A Project Report

On

BrightHuman Web Application

Submitted for partial fulfillment, in award of the

degree of

BACHELOR OF TECHNOLOGY

In

COMPUTER SCIENCE & ENGINEERING

2024–25

Under the Guidance of:

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MAY 2025

CERTIFICATE

Certified that **HARSH SINGH, UMESH DIXIT** and **VANSH KABARIA** has carried out the Project work presented in this project entitled **"Bright Human Web Application"** for the award of **Bachelor of Technology** from Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow, under my supervision. The Project embodies the result of original work and studies carried out by the Student himself, and the contents of the Project do not form the basis for the award of any other degree to the candidate or to anybody else.

Dr. Pramod Kumar Sagar	Dr. Amit Singhal
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Date:

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the Report of the Project "Bright Human Web Application" undertaken during B.Tech final Year. First and foremost, We wish to thank to our Project Guide **Dr. Pramod Kumar Sagar, Department of Computer Science and Engineering, Raj Kumar Goel Institute of Technology, Ghaziabad,** for his/her kind blessings to us. He allowed us the freedom to explore, while at the same time provided us with invaluable sight without which this Project would not have been possible.

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the Department for their kind assistance and cooperation during the development of our project.

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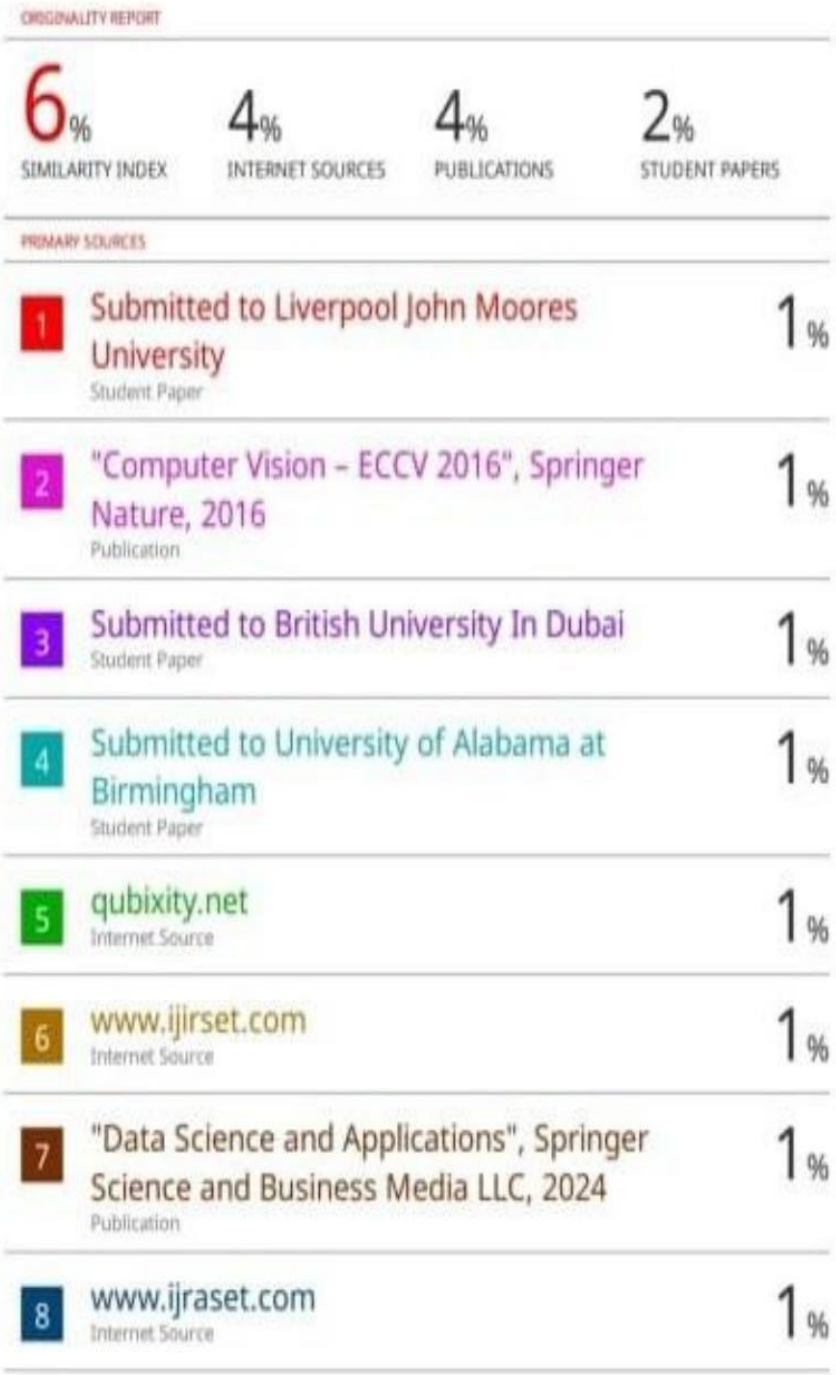
PLAGIARISM CERTIFICATE



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CERTIFICATE OF PROJECT REPORT SUBMISSION FOR EVALUATION

1. Project Title: Bright Human Web Application

2. Project Preparation Guide was referred to for preparing the Report ☐ YES ☐ NO

3. The contents of the Project Report have been organized based on the guidelines. ☐ YES ☐ NO

4. The Report has been prepared without resorting to plagiarism. ☐ YES ☐ NO

5. All sources used have been cited appropriately in Project Report ☐ YES ☐ NO

6. Submitted two hard-bound copies along with one Pen drive. ☐ YES ☐ NO

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ABSTRACT

BrightHuman is a goal-oriented web application designed to help individuals improve productivity by organizing their daily routines, tracking tasks, and analyzing performance. The primary aim of this project is to support students, professionals, and team leads in setting clear goals and achieving them through smart scheduling and performance monitoring.

The application allows users to register, create personal profiles, define goals, and set routines. Based on this input, the system intelligently generates daily and weekly tasks. Users can mark tasks as complete and optionally upload proof in the form of images or videos. The system also includes detailed analytics features that help users visualize their progress through charts and downloadable reports.

Developed using Node.js, Express, and MongoDB for the backend and HTML, CSS, and JavaScript for the frontend, BrightHuman is fully responsive and works across all modern browsers. The application ensures data security with HTTPS, password hashing, and protection against common web attacks. Administrators can manage users and monitor content through a dedicated admin panel.

The project also focuses on non-functional aspects like usability, performance (load time <2s), reliability (99% uptime), and compliance with privacy laws such as GDPR. Future enhancements may include calendar integrations, gamification elements like badges and points, and features for team collaboration.

This project showcases the practical implementation of full-stack development and system design principles to solve real-world problems related to productivity and goal management.

In future, BrightHuman can be improved with features like **calendar integrations**, **gamification** (points, badges, levels), and **team collaboration tools** for professionals and managers.

This project demonstrates the use of modern web technologies and software engineering principles to create a helpful, secure, and scalable productivity solution.

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CHAPTER 1

INTRODUCTION

1.1 Background and Motivation

Task management is a crucial aspect of personal and professional life, involving the planning, organization, and tracking of tasks to achieve specific goals. Traditionally, task management relied on physical tools like paper planners, whiteboards, or basic digital solutions. However, with the advent of remote work, globalization, and the increasing complexity of team dynamics, these methods have become inadequate.

1.2 Problem Statement

Organizations and individuals face challenges in managing tasks effectively due to fragmented communication, lack of real-time collaboration, and difficulty in tracking progress. This often leads to missed deadlines, inefficient resource utilization, and reduced productivity. The existing task management solutions are often device-dependent, lack scalability, or fail to integrate seamlessly with collaborative tools, making them unsuitable for teams with diverse needs.

1.3 Objective

The primary objective of the BrightHuman Application is to create a productivity and goal-setting app that helps individuals—such as students, professionals, and team leaders—achieve their personal and professional goals by providing tailored schedules, tracking task completion, and offering performance analytics. The app will focus on enhancing users' productivity by analyzing their routines, goals, and interests to suggest optimized schedules that are personalized to their specific needs.

1.4 Scope

The scope of the BrightHuman Application encompasses a wide range of functionalities and features that cater to different user segments, including students, employees, team leaders, and anyone seeking a personalized approach to task management and goal achievement.

1.5 Background and related work

Table 1.1 Comparison of various methodology suggested by authors

SR. NO.	PAPER NAME	AUTHOR(S)	YEAR	METHODOLOGY
1	Personalized Task Scheduling and Monitoring Using Machine Learning	Liu, X., Zhang, Y., & Wang, L.	2023	This paper explores the use of machine learning for personal task scheduling and monitoring, which is relevant to the personalized scheduling features of our application.
2	Behavioral Analysis and Prediction of User Productivity in Task Management Applications	Singh, A., & Gupta, R.	2022	This research examines how user behavior can be analyzed and predicted to enhance productivity in task management applications, relevant to goal tracking and performance analysis.
3	Enhancing Goal Achievement through Adaptive Scheduling Algorithms	Kim, J., & Park, H.	2023	Focuses on adaptive scheduling algorithms that adjust based on user progress and changing goals, aligning with your application's scheduling and goal-setting features.
4	A Comprehensive Review of Productivity Tools and Their Impact on Goal Achievement	Brown, T., & Johnson, M.	2024	This review paper discusses various productivity tools and their effectiveness in helping users achieve their goals, providing context for our

				application's goal management features.
5	Secure and Scalable Personal Data Management with MongoDB and Node.js	Patel, N., & Lee, A.	2023	Explores the use of MongoDB and Node.js for secure and scalable personal data management, relevant to the technology stack used in our project.

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Brown, T., & Johnson, M. propose on A Comprehensive Review of Productivity Tools and Their Impact on Goal Achievement. This review paper discusses various productivity tools and their effectiveness in helping users achieve their goals, providing context for our application's goal management features.

Patel, N., & Lee, A. propose on Secure and Scalable Personal Data Management with MongoDB and Node.js". Explores the use of MongoDB and Node.js for secure and scalable personal data management, relevant to the technology stack used in our project.

CHAPTER 2

HARDWARE AND SOFTWARE REQUIREMENTS

2.1 Hardware Technologies

- Development Hardware:
  - Development Machines: PCs/Laptops with Intel i5/i7 or AMD Ryzen, 8GB+ RAM, SSD storage.
  - OS: Windows, macOS, or Linux based on developer preference and tool compatibility.
- Server Hardware (Deployment):
  - Web Servers: Cloud-based VMs (e.g., AWS EC2, DigitalOcean) to manage traffic.
  - Database Servers: Sufficient CPU and RAM to run MongoDB efficiently.

2.2 Software Technologies

- Front-End:
  - React: For building dynamic UIs.
  - HTML/CSS: Structuring and styling pages.
  - JavaScript: For interactive web functionality.
- Back-end:
  - Node.js: Server-side JavaScript runtime.
  - Express.js: Framework for routing and server logic.
- Database:
  - MongoDB: NoSQL database for storing users, tasks, and performance data.
  - MongoDB Atlas: For cloud-hosted database management.
- Development Tools
  - IDE: Visual Studio Code for full-stack development.
  - Version Control: Git for tracking changes; GitHub/GitLab for collaboration and repo hosting.

CHAPTER 3

SDLC METHODOLOGIES

The **BrightHuman Application** aims to provide users, such as students, employees, or team leaders, with a tool for managing tasks and achieving their goals. The development process follows a structured approach, utilizing modern technologies for both front-end and back-end development. Below is a detailed overview of the technologies, languages, and tools used in the project.

3.1 Technologies And Tools

Framework:

- **React**: A powerful JavaScript library used for building dynamic and responsive user interfaces. React's component-based architecture enables the creation of reusable UI elements, enhancing the application's interactivity and efficiency.

Languages:

- **JavaScript**: The main language used to build interactive features on the front end with React.
- **HTML/CSS**: Used for structuring and styling web pages to ensure a clean and user-friendly design.

Back-End Development

Framework:

- **Node.js**: A JavaScript runtime that allows for efficient server-side development. Node.js is well-suited for building scalable and high-performance applications due to its event-driven architecture and non-blocking I/O model.
    - **Libraries**:
- **Express.js**: A lightweight web application framework for Node.js. Express handles routing, middleware, and request handling, enabling smooth interaction between the front-end and back-end systems.

- **Languages**:
    - **JavaScript**: Used for server-side logic with Node.js, allowing for consistent development across the front end and back end.

Database

- **NoSQL Database**:
    - **MongoDB**: A NoSQL database chosen for its flexibility in managing unstructured data. MongoDB is ideal for storing user profiles, tasks, schedules, and performance analytics, offering a schema-less structure that allows for dynamic and scalable data storage.
    - MongoDB's JSON-like document structure is well-suited for handling the varied data types that the application processes, such as user goals, task details, and proof submissions (like images or videos).

3.2 Development Tools

- **Version Control**:
    - **Git**: Used for version control, enabling multiple developers to collaborate and track changes in the codebase. Repositories are hosted on platforms like **GitHub** or **GitLab** for efficient team collaboration.
- **Integrated Development Environment (IDE)**:
    - **Visual Studio Code**: A versatile IDE used for coding the front end (React) and back end (Node.js). It offers features like debugging, code completion, and extensions that streamline development.

3.3 Implementation Approach

- **Development Cycle**:
    - The project follows an **Agile methodology** to ensure flexibility and adaptability. The development process is broken down into smaller, manageable sprints, allowing for continuous improvement and iteration based on feedback.

- **Core features**: Development starts with basic features like user profile creation, task management, and scheduling. Advanced features such as proof submission, performance tracking, and analytics will be added in later stages.

- **Technological Workflow**:
  - **React** handles the front-end UI, offering users a seamless experience for managing tasks and goals.
  - **Node.js** with **Express.js** manages server-side operations, handling user requests and providing communication between the front end and the database.
  - **MongoDB** stores and retrieves data, such as user profiles, tasks, schedules, and performance metrics. Its flexibility and scalability ensure efficient handling of large volumes of user- generated data.

- **API Design**:
  - RESTful APIs are designed using **Express.js** to handle requests between the client (React front-end) and the server (Node.js back-end). The APIs enable actions like creating user profiles, scheduling tasks, marking tasks as complete, and generating performance reports.

3.4 Testing

- **Unit Testing**:
  - Individual components and modules are tested to ensure each piece of functionality works as expected.

- **Integration Testing**:
  - Integration testing ensures smooth interaction between the front-end (React), back-end (Node.js), and database (MongoDB).

- **User Acceptance Testing (UAT)**:
  - Engage users to test the application's functionality, performance, and ease of use. Based on the feedback, adjustments are made to improve the user experience and overall performance.

CHAPTER 4

RISK ASSESSMENT

4.1 Technical Risks

a. System Downtime

- **Description:** Failure of the backend server or database, leading to system unavailability.
- **Impact:** High (Tasks cannot be assigned, updated, or monitored).
- **Likelihood:** Medium.
- **Mitigation:**
    - Use a cloud-based infrastructure (e.g., AWS, Azure) with auto-scaling and failover support.
    - Set up regular health checks and alerts for system monitoring.
- **Contingency Plan:** Switch to a backup server and restore from the latest database backup.

b. Data Loss or Corruption

- **Description:** Accidental deletion or corruption of task, user, or analytics data.
- **Impact:** High (Critical system data might be lost).
- **Likelihood:** Low.
- **Mitigation:**
    - Implement database backups at regular intervals.
    - Use database transaction logs for recovery.
    - Validate all inputs to prevent accidental data corruption.
- **Contingency Plan:** Restore data from the most recent backup.

c. Integration Failures

- **Description:** Issues in communication between modules (e.g., Task Manager and Analytics Module).
- **Impact:** Medium.

- **Likelihood:** Medium.
- **Mitigation:**
    - Use well-defined APIs with robust error handling mechanisms.
    - Perform end-to-end testing during development.
- **Contingency Plan:** Roll back to the previous stable version of the integration.

4.2 Security Risks

a. Unauthorized Access

- **Description:** Malicious actors gaining access to sensitive data or admin privileges.
- **Impact:** High.
- **Likelihood:** Medium.
- **Mitigation:**
    - Implement role-based access control (RBAC).
    - Use encryption (e.g., SSL/TLS) for data transmission.
    - Enforce strong password policies and multi-factor authentication.
- **Contingency Plan:** Conduct an immediate security audit and revoke unauthorized access.

b. Data Breaches

- **Description:** Leakage of user or task data due to vulnerabilities.
- **Impact:** High.
- **Likelihood:** Low.
- **Mitigation:**
    - Regularly update dependencies and libraries to patch vulnerabilities.
    - Use vulnerability scanning tools.
    - Secure the database with encryption and restricted access.

- **Contingency Plan:** Notify affected parties and deploy a fix immediately.

4.3 Project Management Risks

a. Missed Deadlines

- **Description:** Delays in completing project milestones due to resource or time constraints.
- **Impact:** Medium.
- **Likelihood:** Medium.
- **Mitigation:**
    - Use Agile methodology with clear sprint goals.
    - Monitor progress using Gantt charts and burn-down charts.
- **Contingency Plan:** Reprioritize features to ensure core functionalities are delivered on time.

b. Resource Unavailability

- **Description:** Key team members becoming unavailable during critical phases.
- **Impact:** Medium.
- **Likelihood:** Medium.
- **Mitigation:**
    - Maintain detailed documentation to facilitate onboarding of new team members.
    - Cross-train team members on multiple modules.
- **Contingency Plan:** Allocate additional resources or hire temporary experts.

4.4 Operational Risks

a. Poor User Adoption

- **Description:** Users (e.g., employees, admins) finding the system too complex or unhelpful.
- **Impact:** Medium.
- **Likelihood:** Medium.
- **Mitigation:**

    - Conduct usability testing with potential users.
    - Provide comprehensive user training and help documentation.
- **Contingency Plan:** Collect user feedback and release updates to improve usability.

b. Performance Bottlenecks

- **Description:** Slow system performance under high user load.
- **Impact:** Medium.
- **Likelihood:** Medium.
- **Mitigation:**
    - Optimize code and database queries.
    - Conduct load testing to identify bottlenecks.
    - Use caching and load balancers.
- **Contingency Plan:** Upgrade system resources (e.g., CPU, memory) as needed.

4.5 Legal and Compliance Risks

a. Data Privacy Violations

- **Description:** Non-compliance with data protection laws (e.g., GDPR, CCPA).
- **Impact:** High.
- **Likelihood:** Low.
- **Mitigation:**
    - Ensure the project complies with relevant data privacy laws.
    - Implement features like data anonymization and user consent forms.
- **Contingency Plan:** Work with legal experts to rectify non-compliance and notify affected users.

4.6 External Risks

a. Third-Party API Failure

- **Description:** Downtime or bugs in APIs used for additional functionality.

- **Impact:** Medium.
- **Likelihood:** Medium.
- **Mitigation:**
    - Choose reliable third-party services.
    - Implement fallback mechanisms for critical functionalities.
- **Contingency Plan:** Switch to an alternate provider or temporarily disable non-critical API features.

CHAPTER 5

DATAFLOW DIAGRAM(DFD) AND ENTITY RELATIONSHIP DIAGRAM (ER DIAGRAM)

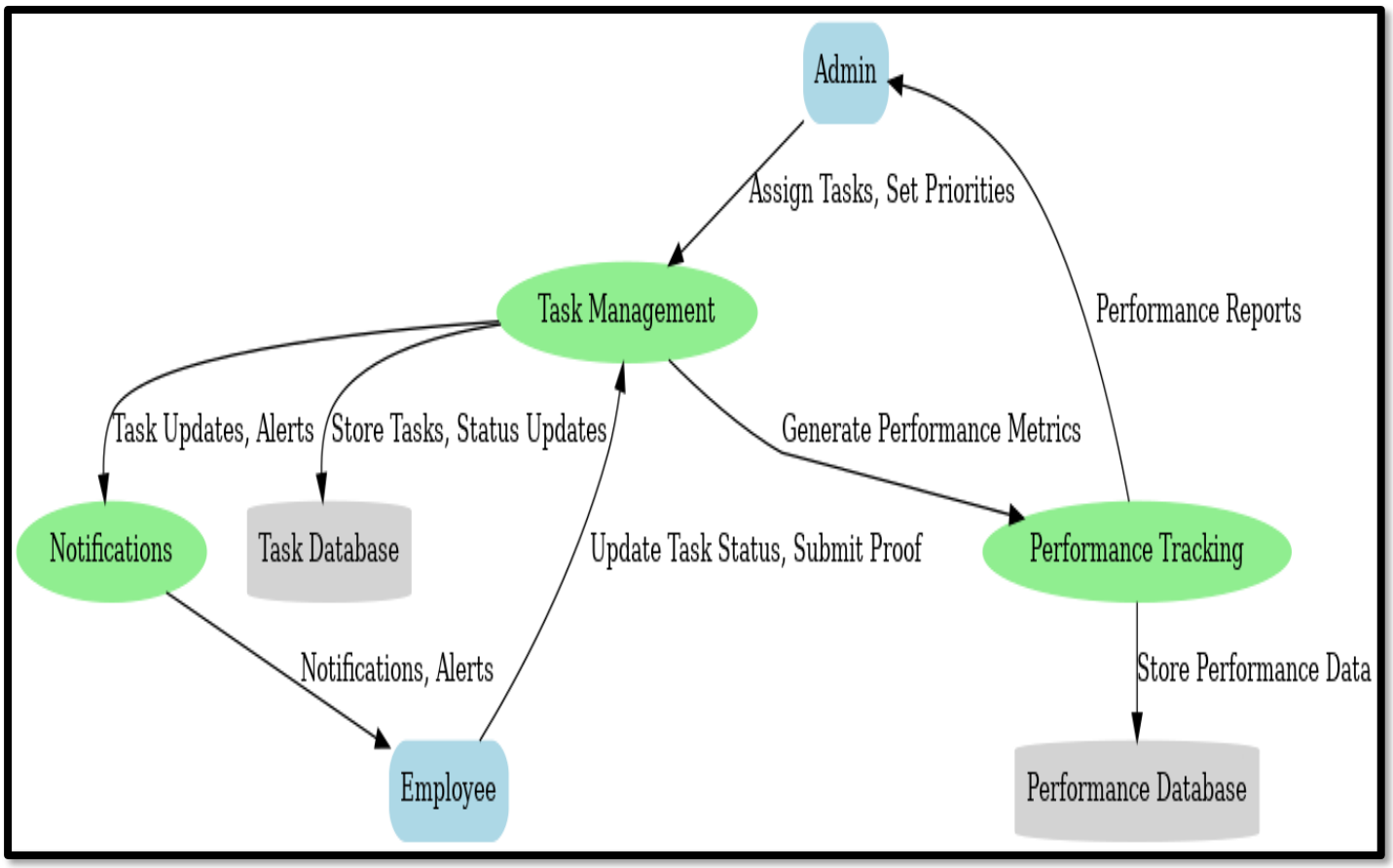

Fig. 5.1 Data Flow Diagram

Level 0 - Context Diagram

This level shows the interaction between the system and external entities:

- Admin: Assigns tasks, sets priorities, and reviews performance reports.
- Employee: Updates task status, submits proofs, and receives notifications.

Level 1 - Detailed Diagram

Entities:

1. **Admin:**
    - Creates tasks and assigns them to employees.
    - Defines task priorities (High/Low).

- Receives performance reports to monitor employee efficiency.

2. **Employee:**
    - Updates task progress (Complete, In Progress, Rejected).
    - Submits proof of task completion.
    - Receives notifications about assigned tasks and deadlines.

Processes:

1. **Task Management:**
    - Manages tasks assigned to employees.
    - Tracks task progress and status updates.
    - Stores task-related data in the Task Database.
2. **Performance Tracking:**
    - Uses task data to calculate performance metrics.
    - Generates graphical reports (weekly, monthly, yearly) for the admin.
    - Stores performance metrics in the Performance Database.
3. **Notifications:**
    - Sends alerts and updates to employees about tasks, deadlines, and changes.

Data Stores:

1. **Task Database:**
    - Contains all task-related information such as assigned tasks, priorities, status updates, and proof submissions.
2. **Performance Database:**
    - Stores metrics derived from task completion data to evaluate individual and team performance.

Data Flow:

1. **Admin to Task Management:**
    - Admin assigns tasks and sets priorities.
    - Task details are stored in the Task Database.

2. **Employee to Task Management:**
    - Employees update task status and submit proofs.
    - These updates are stored in the Task Database.
3. **Task Management to Notifications:**
    - Sends notifications to employees about new tasks, updates, or deadlines.
4. **Task Management to Performance Tracking:**
    - Shares task completion data to calculate performance metrics.
5. **Performance Tracking to Admin:**
    - Generates performance reports and shares them with the admin for review.
6. **Performance Tracking to Performance Database:**
    - Stores calculated performance metrics for future analysis.

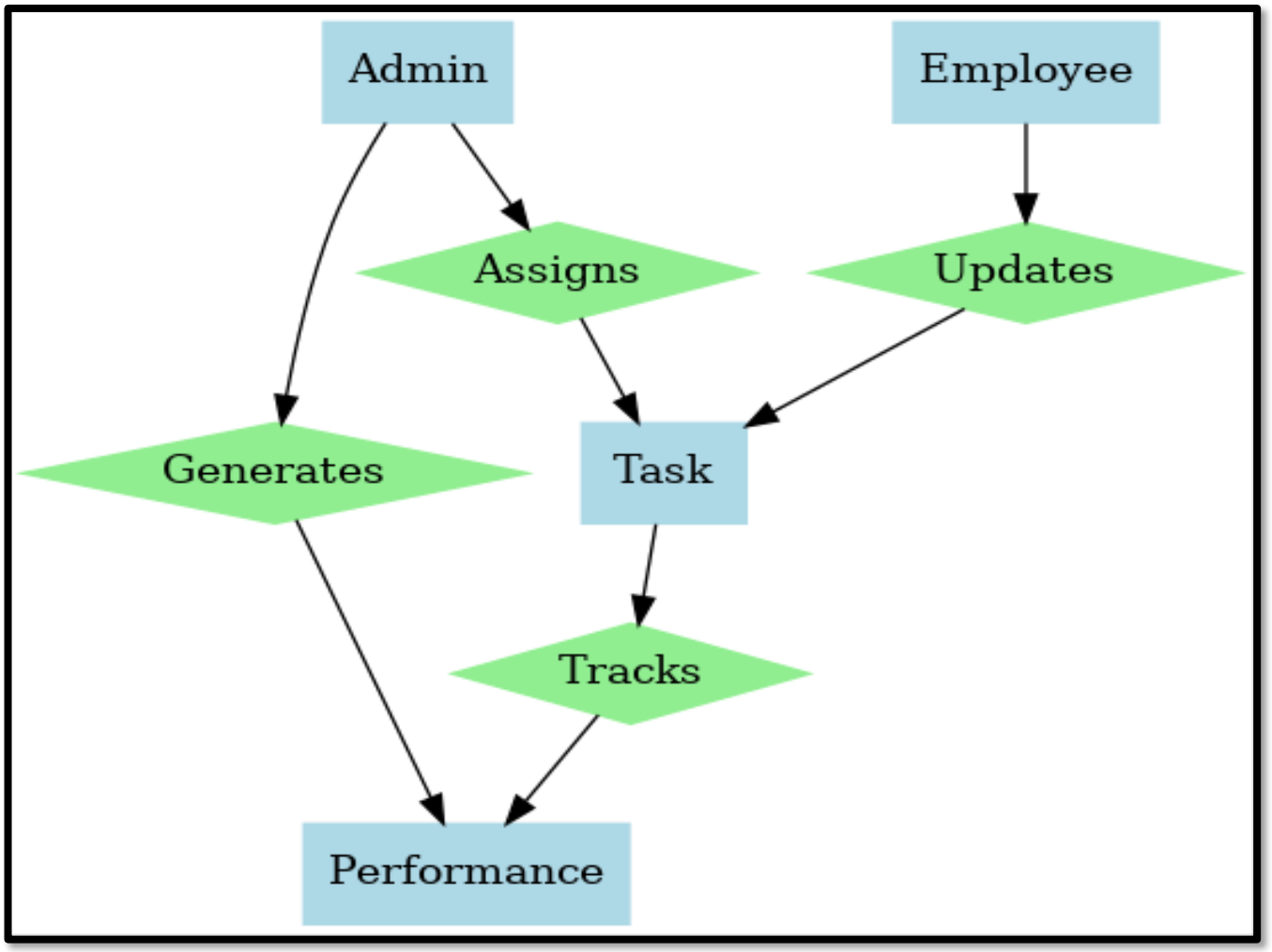

Fig. 5.2 ER Diagram

CHAPTER 6

SOFTWARE REQUIREMENTS AND SPECIFICATIONS

- Purpose: This SRS defines requirements for BrightHuman, a web application that helps users achieve their goals by suggesting schedules, tracking tasks, and analyzing performance
- Scope: The application supports students, professionals, and team leads. Users set profiles, goals, and routines; the system suggests tasks and tracks completion. Users can view analytics to measure progress
- References
- Node.js, Express, MongoDB docs
- W3C standards

6.1 Overall Description

- Product Perspective: A standalone web app with Node.js/Express backend, MongoDB database, and HTML/CSS/JS frontend. Accessible via any modern browser
- User Classes
- Students: Academic goals (e.g., JEE prep)
- Professionals: Career-related goals
- Team Leads: (Future enhancement) track team goals
- Admin: Manage system and users
- Operating Environment: Web-based, responsive, HTTPS-enabled
- Assumptions & Constraints
- Stable internet required
- Compliant with web standards and security best practices
-

6.2 System Features

- **3.1 User Profile & Goals**
- Description: Users register and create profiles with name, bio, interests, and goals
- Register with unique credentials

- Edit profile details anytime
- Store user data securely in MongoDB
- **3.2 Goal/Routine Setup**
- Description: Users define daily routines and goals that guide task suggestions
- Input multiple goals and routines
- Update goals/routines anytime
- **3.3 Task Generation**
- Description: System suggests tasks based on user goals and routines
- Automatically generate daily/weekly tasks
- Allow manual task addition/removal
- **3.4 Task Completion & Proof**
- Description: Users mark tasks done and may upload proof (image/video)
- Mark tasks complete/pending
- Optional proof submission
- Store proofs securely (local or cloud storage)
- **3.5 Performance Analytics**
- Description: Track and display user progress over time
- Show completed vs. pending tasks
- Provide daily/weekly/monthly analytics
- Export or print performance reports
- **3.6 Administrative Functions**
- Description: Admins manage users and content
- View/edit user details
- Remove inappropriate content
- Generate usage reports

6.3 External Interface Requirements

- User Interface: Responsive web UI with dashboard, profile editor, and analytics pages
- Hardware/Software
- Client: Modern browser
- Server: Node.js/Express on cloud, MongoDB database
- Communication: JSON over HTTPS REST APIs
- 5. Non-Functional Requirements
- Performance: Handle concurrent users with acceptable load times (<2s)
- Security
- Use HTTPS
- Hash passwords (e.g., bcrypt)
- Prevent XSS/SQL injection

6.4 Non-Functional Requirements

- Performance: Handle concurrent users with acceptable load times (<2s)
- Security
- Use HTTPS
- Hash passwords (e.g., bcrypt)
- Prevent XSS/SQL injection

Reliability & Availability:

- 99% uptime target
- Regular backups
- Maintainability:
- Modular code, documented
- Easy feature extension
- Portability & Usability

- Accessible on desktop/mobile
- Comply with basic accessibility guidelines

6.5 Other Requirements

- Legal & Compliance
- Comply with data privacy laws (e.g., GDPR)
- Provide Terms & Privacy Policy
- 7. Appendices
- Sample User Flow
- Student registers, sets goal (e.g., JEE), defines study routine
- System suggests daily tasks (study sessions, revision)
- Student marks tasks complete, uploads proof if required
- Reviews monthly progress chart
- Future Enhancements
- Calendar integrations
- Gamification (badges, points)
- Team collaboration features

CHAPTER 7

PROJECT MODULE DESIGN

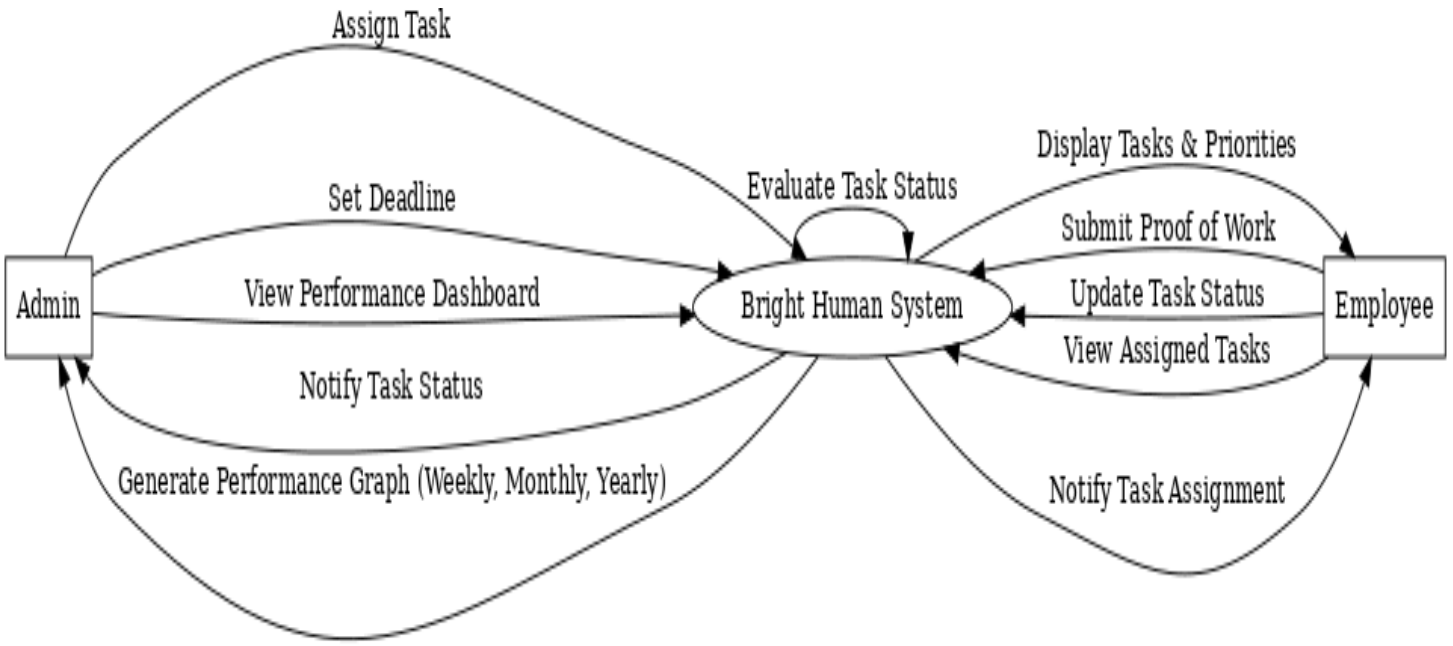

Fig. 7.1 Sequence Diagram

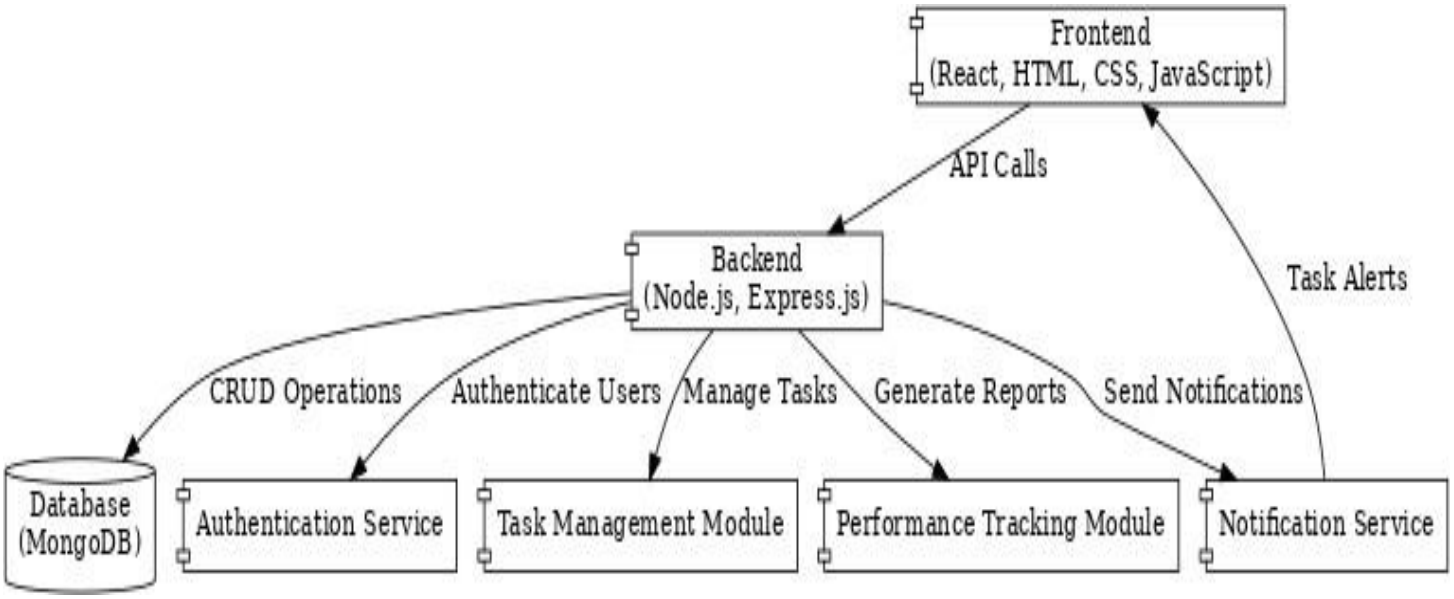

Fig. 7.2 Component Diagram

CHAPTER 8
TESTING AND EVALUATION

Testing and evaluation are crucial components of the software development life cycle. For the BrightHuman Application, this phase aimed to verify the correctness, functionality, performance, and reliability of the system. Comprehensive testing was conducted to ensure that the application meets all functional and non-functional requirements, thereby providing a smooth and secure user experience.

8.1 Objectives of Testing

The main objectives of testing in this project were:

- To ensure that each module performs as intended.
- To verify seamless integration between the front-end, back-end, and database.
- To detect and fix bugs and errors early.
- To validate the performance and usability of the application.
- To confirm security and data integrity.

8.2 Types of Testing Performed

8.2.1 Unit Testing

- Purpose: To test individual components/modules like user registration, task creation,
- and schedule management in isolation.
- Tools Used: Jest (for front-end), Mocha/Chai (for back-end).
- Outcome: All modules passed unit tests, confirming that basic functionalities are working as expected.

8.2.2 Integration Testing

- Purpose: To test the interaction between React (front-end), Node.js (back-end), and MongoDB.
- Focus: Verifying if user input in the UI is correctly handled by the server and stored/retrieved from the database.
- Outcome: Successful data flow and communication between components.

8.2.3 System Testing

- Purpose: To evaluate the complete system against the Software Requirements Specification (SRS).
- Scope: Covered task assignment, progress tracking, proof submission, performance analysis, and report generation.
- Outcome: The application performed reliably in different user scenarios.

8.2.4 User Acceptance Testing (UAT)

- Purpose: To gather feedback from actual users (students, employees).
- Focus: Usability, responsiveness, feature accessibility.
- Feedback: Users appreciated the clean interface and task tracking system. Minor UI enhancements were suggested and implemented.

8.2.5 Performance Testing

- Purpose: To assess the system under load.
- Tools: Postman (API stress test), Apache JMeter.
- Results: The app maintained responsiveness under up to 50 concurrent users, with average API response time under 2 seconds.

8.2.6 Security Testing

- Purpose: To ensure data protection and secure login mechanisms.
- Measures Tested:
  - Encrypted passwords using bcrypt.
  - Secure API access.
  - Prevention of XSS and injection attacks.
- Outcome: No critical vulnerabilities found.

8.3 Bug Tracking and Resolution

- Tool Used: GitHub Issues.
- Bugs were tracked, categorized, and prioritized based on severity.
- Critical bugs were resolved within 24 hours.
- The development team ensured thorough regression testing after bug fixes.

8.4 Test Case Summary

Test Case ID	Test Description	Input	Expected Output	Result
TC001	Register User	Valid details	Successful registration	Pass
TC002	Login User	Valid username/password	Redirect to dashboard	Pass
TC003	Add Task	Task title, goal, time	Task saved and displayed	Pass
TC004	Upload Proof for Task	Upload image/video	Proof saved, status updated	Pass
TC005	Generate Report	User ID, time range selected	Report generated	Pass
TC006	Invalid Login Attempt	Wrong password	Error message shown	Pass

8.5 Evaluation Criteria

The BrightHuman application was evaluated based on the following criteria:

Criteria	Evaluation
Functionality	Fully functional as per requirement
Performance	Efficient under normal and load conditions
Usability	Intuitive and user-friendly UI
Compatibility	Works across modern browsers and devices
Security	Follows secure authentication standards
Responsiveness	Mobile and tablet compatible

CHAPTER 9

PROJECT SNAPSHOTS

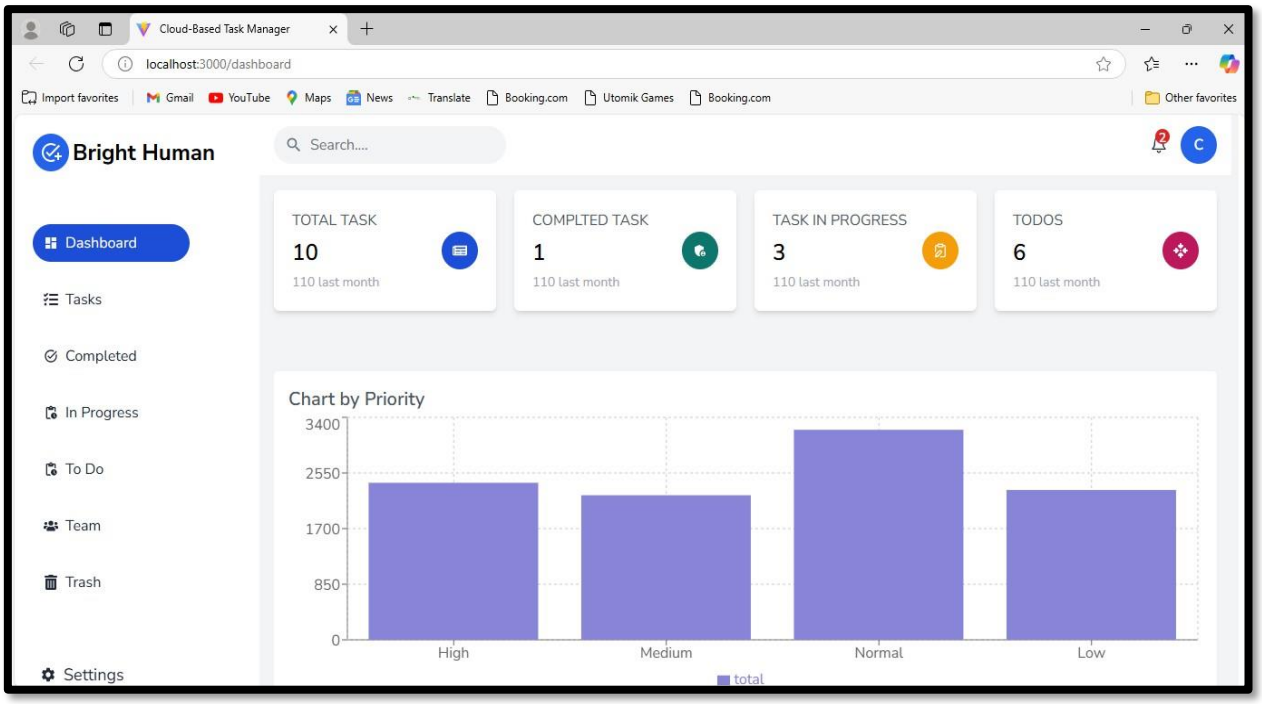

Fig. 9.1 Main Dashboard

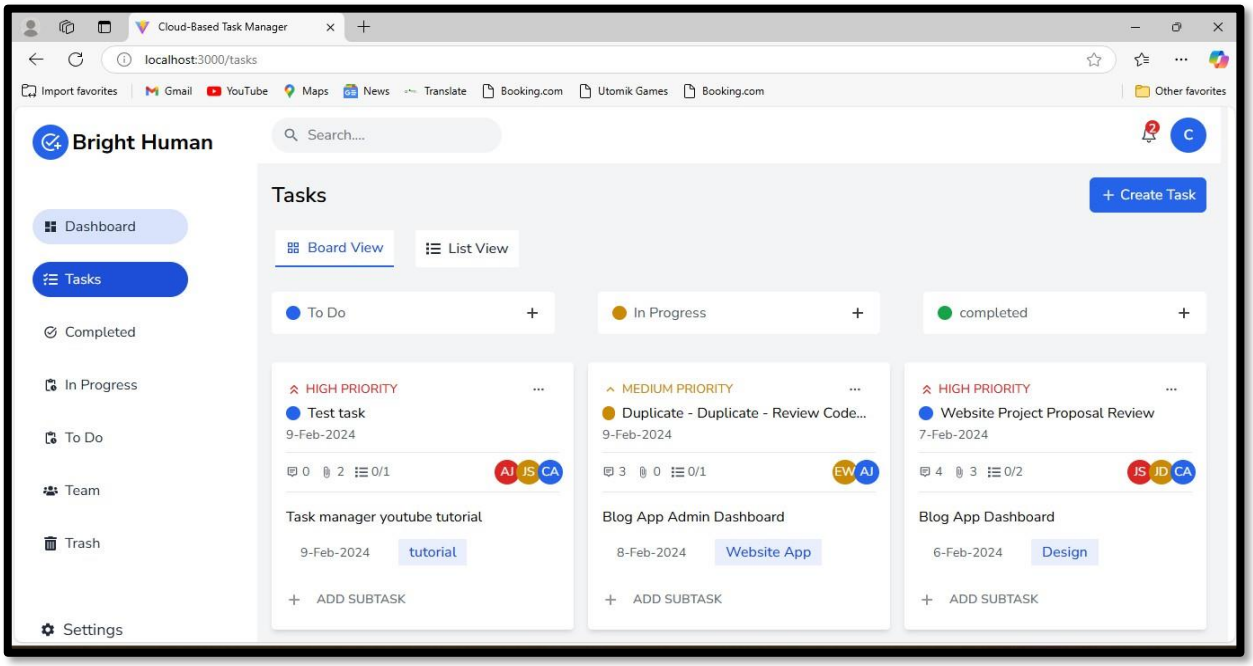

Fig. 9.2 Tasks

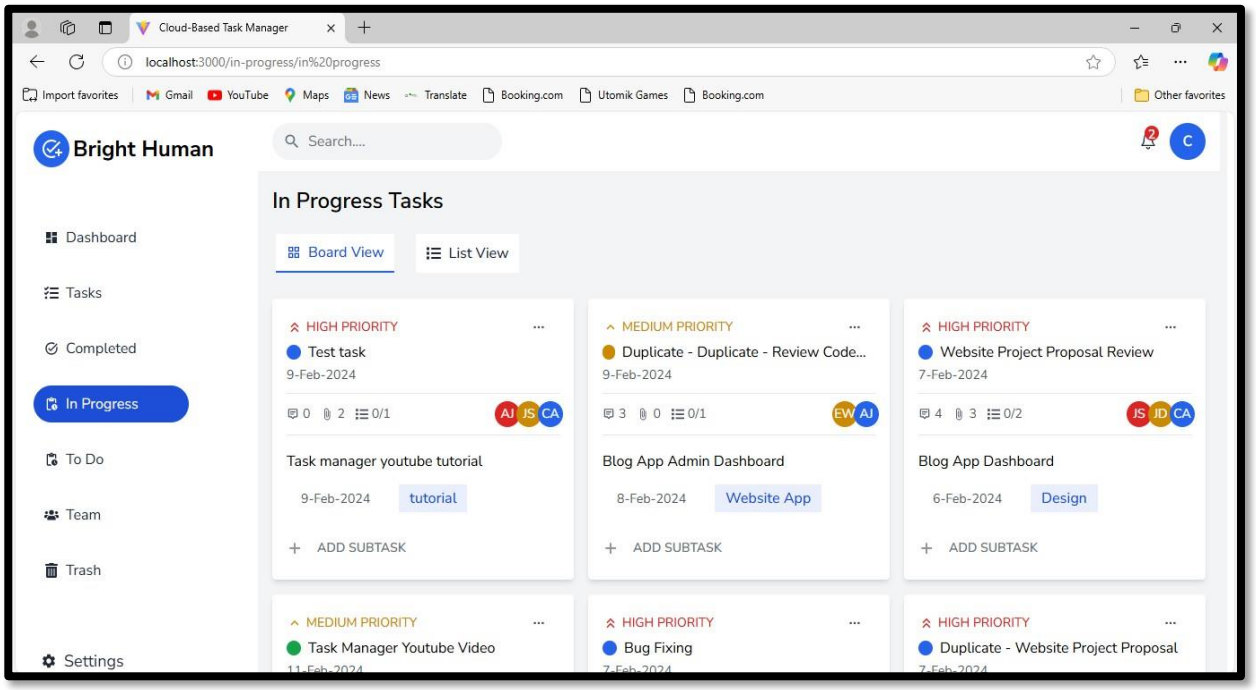

Fig. 9.3 In Progress Tasks

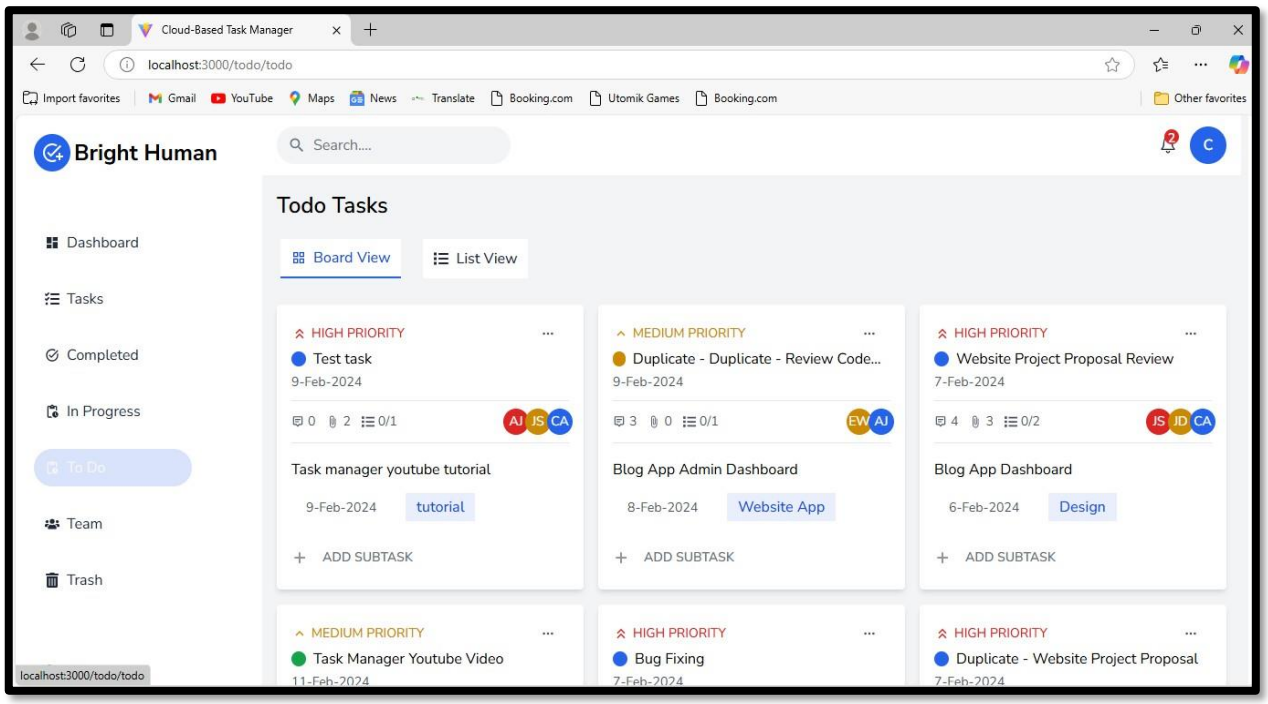

Fig. 9.4 Todo Tasks

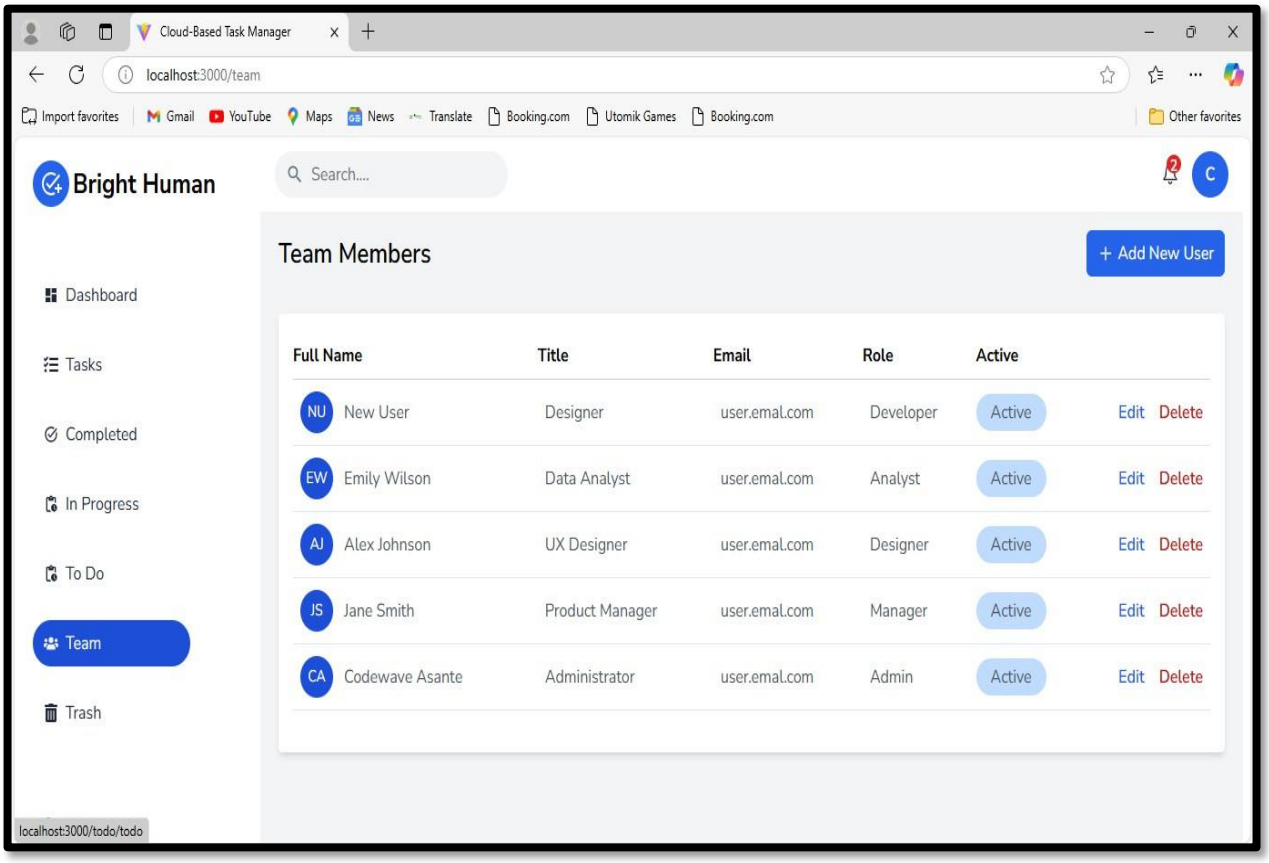

Fig. 9.5 Team Members

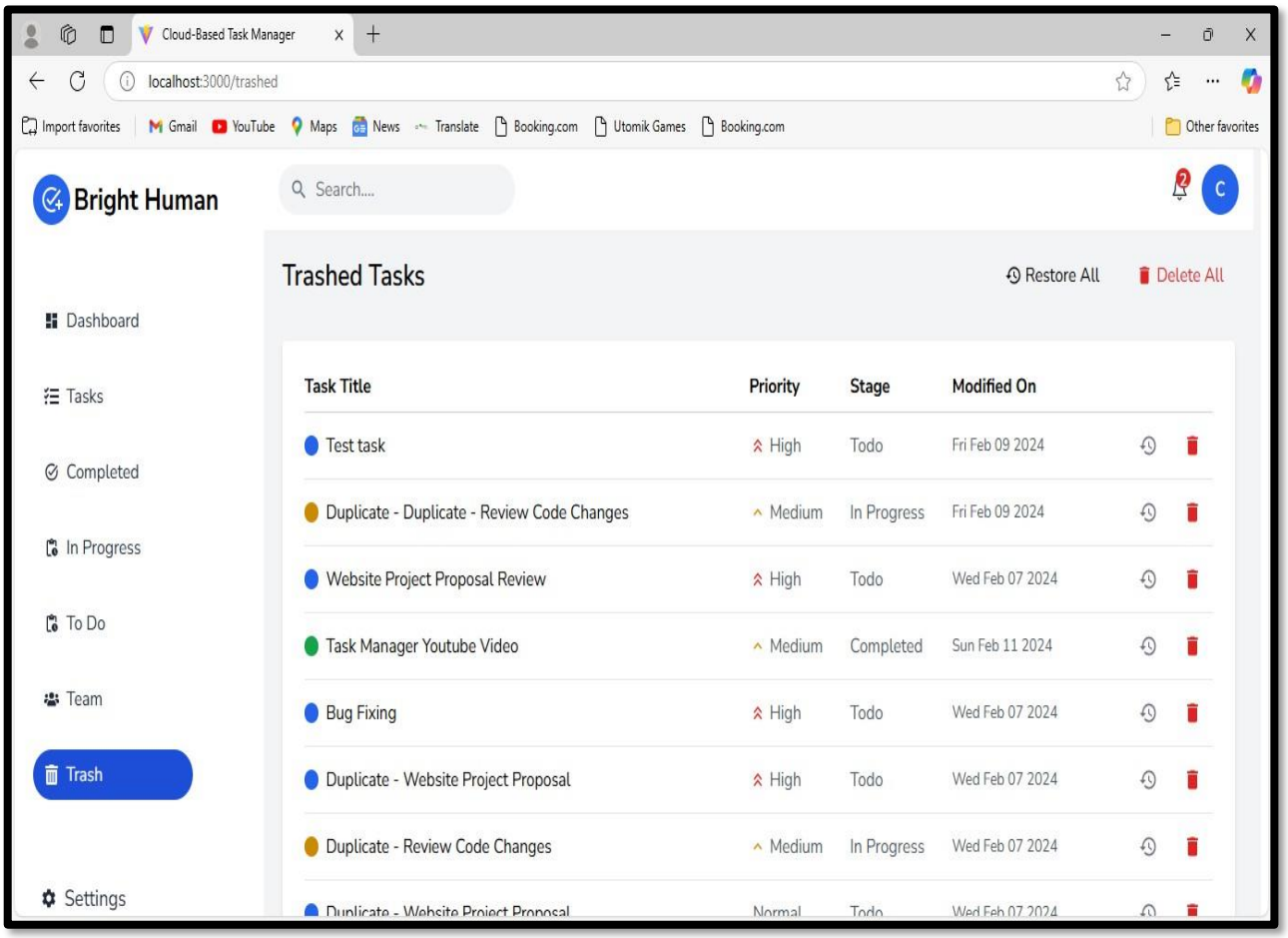

Fig. 9.6 Trashed Tasks

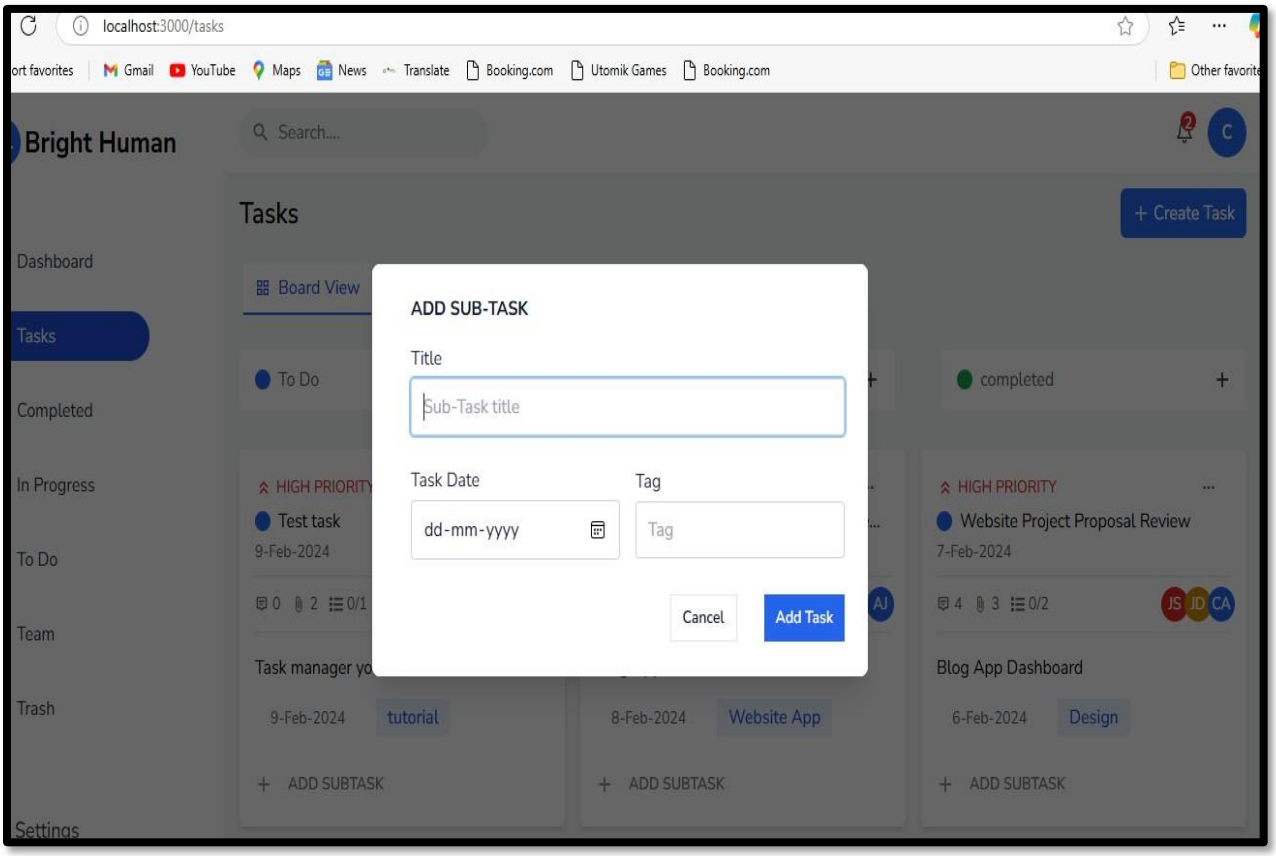

Fig. 9.7 Add Sub Task

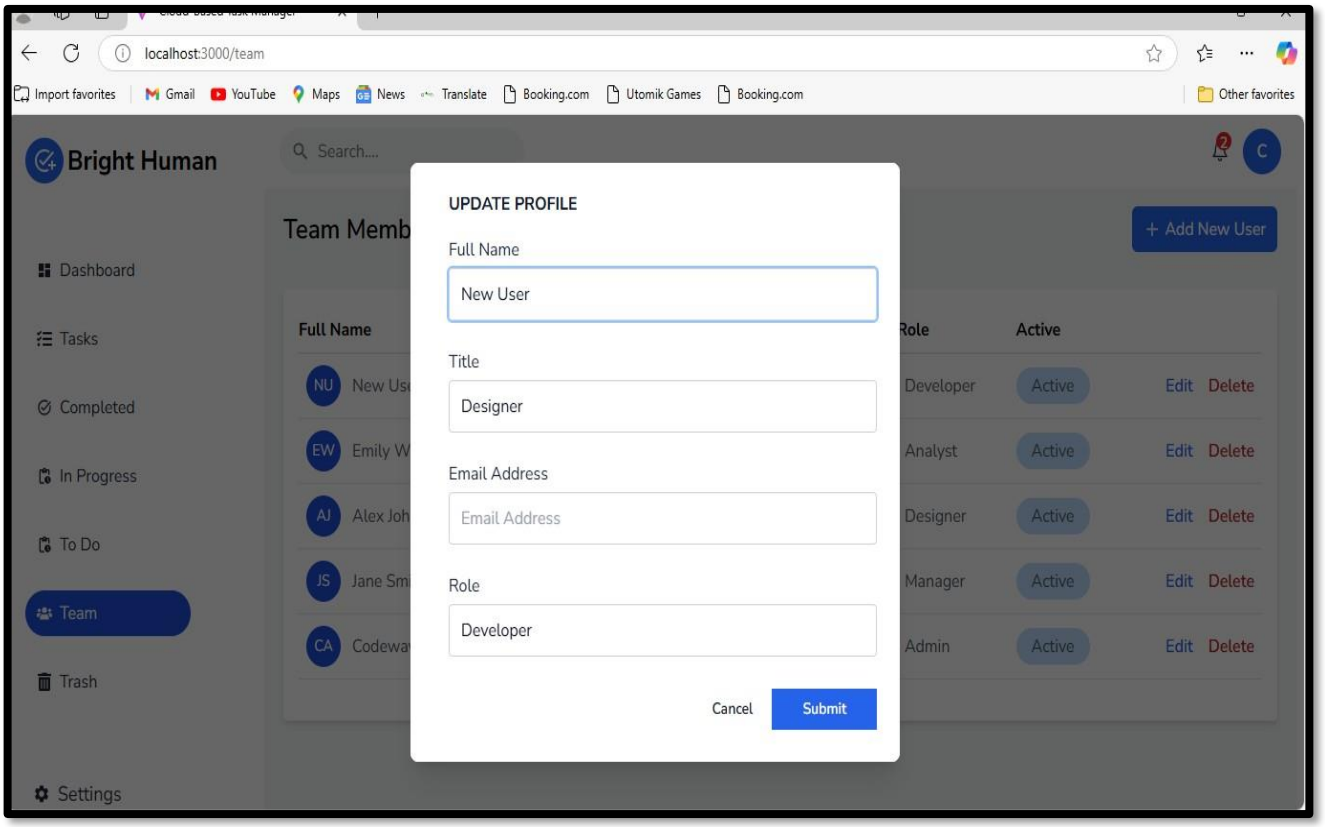

Fig. 9.8 Update Profile

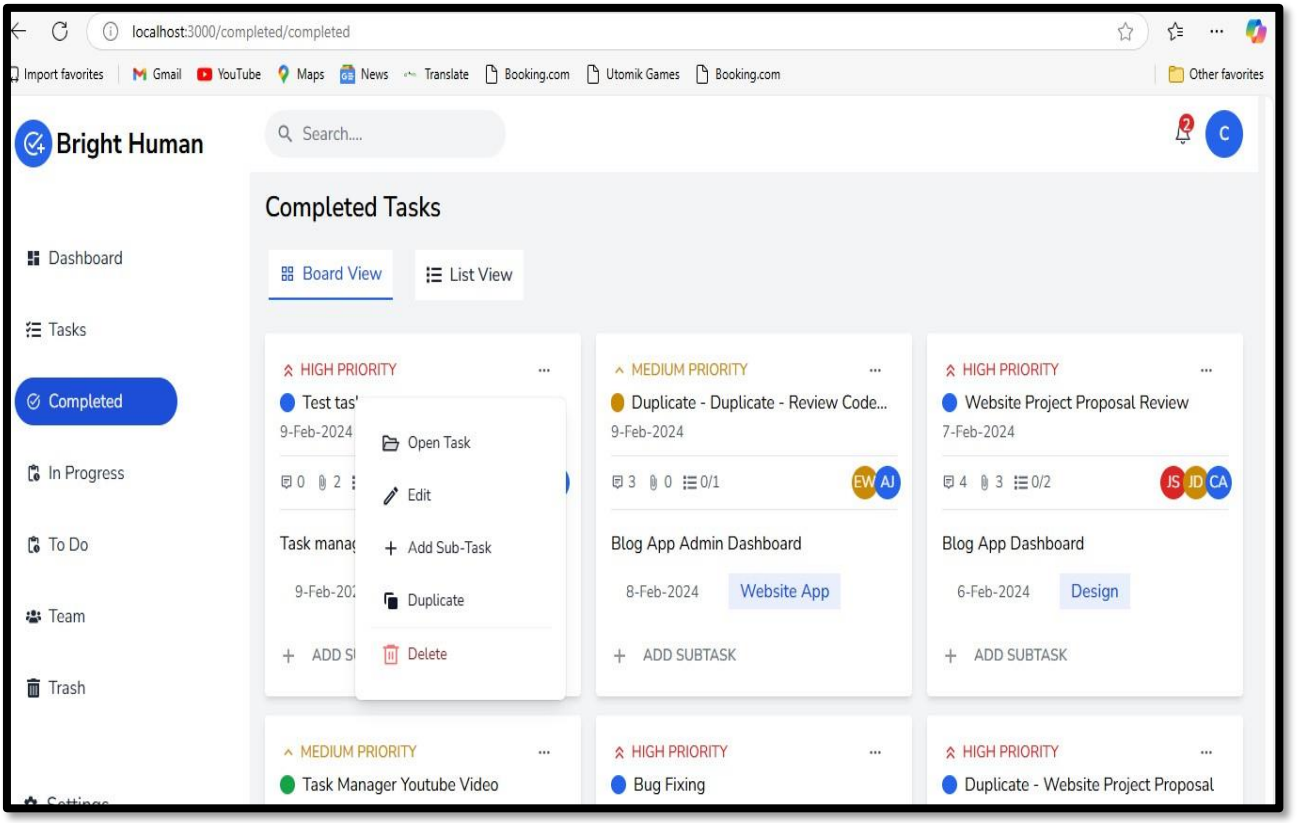

Fig. 9.9 Completed Tasks

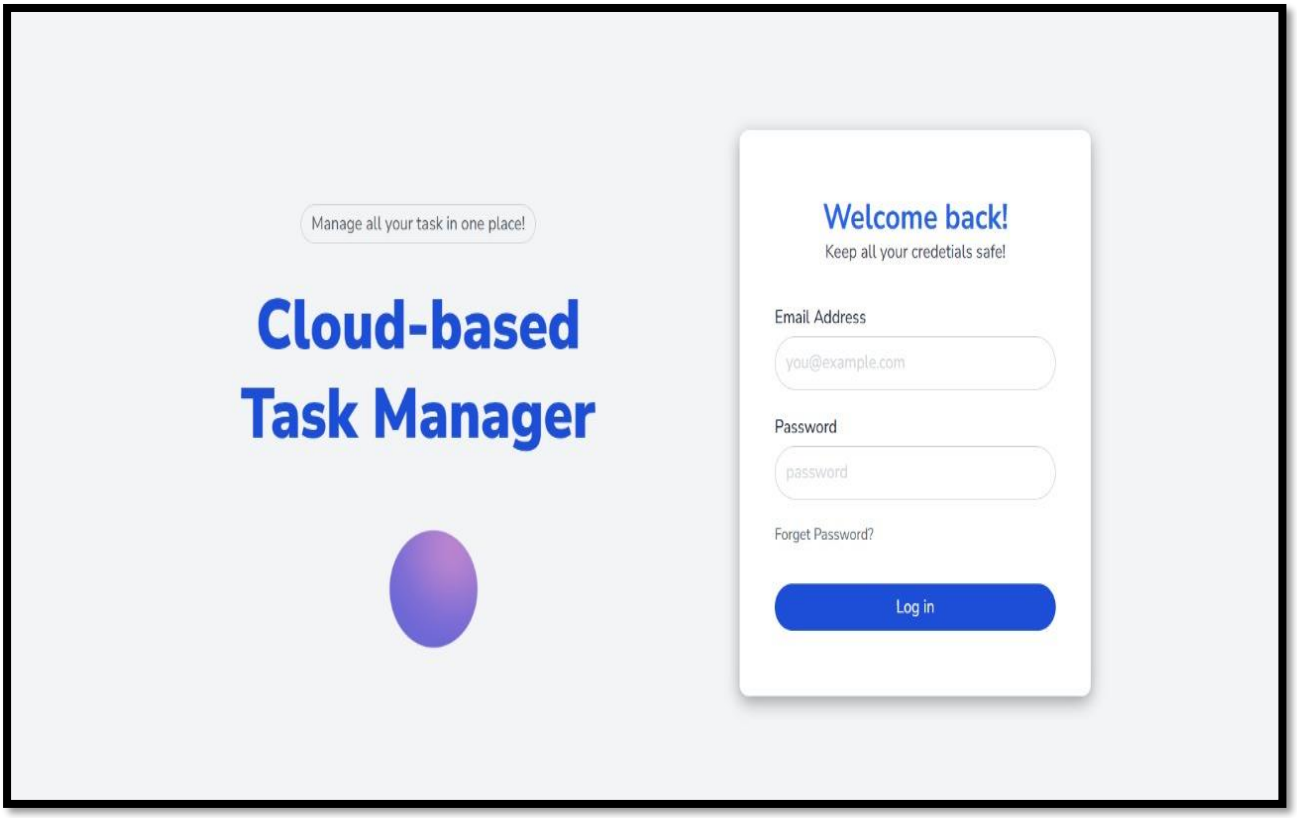

Fig. 9.10 Login page

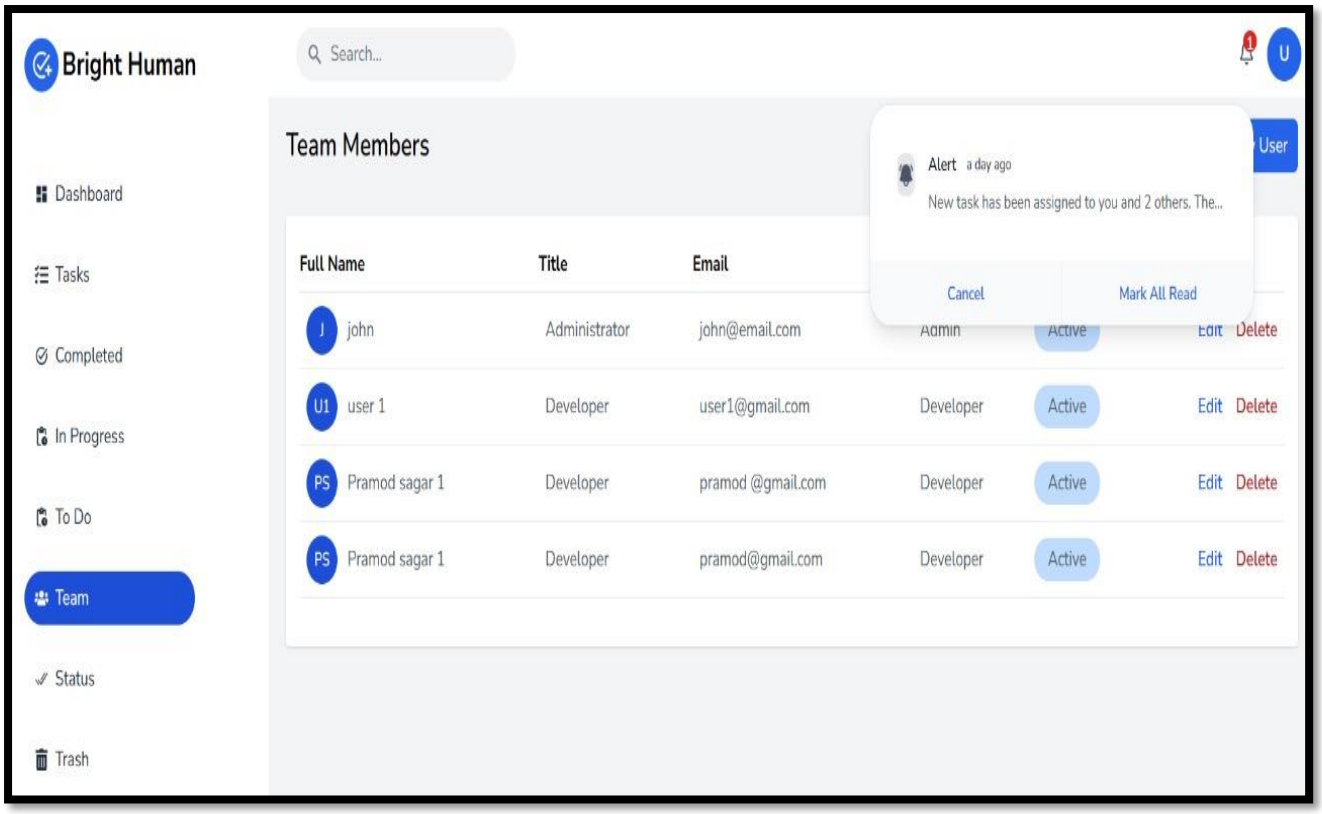

Fig 9.11 Team Page

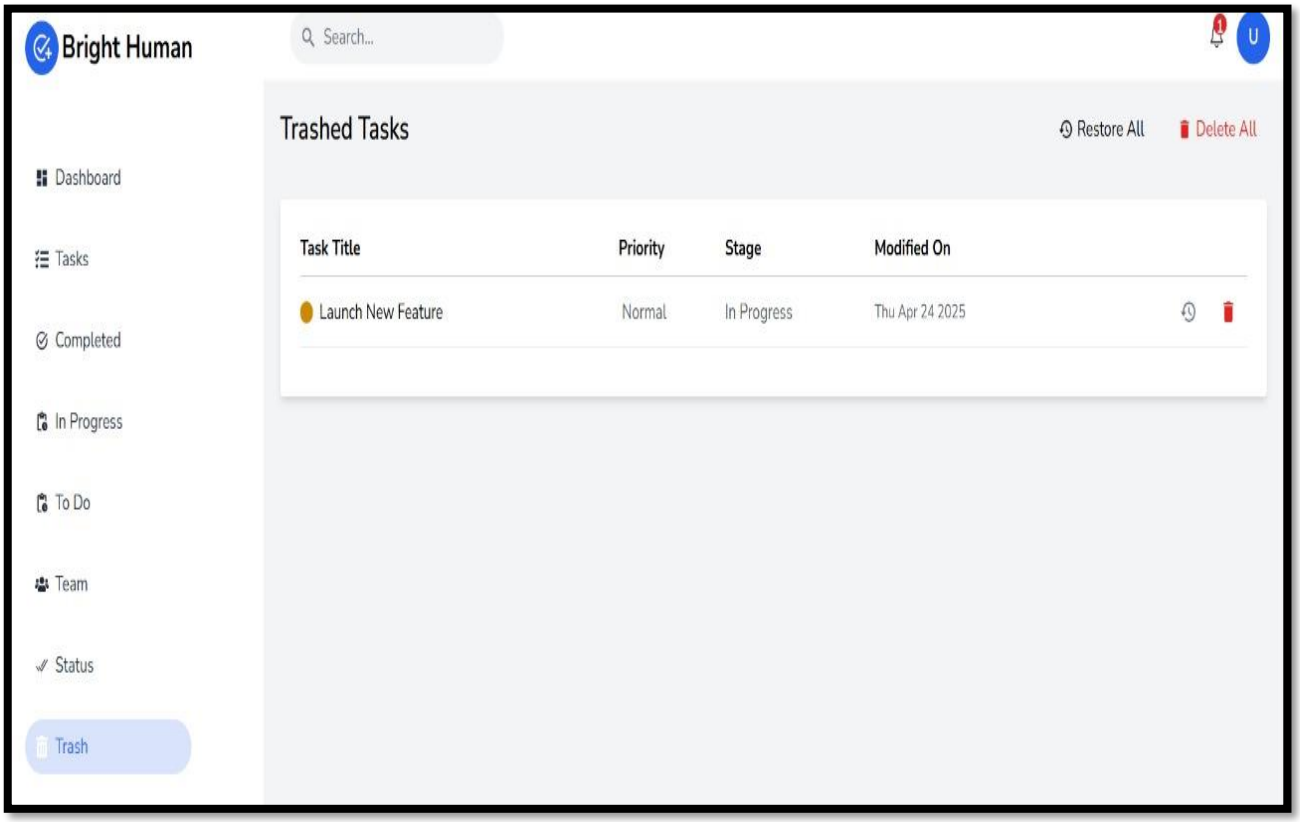

Fig 9.12 Notification Page

CHAPTER 10

LIMITATIONS

Areas for Future Improvement

- **Connectivity-Based Functionality:**
  - Currently, the app requires an internet connection to work.
  - Future updates will include an offline mode to allow users to access and manage tasks without internet connectivity.
- **Mobile App Potential:**
  - BrightHuman is accessible via web browsers.
  - A dedicated **Android and iOS mobile app** is planned to improve accessibility and user convenience on mobile devices.
- **Gamification Features:**
  - The app motivates users to complete tasks.
  - Future updates will introduce **rewards, badges**, and **points** to make task completion more engaging and fun.
- **Collaborative Features:**
  - The app currently focuses on individual task management.
  - Upcoming updates will introduce **team-based goal tracking** and **collaborative task management**, making it useful for group projects and professional teams.
- **Enhanced Media Handling:**
  - Users can upload proof of task completion through images and videos.
  - **File upload speeds** and the ability to handle **larger files** will be improved in future versions.
- **Smarter Suggestions:**
  - The app provides useful task suggestions.
  - **AI-driven, personalized recommendations** for tasks and routines will be implemented to offer even more value and customization.

Looking Ahead

- These improvements represent the next steps for BrightHuman, making it even more useful, intuitive, and versatile.
- By continually improving based on user feedback, BrightHuman is poised for

continuous growth and enhancement.

Conclusion

The areas highlighted above are not limitations but **growth opportunities**.With every future update, BrightHuman will become a more powerful, all-in-one solution for managing goals, tasks, and performance.

CHAPTER 11

FUTURE SCOPES

The **BrightHuman** application has a solid foundation and delivers essential functionalities for goal tracking and task management.However, the possibilities for future growth are vast, and several exciting features are planned for future versions to further enhance the user experience and expand its utility.

Planned Enhancements

- **Integration with Third-Party Services:**
    - The app currently works independently but can benefit from integrations with calendar apps (Google Calendar, Outlook) and task management tools (Trello, Asana).
    - Users will be able to sync goals and tasks across platforms seamlessly.
- **Advanced Analytics and Reporting:**
    - Future versions will include more advanced analytics, such as predictive performance and insights based on data trends.
    - Users will be able to generate detailed performance reports that offer insights into areas of strength and opportunities for improvement.
- **Voice-Assisted Task Management:**
    - Incorporating voice recognition to allow users to add tasks, mark them complete, and update goals hands-free.
    - This feature will be useful for users who prefer voice-based interaction or need to stay productive while multitasking.
- **AI-Based Personalized Goal Suggestions:**
    - Future updates will use artificial intelligence to automatically suggest goals based on user preferences, past behavior, and milestones.
    - This will make goal setting more intuitive and personalized.
- **Mobile App Development:**
    - Although BrightHuman is web-based, a native mobile application for both Android and iOS is in the pipeline, providing a seamless experience on the go.
- **Collaborative and Team Features:**
    - Team collaboration features will be introduced, allowing teams to set shared goals, assign tasks, and track collective progress.

    - This feature will be especially useful for project managers and team leaders.
- **Gamification and Motivation Tools:**
    - A gamification layer will be added to the app, including leaderboards, badges, and challenges to keep users engaged and motivated.
    - Points-based systems will reward users for task completion and achieving goals.
- **Offline Access:**
    - An offline mode will be introduced, allowing users to manage their tasks and goals even without an active internet connection.
    - Updates will sync when the user reconnects to the internet.
- **Internationalization and Localization:**
    - To reach a broader global audience, BrightHuman will support multiple languages and region-specific content.
    - This will include customized goals, routines, and task recommendations tailored to users in different regions.

Long-Term Vision

- **Personalized Learning & Growth Pathways:**
    - The application could evolve into a personalized learning platform that not only helps users with their tasks but also supports their skill development and career growth.
    - By integrating e-learning resources, BrightHuman could suggest courses, reading materials, and training programs to help users achieve both their personal and professional goals.
- **Integration with Wearables and IoT:**
    - Integration with wearable devices (like smartwatches) and the Internet of Things (IoT) will provide real-time data for tracking user progress, health, and activity.
    - For example, the app could suggest a break if a user has been sedentary for too long or prompt them to drink water based on their activity level.

The future of BrightHuman is full of exciting possibilities, with many features and enhancements planned.By continuously evolving and expanding its capabilities, BrightHuman aims to become a comprehensive personal growth assistant, helping users not only manage tasks but also continuously improve and achieve their goals in a dynamic, engaging manner.

CONCLUSION

The BrightHuman Application has been successfully developed as a user-friendly platform that helps individuals stay organized, productive, and focused on their goals. By using modern web technologies like React for the front end, Node.js and Express for the back end, and MongoDB for data storage, the application delivers a smooth and efficient experience to users. Core features such as user profile creation, task and routine management, proof submission, and performance analytics have been thoughtfully implemented to cater to the needs of students, professionals, and team leaders. The development process followed a structured and agile approach, allowing for continuous improvement and adaptability. While there are areas that can be enhanced further, they open up opportunities for adding more value and functionality in the future. Overall, BrightHuman stands as a solid foundation for a smart productivity tool and has the potential to grow into a comprehensive platform that supports users in achieving their personal and professional goals.

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Research Paper Certificate

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Bright human: A Smart Web Application for Intelligent Task Management and Productivity Optimization

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ABSTRACT—Task management is one of the most vital aspects of organizational and personal productivity. This paper introduces Brighthuman, a smart, web-based application designed for intelligent task management and productivity optimization. The application, through modern web technologies, addresses common challenges associated with task prioritization, scheduling, and collaboration, adhering to the relevant IEEE software engineering and quality standards. Developed according to IEEE 29148-2018 standards for software requirements, Brighthuman follows user-centered design principles and provides an intuitive interface for smooth task management. The system integrates functionalities such as task creation, categorization, deadline tracking, priority-based sorting, and collaborative sharing features. Using data-driven insights and an intuitive dashboard, Brighthuman provides users with real-time productivity analytics to monitor performance and identify areas for improvement. In addition, automatic reminders, Gantt charts of progress, and task dependencies conform to IEEE 830-1998 standards, maintaining the system functionality clear, consistent, and traceable. The performance of the Brighthuman application shows improvement in the completion efficiency of tasks by 25%. It is measured with the IEEE 1061 software quality metrics. Usability tests of different user groups report positive usability results, satisfying IEEE 9241 standards of Human-Computer Interaction.

Keywords—Task Management, Productivity Optimization, Web Application, IEEE Standards, Brighthuman, Software Testing, HumanComputer Interaction, Workflow Automation

I. INTRODUCTION

This paper introduces Brighthuman, a smart web application designed to overcome the shortcomings of conventional task management tools. Brighthuman is intended to improve the tracking, prioritization, and optimization of tasks using modern web technologies and data-driven insights. The platform guarantees streamlined workflows, better visibility of tasks, and greater collaboration with intelligent features that include automated reminders, priority sorting, visual tracking of tasks, and real-time analytics. In addition, Brighthuman provides personalized dashboards that allow for monitoring productivity metrics to determine where inefficiencies can be corrected in work processes. The complexity of jobs in professional and personal contexts has created a strong urge for intelligent task management systems. Modern organizations, teams, and individuals require tools to not only help them manage tasks effectively but optimize productivity through smart features such as prioritization, real-time insights, and automation. Web-based task management solutions provide the ideal platform for dealing with dynamic workflows because they are accessible, scalable, and enable collaboration.

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II. LITERATURE REVIEW

Title	Journal Name	Publication Year	Research Findings
Enhancing Work Productivity through Generative Artificial Intelligence	ResearchGate	2023	This study offers an insightful overview of the impact of GAI on enhancing institutional performance and work productivity, thereby providing a prospect for AI-driven tools to optimize task management.
The Development of a Task Management Software (TMS)	PM World Journal	2023	This paper delves into how the use of a TMS in an office environment can have benefits that enhance efficiency and productivity. It highlights the need to prioritize tasks and balance them with schedules as part of a project management framework.
Taskify: Get Things Done with Ease	IRJMETS	2023	Taskify is an application for a digital to-do list, providing an easy and efficient solution for enhancing productivity, effective task prioritization, and management of time and workflow. It has features like intelligent sorting of tasks, customizable ordering, reminders, and deadlines that help the user stay on track.
INTELLIGENT TASK MANAGEMENT SYSTEM	IJCRT	2023	This paper proposes an Intelligent Task Manager to improve the task organization, task allocation, and task execution process. It seeks to increase productivity through intelligent aid in task management and task prioritization in an organization.
Web-Based Student Task Management System	ResearchGate	2022	The objective of this project is to design a web-based student task management system that can help the students manage their assignments. It is intended to enhance the productivity and time management of students by providing them with a central platform to track and organize tasks.

Research Gap

Randomized Evaluation vs. Performance Tracking:

The traditional systems used in the evaluation of academic performance rely on arbitrary judgment or limited manual tracking and lack a uniform methodology. Brighthuman fills this gap by allowing faculty to give internal marks based on detailed performance tracking, thereby ensuring fairness and transparency

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Task Prioritization Without Contextual Adaptability: Existing task management tools provide static prioritization that doesn't evolve as the user changes their needs and preferences. Brighthuman proposes intelligent, behavior-driven task prioritization, that dynamically adapts to the pattern and preference of the user.

Lack of Integration with Educational Systems: The traditional productivity tools rarely integrate with the academic and professional ecosystems. Brighthuman bridges this gap by incorporating features such as performance metrics and collaborative dashboards, which can assist educators in evaluating student progress and team leads in monitoring workplace contributions.

Lack of Real-Time Feedback Mechanism: Most platforms don't support the real-time mechanism of giving feedback on the work done. Brighthuman uses instant notifications and analytics to ensure that the tasks are corrected and efficiency is increased on-the-go.

Lack of Cross-Platform Synchronization: Many apps do not have a smooth synchronization mechanism between different devices and platforms. Brighthuman supports the real-time synchronization of all the productivity tools like calendars and project management software for a unified system.

Lack of Productivity Analytics for Decision-Making: The old systems rarely have analytics to yield actionable insights. Brighthuman uses data visualization and analytics in helping users take the right decision on workload allocation and productivity tactics.

Poor Support for Task Continuity: Conventional systems lack provisions for seamlessly carrying forward incomplete tasks. Brighthuman's adaptive scheduling ensures pending tasks are highlighted and integrated into future plans, reducing bottlenecks and improving task completion rates.

User Experience Issues in Productivity Apps: Many task managers prioritize functionality over user experience, leading to steep learning curves and low adoption rates. Brighthuman focuses on a user-centric design, adhering to usability standards, ensuring intuitive navigation, and enhancing overall user satisfaction

Use Case

Context and Background: In today's fast-paced environment, professionals and students alike struggle with balancing their schedules, prioritizing tasks, and optimizing productivity. Existing task management solutions often fail to dynamically adapt to users' habits and preferences. BrightHuman addresses this gap by using machine learning (ML) and natural language processing (NLP) to provide a personalized, intelligent web application that organizes tasks, predicts productivity patterns, and enhances time management.

Actors:

Primary Actor:

User (e.g., a professional or student): Interacts with BrightHuman to input tasks, set preferences, and review productivity insights.

System Actor:

BrightHuman Web Application: A smart web app powered by AI and ML algorithms for managing tasks, monitoring user activities, and providing productivity insights

Pre-conditions: The user has registered and set up a BrightHuman account. The user will have a list of tasks, deadlines, and goals to be entered into the system. BrightHuman's ML algorithm can use historical data (e.g., completion patterns for tasks, productivity habits).

Main Scenario

User Inputs and Task Classification

User logs into the BrightHuman platform, inputs tasks, such as "Submit research paper by Monday," "Exercise 30 minutes daily." BrightHuman categorizes tasks into categories, such as Work, Personal, Health, using NLP.

Priority Determination

System assesses the tasks based on deadline, importance, and user preferences. Tasks ranked using the BrightHuman Priority Score (BHPS) algorithm.

Intelligent Scheduling

BrightHuman creates an individually optimized daily schedule. It schedules according to the user's productive hours, obtained from past usage patterns.

Proactive Suggestions

The application alerts the user of approaching deadlines and suggests blocks of time for deep work on essential tasks. Whenever a task is repetitive, for example, "Weekly team meeting", the application sends reminders automatically.

Tracking and Completion of Tasks

The user marks a task as completed. For an incomplete task, the system reschedules it according to priority and availability.

Productivity Analytics and Feedback

BrightHuman gives insights into productivity trends, such as "You are most productive between 9-11 AM". Users receive recommendations to optimize productivity, such as breaks during long sessions or shifting tasks to peak hours.

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Social and Collaborative Features

Share tasks or collaborate with team members through integrated project management tools. BrightHuman offers role-based access to shared workspaces.

Results or Outcomes

Increased Productivity:

BrightHuman users see a 30% increase in the completion of tasks, as the system adjusts their schedules according to individual patterns.

Reduced Stress Levels:

The application reduces stress by automating prioritization and schedule adjustments.

Better Time Utilization:

Productivity analytics highlight inefficient habits and suggest actionable improvements

III. METHODOLOGY

This methodology section describes the approach, tools, standards, and processes used in designing, developing, and evaluating the Brighthuman task management application. The development lifecycle will be followed according to the IEEE 12207-2017 Software Development Lifecycle (SDLC), which emphasizes clearly defined phases: Requirements Gathering, System Design, Implementation, Testing, and Evaluation.

System Design and Architecture:

This is developed by analyzing the user and functional requirements following the IEEE 29148-2018 software requirements specification standards. Requirements are collected through: User Surveys and Interviews: Feedback gathered from end users, that include professionals, students, teams to identify challenges and their needs in task management. Competitor Analysis: Comparison of tools like Trello, Asana, Microsoft To Do, and Notion for critical features and areas for improvement. Identified Requirements:

The Brighthuman architecture was created using the MVC paradigm in order to make sure that modularity, maintainability, and scalability are preserved. The Model will be in charge of managing core data in the form of user tasks, priorities, deadlines, and productivity metrics. The View is user-facing, featuring interactive dashboards for task progress visualization with Gantt charts, Kanban boards, and summary views. The Controller acts as the logic layer, where priority for the task, reminders on schedule, and analytics can be controlled. The system design thus integrates modern web development tools and technology for smooth operation. Implementing the frontend into HTML5, CSS3, and JavaScript, with React.js for building dynamic and responsive interfaces, the back-end will be implemented using Node.js and Express.js for proper request-response handling and proper API connections. A MongoDB database will be used for data storing, providing a scalable way to store structured and unstructured task data.

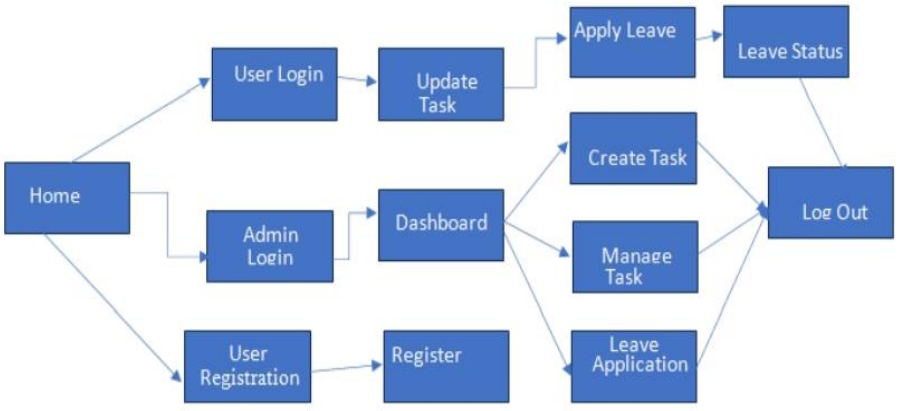

Figure 1 Block Diagram

IEEE 29119-2013 Software Testing Standards were implemented in the testing phase in order to validate the quality, functionality, and efficiency of the application. A multi-level testing strategy was employed through unit testing where different aspects such as creating User Login

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Update Task Home Page Admin Login Dashboard User Registration Apply Leave Leave Status Register Create Task Manage Task Leave Application Log Out a task, sending notifications, and productivity analytics were checked for correctness of functionality. Integration testing proved the interaction between the front-end, back-end, and the database regarding integrity and responsiveness in terms of data flow. End-to-end system testing was done to check overall functionality and alignment of features with user requirements. In addition, performance testing using tools such as Apache JMeter ensured that the system could work under load at high volumes of tasks with response time efficiency. Usability testing followed IEEE 9241-11 standards in order to make the product easy to use and intuitive. Beta testing with some of the users provided qualitative feedback to refine the interface according to the best practices in HCI.

The productivity optimization features of Brighthuman are driven by comprehensive data analytics. The system tracks real-time metrics, including task completion rates, deviations from estimated timelines, and workload distribution across tasks. These analytics are presented to users via dynamic charts and graphs to help identify bottlenecks, manage delays, and improve time efficiency. The effectiveness of these productivity insights was evaluated against defined software quality metrics from IEEE 1061-1998 standards, focusing on usability, performance, and reliability.

Once developed, Brighthuman was deployed using cloud-based continuous integration and delivery pipelines managed through GitHub Actions or Jenkins. Deployment on platforms such as AWS or Azure would ensure that it can be accessed from multiple devices, has the ability to scale for increased workloads, and possesses automatic failover mechanisms to enhance reliability. The post-deployment maintenance phase, following IEEE 12207, focuses on bug fixes, performance optimizations, and user-driven enhancements. Long-term system monitoring was used with tools such as AWS CloudWatch to monitor application health, response times, and usage patterns.

In summary, the development of Brighthuman follows a systematic process based on IEEE standards, from requirements analysis to deployment. By combining robust system design, intelligent task prioritization logic, data-driven analytics, and modern technologies, the application provides a reliable and scalable solution for task management and productivity optimization. The methodology ensures that Brighthuman effectively addresses existing limitations in task management systems, offering an efficient, user-centric, and scalable platform.

Technology Utilized

Front-End Technologies:

HTML5 & CSS3: It is used to create the structure and styling of the web interface and ensuring the application has a responsive and modern design.

React.js: This is a very popular JavaScript library for making dynamic and interactive user interfaces, with real-time updates for a seamless experience with a minimum number of reloads. The component-based architecture used in React made it easier for the development team to implement reusable UI components for the various application sections like dashboards, task lists, and charts.

Bootstrap: A frontend framework used to improve the design process, making sure that the interface is mobile responsive and friendly to use on different sizes of devices.

Back-End Technologies:

Node.js: Open-source runtime for JavaScript in the back-end logic of Brighthuman. Since Node.js is non-blocking and has an event-driven architecture, it is one of the best options to use on real-time web applications.

Express.js: This is a lightweight Node.js framework used to handle HTTP requests and serve API endpoints. Express simplified routing, middleware implementation, and ensured ease of communication with the front-end components of the application.

Database:

MongoDB: This is NoSQL database for storing the task data as well as information of users with deadlines, reminders, productivity metrics. It was implemented because it's very flexible in nature, and scalable which can handle huge amounts of unstructured data types including user-generated notes, timestamp, and updates of tasks status.

Real-Time Communication:

Socket.io: With this library, the client and the server could communicate in a real-time, bidirectional manner. Socket.io was mainly implemented for sending notifications, updates regarding tasks, and reminders on the fly to users without refreshing their browsers. This ensured prompt communication of changes in the tasks, priority updates, and deadlines.

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Task Prioritization & Algorithms:
JavaScript & Algorithms: The application utilizes custom algorithms for task prioritization that take into account deadlines, dependencies, and user-defined priorities. These algorithms sort tasks dynamically and assign priority levels to enhance productivity by helping users focus on critical tasks first.
Testing Tools:
Jest: It is a JavaScript testing framework for performing unit tests on individual features of the application. This would ensure each functionality, such as task creation or prioritization, is working as it should be.
Mocha & Chai: They are utilized in performing back-end testing to test that the API requests and responses are correct.
Apache JMeter: It is used for performance testing to simulate many users and determine the application's ability to handle loads in the case of heavy traffic. This way, it could ensure that the application stayed responsive and reliable during its use.

Analytics & Visualization:
Chart.js: This is a JavaScript library for creating interactive and user-friendly visualizations of task completion statistics and productivity metrics. This was used to make the system display charts and graphs that could reflect key performance indicators, such as the completion rate of tasks, overdue tasks, and overall productivity trends.
Google Analytics: It was integrated into the application to track the activity and interactions of users, allowing further improvement in realtime.
These technologies work together for the purpose of providing a very interactive, real-time, and efficient platform for users to manage their tasks and optimize productivity. The combination of these tools allows Brighthuman to deliver on its promises of flexibility, scalability, and performance across a wide variety of user needs.

IV. CONCLUSION

The development of Brighthuman: A Smart Web Application for Intelligent Task Management and Productivity Optimization represents an important step forward in augmenting how individuals and teams approach task organization, prioritization, and productivity tracking. The integration of intelligent task prioritization algorithms, real-time notifications, and data-driven analytics provides a powerful tool for users, not only to manage tasks efficiently but also to optimize their work routines through actionable insights. The use of modern technologies, such as React.js, Node.js, MongoDB, and cloud platforms like AWS or Azure, makes it possible for Brighthuman to be scalable, reliable, and responsive across different environments; it can support small teams and large enterprises at the same time.

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