated according to the internship roadmap, covering key phases such as recommendation system development, MYSQL database management, and API integration.

**Time:** 12 weeks, with structured milestones for different project modules.

### **3.5.3 Roles and Responsibilities :**

As a web development Intern, I was responsible for:

- ✓ Developing an Full-Stack Website using API integration.
- ✓ Building MYSQL powered database
- ✓ Designing User-Friendly Interface web pages
- ✓ Optimizing the backend for better performance
- ✓ Testing, debugging, and improving model accuracy for better recommendations.

Throughout the internship, I gained hands-on experience in PHP-driven applications, admin operations, and web development, strengthening my technical and problem-solving skills for future industry challenges.

### 3.6 PROJECT SCHEDULING

Scheduling the project task is an important project planning activity. It involves deciding which tasks would be taken up when.

Task	Duration	Status
System Requirement Analysis	20/01/2025 – 24/01/2025	Completed
Database Design & Setup	25/01/2025 – 03/02/2025	Completed
Frontend Development	04/02/2025 – 12/02/2025	Completed
Backend Development	13/02/2025 – 22/02/2025	Completed
User Authentication & role management	23/02/2025 – 27/02/2025	Completed
Live lecture Integration (zoom API)	28/02/2025 – 07/03/2025	Completed
Assignment & Notes Management	08/03/2025 – 15/03/2025	Completed
Student-Faculty Interaction Module	16/03/2025 – 22/03/2025	Completed
Recorded Sessions & Playback Feature	23/03/2025 – 29/03/2025	Completed
Real-time Query resolution system	30/03/2025 – 04/04/2025	Completed
Testing & Debugging	05/04/2025 – 08/04/2025	Completed
Performance Optimization	09/04/2025 – 11/04/2025	Completed
Testing & Optimization	12/04/2025 – 13/04/2025	Completed

**Table 3.1** Project Time Scheduling

## Chapter 4

### SYSTEM ANALYSIS

#### 4.1 STUDY OF CURRENT SYSTEM

The current education system relies heavily on physical classroom interactions, requiring students and faculty to be present in person.

While traditional classrooms provide structured learning, they pose several limitations such as geographical constraints, time restrictions, and lack of recorded sessions for later reference.

With the rise of digital learning, educational institutions have begun adopting virtual solutions to enhance accessibility and efficiency.

#### Types of Learning Platforms in Use Today:

- █ Traditional Classroom-Based Learning – Requires physical presence and structured schedules.
- █ Online Learning Platforms – Provides pre-recorded lectures and study materials.
- █ Live Virtual Classrooms – Facilitates real-time interaction between students and faculty.
- █ Hybrid Learning Systems – Combines online and offline learning methodologies.

To address these limitations, the Virtual Classroom System introduces an interactive online platform, enabling students and faculty to engage in live sessions, access recorded lectures, and manage study materials efficiently.

#### 4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM :

##### Problems & Weaknesses of the Current System

1. Geographical Limitations – Students and faculty must be physically present, restricting access to quality education.
2. Lack of Recorded Sessions – Traditional classrooms do not provide recorded lectures, making it difficult for students to revisit lessons.
3. High Dependency on Fixed Schedules – Classes follow a rigid timetable, making it challenging for students with time constraints.
4. Limited Interaction – Students may struggle to clarify doubts outside of class hours.
5. Inefficiency in Resource Management – Notes, assignments, and lectures are managed manually, leading to disorganization.

### **4.3 REQUIREMENTS OF NEW SYSTEM**

To overcome the challenges of traditional classrooms, the new Virtual Classroom System must integrate advanced technologies that enhance usability, accessibility, and efficiency.

Below are the key functional and non-functional requirements of the proposed system:

### **4.4 ACTIVITY IN PROPOSED SYSTEM**

The proposed Virtual Classroom System is a web-based platform that ensures a seamless learning experience through remote accessibility, live communication, and resource management.

Below are the key activities in the proposed system:

### **4.5 FEATURES OF PROPOSED SYSTEM**

- Real-time Interactive Learning with Faculty
- Secure User Authentication & Role Management
- Recorded Lecture Sessions for On-Demand Learning
- Digital Notes Storage & Assignment Submission
- Query Resolution System for Student-Teacher Interaction
- Categorization of Students & Faculty by Branch and Semester

### **4.6 LIST OF MAIN MODULES OF PROPOSED SYSTEM**

The main modules of the Virtual Classroom System are:

1. Teacher Module – Allows teachers to conduct live classes, upload study materials, and interact with students.
2. Student Module – Enables students to join classes, submit assignments, and clarify doubts.
3. Authentication & Role Management – Secure login system for students and faculty.
4. Digital Content Management – Stores recorded lectures and study materials for future access.
5. Query Resolution System – Facilitates seamless communication between students and faculty.
6. API Integration – Incorporates external tools like Zoom for live interactions.

## **4.7 SELECTION OF SOFTWARE AND HARDWARE**

### **Server-Side Software Requirements:**

1. Operating System – Windows Server / Linux / Cloud-Based OS
2. Programming Language – HTML, CSS, JavaScript
3. Backend – PHP with XAMPP & SQL Database
4. API & Cloud Services – Zoom API Integration for Live Classes

### **Client-Side Hardware Requirements:**

1. Processor – Intel Core i3 or higher / AMD equivalent
2. RAM – Minimum 4GB (8GB recommended for smooth performance)
3. Storage – Minimum 20GB free space
4. Display – HD Resolution Screen (1366x768 or higher)
5. Internet Connectivity – Required for accessing live and recorded lectures

With these specifications, the Virtual Classroom System provides an efficient, user-friendly, and accessible platform for students and faculty, redefining the online learning experience.

## Chapter 5

# SYSTEM DESIGN

### 1.1 SYSTEM DESIGN & METHODOLOGY

The Virtual Classroom follows a well-structured design and methodology to ensure efficient processing, scalability, and seamless user interaction.

This section outlines the system architecture, methodologies, and flow of data within the system.

### 1.2 DATABASE DESIGN / STRUCTURE

#### 1. Architecture design:

To describe the views, models, states and structure of the system.

#### 2. Logical design:

To represent the widgets, inputs and outputs of the system. Example: ER Diagrams (Entity Relationship Diagrams).

#### 3. Physical design:

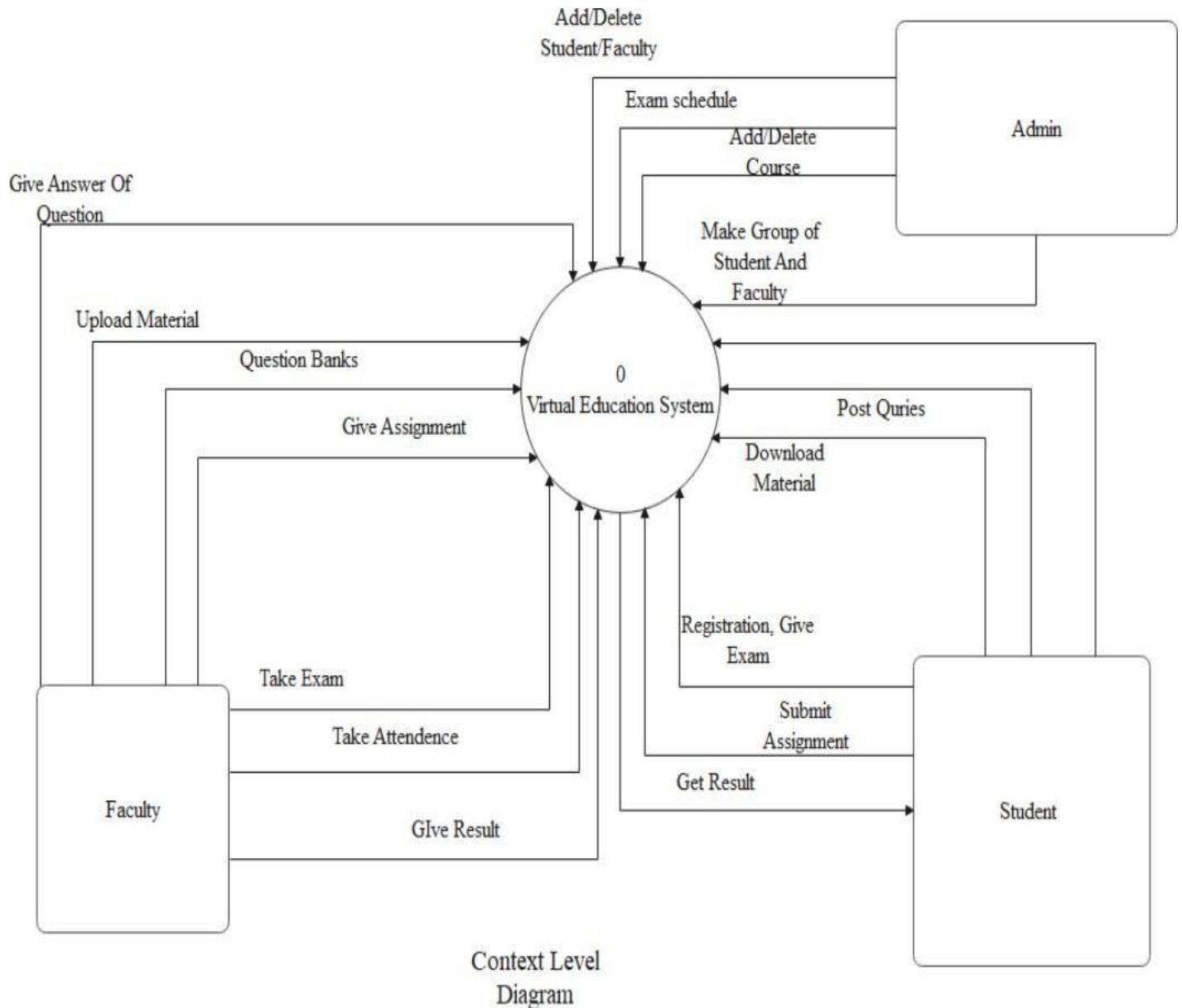
- a. How users add information to the system and how the system represents information back to the user.
- b. How the data is modeled and stored within the system.
- c. How data moves through the system, how data is validated, secured and/or transformed as it flows through and out of the system.

### 1.3 USE CASE DIAGRAM

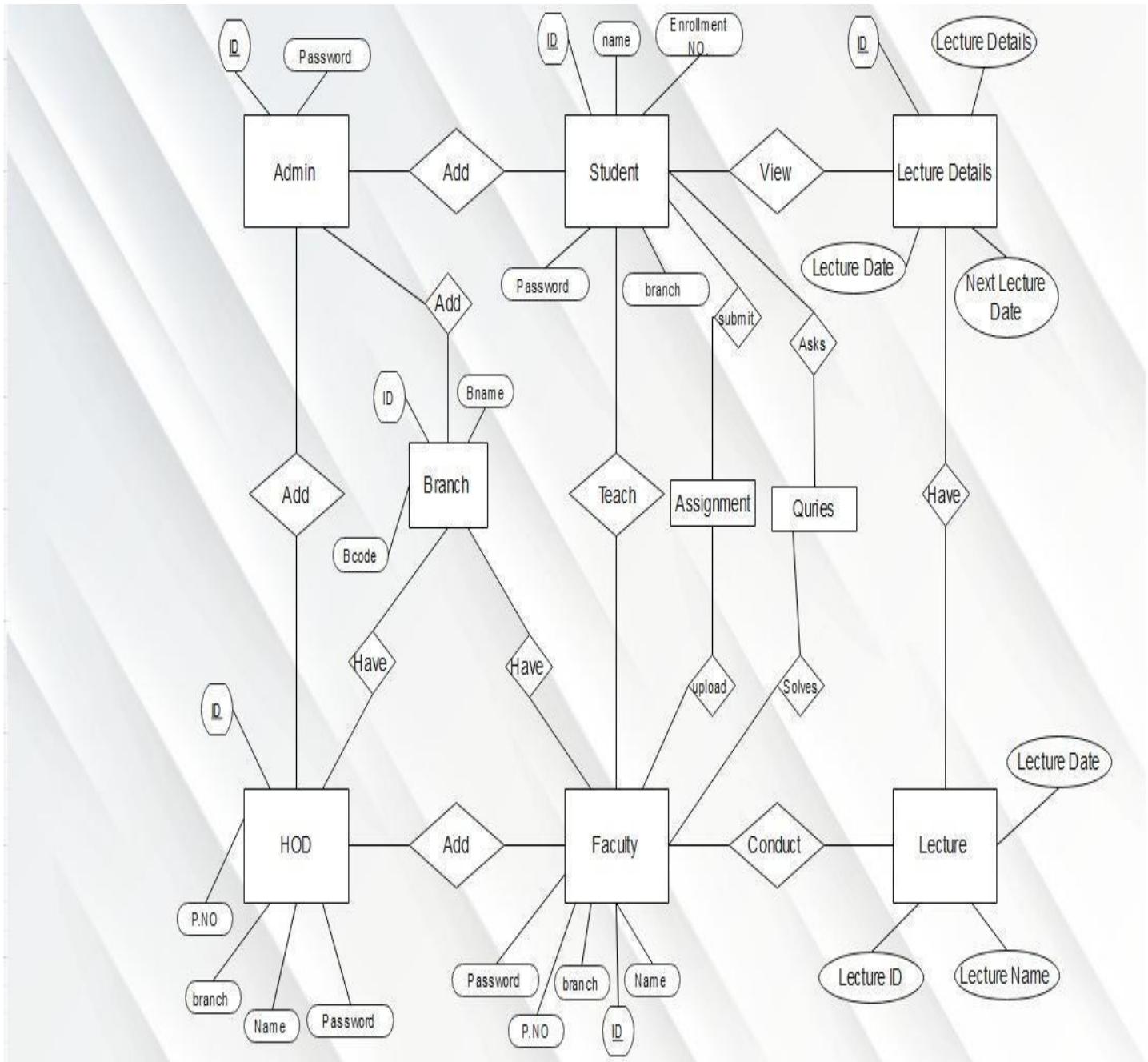


Fig. 5.3.1 Use Case

## 1.4 Context Diagram



## 1.4 E-R Diagram



## Chapter 6

### **IMPLEMENTATION**

#### **1.1 IMPLEMENTATION ENVIRONMENT**

In our company, a dedicated workspace is provided for the implementation team. The team collaborates closely to understand client requirements in detail.

Once the requirements are clear, the implementation department assigns tasks to developers. The developers are then given a complete explanation of the client's needs to ensure smooth and efficient execution of the project.

#### **1.2 MODULES SPECIFICATIONS**

There are mainly three modules in the project:

1. Admin - The Admin manages the overall system, including user accounts and content moderation. They can add, update, or remove data and other metadata. Additionally, the Admin can analyze user engagement, monitor system performance, and handle reported issues.
2. Student - The Student Module provides a user-friendly interface for students to access live lectures, view recorded sessions, and submit assignments. Students can engage in interactive learning, send queries to faculty, and access digital notes. The module ensures seamless communication and real-time collaboration with faculty members.
3. Teacher -The Teacher Module allows faculty members to conduct live virtual classes, upload study materials, and manage student queries. Teachers can create and evaluate assignments, send notices, and record sessions for later access. This module streamlines the online teaching process and ensures efficient student engagement.

#### **1.3 ASSIGNMENT & LECTURE MANAGEMENT**

This module ensures smooth handling of assignments, recorded lectures, and session scheduling. It includes features such as:

- Uploading and downloading assignments
- Automated deadlines and submission tracking
- Categorization of lectures based on subject and semester
- Secure storage of recorded sessions for on-demand access

With these features, the Virtual Classroom System provides an interactive, organized, and accessible learning environment, enabling both students and faculty to maximize the benefits of digital education.

## 1.1 SCREEN SHOTS



Fig 6.1 Start page

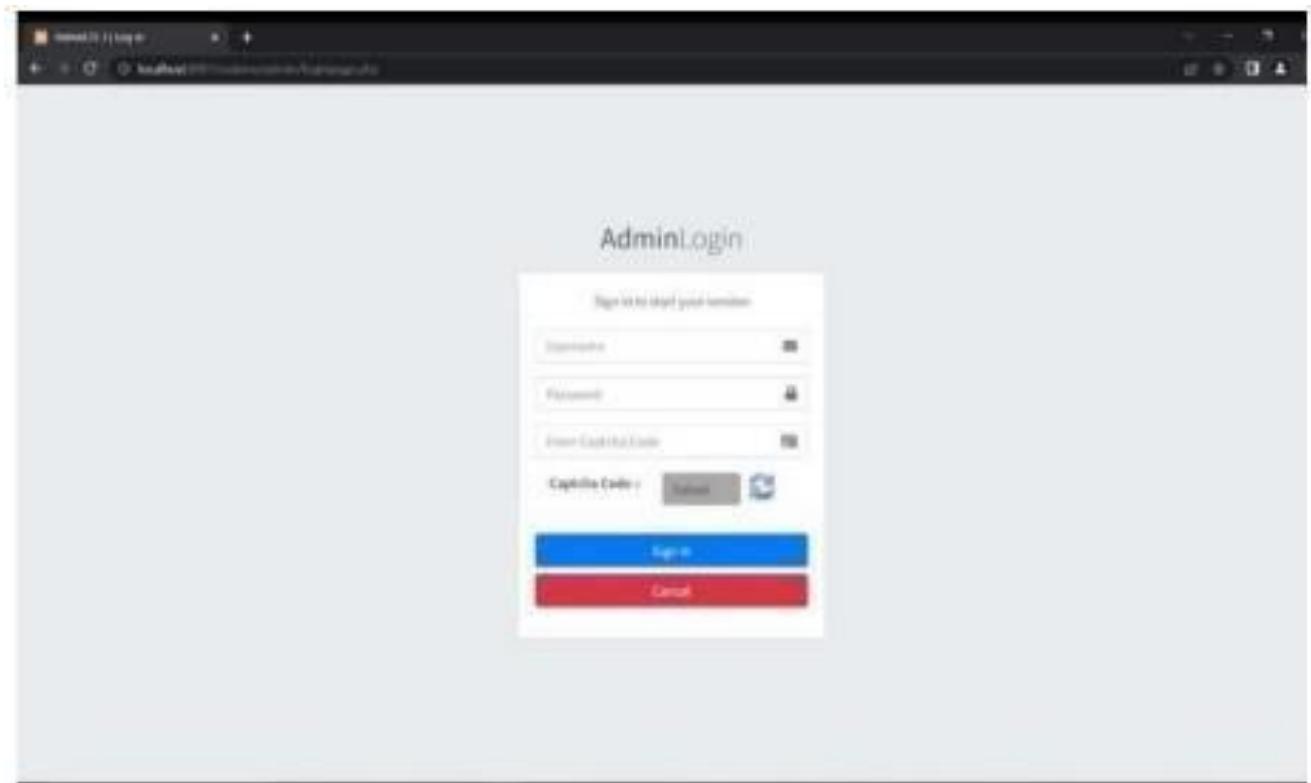


Fig 6.2 login-page

The screenshot shows the AdminLTE 3 Dashboard home page. At the top, there's a header bar with the title "AdminLTE 3 | Dashboard" and a URL "localhost:8081/vcdemo/admin/adminhome.php". Below the header is a navigation bar with "Virtual Classroom" and "Logout" buttons. On the left, a sidebar menu lists "Dashboard", "Branch", "Semester", "HOD", "Faculty", "Students", and "Students". The main content area is titled "Dashboard" and displays four cards: "Branches" (6), "Semester" (3), "HOD" (1), and "Faculty" (1). Below these is another card for "Students" (1). The footer contains copyright information "Copyright © 2021-2022 Virtual Classroom. All rights reserved." and a version number "Version 3.0.5".

**Fig 6.3 Home Page**

❖ Upload Assignment:

**Assignment**

**Upload Assignment**

**Select Branch :** CE

**Select Semester :** 1

**Select Subject :** WNS

**Assignment Name:** Wns Lab manul

**Select File:** Choose File WNS\_priyraj-converted(new).pdf

**Submit** **Clear**

❖ Manage Assignment:

**Manage Assignment**

All Assignments Details

Show: 20 entries Search:

Assignment ID	Branch	Semester	Subject	Assignment Name	Assignment File	Delete
6	CE	1	WNS	test	AIP_Assignment-2 (1).pdf	Delete
13	CE	1	WNS	test	WNS_priyraj-converted(new) (1).docx	Delete

Showing 1 to 2 of 2 entries Previous 1 Next

**Fig 6.4 Assignment uploading & managing**

## ❖ Admin adds Faculty:

**Add Faculty**

**Add Faculty**

**Faculty Code :**

**Faculty Branch :**

**Faculty Email address**

**Password**

**Faculty Name :**

**Submit** **Clear**

## ❖ Manage Faculty:

**Manage Faculty**

Home / Manage Faculty

All Faculty Details

All Faculty Details						
Show <input type="button" value="10"/> <input type="button" value="25"/> entries					Search: <input type="text"/>	
Faculty Code	Faculty Branch	Faculty Email	Faculty Password	Faculty Name	Update	Delete
1	CE	priyraji@gmail.com	123	priyrajsinh	<a href="#">Edit</a>	<a href="#">Delete</a>
Faculty Code	Faculty Branch	Faculty Email	Faculty Password	Faculty Name	Update	Delete

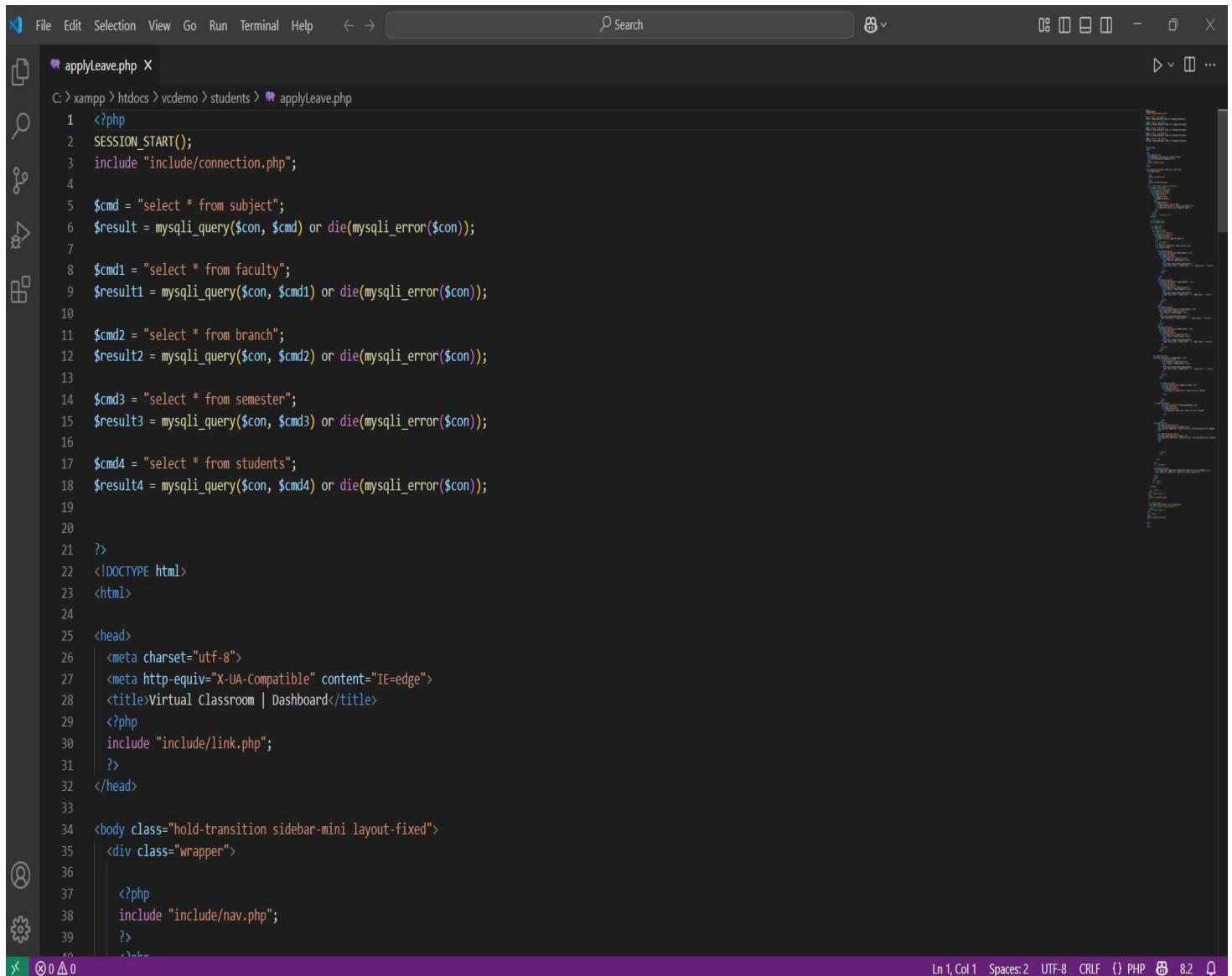
Showing 1 to 1 of 1 entries

Previous **1** Next

**Fig 6.5 Faculty Management**

All Meeting Details					
Meeting ID	Password	Joining URL	Meeting Topic	Meeting Time	Delete
81546266050	INF5T	Join Meeting	PHP	27/03/2022 09:08:00	<a href="#">Delete</a>
82653142540	bhv3Q	Join Meeting	JAVA	23/03/2022 17:03:00	<a href="#">Delete</a>
83304513516	c01E50	Join Meeting	PHP	03/03/2022 09:21:00	<a href="#">Delete</a>
84651320546	mHfg0	Join Meeting	PHP	22/03/2022 22:51:00	<a href="#">Delete</a>
86009618483	eww58	Join Meeting	JAVA	22/03/2022 20:08:00	<a href="#">Delete</a>
86733298647	crHc4L	Join Meeting	Android	23/03/2022 22:02:00	<a href="#">Delete</a>
88444572797	vtepC	Join Meeting	WNS	26/03/2022 22:18:00	<a href="#">Delete</a>
89360790493	HIPEk	Join Meeting	test	22/03/2022 19:30:00	<a href="#">Delete</a>
Meeting ID	Password	Joining URL	Meeting Topic	Meeting Time	Delete

**Fig 6.6 Student Meeting Details**



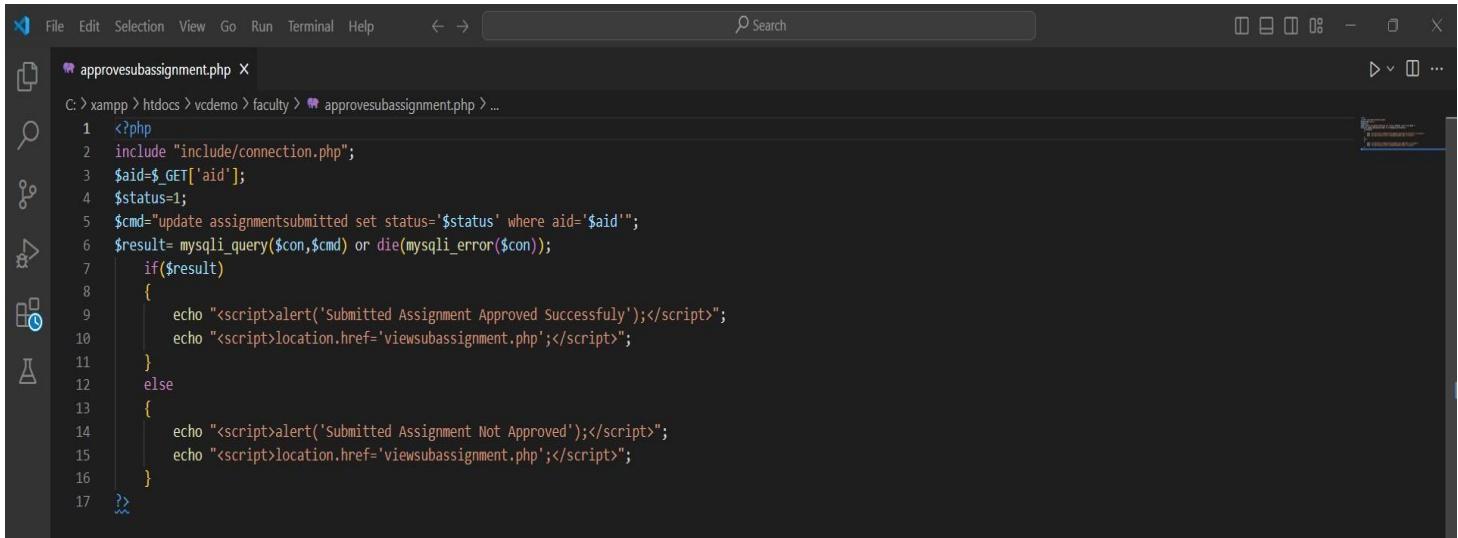
The screenshot shows a code editor window with the following details:

- Title Bar:** File Edit Selection View Go Run Terminal Help
- Search Bar:** Search
- Toolbar:** Includes icons for file operations like Open, Save, Find, and others.
- Code Area:**

```

1 <?php
2 SESSION_START();
3 include "include/connection.php";
4
5 $cmd = "select * from subject";
6 $result = mysqli_query($con, $cmd) or die(mysqli_error($con));
7
8 $cmd1 = "select * from faculty";
9 $result1 = mysqli_query($con, $cmd1) or die(mysqli_error($con));
10
11 $cmd2 = "select * from branch";
12 $result2 = mysqli_query($con, $cmd2) or die(mysqli_error($con));
13
14 $cmd3 = "select * from semester";
15 $result3 = mysqli_query($con, $cmd3) or die(mysqli_error($con));
16
17 $cmd4 = "select * from students";
18 $result4 = mysqli_query($con, $cmd4) or die(mysqli_error($con));
19
20
21 ?>
22 <!DOCTYPE html>
23 <html>
24
25 <head>
26 <meta charset="utf-8">
27 <meta http-equiv="X-UA-Compatible" content="IE=edge">
28 <title>Virtual Classroom | Dashboard</title>
29 <?php
30 include "include/link.php";
31 ?>
32 </head>
33
34 <body class="hold-transition sidebar-mini layout-fixed">
35 <div class="wrapper">
36
37 <?php
38 include "include/nav.php";
39 ?>
        
```
- Status Bar:** Ln 1, Col 1 Spaces: 2 UTF-8 CRLF {} PHP 8.2

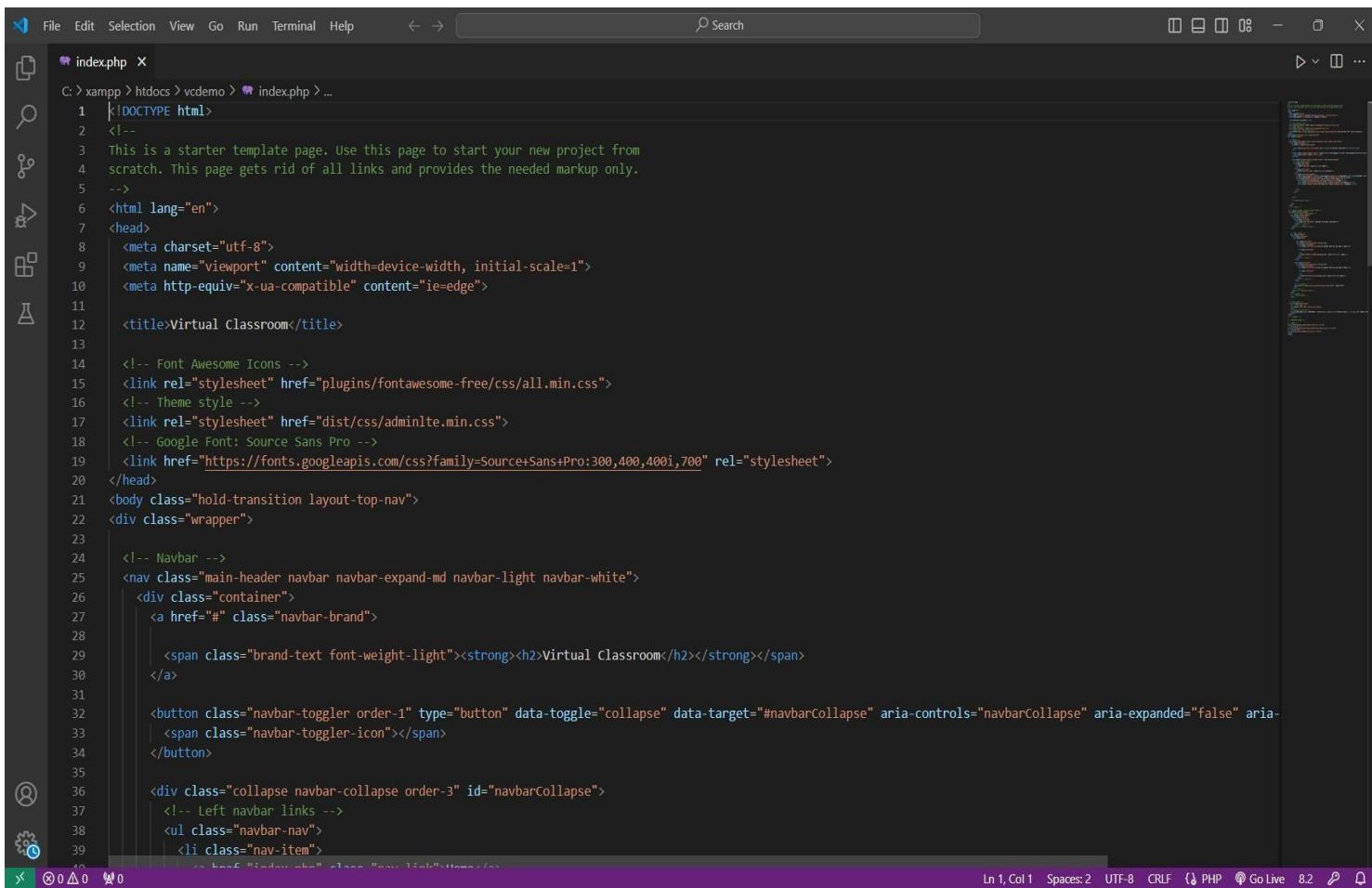
Fig 6.8 Screenshot of PHP code



```

/approvesubassignment.php X
C:\xampp>htdocs>vcdemo>faculty> approvesubassignment.php > ...
1 <?php
2 include "include/connection.php";
3 $aid=$_GET['aid'];
4 $status=1;
5 $cmd="update assignmentsubmitted set status='$status' where aid='$aid'";
6 $result= mysqli_query($con,$cmd) or die(mysqli_error($con));
7 if($result)
8 {
9     echo "<script>alert('Submitted Assignment Approved Successfully');</script>";
10    echo "<script>location.href='viewsubassignment.php';</script>";
11 }
12 else
13 {
14     echo "<script>alert('Submitted Assignment Not Approved');</script>";
15    echo "<script>location.href='viewsubassignment.php';</script>";
16 }
17 ?>

```

**Fig 6.9 assignment-management PHP code**


```

/index.php X
C:\xampp>htdocs>vcdemo> index.php > ...
1 <!DOCTYPE html>
2 <!--
3 This is a starter template page. Use this page to start your new project from
4 scratch. This page gets rid of all links and provides the needed markup only.
5 -->
6 <html lang="en">
7 <head>
8     <meta charset="utf-8">
9     <meta name="viewport" content="width=device-width, initial-scale=1">
10    <meta http-equiv="x-ua-compatible" content="ie=edge">
11
12    <title>Virtual Classroom</title>
13
14    <!-- Font Awesome Icons -->
15    <link rel="stylesheet" href="plugins/fontawesome-free/css/all.min.css">
16    <!-- Theme style -->
17    <link rel="stylesheet" href="dist/css/adminlte.min.css">
18    <!-- Google Font: Source Sans Pro -->
19    <link href="https://fonts.googleapis.com/css?family=Source+Sans+Pro:300,400,400i,700" rel="stylesheet">
20 </head>
21 <body class="hold-transition layout-top-nav">
22 <div class="wrapper">
23
24    <!-- Navbar -->
25    <nav class="main-header navbar navbar-expand-md navbar-light navbar-white">
26        <div class="container">
27            <a href="#" class="navbar-brand">
28                <span class="brand-text font-weight-light"><strong>Virtual Classroom</strong></span>
29            </a>
30
31            <button class="navbar-toggler order-1" type="button" data-toggle="collapse" data-target="#navbarCollapse" aria-controls="navbarCollapse" aria-expanded="false" aria-
32            <span class="navbar-toggler-icon"></span>
33        </button>
34
35        <div class="collapse navbar-collapse order-3" id="navbarCollapse">
36            <!-- Left navbar links -->
37            <ul class="navbar-nav">
38                <li class="nav-item">
39                    <a href="#" class="nav-link">Home</a>
40                </li>
41            </ul>
42        </div>
43    </nav>
44 </div>
45
46 <!-- Main content -->
47 <div class="content-wrapper">
48     <div class="content-header">
49         <div class="container">
50             <h1>Virtual Classroom</h1>
51             <small>Virtual Classroom</small>
52         </div>
53     </div>
54
55     <div class="content-body">
56         <div class="container">
57             <p>Virtual Classroom is a platform for learning and teaching. It provides a user-friendly interface for managing assignments, tracking progress, and interacting with other users. The platform is designed to be accessible on any device, including desktops, laptops, and mobile phones. It features a modern design with a clean, minimalist aesthetic. The platform is built using the latest web technologies, including HTML5, CSS3, and JavaScript. It also includes a robust database system for storing user data and managing assignments. The platform is currently in development and will be available soon. Stay tuned for more updates!
58         </div>
59     </div>
60
61 </div>
62
63 <!-- Footer -->
64 <div class="main-footer">
65     <div class="container">
66         <small>Copyright © 2020 Virtual Classroom. All rights reserved.</small>
67     </div>
68 </div>
69
70 </body>
71 </html>

```

**Fig 6.10 HTML code**

## 7 TESTING

### TESTING PLAN / STRATEGY :

Testing is conducted to ensure the accuracy, performance, and reliability of the Virtual Classroom System. It helps in identifying errors, bugs, and integration issues, ensuring a seamless learning experience for students and faculty. Proper testing also guarantees that the system remains scalable, secure, and efficient under various conditions, including high user loads and real-time interactions.

The testing process includes multiple stages such as unit testing, integration testing, system testing, and user acceptance testing (UAT). Unit testing verifies the functionality of individual components, ensuring that each module operates correctly in isolation. Integration testing examines the seamless interaction between different modules, including real-time video streaming, authentication, and assignment management. System testing evaluates the complete Virtual Classroom System under different scenarios, assessing performance, responsiveness, and security measures. Lastly, user acceptance testing involves real users interacting with the system to validate its usability, accessibility, and overall functionality.

Additionally, stress testing and load testing are performed to assess the system's ability to handle multiple concurrent users without degradation in performance. Security testing ensures that sensitive data such as student records, login credentials, and recorded lectures are securely stored and protected from unauthorized access.

By implementing a comprehensive testing strategy, the Virtual Classroom System aims to provide a smooth, error-free, and engaging online learning experience for both students and faculty, ensuring high reliability and efficiency in digital education.

## Chapter 8

### CONCLUSION & DISCUSSION

#### **8.1 OVERALL ANALYSIS OF INTERNSHIP VIABILITIES :**

The Virtual Classroom project presents a valuable opportunity for interns to gain hands-on experience in database development with MYSQL, backend development with PHP, and Web developing tools like HTML/CSS/Javascript.

This section analyzes the feasibility of an internship program based on various aspects such as learning outcomes, project scope, required skills, and industry relevance.

#### **8.2 DATES OF CONTINUOUS EVALUATION (CE-I AND CE-II)**

- 1) Review1: 14/03/2025
- 2) Review2: 08/04/2025

#### **8.3 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS**

During the development of the Virtual Classroom System, several challenges were encountered, including connectivity issues, real-time session management complexities, and database synchronization problems. Ensuring a smooth and uninterrupted learning experience for students and faculty required addressing issues related to server performance, data storage, and user authentication.

These issues were resolved through in-depth research, debugging, and rigorous testing. Server performance was optimized using caching mechanisms and load balancing techniques to manage high traffic efficiently.

The authentication system was enhanced with secure encryption and role-based access control to prevent unauthorized access.

API-related challenges were mitigated by optimizing request handling, implementing session management strategies, and ensuring seamless integration with external services.

Additionally, structured error-handling mechanisms and automated backups were introduced to enhance system reliability. Overcoming these challenges significantly improved the Virtual Classroom System's efficiency, security, and overall user experience, making it a robust platform for online education.

## 8.4 SUMMARY OF INTERNSHIP /PROJECT WORK

During my internship at BlackBuck IT Solutions, starting in January 2025, I gained hands-on experience in developing a virtual classroom website. The structured work environment and continuous guidance from my mentors helped me understand real-world software development processes.

I worked with various technologies, including PHP, MySQL, and HTML/CSS/JavaScript, to build a functioning virtual classroom with zoom API.

This internship allowed me to improve my problem-solving skills and explore the integration of APIs, sentiment analysis, and web styling techniques.

Working on a practical project enhanced my technical expertise and understanding of full-stack web development.

The experience I gained at BlackBuck IT Solutions has been invaluable in shaping my knowledge and preparing me for future challenges in the tech industry.

## 8.5 Future Enhancements

- Enhanced Context Retention: Implementing memory-based AI models to improve contextual understanding in long conversations.
- Fine-tuned Domain-Specific Training: Training the chatbot with custom datasets for specialized industries (e.g., healthcare, finance, e-commerce) to improve response accuracy.
- Scalability Improvements: Optimizing API calls and integrating cloud-based AI processing to ensure real-time responses even under high traffic.
- Advanced Multimodal Capabilities: Enhancing image and speech recognition models to provide more accurate, context-aware responses.

## **REFERENCES**

- W3Schools HTML Documentation – For HTML fundamentals and syntax.
- GeeksforGeeks – For problem-solving and learning new concepts.
- Stack Overflow – For troubleshooting errors and debugging solutions.
- W3Schools CSS – For Designing.
- W3schools PHP – For Syntax definitions.
- Github – Version Control.

### ATTENDANCE SHEET

Name of Student																														
Enrollment No.																														
Branch																														
Date of Commencement of internship																														
Date of Completion of Training																														
Organization Name																														

Month & Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

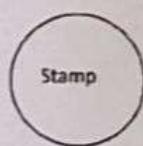
Note:

1. Attendance sheet should remain affixed in daily training dairy
2. Do not remove or tear it off
3. Student should sign/initial in the attendance column. Do not mark " P "
4. Holiday Should be marked with red Ink in attendance column. Absent Should be marked as "A" with red ink
5. Signature of Company Internship Supervisor with company Stamp/Seal

Industry Signature :

Industry Supervisor Name :

Email ID



For, Blackbuck IT Solutions  
N.V. Dhumelia  
Proprietor

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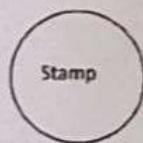
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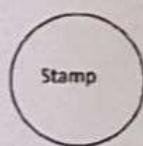
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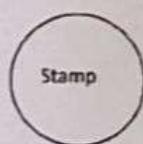
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**Annexure 1**

**Enrollment no:** \_\_\_\_\_

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

**NAME OF STUDENT:** \_\_\_\_\_

**DIARY OF THE WEEK:** Dt: \_\_\_\_\_ TO \_\_\_\_\_

**DEPARTMENT:** \_\_\_\_\_ SEM: \_\_\_\_\_

**NAME OF THE ORGANISATION:** \_\_\_\_\_

**NAME OF THE PLANT/SECTION/DEPARTMENT:** \_\_\_\_\_

**NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT:** \_\_\_\_\_

**DESCRIPTION OF THE WORK DONE IN BRIEF**



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**TOTAL HOURS: -----**

**SIGNATURE OF STUDENT**

- The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

**Signature of Faculty Mentor**

*N.V.Dhameliya*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date:

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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)



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