

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

Deemed to be University

(Declared under Distinct Category by Ministry of Education, Govt. of India)

NAAC Accredited with A++ Grade



Project Report

on

Development of E-Learning Management

Submitted By:

Ankit

(0901CA221014)

Industry Mentor:

Deepika Shaijulkar (Director, We2Code Technology Private Limited)

Faculty Mentor:

Dr. R. S. Jadon (Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

Gwalior – 474005(MP) Estd.1957

January – June 2024

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A project report submitted in partial fulfilment of the requirement for the degree of

MASTER IN COMPUTER APPLICATION

In

COMPUTER SCIENCE AND ENGINEERING

Submitted By:

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PROJECT COMPLETION CERTIFICATE

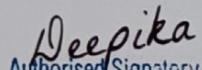
This is certify that **Mr. Ankit** has successfully completed his project with us at **We2Code Technology Private Limited**, under the designation of **Software Developer** in the Information Technology Department. His project **commenced on 20th December 2023 and concluded on 16th 2024**, during which he exhibited commendable conduct and professionalism.

Throughout the project **Mr. Ankit** actively contributed to the development of the **E-Learning Management**, a dynamic web application aimed at enhancing user experience tasks, including designing user interfaces, writing clean and efficient code, and integrating designing user interfaces, writing clean and efficient code, and integrating various APIs.

His dedication, integrity, and collaborative spirit were evident throughout the project. He consistently maintained a positive attitude, communicated effectively with team members, and demonstrated excellent problem-solving skills. His professionalism and commitment to delivering high-quality work reflect his strong character and work ethic.

Based on the exemplary performance and clear potential exhibited throughout the project, we highly recommend Mr. Ankit to continue pursuing opportunities for skill development and professional growth in the field to Software Development. With a solid foundation and a keen enthusiasm for learning, we believe he has a bright future ahead in this industry.

For We2code Technology Private Limited


Deepika
Authorised Signatory

Deepika Shajulkar.
Director
We2Code Technology Private Limited

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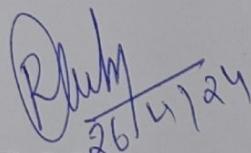
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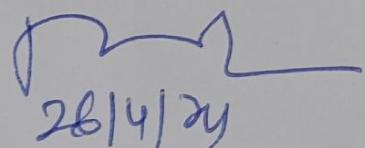
CERTIFICATE

This is certified that **Ankit (0901CA221014)** has submitted the project report titled **E-Learning Management Services** under the mentorship of **Deepika Shaijulkar** (Director, We2Code Technology Private Limited), in partial fulfilment of the requirement: for the award of degree of **Master in Computer Application**, submitted in Department of Computer Science and Engineering **Madhav Institute of Technology and Science, Gwalior.**



26/4/24

Dr. R. S. Jadon
(Professor and Project Coordinator)
Computer Science and Engineering



26/4/24

Dr. Manish Dixit
(Professor and Head)
Computer Science and Engineering

Dr. Manish Dixit
Professor & HOD
Department of CSE
M.I.T.S. Gwalior

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DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Master in Computer Application in Computer Science and Engineering at **Madhav Institute of Technology & Science, Gwalior** is an authenticated and original record of my work under the mentorship of Deepika Shaijulkar (Director, We2Code Technology Private Limited), I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.



Ankit

0901CA221014

2022-2024

Master of Computer Application
Computer Science and Engineering

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

Deemed to be University

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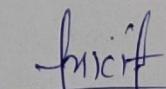
ACKNOWLEDGEMENT

The full semester project has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology and Science** to allow me to continue my disciplinary project. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

I would sincerely like to thank my department, **Department of Computer Science and Engineering**, for allowing me to explore this project. I humbly thank **Dr. Manish Dixit**, Professor and Head, Department of Computer Science and Engineering, for his continued support during the course of this engagement, which eased the process and formalities involved.

I would like to extend my heartfelt appreciation **Deepika Shaijulkar** (Director, We2Code Technology Private Limited) for his exceptional mentorship, guidance, and assistance throughout the project. His valuable input and feedback during the course of the project have helped me enhance my knowledge and skills. His constant encouragement and support have been instrumental in the successful completion of this project.

I am sincerely thankful to my faculty coordinator. I am grateful to the guidance of **Dr. R. S. Jadon**, (Professor), Computer Science and Engineering, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.



Ankit

0901CA221014

2022-2024

Master of Computer Application
Computer Science and Engineering

ABSTRACT

E-Learning, encompasses a wide range of instructional approaches enabled by electronic technologies, mostly via the internet. With its flexibility, accessibility, and scalability, it transforms conventional learning paradigms. Multimedia materials, online courses, virtual classrooms, interactive tests, and online resources are all included in the category of e-learning. Its historical development is a reflection of the quick development of educational philosophies and digital technologies. Pedagogically, e-learning supports a variety of teaching philosophies, encouraging group projects, active learning, and individualised instruction. But it also brings with it difficulties like privacy issues, digital divides, and maintaining quality control. Adopting e-learning means figuring out technology frameworks, creating interesting user interfaces, and dealing with moral and societal ramifications. E-learning has the potential to democratise education, encourage lifelong learning, and influence how people learn in the digital age, despite certain obstacles.

All things considered, this study offers insightful information about how interactive e-learning resources might improve learning outcomes and student engagement. The results hold significance for instructors and instructional designers who aim to utilise technology to establish captivating and productive learning environments in conventional and virtual contexts.

सार

ई-लर्निंग में इलेक्ट्रॉनिक तकनीकों द्वारा, ज्यादातर इंटरनेट के माध्यम से, सक्षम शिक्षण वृष्टिकोणों की एक विस्तृत शृंखला शामिल है। अपने लचीलेपन, पहुंच और मापनीयता के साथ, यह पारंपरिक शिक्षण प्रतिमानों को बदल देता है। मल्टीमीडिया सामग्री, ऑनलाइन पाठ्यक्रम, आभासी कक्षाएँ, इंटरैक्टिव परीक्षण और ऑनलाइन संसाधन सभी ई-लर्निंग की श्रेणी में शामिल हैं। इसका ऐतिहासिक विकास शैक्षिक दर्शन और डिजिटल प्रौद्योगिकियों के त्वरित विकास का प्रतिबिंब है। शैक्षणिक रूप से, ई-लर्निंग विभिन्न प्रकार के शिक्षण दर्शन का समर्थन करता है, समूह परियोजनाओं, सक्रिय शिक्षण और व्यक्तिगत निर्देश को प्रोत्साहित करता है। लेकिन यह अपने साथ गोपनीयता संबंधी मुद्दे, डिजिटल विभाजन और गुणवत्ता नियंत्रण बनाए रखने जैसी कठिनाइयां भी लाता है। ई-लर्निंग को अपनाने का अर्थ है प्रौद्योगिकी ढांचे का पता लगाना, दिलचस्प यूजर इंटरफ़ेस बनाना और नैतिक और सामाजिक प्रभावों से निपटना। ई-लर्निंग में शिक्षा को लोकतांत्रिक बनाने, आजीवन सीखने को प्रोत्साहित करने और कुछ बाधाओं के बावजूद डिजिटल युग में लोगों के सीखने के तरीके को प्रभावित करने की क्षमता है। सभी बातों पर विचार करने पर, यह अध्ययन इस बारे में व्यावहारिक जानकारी प्रदान करता है कि कैसे इंटरैक्टिव ई-लर्निंग संसाधन सीखने के परिणामों और छात्र जुड़ाव में सुधार कर सकते हैं। परिणाम उन प्रशिक्षकों और अनुदेशात्मक डिजाइनरों के लिए महत्व रखते हैं जिनका लक्ष्य पारंपरिक और आभासी संदर्भों में मनोरम और उत्पादक शिक्षण वातावरण स्थापित करने के लिए प्रौद्योगिकी का उपयोग करना है।

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CHAPTER 1

INTRODUCTION

CHAPTER 1:INTRODUCTION

E-Learning as it is commonly known, is a revolutionary approach to education that makes use of digital technologies to improve and deliver learning opportunities. It includes a wide range of learning activities carried out virtually, from conventional classes delivered via the internet to interactive models and multimedia materials. Because it is flexible, accessible, and scalable, e-learning has been increasingly popular in recent years. This is because it allows students to interact with educational materials at any time, from any location, and at their own speed. The development of information and communication technology as well as the introduction of the internet are responsible for the emergence of e-learning. The emergence of advanced learning management systems (LMS) and the spread of high-speed internet connectivity have made e-learning a flexible and dynamic form of instruction that meets the needs. The rapid progress of digital technology has resulted in a dramatic transformation of the education landscape in recent years. The use of electronic media and information and communication technologies (ICT) to deliver educational content and support learning outside of traditional classroom settings is known as e-learning, and it is one of the most significant advances. Online courses, virtual classrooms, multimedia materials, and interactive simulations are just a few of the many modalities that make up e-learning and provide students of all ages and backgrounds with flexible, accessible, and customised learning experiences. The purpose of this study is to look into how interactive online modules can improve learning outcomes and student engagement in a high school biology course. Our aim is to establish a dynamic and immersive learning environment that encourages student engagement, critical thinking, and information retention through the integration of multimedia content, interactive exercises, and collaborative activities inside the online learning platform. Using a mix of qualitative comments and quantitative evaluations from

1.1 Problem Identification :-

Identifying problems in e-learning can help educators, administrators, and policymakers address challenges and improve the effectiveness of online education. Here are some common issues encountered in e-learning:

Access and Connectivity: Disparities in access to reliable internet connectivity and digital devices can hinder participation in e-learning, particularly for students from underserved communities or rural areas.

Digital Literacy: Many learners may lack the necessary digital literacy skills to navigate online learning platforms, access resources, and effectively engage with digital content.

Engagement and Motivation: Maintaining learner engagement and motivation in online environments can be challenging, as distractions, lack of face-to-face interaction, and feelings of isolation may impact participation and learning outcomes.

Quality of Content and Instruction: Ensuring the quality of educational content and instruction in e-learning environments is essential for fostering meaningful learning experiences and achieving learning objectives.

Assessment and Feedback: Designing effective assessment methods and providing timely feedback in online courses can be complex, requiring careful consideration of technological tools, academic integrity, and scalability.

1.2 About Organization :-

One of the key advantages of e-learning is its ability to transcend geographical boundaries and overcome logistical constraints associated with traditional classroom-based instruction. Learners can access educational resources and participate in interactive activities remotely, breaking down barriers to learning and fostering a culture of lifelong learning. Moreover, e-learning offers opportunities for personalized learning experiences, allowing learners to tailor their educational journey according to their individual preferences, interests, and learning styles. E-learning encompasses various instructional modalities, including asynchronous learning, where learners engage with pre-recorded lectures and self-paced assignments, and synchronous learning, which involves real-time interaction with instructors and peers through virtual classrooms and webinars. Additionally, e-learning often incorporates multimedia elements such as videos, animations, simulations, and gamified activities to enhance engagement and promote deeper understanding of complex concepts.

1.3 Hardware and Software Specifications :-

For e-learning purposes, both hardware and software specifications can vary depending on the specific requirements of the e-learning platform or software being used. Here's a general overview:

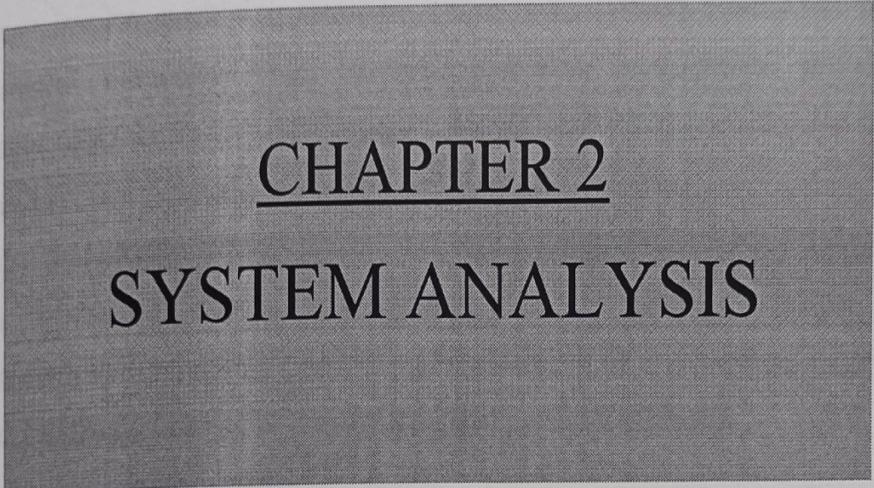
1.3.1 Hardware Specification:

- Processor: Intel Core i5 or higher or equivalent
- Network: 1 Gbps Ethernet or higher
- Processor: 64-bit processor with at least 1.4 GHz or faster
- RAM: 4 GB or higher
- Hard Disk Space: At least 1 GB of free space

1.3.2 Software Specification:

- Operating System: Windows 10 Pro or Enterprise (64-bit) or Windows Server 2016 or 2019(64-bit)
- Web Browser-Google Chrome latest Version or any other browser
- Power BI Desktop: The latest version of Power BI Desktop, installed on local machine
- Power BI Service: A Power BI Pro or Power BI Premium account, depending on the project requirements and the number of users.
- Power Apps: A Power Apps account, with access to the required data connectors and other features.
- Database Management System: Microsoft SQL Server 2017 or later, or equivalent, with the required licenses and user access permissions.

Before enrolling in an e-learning course or program, it's advisable to check the specific hardware and software requirements provided by the institution or organization offering the course. They often provide detailed guidance to ensure a smooth learning experience for all participants.



CHAPTER 2

SYSTEM ANALYSIS

CHAPTER 2:SYSTEM ANALYSIS

2.1. Problem Analysis

To conduct a problem analysis of e-learning, it's important to thoroughly examine the issues identified and understand their underlying causes and implications. Here's how you can approach problem analysis in e-learning:

- a. **Define the Problem:** Clearly articulate the specific challenges or issues facing e-learning initiatives, such as access barriers, low learner engagement, or inadequate technological infrastructure.
- b. **Gather Data:** Collect relevant data and evidence to support your analysis, including quantitative metrics (e.g., dropout rates, assessment scores) and qualitative feedback (e.g., learner surveys, instructor observations).
- c. **Identify Root Causes:** Explore the underlying factors contributing to the identified problems. This may involve examining structural issues (e.g., funding constraints, policy barriers), technological limitations (e.g., outdated systems, compatibility issues), pedagogical challenges (e.g., ineffective instructional design, lack of learner-centered approaches), or social and cultural factors (e.g., digital divides, equity concerns).
- d. **Consider Stakeholder Perspectives:** Take into account the perspectives and experiences of various stakeholders involved in e-learning, including learners, educators, administrators, policymakers, and technology providers. Understanding their viewpoints can provide valuable insights into the root causes of the problems and potential solutions.

2.2. Feasibility Study

The feasibility study for the E-Learning project is crucial to assess the viability and potential success of the initiative. It involves evaluating various aspects to determine if the project is technically, economically, and operationally feasible. Here's a brief overview of the feasibility study. In essence, it involves analyzing factors like market demand, technological requirements, cost implications, organizational readiness, legal compliance, and potential risks to assess whether the benefits of implementing an e-learning solution outweigh the associated costs and challenges. The ultimate goal of a feasibility study is to provide stakeholders with valuable insights and recommendations to make informed decisions about investing in e-learning initiatives.

2.2.1 Technical feasibility

a. Hardware Requirement-

S.No	Component	Specification
1.	Processor(CPU)	Intel Core i5 AMD Ryzen 5 or higher
2.	Monitor	FHD(190x1080)
3.	Memory(RAM)	At least 8 GB or above
4.	Storage(SSD)	256 GB
5.	Internet	512 KB (Speed)
6.	Keyboard	USB Wired or Wireless
7.	Mouse	USB wired or Wireless

b. Programming Languages-

S.No	Site	Details
1.	Front-End	HTML,CSS,JS6,React Js
2.	Back-End	NodeJs,ExpressJs
3.	Database	MongoDB

c. Software Requirements-

S.No	Component	Minimum Requirement
1.	Operating System	Windows XP, 7 or later, MacOS, Ubuntu
2.	Internet Browser	Chrome, Edge, Mozilla and Similar
3.	IDE	Visual Studio Code, Sublime Text Editor
4.	Dependencies	Npm or yarn
5.	Deployment Server	AWS or Azure, or hosting services like Heroku or DigitalOcean.

2.2.2 Economical feasibility

a. Personal Expenses-

S.No	Resource	Cost
1.	System Analyst (1) [8 days/month]	Rs 4000/-
2.	Programmer (1) [25 days/month]	Rs 5000 /-
3.	Database Specialist (1) [10 days/month]	Rs 2000 /-
Total		Rs 11000 /-

b. Other Expenses

S.No	Resource	Cost
1.	Electricity(120 unit \times 8rs/unit)	Rs 960 /-
2.	Stationery	Rs 600 /-
3.	Workspace facility	Rs 1800 /-
4.	Internet/Wi-Fi	Rs 1500 /-
Total		Rs 4860 /-

2.2.3 Behavioral Feasibility: In the context of e-learning, behavioural feasibility is the evaluation of whether users—such as administrators, teachers, or students—are able and willing to accept and make good use of the e-learning platform or system. The process entails assessing variables including user attitudes, preferences, motives, and behaviour patterns in order to ascertain the probability of an effective e-learning solution's deployment and acceptance within the intended audience. In order to obtain information about user behaviours and attitudes towards e-learning, behavioural feasibility studies frequently use surveys, interviews, focus groups, and observation. This information is then used to identify potential adoption barriers and ways for overcoming them.

- **User Acceptance:** Assessing if users are eager to use digital platforms for education and are receptive to the concept of e-learning.
- **Motivation:** Determining the level of motivation among users to engage in online learning activities and accomplish their learning goals.
- **Self-discipline:** Assessing users' capacity for autonomous online coursework completion, time management, and focus. Digital literacy refers to assessing a user's ability to use the digital tools and technologies needed for e-learning, including communicating via tools, accessing digital materials, and navigating online platforms.
- **Adaptability:** Since e-learning frequently requires a move from traditional classroom settings to virtual ones, this study examines users' capacity to adjust to various learning modalities and technology.

E-learning developers and educators can better design and implement online learning solutions that meet users' needs, preferences, and skills by having a thorough understanding of the behavioural characteristics of the target audience. This will eventually increase the efficacy and acceptance of e-learning projects.

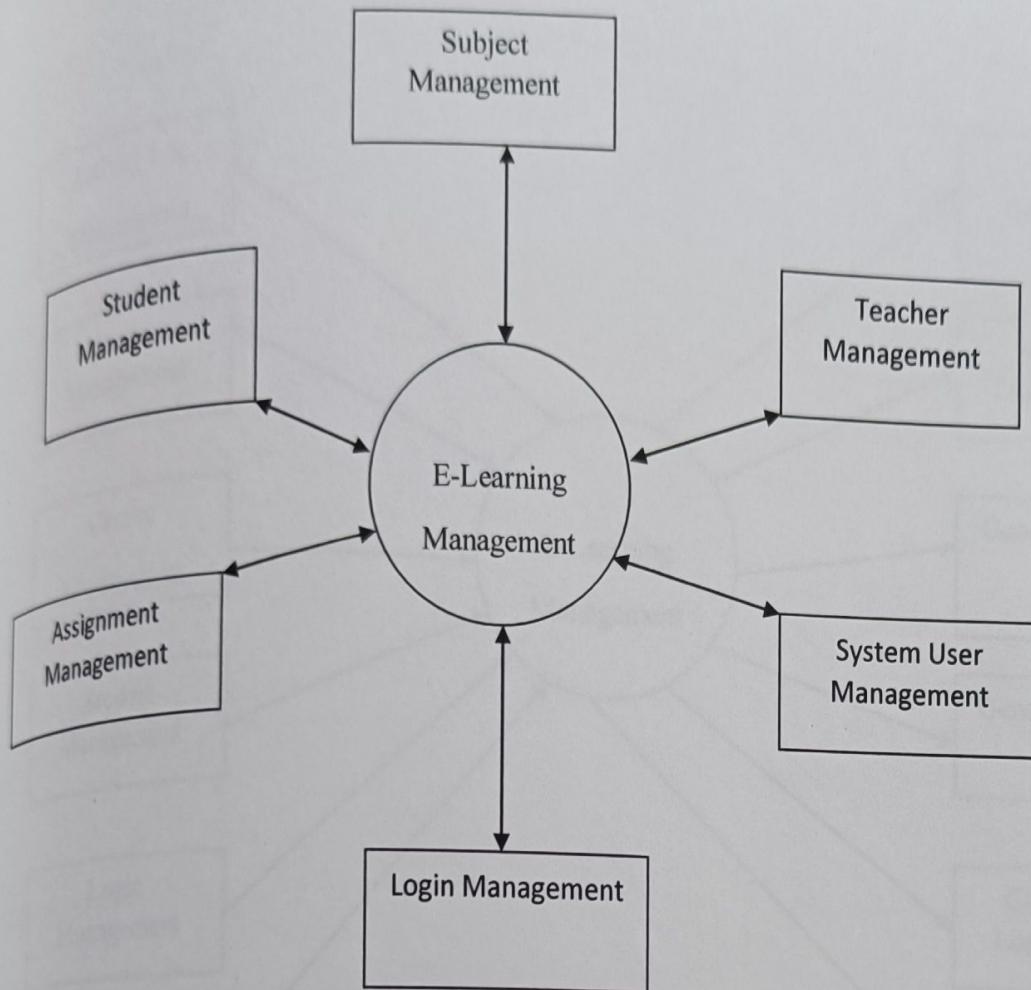
Operational Feasibility: When discussing e-learning, operational feasibility refers to determining if an organisation or institution's current infrastructure and resources will allow for the technically and practically feasible adoption of an e-learning system or platform. In order to ascertain whether implementing and sustaining the e-learning solution will be viable and effective, it entails assessing a number of operational factors. Important things to think about are:

- **Technical Infrastructure:** Determining whether the organization's current hardware, software, and network capabilities are sufficient to meet the demands of the e-learning platform in terms of performance, scalability, and hosting.
- **Resource Availability:** Assessing the availability of the technological, financial, and human resources required for creating, implementing, and overseeing the e-learning system, including professionals with knowledge of system administration, instructional design, content development, and technical support.
- **Combining with Current Systems:** evaluating the e-learning platform's compliance with the organization's current procedures and systems, including learning management systems (LMS), student information systems (SIS), authentication systems, and content management systems (CMS).

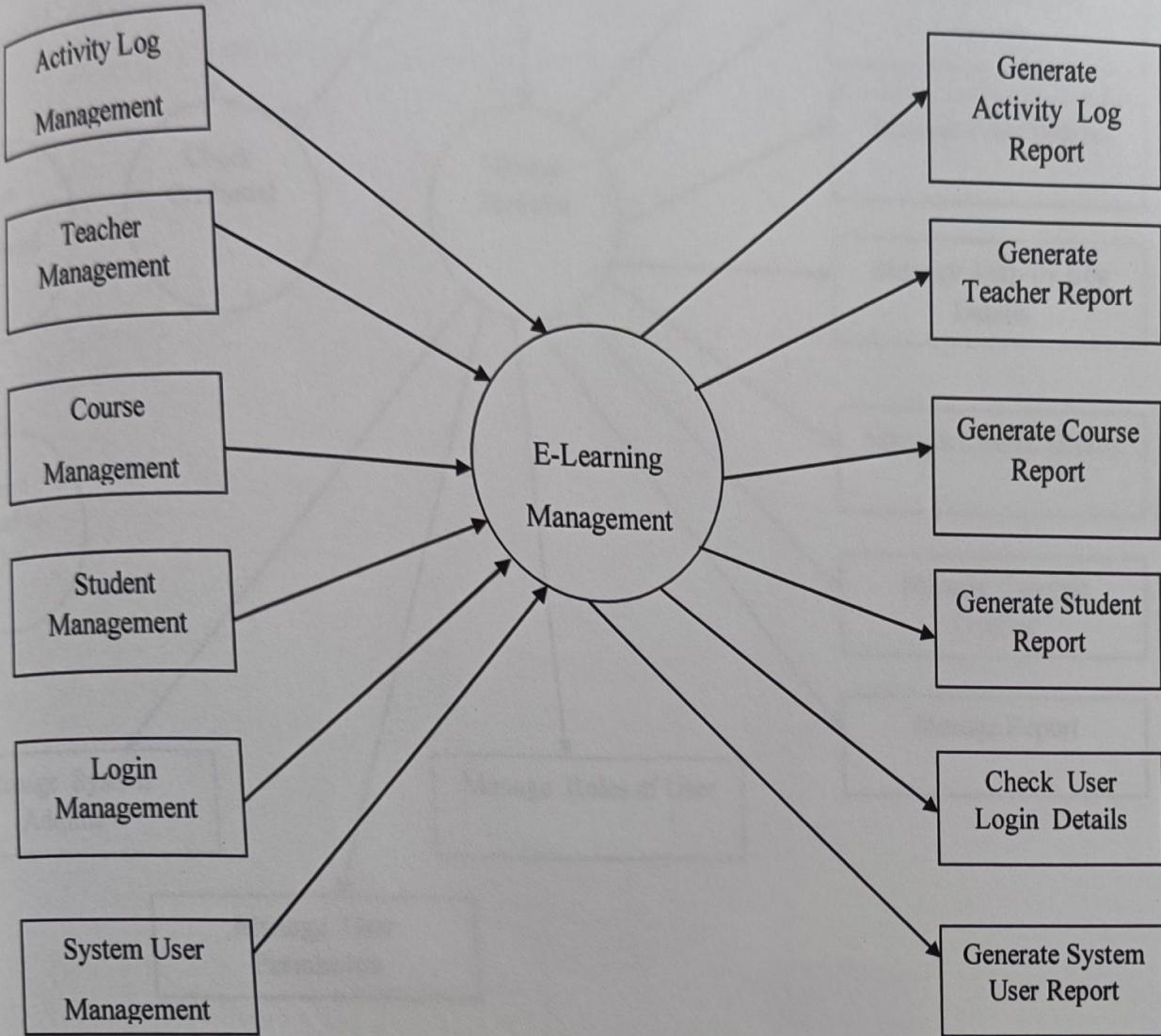
Organisations may make educated decisions and create strategies to deal with operational concerns by performing an operational feasibility study, which helps them identify potential obstacles, possibilities, and restrictions related to deploying an e-learning solution.

2.2 Data Flow Diagram

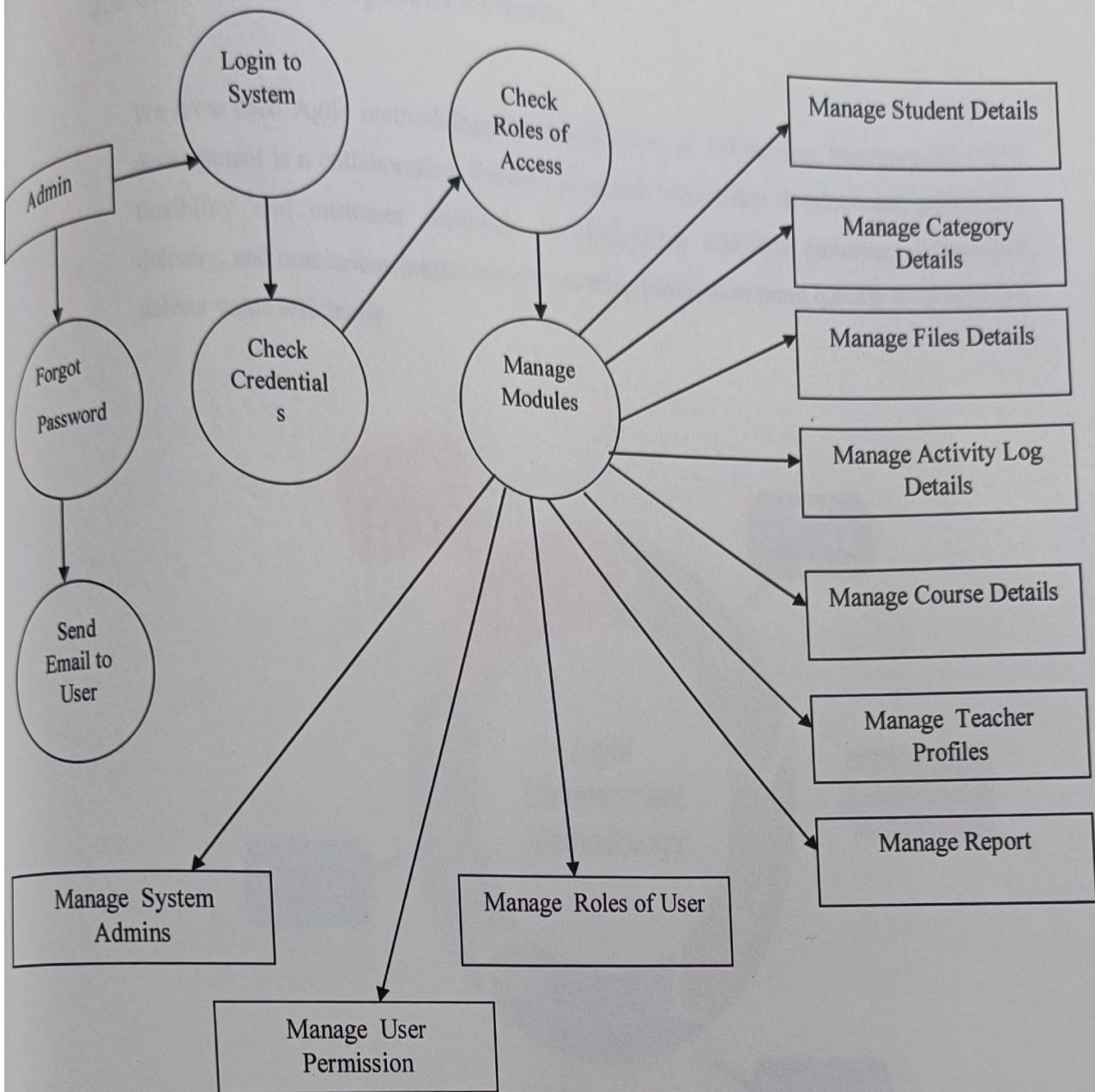
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2.2.2 Level - 1 DFD for :-



2.2.3 Level – 1 DFD for Admin: -



2.4 Software Development Process

We have used Agile methodology in development of E-Learning Management. Agile development is a collaborative, iterative approach to software development, prioritizing flexibility and customer feedback. It emphasizes adaptive planning, incremental delivery, and continuous improvement, enabling teams to respond quickly to change and deliver value efficiently.

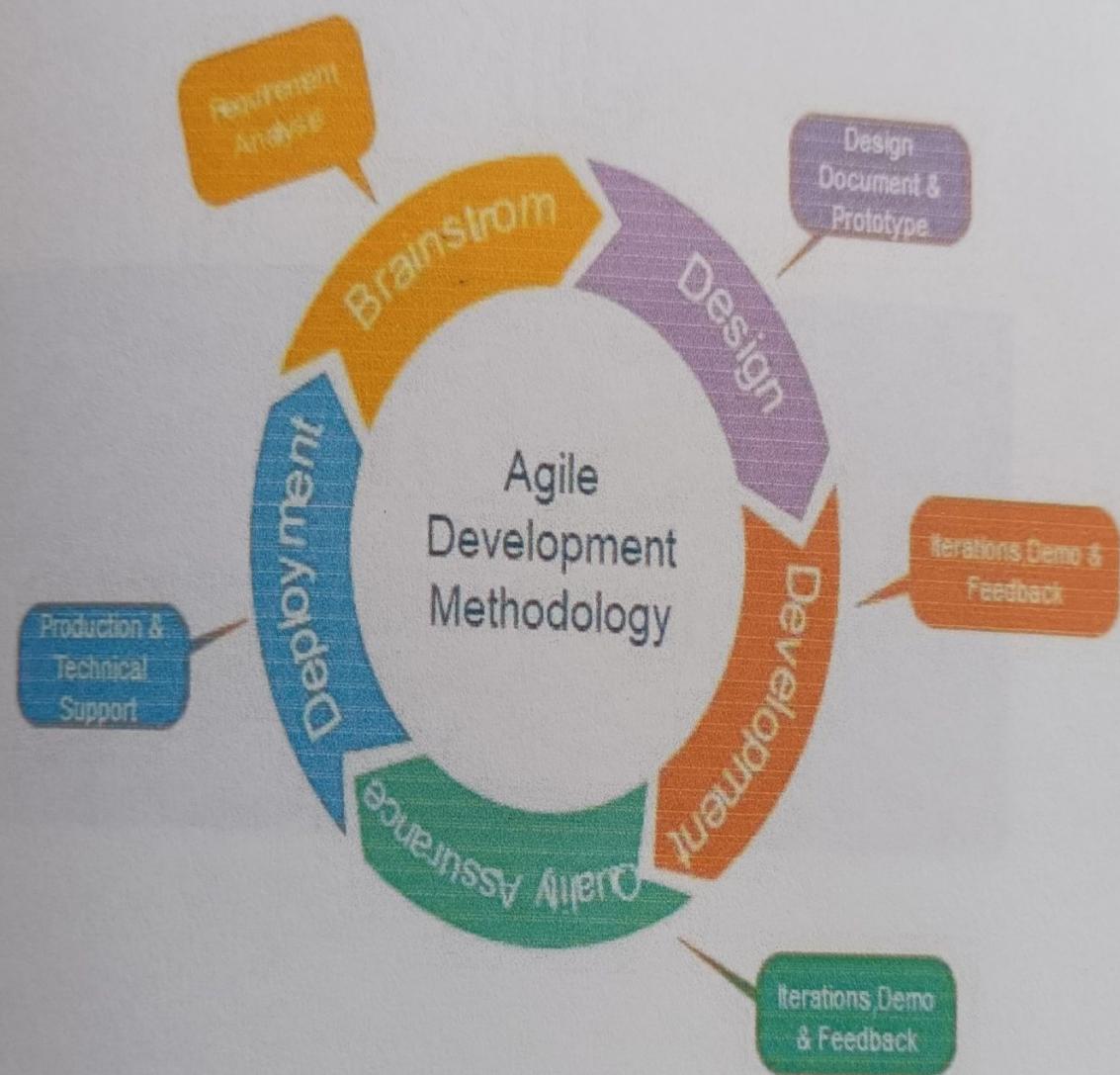
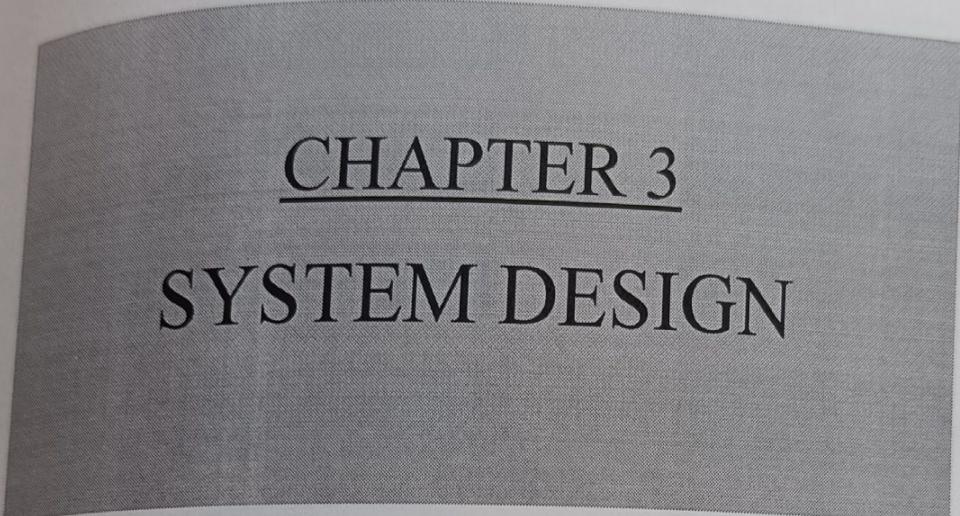


Fig. Agile Model

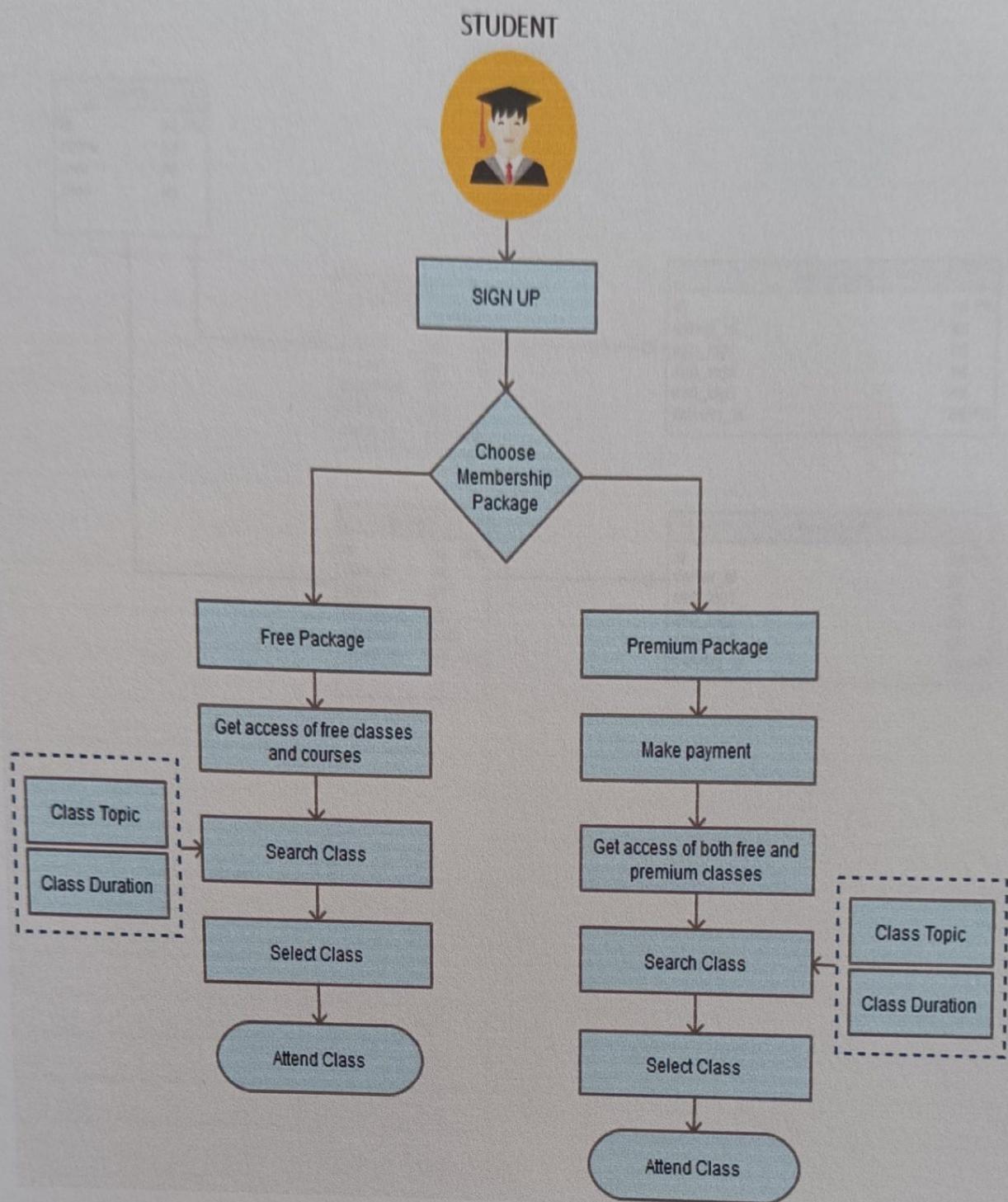


CHAPTER 3

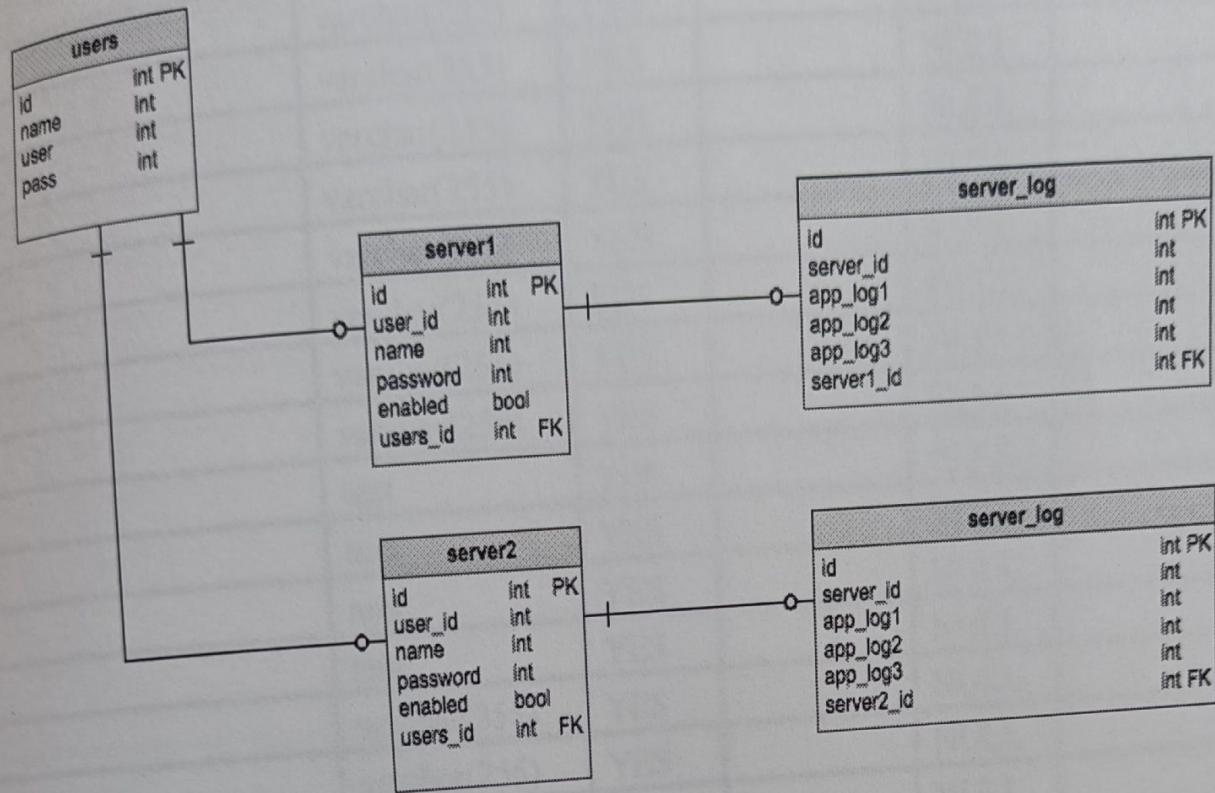
SYSTEM DESIGN

CHAPTER:3 SYSTEM DESIGN

2.5 System Flowchart



2.6 Database Design



Database Table

User_Table

Field	Type	Null	Key	Default	Extra
User_id	int	NO	PRIMARY	NULL	auto_increment
User_plan_no	varchar(255)	YES		NULL	
version_no	varchar(255)	YES		NULL	
request_type	varchar(255)	YES		NULL	
organization	varchar(255)	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Course_start_year	varchar(255)	YES		NULL	
Course_classification	varchar(255)	YES		NULL	
Course_department	varchar(255)	YES		NULL	
Instractr_comments	text	YES		NULL	
Student_comments	text	YES		NULL	
Admin_comments	text	YES		NULL	
Admin_comments	text	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Buy_type	varchar(255)	YES		NULL	
Start_date	datetime	YES		NULL	
End_date	datetime	YES		NULL	
Course_date	datetime	YES		NULL	
Course_expire_Date	datetime	YES		NULL	
Instractor_name	varchar(255)	YES		NULL	
Instractor_designation	varchar(255)	YES		NULL	
Instracter_signature	varchar(255)	YES		NULL	
Student_name	varchar(255)	YES		NULL	
Student_designation	varchar(255)	YES		NULL	
Student_signature	varchar(255)	YES		NULL	

Table I user Table

Course_Table

Field	Type	Null	Key	Default	Extra
User_id	int	NO	PRIMARY	NULL	auto_increment
User_plan_no	varchar(255)	YES		NULL	
version_no	varchar(255)	YES		NULL	
request_type	varchar(255)	YES		NULL	
organization	varchar(255)	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Course_start_year	varchar(255)	YES		NULL	
Course_classification	varchar(255)	YES		NULL	
timestamp	varchar(255)	YES		NULL	
Action	varchar(255)	YES		NULL	
Role	varchar(255)	YES		NULL	

*Table II Course Table**Server_Table*

Field	Type	Null	Key	Default	Extra
User_id	int	NO	PRIMARY	NULL	auto_increment
User_plan_no	varchar(255)	YES		NULL	
version_no	varchar(255)	YES		NULL	
request_type	varchar(255)	YES		NULL	
organization	varchar(255)	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Course_start_year	varchar(255)	YES		NULL	
Course_classification	varchar(255)	YES		NULL	
timestamp	varchar(255)	YES		NULL	
Action	varchar(255)	YES		NULL	
Role	varchar(255)	YES		NULL	

Table III server Table

Server_Log_Table

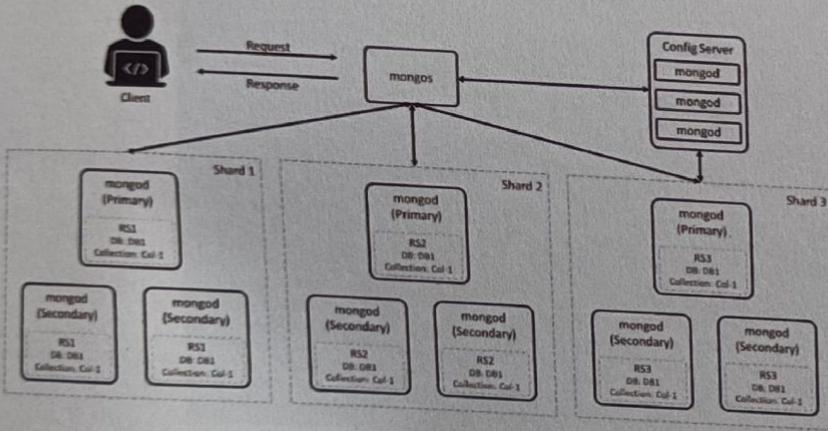
Field	Type	Null	Key	Default	Extra
User_id	int	NO	PRIMARY	NULL	auto_increment
User_plan_no	varchar(255)	YES		NULL	
version_no	varchar(255)	YES		NULL	
request_type	varchar(255)	YES		NULL	
organization	varchar(255)	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Course_start_year	varchar(255)	YES		NULL	
Course_classification	varchar(255)	YES		NULL	
Course_department	varchar(255)	YES		NULL	
Instractr_comments	varchar(255)	YES		NULL	
Student_comments	text	YES		NULL	
Admin_comments	text	YES		NULL	
Admin_comments	text	YES		NULL	
Course_type	varchar(255)	YES		NULL	
Buy_type	varchar(255)	YES		NULL	
Start_date	datetime	YES		NULL	
End_date	datetime	YES		NULL	
Course_date	datetime	YES		NULL	
Course_expire_Date	datetime	YES		NULL	
Instractor_name	varchar(255)	YES		NULL	
Instractor_designation	varchar(255)	YES		NULL	

Table IV server log Table

2.4 UML Diagram

Unified Modeling Language (UML) diagrams are visual tools used in software engineering to illustrate various aspects of a system's design, structure, and behavior. They employ standardized symbols and notation to represent different elements and relationships within the system, such as classes, interactions, activities, and states. UML diagrams serve as blueprints for developers and stakeholders, facilitating communication, analysis, and design throughout the software development lifecycle by providing clear, concise, and standardized representations of complex systems.

Introduction To mongoDB



CHAPTER 4
TESTING

CHAPTER:4 TESTING

Software testing is an integral part of the Software Development Life Cycle (SDLC), ensuring that software meets quality standards and performs as expected. It encompasses various activities carried out at different stages of the SDLC to identify defects, improve functionality, and enhance user satisfaction.

4.1. Unit Testing

Unit testing is a software testing methodology where individual units or components of a software application are tested independently to ensure their correctness and functionality.

<u>Test Case ID</u>	<u>Element NAME</u>	<u>Element Type</u>	<u>Input</u>	<u>Expected Result</u>	<u>Actual Result</u>	<u>Test Result</u>
01	Email ID	Emailaddress	No input	Displays an error by pop-up	Error displayed	Pass
02	Email ID	emailaddress	Ankit*****	No error	No error	Pass
03	Password	Password	No input	Displays an error by pop-up	Error displayed	Pass
04	password	password	Mp0727***	Login successfully if details are valid	Passed (Successfully login)	Pass

4.2. Integration Testing

Integration Testing is a software testing methodology that focusses on verifying the interaction between different modules of a software system when they are integrated together. The main goal of integration testing is to detect any inconsistencies, interface issues or defects that may arise due to interaction between these modules.

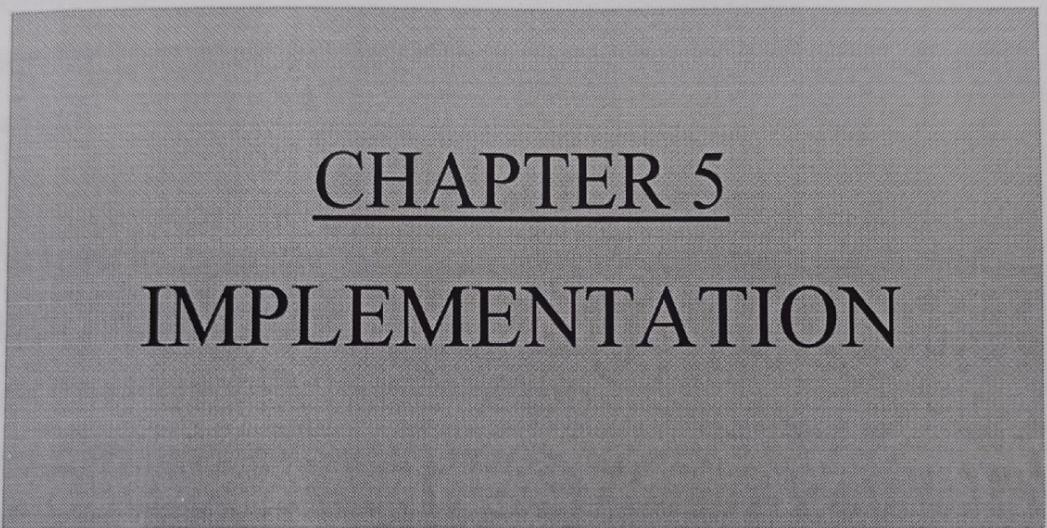
<u>Test Case ID</u>	<u>Element Name</u>	<u>Element Type</u>	<u>Test Condition</u>	<u>Expected Result</u>	<u>Actual Result</u>	<u>Test Result</u>
01	Device Compatibility	Responsiveness on different devices	Checking Responsiveness on devices for e.g., Laptops,	Website will adapt different screen sizes on different Checking Responsiveness on devices for e.g., Laptops,	As expected, the website is full responsive and working perfectly	Pass
02	Operating System Compatibility	Checking website behavior on different operating systems	Working on different Operating Systems e.g., Android systems, macOS, iOS, Windows, etc.	There shouldn't be any changes in website Designing, Working, Accessibility and Performance speed, while switching the Operating System	As Expected, The Website is working all same even on different Operating System expect Linux operating system	Pass
03	End-user Security	Data Security	Testing security measures of users	The logged in user will be able to see his/her own details related information only or correct userprofile is opened for user while logging in	As Expected, Details of login Email is shown, no details of other user are visible to all. Hence Secured	Pass

4.3 System Testing

System Testing is a comprehensive software testing phase where the entire integrated system is tested as a whole to validate its behaviour and functionality against specified requirements.

2.4.1 Functional Testing: Functional Testing involves validating that each function of software application operates as expected, adhering to defined requirements and specification.

<u>Test Case ID</u>	<u>Element Name</u>	<u>Element Type</u>	<u>Input</u>	<u>Expected Result</u>	<u>Actual Result</u>	<u>Test Result</u>
01	User Credentials	Textbox	Wrong/invalid email and password	Displays error	Error displayed	Pass
02	User Credentials	Textbox	Ankit*** *****	Login successfully	Logged in successfully	Pass
03	Give Review	Feedback form (login by user is mandatory)	No input or not all the required fields are filled	Error displays (fill mandatory fields)	Error shown	Pass
04	User Dashboard	User	Create, update, address & order history, cancel order etc.	All the operations working properly	As expected	Pass



CHAPTER 5

IMPLEMENTATION

CHAPTER: 5 IMPLEMENTATION

The implementation phase of the Software Development Life Cycle (SDLC) is a critical stage where the software solution is actually built and put into operation. Here are some key aspects of the implementation phase:

5.1. Integrated Development Environment (IDE) Setup

Following are some software which are being used in the development of E-Learning

a. Visual Studio Code:

- a. Go to the official Visual Studio website: Download Visual Studio Code - Mac, Linux, Windows.
- b. Click on the "Download" button for the version of Visual Studio according to your operating system (e.g. Windows, macOS, or Linux).
- c. Choose the components you want to install, such as languages, frameworks, and tools.
- d. To install this, click on the "Install" to start the installation process and follow the instruction of installation wizard.
- e. Follow the instruction of installation wizard and select the options that suit your needs.
- f. Click on exit.

5.2 MongoDB

- a. Go to the official MongoDB website: MongoDB Community Server Download
- b. Select the suitable version of MongoDB from the website for according to your operating system (e.g. Windows, macOS, or Linux).
- c. Click on the "Download" button to start the download.
- d. Once the download is completed, run the downloaded installer and follow the instruction of installation wizard and select the options that suit your needs. Also make sure to check the box of Compass Installation which is a GUI to manage MongoDB.

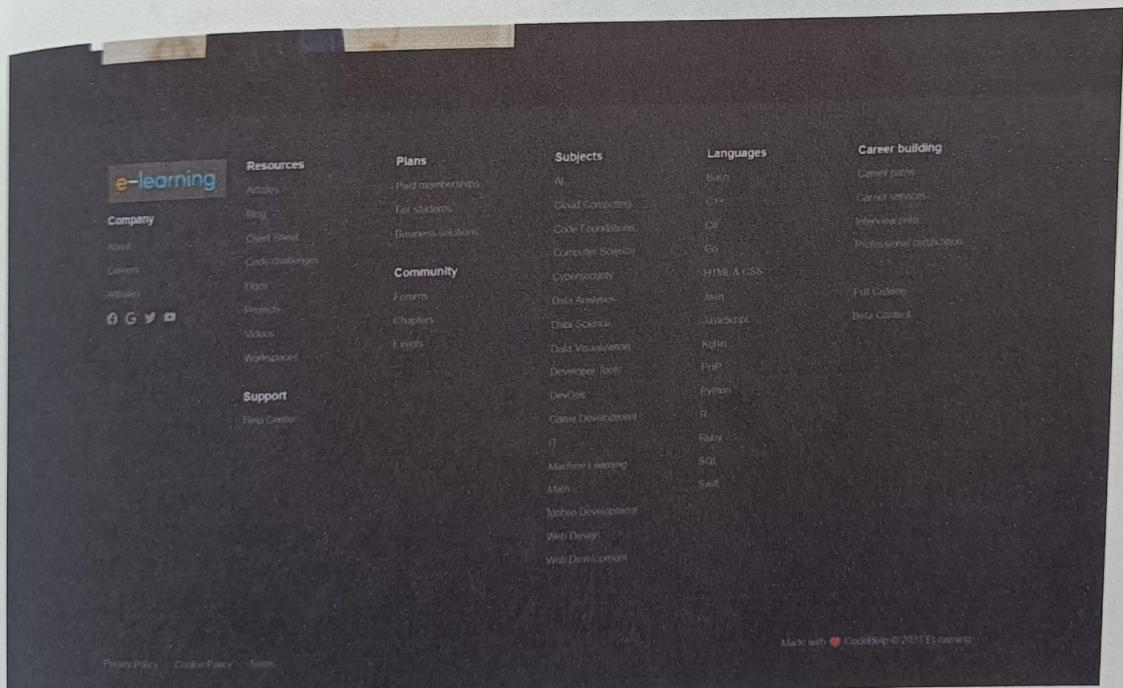
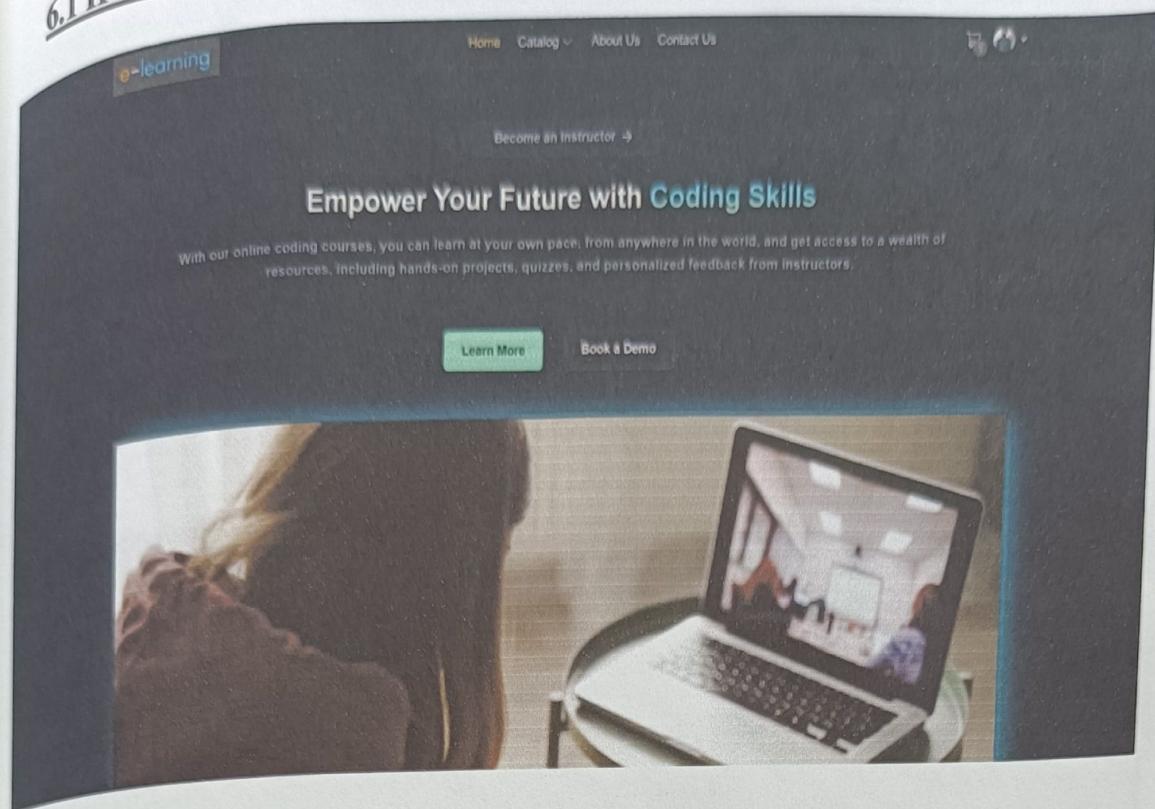
5.3 NodeJS

- a. Go to the official Node.js website: Download Node.js
- b. Select the appropriate version of Node.js for your operating system (e.g. Windows, macOS, or Linux).
- c. Click on the "Download" button to start the download.
- d. Once the download is complete, run the installer. Follow the installation wizard and select the options that suit your needs.
- e. Once the installation is complete, you can open a terminal or command prompt and type `node -v` to check if Node.js is installed correctly. This should display the version of Node.js that you just installed which confirms the successful installation. for building scalable network applications.

CHAPTER 6
SAMPLE FORMS AND
REPORTS

CHAPTER:6 SAMPLE FORMS AND REPORTS

6.1 HOME PAGE



Your swiss knife for learning any language

Using spin making learning multiple languages easy, with 20+ languages realistic voice-over, progress tracking, custom schedule and more.

Know your progress

HTML

Your Current League

420 Spin earned

1254 minutes in app

Compare with others

Wade Warren

Jane Cooper

Eleanor Pena

Ralph Edwards

Plan your lessons

December 2022

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 31

Learn More

Get the skills you need for a job that is in demand.

The modern ELearning is the dictates its own terms. Today, to be a competitive specialist requires more than professional skills.

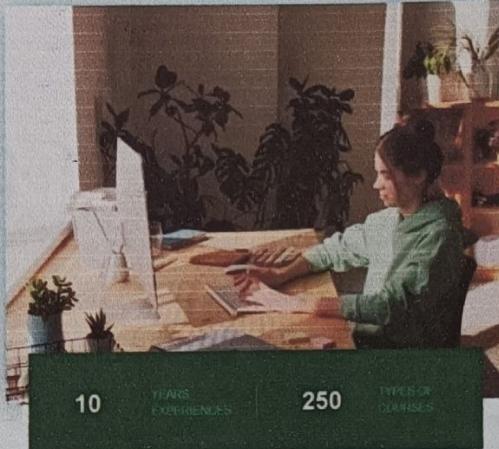
Learn More

 **Leadership**
Fully committed to the success company

 **Responsibility**
Students will always be our top priority

 **Flexibility**
The ability to switch is an important skills

 **Solve the problem**
Code your way to a solution



Unlock the Power of Code
Learn to Build Anything You Can Imagine

Free New to coding Most popular Skills paths Career paths

Learn HTML
This course covers the basic concepts of HTML, including creating and structuring web pages, adding text, links, images, and more.

Learn CSS
This course explores advanced topics in HTML5 and CSS3, including animations, transitions, and layout techniques.

Responsive Web design
This course teaches responsive web design techniques, allowing web pages to adapt to different devices and screen sizes.

1 Beginner 6 Lessons 2 Beginner 6 Lessons 3 Beginner 6 Lessons

Explore Full Catalog → Learn More

This modern UI is the future of user interface. Take it to the next level with our responsive web design course.

Unlock your coding potential with our online courses.

Our courses are designed and taught by industry experts who have years of experience in coding and are passionate about sharing their knowledge with you.

Try It Yourself → Learn More

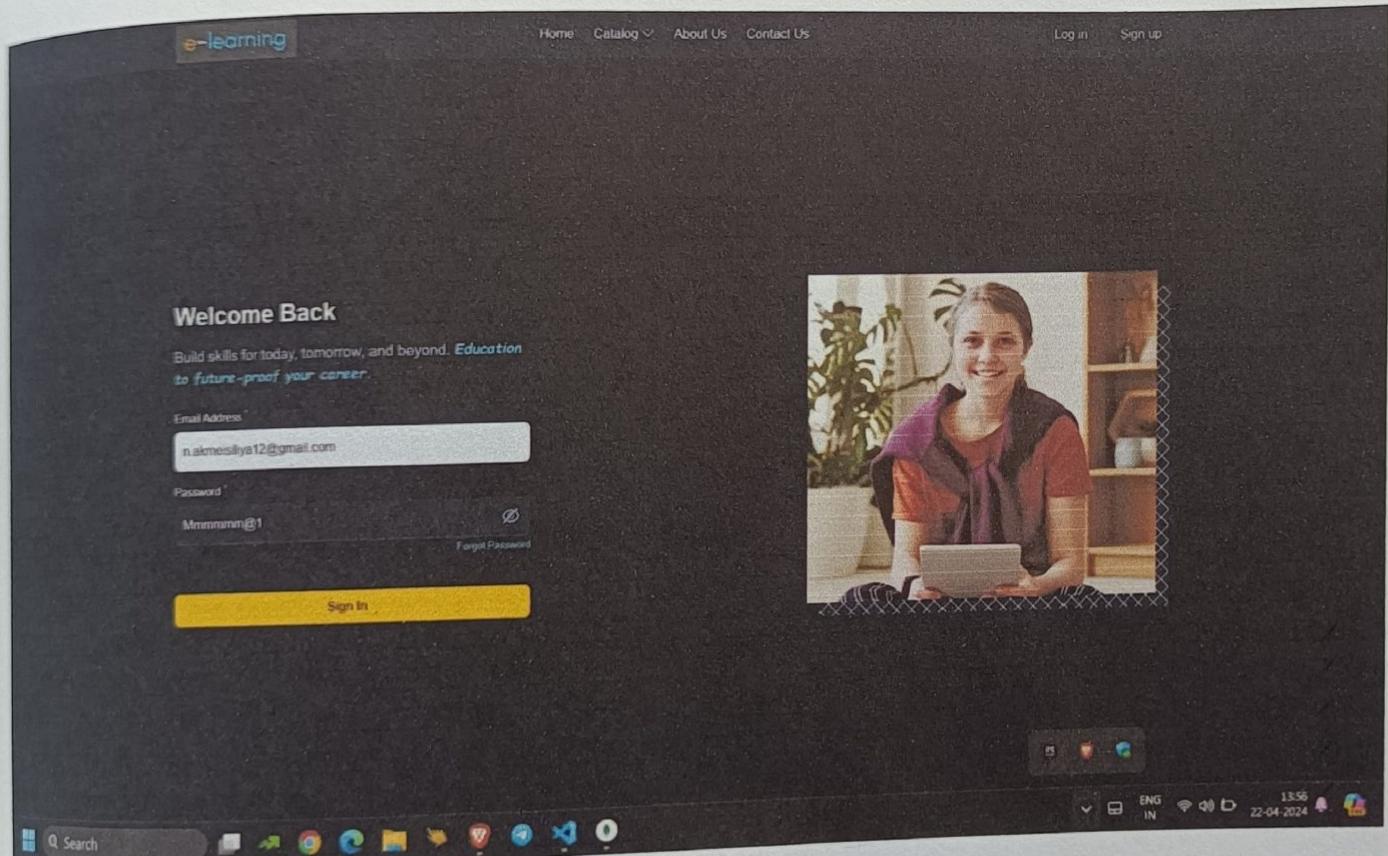
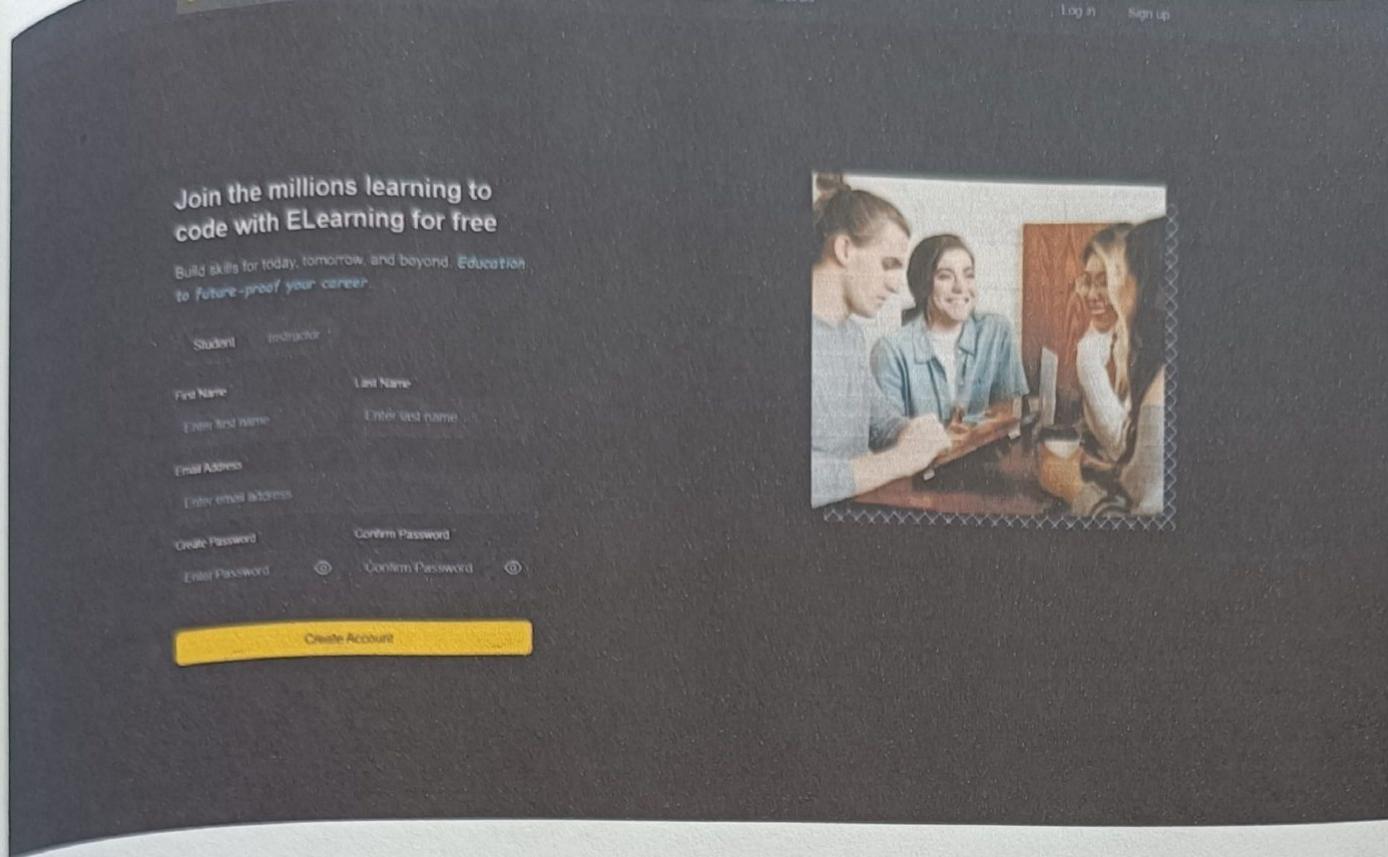
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <title>This is a test page</title>
5 </head>
6 <body>
7 <h1>Hello, world!</h1>
8 </body>
9 </html>

10 11

Start coding in seconds

Go ahead, give it a try. Our hands-on learning environment means you'll be writing real code from your very first lesson.

Continue Lesson → Learn More



6.3 About And Contact Page

Driving Innovation in Online Education for a Brighter Future

We are passionate about revolutionizing the way we learn. Our innovative platform combines technology, expertise, and community to create an unparalleled educational experience.

Our Founding Story

Our journey all began because of a shared vision and passion for a enriching education. We began with a focus on education, technology, and lifelong learning which recognized the need for accessible, flexible and high-quality learning opportunities for people around the world.

As experienced educators ourselves, we witnessed firsthand the limitations and challenges of traditional education systems. We believed that education should not be confined to the walls of a classroom, or restricted by geographical boundaries. We envisioned a platform that could bridge these gaps and empower individuals from all walks of life to achieve their full potential.

Meet Our Team

Got a Idea? We've got the skills. Let's team up

Tell us more about yourself and what you're got in mind.

First Name **Last Name**

Email Address

Phone Number

Message

Send Message

Company

Plans

Subjects

Languages

Career building

Resources

Blog

E-books

Expert insight

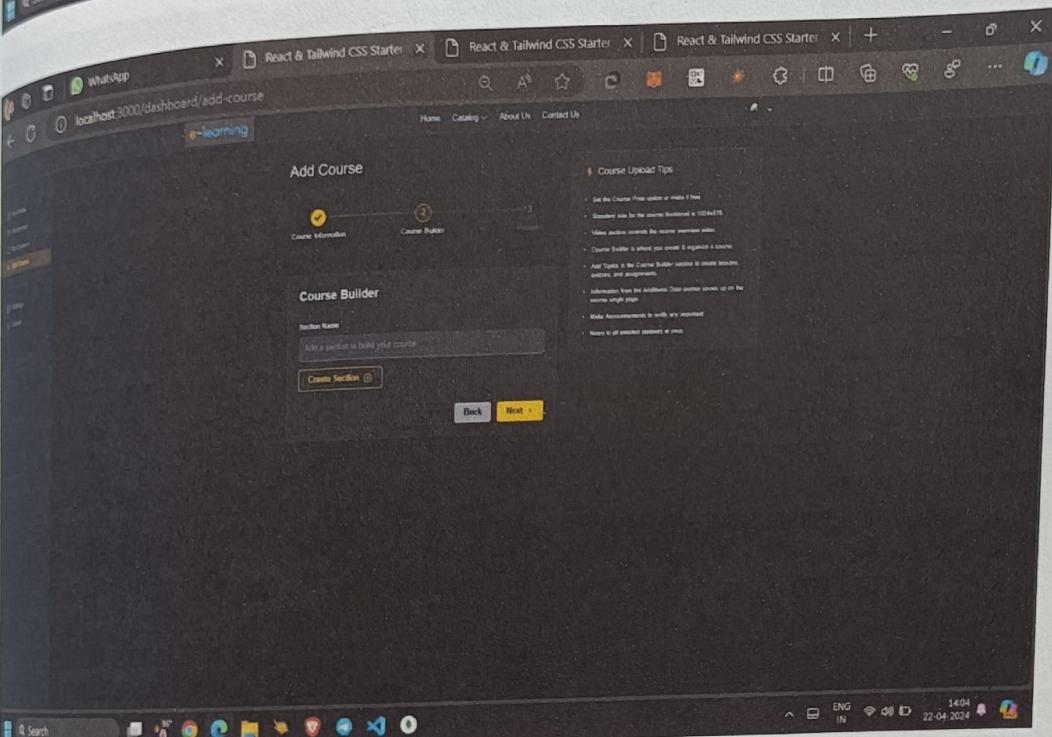
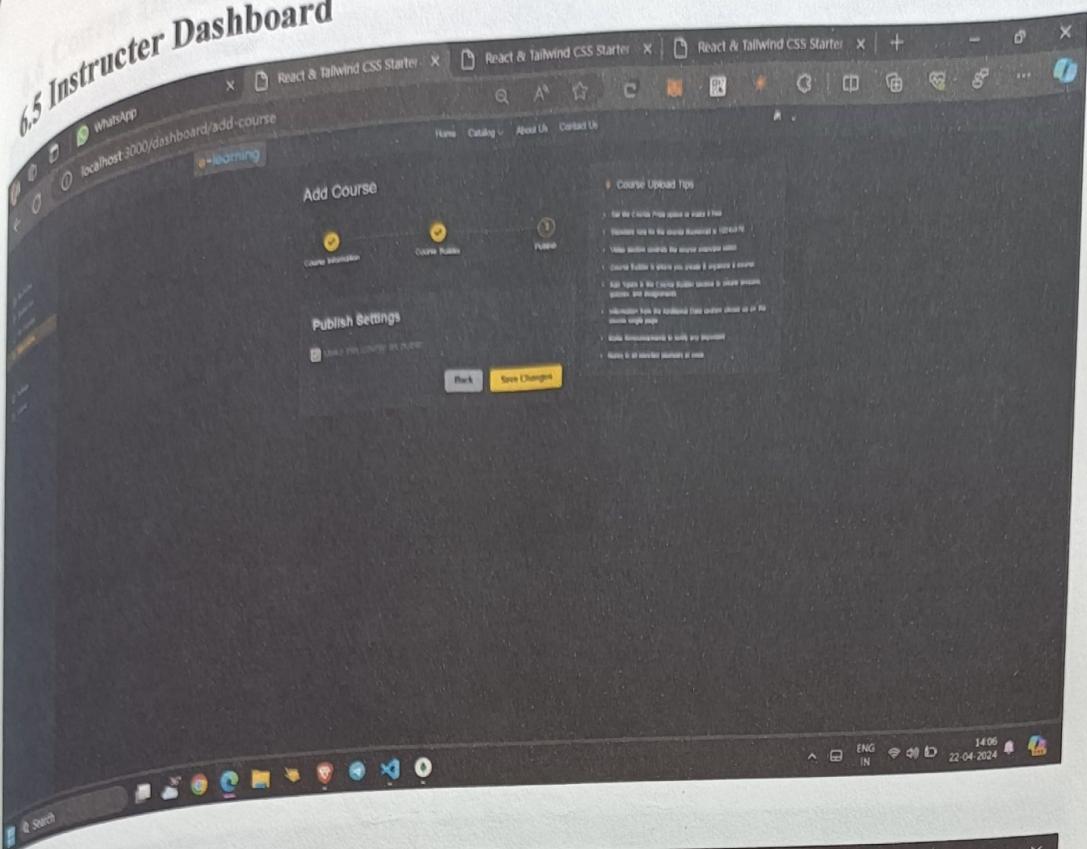
Video

6.4 Student Dashboard

The screenshot shows the 'My Profile' section of the e-learning platform. At the top, there is a user profile picture of a person named 'prash Pitar' with the email 'prash.pitar123@gmail.com'. Below the profile, there are sections for 'About' and 'Personal Details'. The 'About' section contains a placeholder text: 'User Bio: Write about yourself'. The 'Personal Details' section shows the following information: 'Name' (prash), 'Email' (prash.pitar123@gmail.com), 'Job' (Student), and 'Job Start Date' (January 1, 1970). Each section has a yellow 'Edit' button to its right.

The screenshot shows the 'Cart' page of the e-learning platform. At the top, there is a message '1 Courses In Cart'. Below it, a course item is listed: 'web dev' by 'WebDev' with a rating of '4.5 ★★★★ 0 Ratings'. The course image shows a person working on a laptop. To the right of the course details, there is a 'Remove' button, a 'Total' of '₹ 1000', and a yellow 'Buy Now' button.

6.5 Instructor Dashboard



6.6 Course Details Page

The screenshot shows a web browser window with multiple tabs open. The active tab displays a course details page for 'Java Development' on a platform called 'e-learning'. The page includes a 'Frequently Bought' section with a 'GIFs' image, course details (Title: Java Development, Price: Rs. 250, Ratings: 5/5), and a sidebar with various links like 'e-learning', 'Company', 'Resources', 'Plan', 'Community', 'Subjects', 'Languages', and 'Career building'. The browser's address bar shows 'localhost:3000/catalog/java'. The system tray at the bottom right shows the date as 22-04-2024 and the time as 14:20.

The screenshot shows the 'e-learning' website with a dark theme. The URL in the address bar is 'localhost:3000/catalog/java'. The page features a 'Courses to get you started' section with a 'Java Development' course card (Title: Java Development, Price: Rs. 250, Ratings: 5/5). Below this is a 'Top courses in Python' section with the message 'No Course Found'. The top navigation bar includes links for 'Home', 'Catalog', 'About Us', and 'Contact Us'.

CHAPTER 7
CONCLUSION

CHAPTER:7 CONCLUSION

The conclusion of an e-learning feasibility study is a crucial part of the assessment process, where the findings and insights gathered throughout the study are summarized, and recommendations are provided to stakeholders. Here's a structured approach to formulating a conclusion for an e-learning feasibility study:

Summary of Findings: Begin by summarizing the key findings of the feasibility study, highlighting the main insights and discoveries made during the assessment process. This should encompass all areas of analysis, including market demand, technical feasibility, financial implications, operational readiness, legal compliance, and risk assessment.

Feasibility Assessment: Evaluate the overall feasibility of the proposed e-learning project based on the findings presented. Consider whether the identified benefits outweigh the associated costs and challenges, and assess the likelihood of success based on the project's alignment with organizational goals and objectives.

Recommendations: Provide clear and actionable recommendations to stakeholders based on the conclusions drawn from the feasibility study. This may include one of the following options:

Bibliography

The following websites were referred during the analysis and execution of the E-Learning Management:

S.No.	References	Website Links
1.	Node.JS official Website	https://nodejs.org/en
2.	React.JS Docs	https://react.dev/
3.	Sequelize Documentation	https://sequelize.org/
4.	Ant Design Library for Design	https://ant.design/
5.	Formik Library for Validations	https://formik.org/docs/guides/validation
6.	AWS Documentation	https://docs.aws.amazon.com/
7.	Multer Repository	https://www.npmjs.com/package/multer
8.	Express.JS official Website	https://expressjs.com/
9.	Jest for Testing	https://jestjs.io/

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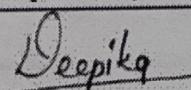
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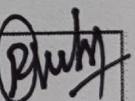
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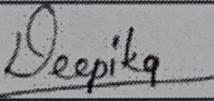
- Bibliographic material

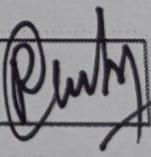
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Industry/Organization	We2Code Technology Private Limited		Date/Duration	01/01/2024-15/01/2024	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work				✓	
Learning capacity/Knowledge update					✓
Performance/Quality of work					✓
Behaviour/Discipline/Teamwork					✓
Sincerity/Hardwork				✓	
Comment on nature of work done/ Area/Topic	<ul style="list-style-type: none"> • Design and architect backend systems that meet the functional requirements . • Write clean, efficient, and maintainable code to implement the backend functionalities. 				
<u>OVERALL GRADE (Any one)</u>	<u>EXCELLENT</u>				
Name of Industry Mentor	Deepika Shaijulkar				
Signature of Industry Mentor					

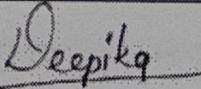
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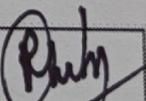
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Performance/Quality of work					✓
Behaviour/Discipline/Teamwork					✓
Sincerity/Hardwork				✓	
Comment on nature of work done/ Area/Topic	<ul style="list-style-type: none"> • Design and architect backend systems that meet the functional requirements. • Write clean, efficient, and maintainable code to implement the backend functionalities. 				
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<u>Name of Industry Mentor</u>	Deepika Shajulkar				
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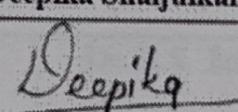
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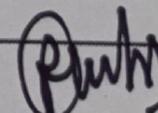
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Learning capacity/Knowledge upgradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Teamwork					✓
Sincerity/Hardwork				✓	
Comment on nature of work done/ Area/Topic	<ul style="list-style-type: none"> Design and architect backend systems that meet the functional requirements. Write clean, efficient, and maintainable code to implement the backend functionalities. 				
<u>OVERALL GRADE (Anyone)</u>	<u>EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Deepika Shaijulkar				
<u>Signature of Industry Mentor</u>					

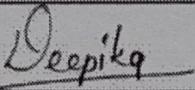
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Performance/Quality of work					✓
Behaviour/Discipline/Teamwork					✓
Sincerity/Hardwork				✓	
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<u>Name of Industry Mentor</u>	Deepika Shaijulkar				
<u>Signature of Industry Mentor</u>					

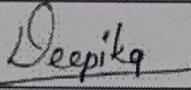
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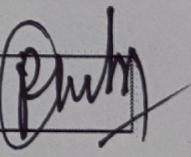
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Sincerity/Hardwork				✓	
Comment on nature of work done/ Area/Topic	<ul style="list-style-type: none"> Design and architect backend systems that meet the functional requirements. Write clean, efficient, and maintainable code to implement the backend functionalities. 				
<u>OVERALL GRADE (Anyone)</u>	<u>EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Deepika Shaijulkar				
<u>Signature of Industry Mentor</u>					

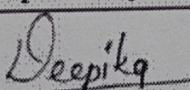
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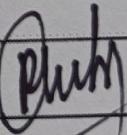
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<u>OVERALL GRADE (Anyone)</u>	<u>EXCELLENT</u>				
<u>Name of Industry Mentor</u>	Deepika Shaijulkar				
<u>Signature of Industry Mentor</u>					

Receiving Date	16-01-2024	Faculty Mentor	Dr. R.S. Jadon	Sign	
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Behaviour/Discipline/Teamwork					✓
Sincerity/Hardwork				✓	
Comment on nature of work done/ Area/Topic	<ul style="list-style-type: none"> • Design and architect backend systems that meet the functional requirements . • Write clean, efficient, and maintainable code to implement the backend functionalities. 				
<u>OVERALL GRADE (Anyone)</u>	EXCELLENT				
Name of Industry Mentor	Deepika Shajulkar				
Signature of Industry Mentor					

Receiving Date	16-01-2024	Faculty Mentor	Dr. R.S. Jadon	Sign	
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