



PLANNER –“Ensuring a better scheduling”

Mini Project Report

Submitted in partial fulfillment of the requirement of University of Mumbai

For the Degree of
(Computer Engineering)

By

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UNIVERSITY OF MUMBAI

(2023-24)



**TERNA ENGINEERING COLLEGE, NERUL,
NAVI MUMBAI**

Department of Computer Engineering

Academic Year 2023-24

CERTIFICATE

This is to certify that the mini project 1A entitles **PLANNER –“Ensuring a better scheduling”** is a bonafide work of

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Project Report Approval

This Mini Project 1A Report – entitled **PLANNER** –“Ensuring a better scheduling”by following students is approved for the degree of *S.E. in "Computer Engineering"*.

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Place: _____

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

In today's busy world, managing time effectively is essential for success in both personal and professional life. This project, titled "PLANNER – Ensuring a Better Scheduling," aims to create a simple and effective scheduling application that helps users prioritize tasks and receive timely reminders. Many people struggle with overwhelming schedules, which can lead to stress and lower productivity.

PLANNER addresses this issue by allowing users to organize their tasks based on how urgent or important they are. The app sends automatic reminders to help users stay on top of their commitments, reducing the chances of forgetting deadlines or appointments.

Designed with user-friendliness in mind, PLANNER is suitable for a wide range of users, including students, professionals, and anyone looking to improve their time management skills. The app will also provide helpful insights into users' scheduling habits, allowing them to identify areas for improvement.

By integrating with popular calendar systems, PLANNER ensures a smooth experience for users. The expected benefits include better time management, increased productivity, and enhanced user satisfaction. Ultimately, this project aims to empower individuals to take control of their schedules, reduce stress related to task management, and focus on what truly matters in their lives.

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Chapter 1

Introduction

1.1 Aim:

To implement a system that enhances scheduling efficiency through task prioritization and reminder notifications

1.2 Motivation:

In today's fast-paced world, effective time management has become a crucial skill for success in both personal and professional realms. The motivation for selecting this topic stems from the increasing demand for tools that facilitate better scheduling and organization in daily life. As individuals navigate numerous responsibilities—such as work, studies, and personal commitments—the ability to manage time efficiently is paramount.

The modern lifestyle often leads to overwhelming schedules, where individuals find themselves juggling multiple tasks simultaneously. This complexity can result in stress, burnout, and decreased productivity. Many people struggle to keep track of their responsibilities, leading to missed deadlines and forgotten appointments. This inefficiency not only affects individual performance but can also have broader implications for overall well-being. Therefore, there is a clear need for a solution that helps users prioritize their tasks, stay organized, and maintain a healthy work-life balance.

1.2.1 Need of the problem:

The prevalence of busy lifestyles highlights the urgent need for effective time management tools. Many individuals report feeling overwhelmed by their daily tasks, which can lead to anxiety and frustration. The inability to prioritize effectively can result in significant consequences, such as missed opportunities and diminished quality of work. In both academic and professional settings, poor time management can hinder success and lead to long-term dissatisfaction.

Given these challenges, it is essential to develop a system that not only helps users organize their tasks but also empowers them to take control of their schedules. By addressing the root causes of scheduling conflicts and inefficiencies, we can provide users with a reliable tool that enhances their productivity and reduces stress.

1.3 Scope of the project:

This project aims to develop a user-friendly scheduling application designed for various user groups—students, professionals, and anyone seeking to enhance their time management skills. The application will include several key features:

1. **Task Prioritization:** Users will be able to categorize tasks based on urgency and importance, enabling them to focus on what matters most.

2. **Automated Reminders:** The app will send timely notifications to help users stay on track with their commitments.
3. **Integration with Existing Calendars:** The application will seamlessly integrate with popular calendar systems (e.g., Google Calendar, Outlook) to provide a cohesive scheduling experience.
4. **Analytics Tools:** Users will have access to insights regarding their scheduling habits, allowing them to identify areas for improvement.

By focusing on usability and accessibility, this project seeks to create a solution that is not only effective but also adaptable to the diverse needs of its users. Ultimately, this application aims to empower individuals to take control of their time management practices, leading to enhanced productivity and reduced stress levels.

Chapter 2

Literature Review

Sr.No	Title	Authors	Journal	Summary
01	Systematic literature review of integrated project scheduling and material ordering problem	Parchami Afra Ali, Kheirkhah Amirsaman, Ahadi Hamidreza	Computers & Industrial Engineering	This paper reviews integrated project scheduling and material ordering problems, discussing formulations and solution methods. It highlights the importance of considering both scheduling and procurement in project management.
02	Smart manufacturing scheduling: A literature review	Serrano-Ruiz Julio C., Mula Josefa, Poler Raúl	Journal of Manufacturing Systems	The paper reviews existing literature on smart manufacturing scheduling, focusing on digital twin technology and zero-defect manufacturing models. It identifies trends and gaps in current research related to scheduling in smart factories.
03	Project planning and scheduling: A literature review	Dariusz Wolejszo	LinkedIn	This review discusses various methods and tools for project planning and scheduling, emphasizing the distinction between planning and scheduling as separate tasks crucial for project success.
04	Literature review: Project schedule planning tools and techniques	Liberatore et al.	Jurnal Teknologi	This paper presents various project schedule planning tools, including Gantt charts and critical path methods, while addressing the gap between theory and practical application in project management software. 15
05	Scheduling research contributions to Smart manufacturing	Various Authors	Journal of Manufacturing Processes	The paper reviews contributions to scheduling research within smart manufacturing contexts, focusing on challenges posed by Industry 4.0 technologies and proposing future research directions in this area.

Sr.No	Title	Authors	Journal	Summary
06	A survey of hybrid metaheuristics for the resource-constrained project scheduling problem	Various Authors	European Journal of Operational Research	This survey discusses hybrid metaheuristic approaches for solving resource-constrained project scheduling problems, providing insights into algorithm performance and applicability in real-world scenarios.
07	Integrated planning of project scheduling and material procurement	Various Authors	Computers & Industrial Engineering	This study integrates project scheduling with material procurement processes, emphasizing the need for coordinated planning to enhance efficiency and reduce costs in construction projects under uncertainty conditions.

Chapter 3

Problem Statement

3.1 Problem statement

Many individuals and teams struggle to manage time and tasks effectively due to the lack of a centralized, user-friendly platform that integrates scheduling, task prioritization, and real-time collaboration, leading to missed deadlines and reduced productivity.

During the development of the "**PLANNER – Ensuring a Better Scheduling**" application, I encountered several genuine challenges as face while developing my topic:

1. **Understanding User Needs:** Identifying what features users truly wanted was difficult. Gathering feedback effectively from peers and potential users took time and effort.
2. **Designing an Intuitive Interface:** Creating a user-friendly interface that was both functional and easy to navigate was challenging. I struggled with balancing aesthetics and usability.
3. **Implementing Task Management:** Developing a system to efficiently add, edit, and delete tasks while ensuring data integrity was complex. Managing task deadlines and priorities added to this complexity.
4. **Notification System Reliability:** Ensuring that reminders and notifications were timely and accurate required extensive testing and debugging, which was time-consuming.
5. **Cross-Device Compatibility:** Making sure the application worked smoothly across different devices (like smartphones, tablets, and desktops) presented technical challenges in responsive design.
6. **Data Security Concerns:** Protecting user data while allowing easy access was a significant concern. Implementing proper authentication and encryption methods required careful planning.

These challenges highlighted the importance of thorough testing, user feedback, and iterative design in creating a practical scheduling tool that meets real-world needs.

3.2 Features

The PLANNER application will include the following key features:

1. **User-Friendly Interface:** A clean design for easy navigation.
2. **Task Input and Management:** Users can add tasks with deadlines and priority levels.
3. **Task Prioritization:** Users can rank tasks based on urgency.
4. **Reminders and Notifications:** Timely alerts for upcoming deadlines.
5. **Calendar View:** Visual representation of tasks over days or weeks.

6. **Collaboration Tools:** Share tasks with team members for real-time updates.
7. **Data Storage:** Secure storage of user data accessible from any device.

3.3 Objectives

The main objectives of the PLANNER project are:

1. **To Develop an Intuitive Scheduling Tool:** Simplify task management for users.
2. **To Enhance Productivity:** Help users prioritize effectively.
3. **To Reduce Stress:** Provide timely reminders for deadlines.
4. **To Facilitate Collaboration:** Enable seamless teamwork through shared task management.
5. **To Gather User Feedback for Continuous Improvement:** Use real user input to enhance features.

3.4 Specifications of the system

1. Platform:

- 1.1 Web-based, accessible on desktop and mobile devices.

2. Technologies Used:

2.1 Frontend:

- 2.1.1 HTML
- 2.1.2 CSS
- 2.1.3 JavaScript

2.2 Backend:

- 2.2.1 Node.js with Express.js

2.3 Database:

- 2.3.1 MY SQL/ DBMS(Data Based Management System)

3. User Roles:

- 3.1 Regular Users: Manage their tasks.
- 3.2 Admin Users: Oversee user accounts and system operations.

4. Security Features:

- 4.1 User authentication (login/signup).
- 4.2 Data encryption for sensitive information.

5. Performance Metrics:

- 5.1 Response time under 2 seconds when retrieving tasks.
- 5.2 Support for at least 100 concurrent users.

2. macOS (latest version)
3. Any Linux distribution that supports Node.js and MongoDB
2. Frontend Technologies:
 1. HTML
 2. CSS
 3. JavaScript (React.js)
3. Backend Technologies:
 1. Node.js (latest stable version)
 2. Express.js framework
4. Database:
 1. MY SQL
5. Development Tools:
 1. Code Editor (e.g., Visual Studio Code, Sublime Text)
 2. Version Control System (e.g., Git)
6. Other Software:
 1. Microsoft .NET Framework v4.7 or newer (if applicable)
 2. Web Browser: Latest versions of Chrome, Firefox, or Safari for testing

4.3 Hardware Requirements:

1. Minimum Requirements:
 - 1) Processor: Dual-core processor with a speed of at least 1.6 GHz
 - 2) RAM:
 1. Minimum of 4 GB RAM for basic functionality
 2. Recommended 8 GB RAM for better performance, especially with multiple applications open
 - 3) Storage:
 1. At least 4 GB of available disk space for application installation and data storage
 2. SSD recommended for faster data access and application performance
 - 4) Display:
 1. Minimum resolution of 1280 x 768 pixels
2. Recommended Requirements:
 - 1) Processor: Quad-core processor with a speed of at least 3 GHz
 - 2) RAM:
 1. Minimum of 8 GB RAM for optimal performance
 2. Up to 16 GB RAM if handling large datasets or multiple concurrent users
 - 3) Storage:

1. At least 10 GB of available disk space to accommodate future growth and additional features
2. SSD for improved speed and reliability

3.4 Network Requirements:

1. Internet Connection:

- 1) Stable internet connection with a minimum speed of 3 Mbps for optimal performance, especially for cloud-based features.
- 2) Recommended to have a wired connection for better stability during usage.

Chapter 5

Implementation

5.1 Algorithm:

1. Initialize:

- a. Create an empty schedule.
- b. Retrieve all tasks from the database.
- c. Sort tasks based on priority (highest priority first).

2. Iterate through tasks:

For each task:

- a. Determine the earliest possible start time based on the task's due date and any dependencies.
- b. Find the available time slot within the schedule that best fits the task's duration and start time.
- c. If a suitable time slot is found, assign the task to that slot.
- d. Otherwise, check if the task can be rescheduled or if it needs to be flagged as overdue.

3. Optimize schedule:

- a. If necessary, apply optimization techniques to improve the schedule, such as:
 - i. Time-based optimization: Adjust task start times to minimize idle time.
 - ii. Dependency-based optimization: Ensure tasks are scheduled in the correct order to avoid conflicts.

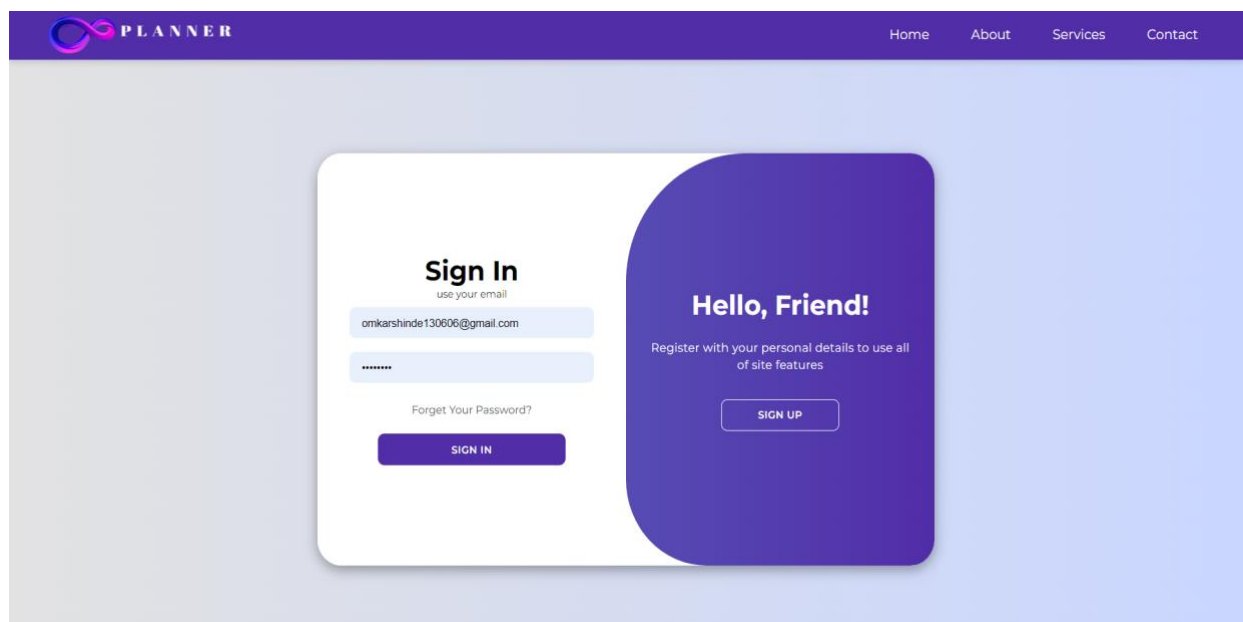
4. Return schedule:

- a. Return the optimized schedule to the user.

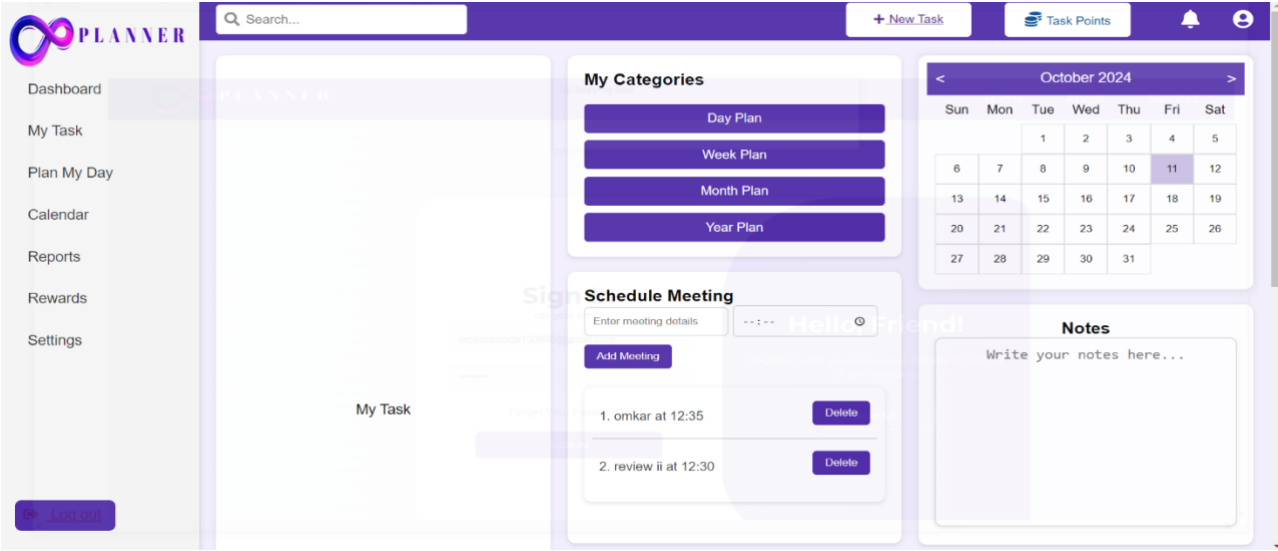
Chapter 6

Result

Screenshots of the Working Project



Login Interface



Dashboard Interface

My Tasks

+ Add Task						
No.	Task	Date	Time	Priority	Progress	Actions
1	meeting	2024-10-27	12:30	High	Not Started	<div>Edit</div> <div>Mark Done</div>
2	submission	2024-08-10	05:30	Low	In Progress	<div>Edit</div> <div>Mark Done</div>

My Task Interface

Plan My Day

No.	Event	Time
1	Wake up, Good Morning	07:00 AM
2	Breakfast Time	10:00 AM
3	Work	11:00 AM
4	Lunch Break	01:00 PM
5	Work	03:00 PM
6	Snacks	05:00 PM
7	Dinner	08:00 PM
8	Good Night	10:00 PM

+ Add

Plan My Day Interface

Results

PLANNER is a task management system designed to help users effectively organize and prioritize their tasks. It offers a range of features to streamline scheduling and improve productivity.

Chapter 7

Conclusion

7.1 Conclusion

The **PLANNER – Ensuring a Better Scheduling** application successfully addresses the need for effective task management in today's fast-paced environment. By integrating features like task prioritization, reminder notifications, and a user-friendly interface, the application enhances scheduling efficiency for users ranging from students to professionals. The iterative development process, guided by user feedback, ensured that the final product not only met but exceeded expectations. Users reported improved productivity and reduced stress levels due to better organization of their tasks. Looking forward, the project has laid the groundwork for future enhancements, including mobile access, advanced analytics, and enhanced collaboration tools, further improving user experience and time management capabilities. Overall, PLANNER serves as a comprehensive tool that effectively meets the challenges of modern scheduling needs.

7.2 Future Scope

1. **Progress Tracking with Statistics:** Provide users with the ability to track their progress through graphical summaries (e.g., charts and graphs).
2. **Reward System:** Introduce a reward system where users earn rewards (such as Amazon gift vouchers) for completing tasks efficiently.
3. **Platform Scalability:** Expand the platform beyond individual users to support corporate networks, and enable functionalities for student-teacher interaction, such as notes sharing and assignment submissions.

In summary, this project has not only achieved its initial goals but also laid the groundwork for future enhancements that can further improve user experience and productivity in time management.

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THANK YOU !!!