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 Project Management Tool

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:

Palak Gupta
(0901CA221042)

Industry Mentor:
Himanshu Daga (Founder of Data with D, Jaipur Rajasthan)

Faculty Mentor:

Dr. Anshu Chaturvedi (Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE
Gwalior – 474005 (MP) Estd.1957

January – June 2024

Opzen Pvt. Ltd.

808B, 8th Floor, Golden Leaf Tower, Tonk Road, Jaipur, Rajasthan – 302015
CIN No. U58202RJ2023PTC086651 | GSTIN No.: 08AAECO0240M1ZH

11 April 2024

Project Completion Certificate

This is to certify that Palak Gupta has successfully completed the project titled "Project Management Tool" from January 14th, 2024 to April 11th, 2024.

During the course of this project, Palak Gupta has demonstrated exceptional dedication, proficiency, and competence in developing and implementing a comprehensive project management tool aimed at enhancing organizational efficiency and productivity. She was able to independently complete the full stack project & always eager learn whenever opportunity presented.

This certificate is hereby awarded in recognition of Palak Gupta's successful completion of this project through meticulous attention to detail and effective communication, in stipulated timeframe.

FOR OPZEN PRIVATE LIMITED
DIRECTOR

Himanshu Daga
Mentor & CEO Opzen Pvt. Ltd.

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CERTIFICATE

This is certified that **Palak Gupta (0901CA221042)** has submitted the project report titled **Development of Project Management Tool** under the mentorship of **Himanshu Daga** (Founder of Data with D, Jaipur Rajasthan) in partial fulfilment of the requirement for the award of degree of **Master in Computer Application** of Computer Science and Engineering from **Madhav Institute of Technology and Science, Gwalior**.

Dr. Anshu Chaturvedi
(Professor)
Computer Science and Engineering

24/4/24

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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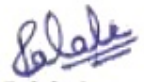
DECLARATION

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 **Himanshu Daga** (Founder of Data with D, Jaipur Rajasthan).

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.



Palak Gupta
0901CA221042
2022-2024
Master in Computer Application
Computer Science and Engineering

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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 **Himanshu Daga** (Founder of Data with D, Jaipur Rajasthan) 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. Anshu Chaturvedi**, (Professor), Computer Science and Engineering, for his continued support and guidance throughout theproject. I am also very thankful to the faculty and staff of the department.

Palak Gupta
0901CA221042
2022-2024
Master in Computer Application
Computer Science and Engineering

ABSTRACT

In the ever-changing world of business today. Organizations need effective project management to be competitive and accomplish their goals quickly. This abstract presents a state-of-the-art project management application intended to improve resource utilization, encourage team member communication, and streamline project procedures.

To make sure that projects are completed on time and under budget, the project managementapplication makes use of sophisticated capabilities like task tracking, milestone management, and real- time communication. Its user-friendly interface makes it simple for users to create, allocate, and priorities tasks, which improves project planning and execution.

The tool's strong collaboration features, which let team members share files, provide feedback, and easily plan tasks, are among its main selling points. Stakeholders may access pertinent information atany time and from any location with the help of centralized document storage and version control, which encourages accountability and transparency throughout the project lifetime.

Additionally, the application has robust reporting and analytics features that give stakeholders insightful information about the status of the project, performance indicators, and possible bottlenecks.These insights enable project managers to plan ahead, allocate resources wisely, and proactively reduce risks.

In summary, this project management tool provides a comprehensive solution for contemporary businesses looking to boost output, optimize processes, and ensure project success. By embracing innovation and utilizing technology, businesses can improve their project management skills and see appropriate growth in the current competitive environment.

सार

आज व्यापार की बदलती दुनिया में। संगठनों को प्रतिस्पर्धी होने और अपने लक्ष्यों को शीघ्रता से पूरा करने के लिए प्रभावी परियोजना प्रबंधन की आवश्यकता है। यह सार एक अत्याधुनिक परियोजना प्रबंधन एप्लिकेशन प्रस्तुत करता है जिसका उद्देश्य संसाधन उपयोग में सुधार करना, टीम सदस्य संचार को प्रोत्साहित करना और परियोजना प्रक्रियाओं को सुव्यवस्थित करना है।

यह सुनिश्चित करने के लिए कि परियोजनाएं समय पर और बजट के तहत पूरी हों, परियोजना प्रबंधन एप्लिकेशन कार्य ट्रैकिंग, मील का पत्थर प्रबंधन और वास्तविक समय संचार जैसी परिष्कृत क्षमताओं का उपयोग करता है। इसका उपयोगकर्ता-अनुकूल इंटरफ़ेस उपयोगकर्ताओं के लिए कार्यों को बनाना, आवंटित करना और प्राथमिकता देना आसान बनाता है, जिससे परियोजना योजना और निष्पादन में सुधार होता है।

टूल की मजबूत सहयोग सुविधाएँ, जो टीम के सदस्यों को फ़ाइलें साझा करने, फीडबैक प्रदान करने और आसानी से कार्यों की योजना बनाने की सुविधा देती हैं, इसके मुख्य विक्रय बिंदुओं में से हैं। हितधारक केंद्रीकृत दस्तावेज़ भंडारण और संस्करण नियंत्रण की सहायता से किसी भी समय और किसी भी स्थान से प्रासंगिक जानकारी तक पहुंच सकते हैं, जो पूरे परियोजना जीवनकाल में जवाबदेही और पारदर्शिता को प्रोत्साहित करता है।

इसके अतिरिक्त, एप्लिकेशन में मजबूत रिपोर्टिंग और विश्लेषण सुविधाएं हैं जो हितधारकों को परियोजना की स्थिति, प्रदर्शन संकेतक और संभावित बाधाओं के बारे में व्यावहारिक जानकारी देती हैं। ये अंतर्दृष्टि परियोजना प्रबंधकों को आगे की योजना बनाने, संसाधनों को बुद्धिमानी से आवंटित करने और सक्रिय रूप से जोखिमों को कम करने में सक्षम बनाती है।

संक्षेप में, यह परियोजना प्रबंधन उपकरण आउटपुट को बढ़ावा देने, प्रक्रियाओं को अनुकूलित करने और परियोजना की सफलता सुनिश्चित करने वाले समकालीन व्यवसायों के लिए एक व्यापक समाधान प्रदान करता है। नवाचार को अपनाकर और प्रौद्योगिकी का उपयोग करके, व्यवसाय अपने परियोजना प्रबंधन कौशल में सुधार कर सकते हैं और वर्तमान प्रतिस्पर्धी माहौल में उचित विकास देख सकते हैं।

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CHAPTER 1: INTRODUCTION

Project Manager is an essential tool for IT project management because it makes it easier to organize projects, assign tasks, and monitor progress. It also helps to allocate resources optimally, fosters team collaboration, and guarantees that project goals are met on schedule. Task helps to improve efficiency, transparency, and accountability within project teams by providing tools like issue tracking and performance analysis. This helps the team's overcome obstacles and produce effective project outcomes.

A. Project Organization:

Task Manager functions as a centralized platform that gives project managers the resources, they needto effectively oversee task progress and manage IT projects. by providing an organized framework forthe management of projects. Managers can efficiently create tasks, assign resources, and keep an eye on project timeframes with Task Manager. The implementation of a centralized strategy promotes agility and coherence within project teams, facilitating the smooth coordination and alignment of endeavours towards shared objectives.

B. Task Assignment and Tracking:

Task Assignment and Tracking: One of task manager's primary features is its capacity to make task assignment and tracking easier. Using the task management interface, project managers may easily assign tasks to specific team members, defining dependencies, deadlines, and priority as needed. This function makes the process of assigning tasks more efficient and guarantees that all team members are aware of their duties and due dates. Moreover, workers may effortlessly monitor their designated responsibilities, provide updates on their advancement, and convey any obstacles or difficulties they face, encouraging openness and cooperation among team members.

C. Performance Analysis:

Task Manager's strong performance analysis features provide insightful information on team productivity and project efficiency. Task manager helps project managers to evaluate the overall healthof a project and pinpoint opportunities for improvement by monitoring metrics like task completion rates, resource utilization, and project timelines. With the help of this data-driven strategy, managers may optimize project outcomes by making well-informed decisions, strategically allocating resources,and implementing corrective actions when needed.

In conclusion, Task Manager acts as a complete IT project management system, giving project teams the instruments and features they require to manage projects successfully. Assign work, monitor

advancement, and evaluate results. Utilizing the essential elements mentioned above, an organization can promote cooperation, increase productivity, and complete IT projects successfully in a dynamic& competitive environment.

1.1 PROBLEM IDENTIFICATION: -

The current challenges in Project management, including disorganization, ineffective resource allocation, poor communication, lack of visibility, limited scalability, and security concerns, necessitate a robust solution. Our Project manager addresses these issues comprehensively by providing a centralized platform for organizing tasks, facilitating clear progress tracking, and enhancing resource through efficient management tools. moreover, it fosters improved communication and collaboration among team members, bolstering accountability and transparency with real-time progress tracking and task assignment features, offering scalability and flexibility, our web-based Task manager ensures adaptability to evolving project requirement and team dynamics, while prioritizing data security and privacy through stringent measures and compliance with industry standards. Overall, our task serves as a holistic solution to streamline task management processes, optimize resource utilization, and mitigate risks, thereby empowering teams to deliver successful projects efficiently.

a. **Disorganized task management: -** Current practices result in tasks scattered across multiple platforms, leading to confusion and inefficiency in tracking progress. Our Task Manager provides a centralized platform for organizing tasks, ensuring clarity and ease of tracking.

b. **Ineffective resource allocation**: - Difficulty in assessing resource availability leads to inefficient resource allocation, impacting project timelines and team productivity. Our Task Manager offers tools for resource management, enabling better allocation and utilization of resource.

c. **Poor Communication and collaboration: -** Inadequate communication channels hinder effective collaboration among team members, leading to misunderstandings and delays, Our Task Manager offers tools for resource management, enabling better allocation and utilization of resources.

d. **Lack of visibility and accountability:** -Without a structured system, it's challenging to maintain visibility into task progress and hold team members accountable. Our Task Manager provides real time progress tracking and task assignment, enhancing accountability and transparency.

e. **Limited scalability and flexibility: -** Existing solution may lack the scalability and flexibility needed to adapt to changing product requirement and team dynamics. Our web- based Task Manager offers scalability and flexibility, allowing for easy customization and adaption to evolving needs.

f. **Security and data privacy concerns: -** Storing project data across multiple platforms mayraise security and data privacy concerns Our Taks Manager ensures data security and privacy by implementing robust security measures and compliance with industry standards.

1.2 About Parent Organization: -

Data with 

Data with D: Democratizing AI for a More Inclusive Future

Founded in March 2023, Data with D is a young and ambitious Deep Tech startup with a bold vision: to democratize AI technology. This vision extends beyond simply making AI accessible; it's about fostering a future where everyone can benefit from the power of artificial intelligence. This dedication to inclusivity has already garnered significant recognition, with Data with D being selected as one of the Top 20 Startups of 2023 by the AWS Campus Fund.

Data with D's primary focus lies in revolutionizing the e-commerce landscape through innovative AI-powered solutions. Their product line tackles some of the biggest challenges faced by online shoppers today. One such product is Vernacular Voice Commerce. This groundbreaking technology breaks down language barriers, allowing customers to interact with e-commerce platforms using their preferred local language through voice commands. This empowers non-English speakers and those less comfortable with traditional text-based interfaces to participate fully in the online shopping experience.

Another innovative offering is 3D Virtual Try-On Shopping. This immersive technology allows customers to virtually try on clothing and accessories before making a purchase. This not only enhances the shopping experience by providing a more realistic feel, but also reduces the need for returns due to improper fit. This translates to a more convenient and satisfying shopping experience for customers and improved efficiency for e-commerce businesses.

Data with D's AI Agent-Assisted Online Shopping further personalizes the online shopping experience. This intelligent AI agent acts as a virtual shopping companion, providing personalized recommendations and assistance to customers as they navigate the online store. This not only streamlines the shopping process but also helps customers discover products they might not have otherwise considered.

Data with D's impact extends far beyond its product line. The company and its founders are passionateabout giving back to the community and firmly believe in the importance of AI education. They are vocal advocates for making AI knowledge readily available to everyone. This commitment is exemplified by the founder's previous experience of teaching AI to college students entirely free of

charge. By fostering a future generation well-versed in AI, Data with D aims to create a more informed and empowered society.

1.3 Hardware And Software Specification: -

a. Hardware Specification: -

Hardware Component	Minimum Requirement
Processor	Intel Core i5 or equivalent
RAM	4 GB
Hard Disk	250 GB
Display	15-inch monitor with a resolution of 1366x768 pixels
Input Devices	Keyboard and Mouse
Internet Connectivity	Broadband or Wi-Fi connection
Operating System	Windows 7 or later, macOS X 10.11 or later, Ubuntu Linux 18.04 or later
Browser	Google Chrome (Latest Version), Mozilla Firefox (Latest Version)
Other Requirements	Node.js (Latest Version), MongoDB (Latest Version)

Table 1.1

b. Software Specification: -

Software Component	Version
Node.js	14.x or later
Express.js	4.x or later
React	17.x or later
MongoDB	4.x or later
Mongoose	5.x or later
Axios	0.21.x or later
Flowbite React	5.x or later
Font Awesome	5.x or later
Json Web Token	8.x or later
Bcrypt	5.x or later

Table 1.2

Please note that these are the minimum Hardware and software specifications required for the system to function properly. Higher software specifications may be required for optimal performance, depending on the number of users and the volume of data being processed.

CHAPTER 2: SYSTEM ANALYSIS

2.1 Problem Analysis: -

To conduct a thorough problem analysis, consider the root causes, impact on stakeholders, and potential solutions. By identifying underlying issues, understanding their ramifications, and proposing effective remedies, you can develop informed strategies for resolution.

Limited Project and Task Creation: -

Problem: Only managers have the capability to create projects and tasks within the tool, which restricts collaboration and input from team members.

Implication: This limitation may lead to delays in task assignment and project initiation, as a manager's become bottlenecks in the process.

Solution: The tool should allow designated team members, not just managers, to create projects and tasks. This empowers team members to take ownership and initiative in project planning and execution.

Lack of Task Status Visibility: -

Problem: Without the ability for team members to view the status of tasks, there's a lack of transparency and accountability in project progress.

Implication: Team members may be unaware of task deadlines, dependencies, or delays, leading to confusion and inefficiency.

Solution: The tool should provide a dashboard or interface where all team members can view the status of tasks assigned to them, including deadlines, progress updates, and any issues encountered. This promotes transparency and enables proactive management of tasks.

Manager Dependency for Project Updates: -

Problem: Only managers have access to view the status of projects, limiting the visibility and involvement of team members in project progress.

Implication: Team members may feel disengaged from the project and lack a sense ofownership, leading to decreased motivation and productivity.

Solution: The tool should allow all team members to access project status updates and milestones. This fosters a sense of shared responsibility and encourages collaboration teammembers.

2.2 Feasibility Study: -

The feasibility study for our project management tool encompasses a comprehensive evaluation of technical, economics, operational, and schedule feasibility. From a technical perspective, our team possesses the necessary expertise and resources to develop a robust scalable platform that aligns with the specified requirements. Extensive research into relevant technologies and framework has been conducted to ensure that the chosen architecture meets project objectives while remaining technically feasible. Economically, the project demonstrates viability through cost-benefit analysis, which considers development expenditures, potential revenue streams, and projected return on investment. Operational feasibility is supported by the identification of user needs and the availability of skilled personnel to manage and utilize the tool effectively . Additionally a realistic timeline has been established to ensure schedule feasibility , accommodating developmentmilestones , testing phases and deployment targets, In summary, The feasibility study confirms that our project management tool is both technically and economically viable with a clear path towards successful implementation and adoption.

2.2.1 Technical Feasibility:

In assessing the technical feasibility of the project management system, the decision to adopt the MERN (MongoDB, Express.js, React.js, Node.js) stack stands out as a strategic choice. This stack offers a comprehensive and modern framework for developing the system, leveraging the strengths of each component. MongoDB serves as the database solution, providing flexibility and scalability for managing project data efficiently. Express.js facilitates the creation of a robust backend API, enabling seamless communication between the frontend and the database. React.js empowers the development of dynamic and interactive user interfaces, enhancing usability and productivity. Meanwhile, Node.js powers the server-side logic, ensuring high performance and enabling real-time updates. The synergy of these technologies ensures a cohesive and scalable architecture for the project management system.

Furthermore, the optimization of the system's database design is crucial for ensuring efficient data retrieval and storage. By leveraging MongoDB's document-oriented nature, the database schema is designed to accommodate diverse project-related data while maintaining structural integrity. Proper indexing and query optimization techniques are implemented to streamline data access, minimize latency, and enhance overall system performance. This optimization ensures that the system can efficiently handle large volumes of data and scale seamlessly as the organization grows.

Additionally, robust security measures are integral to safeguarding sensitive organizational data and protecting against potential threats or breaches. The implementation of authentication and authorization mechanisms ensures that access to the system is controlled, and only authorized users can perform specific actions. Encryption techniques are employed to secure data transmission and storage.

Regular security audits and updates are conducted to identify and address vulnerabilities, ensuring that the system remains resilient against evolving threats and compliance requirements.

In conclusion, the technical feasibility of the project management system is underpinned by the strategic adoption of the MERN stack, optimization of database design, and robust implementation of security measures. With the availability of necessary tools and resources, the system is well-equipped to meet the demands of modern project management while ensuring scalability, performance, and data security.

2.2.2 Economic Feasibility:

- The cost of developing the system was estimated, and it was found to be within the budgetallocated for the project.
- The system's maintenance costs were also estimated, and they were found to be reasonable.
- The benefits of the system were compared to the costs, and it was found that the system'sbenefits outweighed the costs.

2.2.3 Operational Feasibility:

- The system's requirements were analysed, and it was found that they were achievable.
- The system's usability and user-friendliness were evaluated, and it was found that the system met the needs of the users.
- The system's impact on the existing processes and workflows of the organization was assessed,and it was found that the software would improve the efficiency and effectiveness of the Inventory management process.

2.2.4 Behavioural Feasibility:

- The organizational management staff requirements were analysed, and it was found that the system would meet their needs.
- The system's user interface was designed to be intuitive and user-friendly.
- The users were consulted during the development process to ensure that the system met their expectations.
- Training programs were developed for the user to ensure that they could use the system effectively.

2.2.5 Legal Feasibility:

- The legal requirements for the storage and handling of data were reviewed, and the system wasdesigned to comply with all relevant laws and regulations.
- The system's security measures were designed to protect the confidentiality and privacy of organization data.
- The terms of service and privacy policy were drafted to ensure that the software was legally compliant. The necessary permissions and approvals were obtained from the authorities before starting the development process.

2.3 Data Flow Diagram: -

2.3.1 Level 0 DFD: -

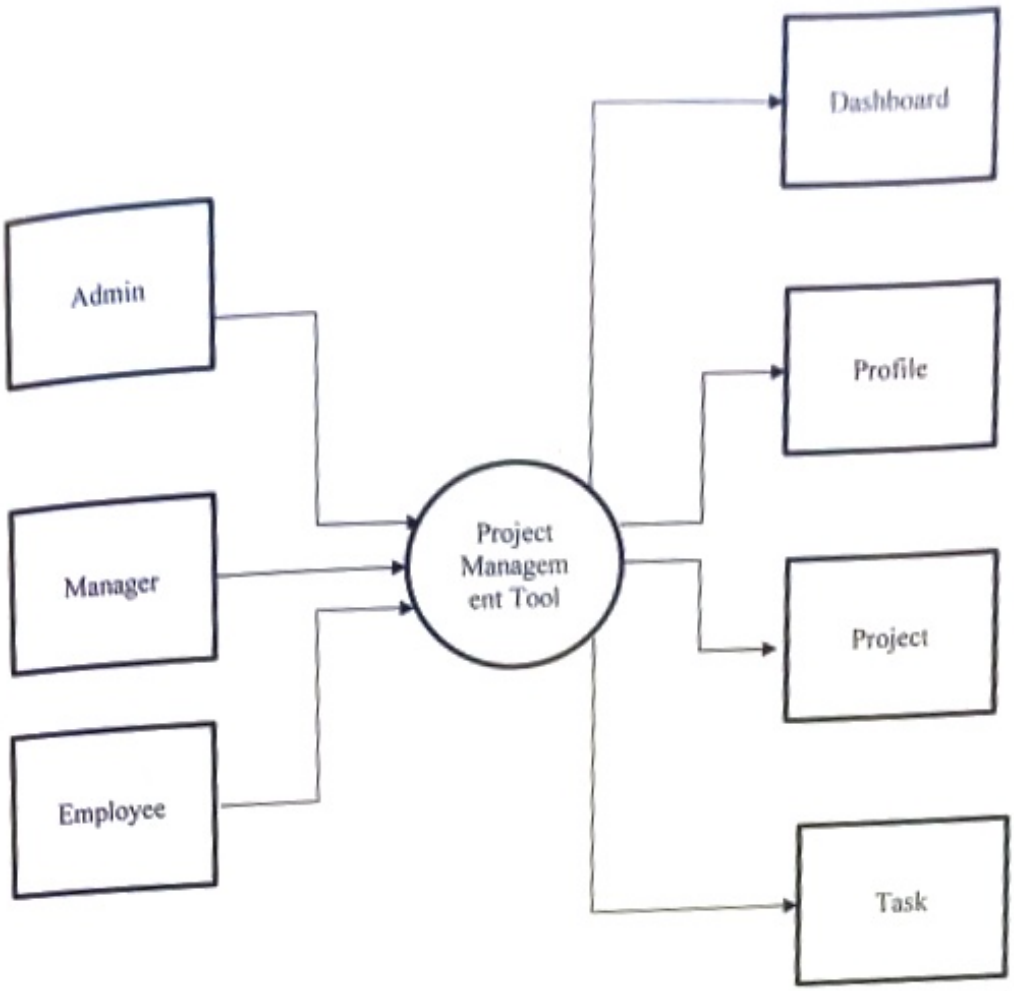


Figure 1.1

3.2 Level 1 DFD For Admin: -

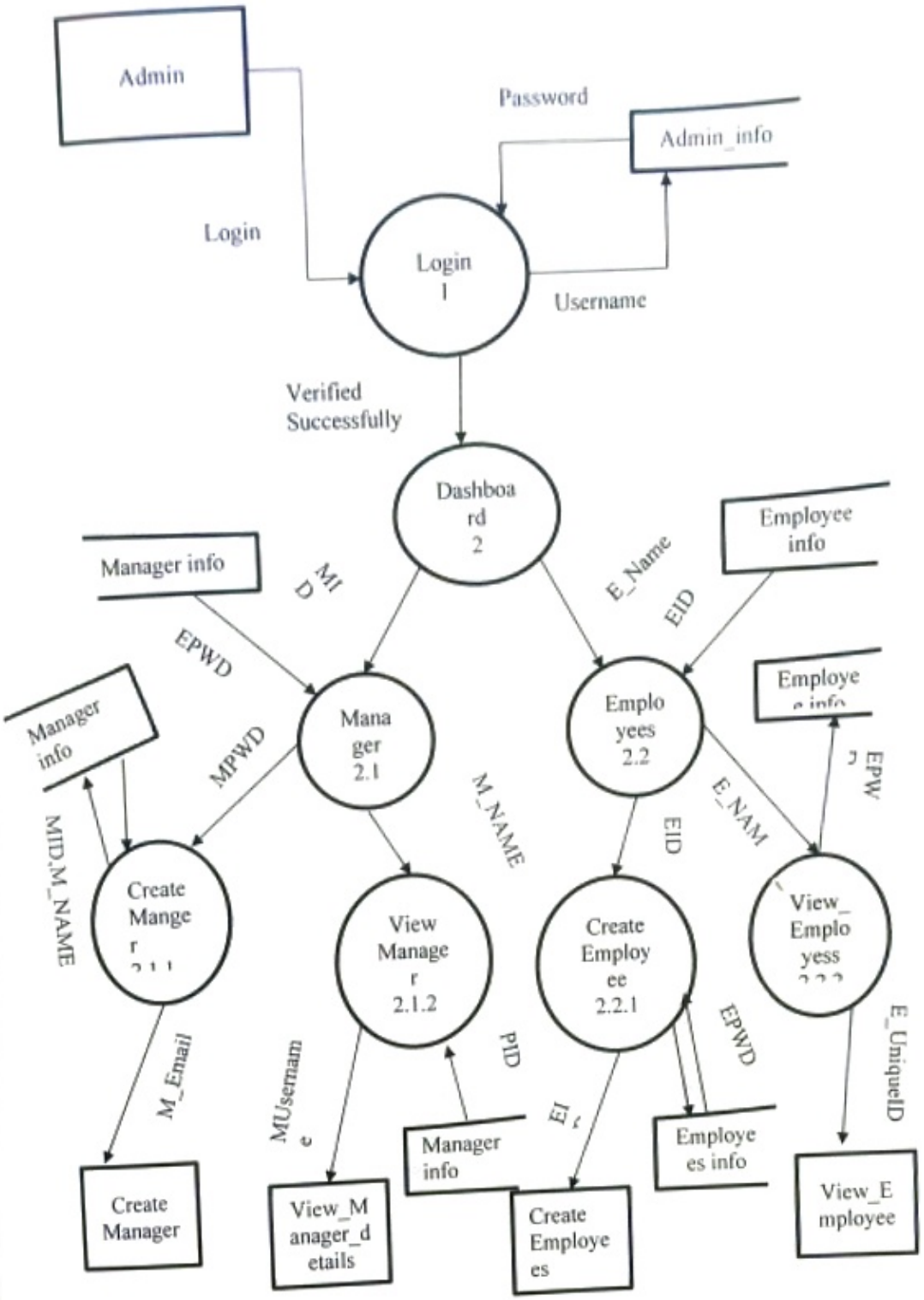


Figure 1.2

Level 1 DFD For Manager: -

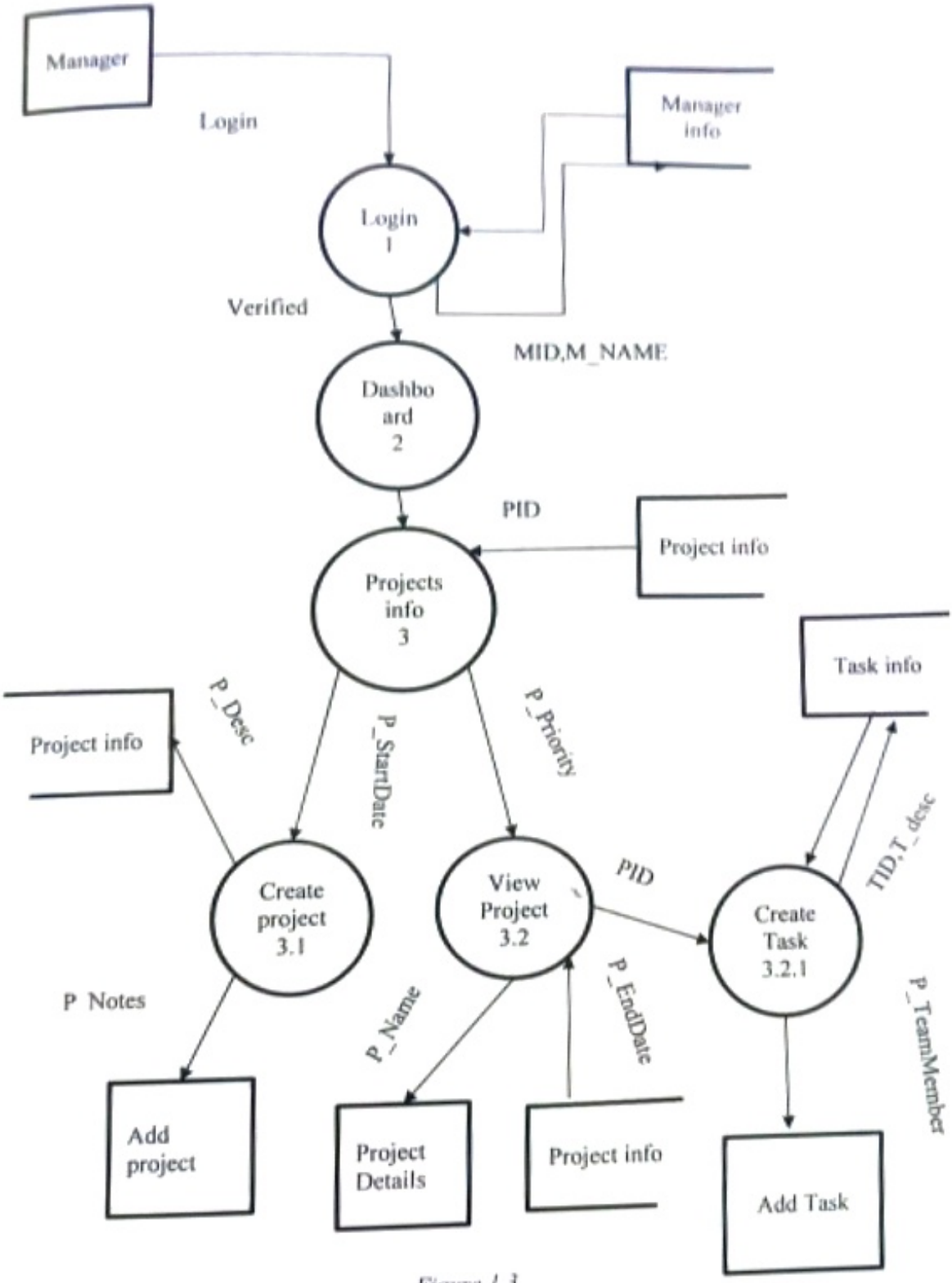


Figure 1.3

2.3.3 Level 1 DFD For Employee: -

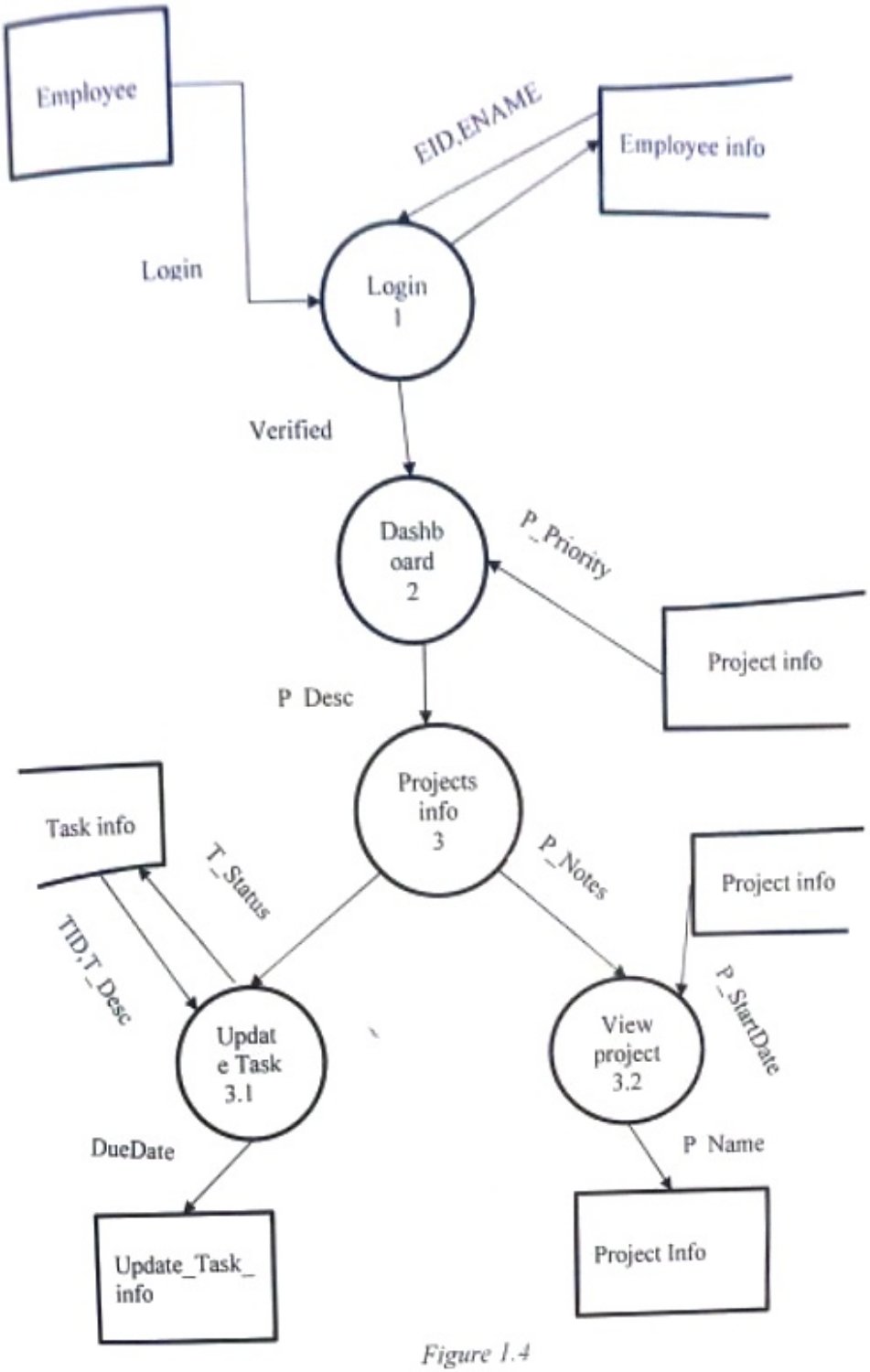


Figure 1.4

CHAPTER 3: SYSTEM DESIGN

3.1 Use Case Diagram

3.1.1 Use Case Diagram for Admin: -

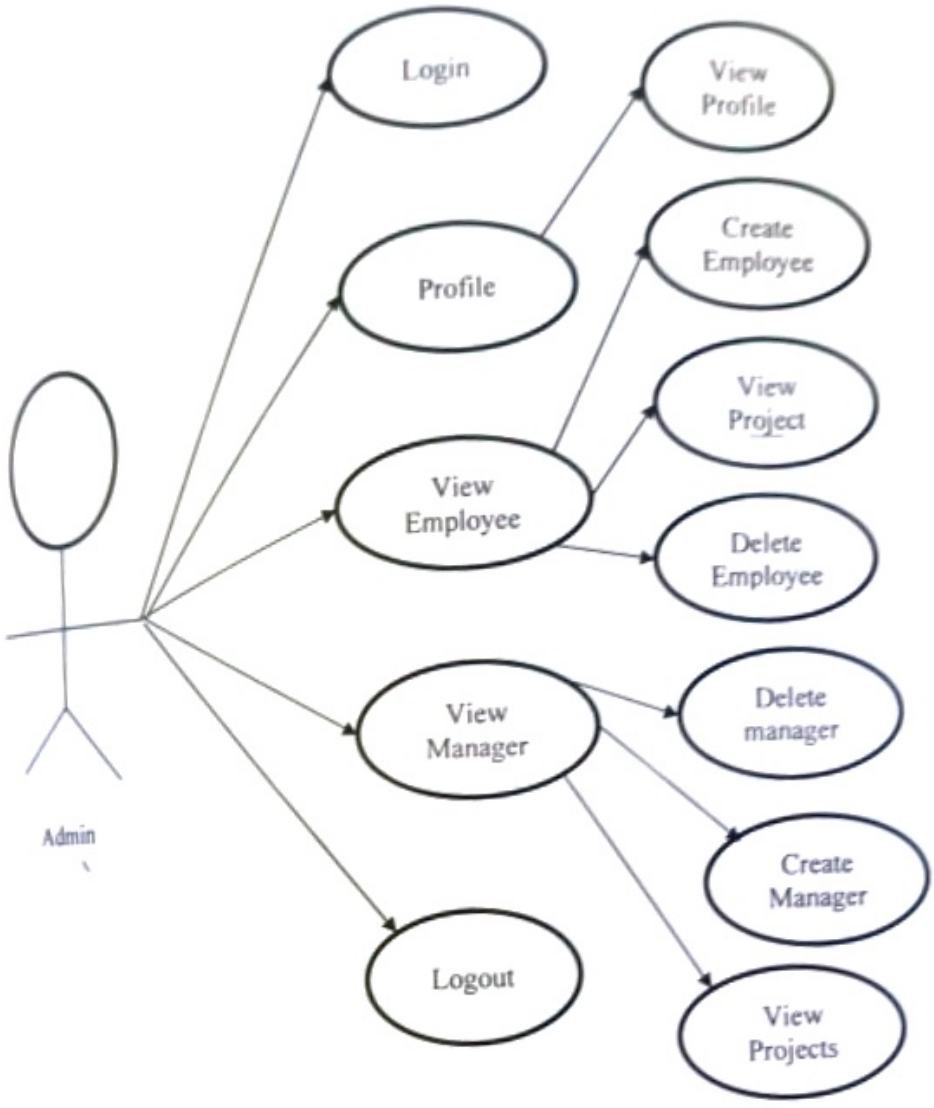


Figure 2.1

3.1.2 Use Case Diagram for Manager: -

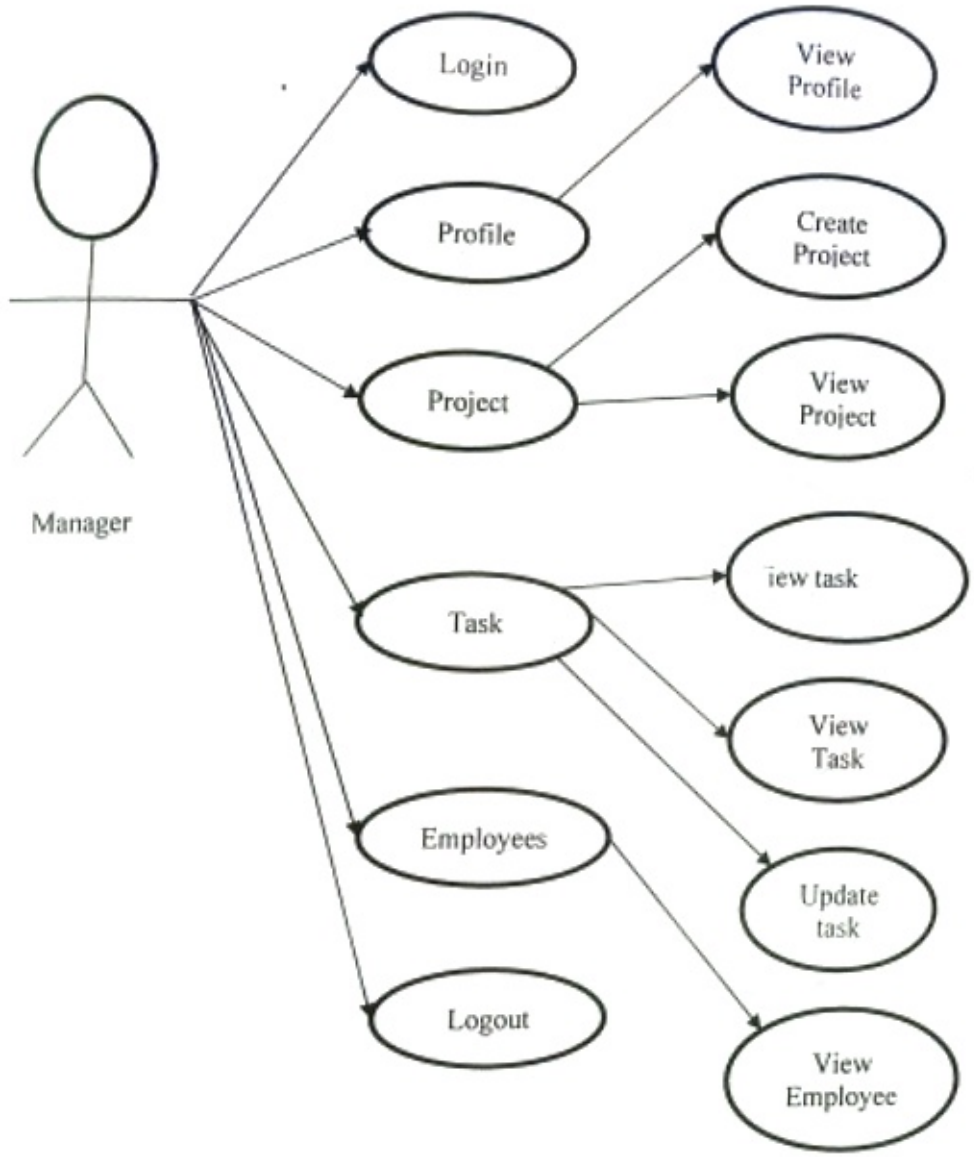


Figure 2.2

3.1.3 Use Case Diagram for Employee: -

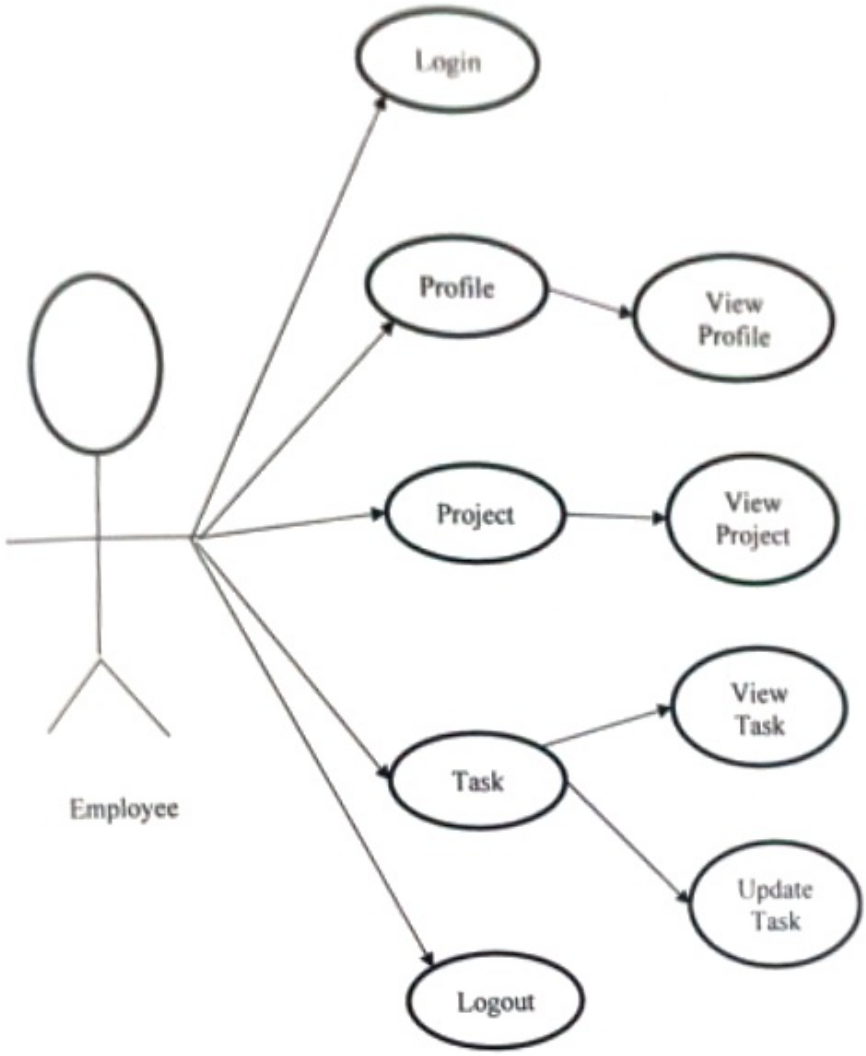


Figure 2.3

2 Structure Diagram: -

3.2.1 Class Diagram: -

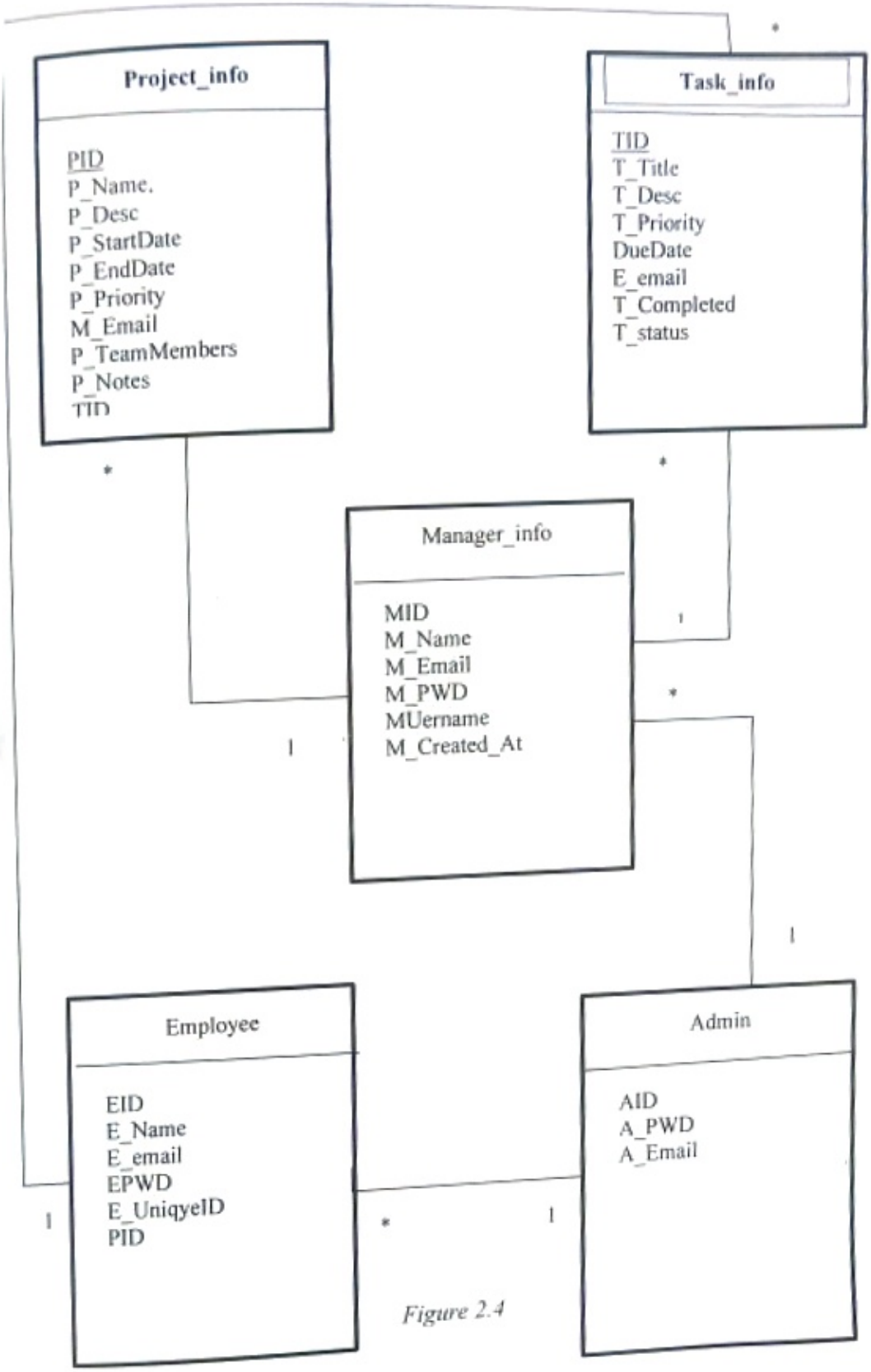


Figure 2.4

3.3 ER Diagram: -

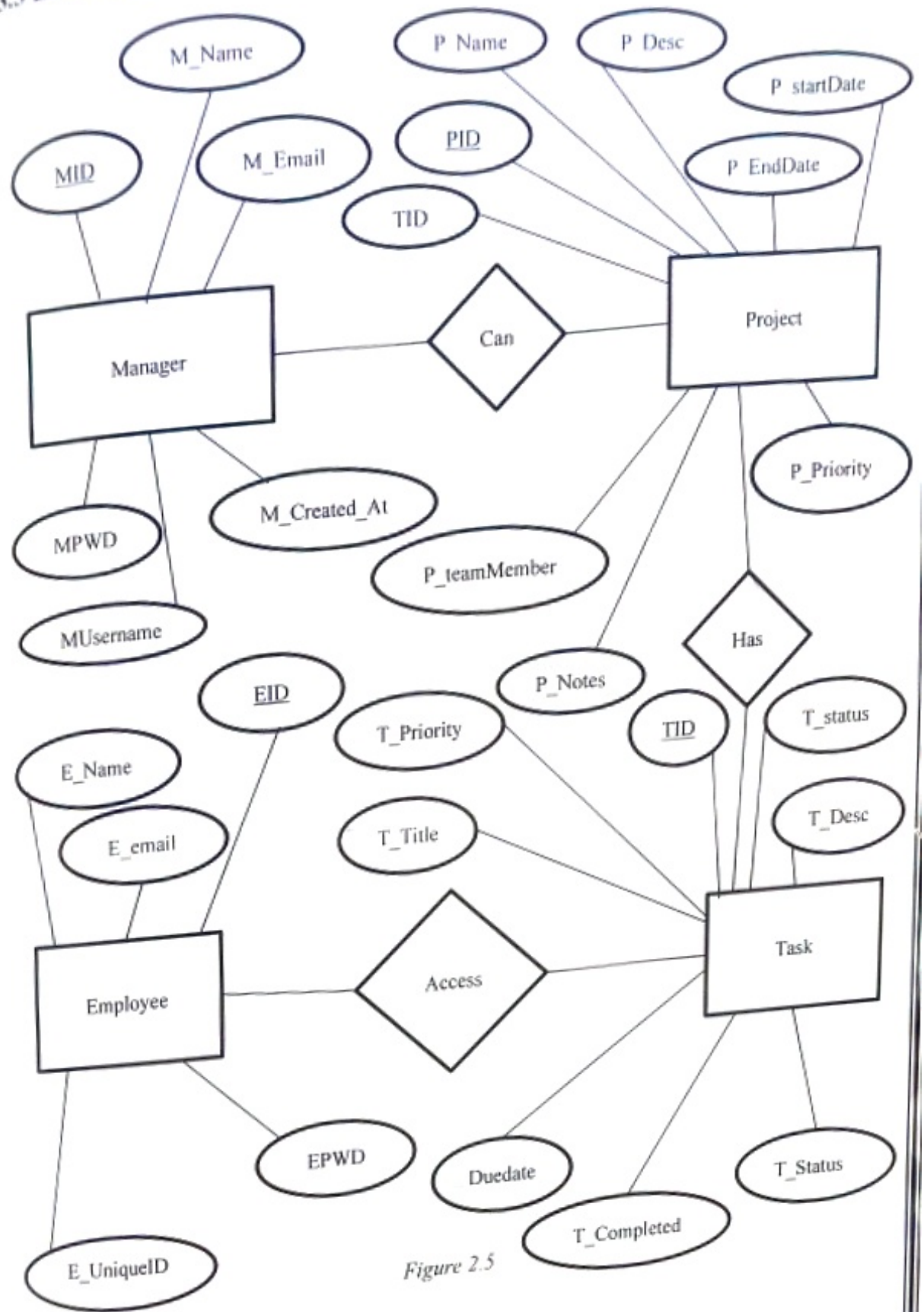


Figure 2.5

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. Here's how software testing is performed for Project Management Tool:

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. The unit testing performed on different components of Project Management Tool can be understood by the following table:

Test Case ID	Test Case Description	Test Data	Pass Condition	Fail Condition	Test Result
TC-UT-01	Admin Registered	Admin Email, password, etc.	Admin Registered successfully	Fails to registered admin	Pass
TC-UT-02	Add Manager	Manager Email, Manager Id,etc	Manager Add Successfully	Fails to add Manager	Pass
TC-UT-03	Add Employee	Employee Email, Password,etc	Employee Add Successfully	Fails to add Employee	Pass
TC-UT-04	Add Project	Project id, project name,etc	Add project Successfully	Fails to add Project	Pass
TC-UT-05	Add Task	Task id,status ,etc	Add Task in Particular project	Fail to add task	Pass
TC-UT-06	Update Task	Task id, status,etc	Update Task Successfully	Fail to update Task	Pass

Table 1.3

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.

Test Case ID	Test Case Scenario	Test Description	Pass Condition	Fail Condition	Test Result
TC-INT-01	Jwt Token generation	Check jwt token is generate after user login	Jwt Token generate after login	Error occurs for generating jwt token	Pass
TC-INT-02	JWT Token Content Check	Verify that JWT Token contains necessary user identity and permissions	Token contains user identify.	Error occurs	Pass
TC-INT-03	Project assigning	Project is assign of user	Project is assigned of particular user which is selected	Error occurs for assigning a project	Pass
TC-INT-04	Task Assign	Task assign or add in particular project	Task add in particular project	Task is not added in particular project	Pass
TC-INT-05	Update Task	Task Updated by the user	Task Update of particular of particular task id or not	Error occurs for updating task	Pass

Table 1.4

ystem Testing: -

stem testing is a type of software testing that evaluates the entire system including all its components sts how the different component of the application navigate to another component. Verify that only lmin can able to access the module like add manager, add employee and manager can create project d particular task and employee easy to update tasks. Verify that dashboards have all the required tion to manage all types of data.

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

t Case ID	Test Case Scenario	Input / Test Data	Pass Condition	Fail Condition	Test Result
T--01	Search Functionality	Enter specific keyword related to Project info.	Relevant projects are displayed.	Irrelevant record or error displayed	Pass
T-02	Filter Functionality	Select filter options such as priority and according year.	Projects are filtered according year and priority.	Filter option doesn't work.	Pass
FT-03	Pagination Functionality	Pagination control allow users to navigate through multiple pages of project result.	Users can navigate through pagination control.	Pagination control doesn't allow users to navigate.	Pass

b. **Non-Functional Testing:** -Non-Functional testing focusses on evaluating aspects such as performance, usability, security and error handling of software ensuring it meets quality attributes beyond functional requirements.

i. Performance Testing:

Test Case ID	Test Case Scenario	Test Description	Pass Condition	Fail Condition	Test Result
ST-NFT-01	Response Time Testing	Measure System Response Time	Responses are generated within acceptable time frames.	Response time exceeds threshold.	Pass
ST-NFT-02	Load Testing	Evaluate system performance under load	System handles unexpected load.	System crashes.	Pass

Table 1.6

ii. Usability Testing:

Test Case ID	Test Case Scenario	Test Description	Pass Condition	Fail Condition	Test Result
ST-NFT-03	User Interface Testing	Evaluate UI Design and Usability	User can easily navigate through system and perform task without confusion and frustration.	UI is cluttered and confusing, leading to errors and user dissatisfaction.	Pass

Table 1.7

iii. Error Handling Testing:

Test Case ID	Test Case Scenario	Test Description	Pass Condition	Fail Condition	Test Result
ST-NFT-04	Exceptional Handling Testing	Evaluate system's response to exceptions.	System handles the exceptions gracefully and provide meaningful error messages.	System crashes or data loss occurs.	Pass

Table 1.8

iv. Security Testing:

Test Case ID	Test Case Scenario	Test Description	Pass Condition	Fail Condition	Test Result
ST-NFT-05	Authentication Testing	Verify User Authentication	Users are granted access only with valid credentials.	Allowing unauthorized access.	Pass
ST-NFT-06	Authorization Testing	Test Access Controls	User can access only the resources authorized for their roles and permissions.	Users can access unauthorized resource and perform unauthorized actions, indicating a failure in access controls.	Pass

Table 1.9

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 Project Management Tool

a. Visual Studio Code:

1) Go to the official Visual Studio website: https://visualstudio.microsoft.com/downloads/
2) Click on the "Download" button for the version of Visual Studio you want to install.
3) Choose the components you want to install, such as languages, frameworks, and tools.
4) Click on the "Install" button to start the installation process.
5) Follow the installation wizard and select the options that suit your needs.

b. MongoDB Atlas:

1) Go to MongoDB Atlas website: https://www.mongodb.com/atlas/database
2) Create Your Free account on it.
3) Now create your cluster, you can choose your cluster as your preference.
4) Now copy the link of cluster.
5) And now connect the cluster in your server.

5.2 Technologies / Libraries Used

Following are libraries which are being used in the development of Project Management Tool:

a. **React.js: -** React.js is a popular open-source JavaScript library for building user interfaces, developed by facebook.it is widely used for creating interactive and dynamic web application with a focus on computer-based architecture and efficient

b. **Node.js: -** Node.js is an open source, cross platform JavaScript runtime environment that allows developers to run JavaScript code outside of a web browser, it is on Chrome's V8 JavaScript engine an event-driven, non-blocking I/O model that makes it lightweight and efficient for building scalable network applications.

5.3 Development Environment Setup

Following are the steps used for setting up development environment for Project Management Tool

a. **Frontend Application:**

1) Create a New React App by using command "npx create-react-app my-react-app".
2) Navigate to the project directory using command "cd my-react-app".
3) Now start the development server by running the command "npm start".
4) You can access your React application in your web browser at 'http://localhost:3000'.

b. **Backend Application:**

1) Go to the official Node.js website: https://nodejs.org/en/download/
2) Once Node.JS is installed, initialize node app by using "npm init".
3) Now, install dependencies as per the requirement of project.
4) You can access your Node application in your web browser at 'http://localhost:5000'

c. **Version Control System:**

1) Download and install Git from the official website: https://git-scm.com/downloads
2) Once Git is installed, you can create a new repository for your project.

5.4 Development Activities

Following are the activities done for the development of Project Management Tool.

a. **Coding:** This involves writing algorithm, functions, classes and other programming constructs to create the desired features and behaviors of the Project Management Tool.

b. **Implementing Design Specification**: Implementing design specification involves taking the high-level design concepts and turning them into detailed technical designs that can be translated into code. Implementing design specification ensures that the development team has a clear understanding of requirements and they will be implemented in the code.

c. **Code Review**: During code review, developers examine the code for readability, maintainability, efficiency and correctness, they may also provide feedback, suggestions maintain code quality, fosters knowledge sharing among team members, and reduces the likelihood of introducing defects into the codebase.

5.5 Deployment: -

In the Software Development Life Cycle (SDLC), deployment is the phase where the developed software is released and made available for use by end-users or customers. Project Management Tool Backend deployed in render and for Frontend we used Netlify.

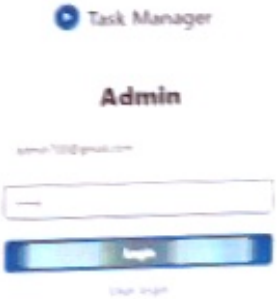
a. **Backend Deployment: -** For Backend deployment I used render services, it is free of cost you can simply create your account and connect your git repository on it and your services is live for to know more about it, pls use this link: -https://docs.render.com/web-services

b. **Frontend Deployment:** - For frontend deployment I used Netlify it is also free of cost just simply create your account and connect with your git repository and you can also upload file in manually way and after few seconds your services is live, for more details I add a link: -https://docs.netlify.com/

CHAPTER 6: -SAMPLE FORMS AND REPORTS

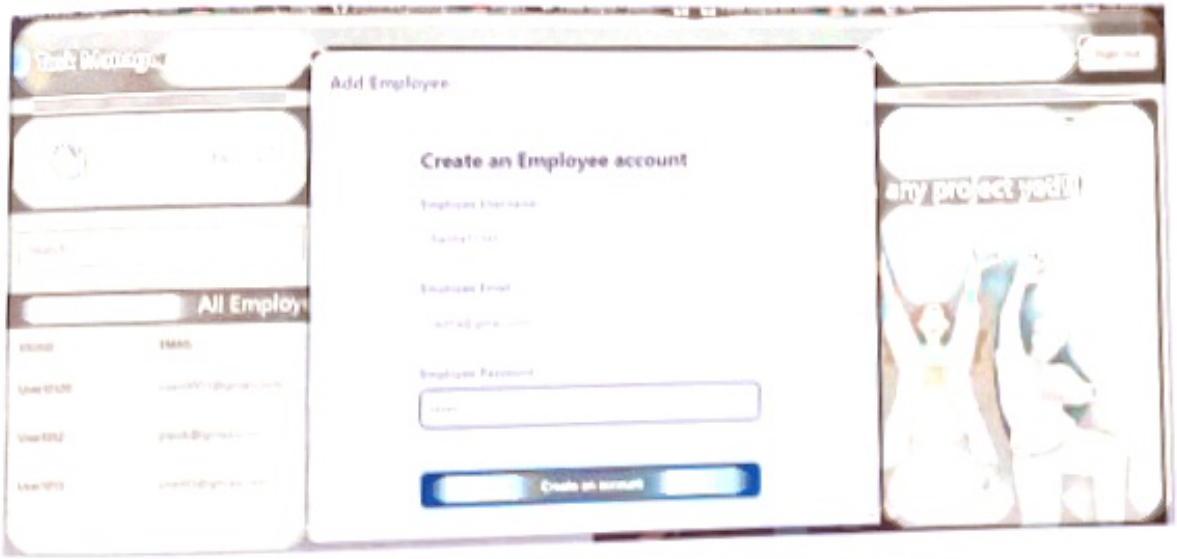
6.1 Login Page for Manager and Employee: -

6.2 Login Page for Admin: -



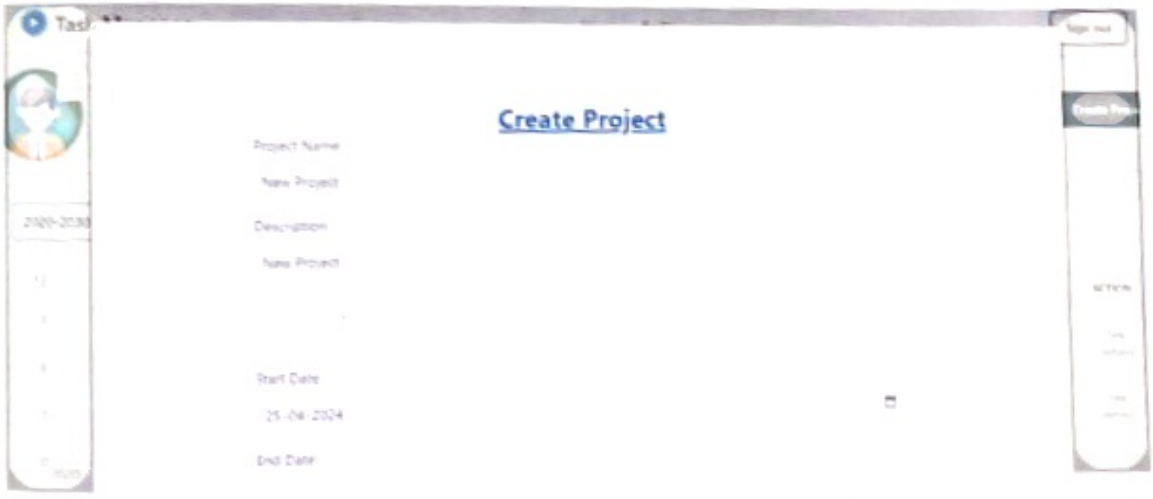
6.3 Admin Dashboard: -

6.4 Create Employee Form: -



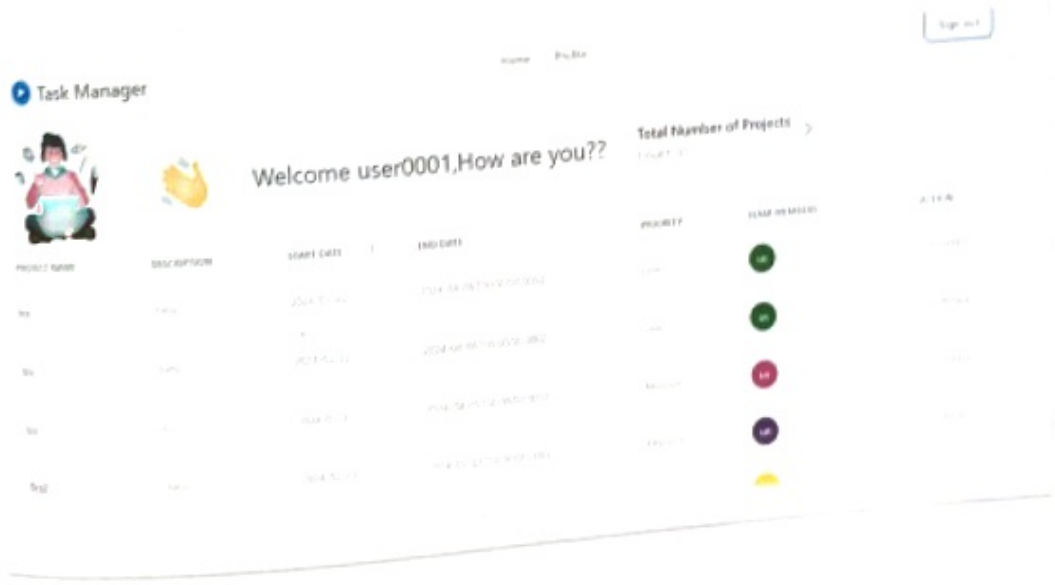
6.5 Manager Dashboard: -

6.6 Project Form: -



6.7 Task Form: -

6.8 User Dashboard: -



6.7 Task Form: -

6.8 User Dashboard: -

CHAPTER 7: - CONCLUSION

In summary, the Project Manager Tool stands as a comprehensive solution for optimizing project management workflows within organization. its multifaceted capabilities empower administrators with the ability the oversee user management, ensuring the efficient allocation of roles and responsibilities. Through the platform, managers gain the flexibility to create projects, deadlines tasks and assign them to relevant team members seamlessly. Moreover, the tool fosters enhanced collaboration and coordination among team members by enabling employees to update task statues, thereby facilitating real-time progress tracking.

Overall, The Project Manager Tool servers as a pivotal asset in enhancing productivity, communication and accountability across all levels of project management. By centralizing essential functions and providing a user-friendly interface, it streamlines operations and mitigates common challenges associated with project oversight, as organization strive for greater efficiency and effectiveness in their project endeavours, the Project Manager Tool emerges as a reliable and indispensable companion, driving success through streamlined processes and empowered teams.

CHAPTER 7: - CONCLUSION

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FUTURE WORK: -

Looking ahead, the future development of the Project Manager Tool could focus on several key areas to further enhance its functionality and usability. Firstly, incorporating advanced analytics andreporting features would provide administrators and managers with valuable insights into project performance metrics, resource utilization, and team productivity. These analytics could facilitate informed decision-making and help identify areas for improvement.

Additionally, integration with third-party tools and platforms, such as communication tools, file-sharing services, and project tracking software, could streamline workflows and enhance interoperability. This integration would enable seamless data exchange and collaboration across different systems, further optimizing project management processes.

Furthermore, enhancing the mobile responsiveness and compatibility of the tool would cater to the increasingly mobile workforce, allowing users to access and manage projects on the go. This would promote flexibility and efficiency, especially for remote teams or employees who frequently travel.

Lastly, ongoing updates and refinements to the user interface and user experience (UI/UX) would ensure that the Project Manager Tool remains intuitive and user-friendly. Regular feedback from users could inform iterative improvements, ensuring that the tool continues to meet the evolving needs of its users and remains a valuable asset for project management in the future.

BIBLIOGRAPHY: -

The following references were referred during the analysis and execution phase of the project:

[1] https://www.mongodb.com

[2] https://legacy.reactjs.org/

[3] https://www.w3schools.com/js/js_es6.asp

[4] https://www.npmjs.com/

[5] https://flowbite-react.com/

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Palak Gupta

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CHARACTER COUNT
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Summary

FORTNIGHTLY PROGRESS REPORTS:-

FORTNIGHTLY PROGRESS REPORT (TO BE FILLED FROM INDUSTRY MENTOR)

Name of student	Palak Gupta		Department	Computer Science and Engineering	
Industry Organization	Open/ Private Limited		Date Duration	15-01-2024 to 30-03-2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality- Timely completion of assigned work				✓	
Learning capacity- Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Integrate CRUD fun in Admin Dashboard				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	**EXCELLENT**				
Name of Industry Mentor	**Himanshu Daga**				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	Name of Faculty Mentor	Dr. Anshu Chaturvedi	Sign	

FORTNIGHTLY PROGRESS REPORT (FROM INDUSTRY MENTOR)

Name of student	Palak Gupta		Department	Computer Science and Engineering	
Industry Organization	Open2 Private Limited		Date Duration	31-01-2024 to 13-02-2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality: Timely completion of assigned work					✓
Learning capacity/ Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Integrate CRUD fun in Manager Dashboard				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	**EXCELLENT**				
Name of Industry Mentor	**Himanshu Daga**				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	**Name of Faculty Mentor**	**Dr. Anshu Chaturvedi**	**Sign**	

FORTNIGHTLY PROGRESS REPORT (PROFORMA IN MS WORD)

Name of student	Pritish Gupta		Department	Computer Science Engineering
Industry Organization	Ujjwal Power Limited		Data Science	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/ Timely completion of assigned work					✓
Learning capacity/ Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Integrate CRUD fun in User Dashboard				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	EXCELLENT				
Name of Industry Mentor	Himanshu Daga				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	Name of Faculty Mentor	Dr. Anshu Chaturvedi	Sign	

FORTNIGHTLY PROGRESS REPORT (TO BE FILLED BY INDUSTRY MENTOR)

Name of student	Palak Gupta		Department	Computer Science and Engineering	
Industry Organization	Open/ Private Limited		Date/Duration	01.07.2024 to 15.08.2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/ Timely completion of assigned work					✓
Learning capacity/ Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Integrate Project fun in Admin or Manager Dashboard				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	**EXCELLENT**				
Name of Industry Mentor	**Himanshu Daga**				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	Name of Faculty Mentor	Dr. Anshu Chaturvedi	Sign	

FORTNIGHTLY PROGRESS REPORT (TO BE FILLED BY INDUSTRY MENTOR)

Name of student	Palak Gupta		Department	Computer Science and Engineering	
Industry Organization	OpenZ Private Limited		Date/Duration	16-03-2024 to 30-04-2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/ Timely completion of assigned work					✓
Learning capacity/ Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work				✓	
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Integrate Task fun in Manager and Admin Dashboard				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	EXCELLENT				
Name of Industry Mentor	Himanshu Daga				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	Name of Faculty Mentor	Dr. Anshu Chaturvedi	Sign	

FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Palak Gupta		Department	Computer Science and Engineering	
Industry/Organization	OpenZ Private Limited		Date/Duration	31-03-2024 to 11-04-2024	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/ Timely completion of assigned work					✓
Learning capacity/ Knowledge up gradation					✓
Performance/Quality of work			✓		
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Deployed Project Successfully as well as cluster				
OVERALL GRADE (Any one: POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT)	EXCELLENT				
Name of Industry Mentor	Himanshu Daga				
Signature of Industry Mentor	H. Daga				

Receiving Date	16/4/24	Name of Faculty Mentor	Dr. Anshu Chaturvedi	Sign	