TASK MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

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in partial fulfillment of requirements for the award of the course

CGB1221-DATABASE MANAGEMENT SYSTEMS

in

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai and Approved by AICTE, New Delhi)

SAMAYAPURAM – 621 112

JUNE- 2025

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY (AUTONOMOUS)

SAMAYAPURAM – 621 112

BONAFIDE CERTIFICATE

Certified that this project report on **TASK MANAGEMENT SYSTEM** is the bonafide work of **RAGHAVI S A (2303811724322086)** who carried out the project work during the academic year 2024 - 2025 under my supervision.

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Submitted for the viva-voce examination held on …04.06.2025……………….

INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

I declare that the project report on **TASK MANAGEMENT SYSTEM** is the result of original work done by me and best of my knowledge, similar work has not been submitted to **"ANNA UNIVERSITY CHENNAI"** for the requirement of Degree of **BACHELOR OF TECHNOLOGY**. This project report is submitted on the partial fulfilment of the requirement of the completion of the course **CGB1221 – DATABASE MANAGEMENT SYSTEMS.**

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Signature

RAGHAVI S A

Place: Samayapuram

Date: 04.06.2025

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It is with great pride that I express my gratitude and in-debt to my institution "**K.Ramakrishnan College of Technology (Autonomous)**", for providing me with the opportunity to do this project.

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INSTITUTE

Vision:

- To serve the society by offering top-notch technical education on par with global standards.

Mission:

- Be a center of excellence for technical education in emerging technologies by exceeding the needs of industry and society.
- Be an institute with world class research facilities.
- Be an institute nurturing talent and enhancing competency of students to transform them as all – round personalities respecting moral and ethical values.

DEPARTMENT

Vision:

- To excel in education, innovation, and research in Artificial Intelligence and Data Science to fulfil industrial demands and societal expectations.

Mission

- To educate future engineers with solid fundamentals, continually improving teaching methods using modern tools.
- To collaborate with industry and offer top-notch facilities in a conducive learning environment.
- To foster skilled engineers and ethical innovation in AI and Data Science for global recognition and impactful research.
- To tackle the societal challenge of producing capable professionals by instilling employability skills and human values.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

- **PEO1:** Compete on a global scale for a professional career in Artificial Intelligence and Data Science.
- **PEO2:** Provide industry-specific solutions for the society with effective communication and ethics.
- **PEO3** Enhance their professional skills through research and lifelong learning initiatives.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** Capable of finding the important factors in large datasets, simplify the data, and improve predictive model accuracy.

- **PSO2:** Capable of analyzing and providing a solution to a given real-world problem by designing an effective program.

PROGRAM OUTCOMES (POs)

Engineering students will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ABSTRACT

The **Task Management System** (TMS) is an integrated platform designed to streamline task creation, assignment, prioritization, and tracking for individuals and teams. It offers a centralized interface for managing tasks based on deadlines, urgency, and assigned roles, improving workflow efficiency and communication. Key features include task creation, editing, deletion, status updates, priority setting, and deadline tracking. Role-based access control distinguishes between admins, who manage and assign tasks, and regular users, who focus on task completion. Built-in reminders help prevent missed deadlines, while progress tracking and report generation provide insights into task distribution and team performance. By enhancing visibility, accountability, and time management, TMS supports better coordination and productivity in both academic and professional environments.

ABSTRACT WITH POs AND PSOs MAPPING

CO 5 : BUILD DATABASES FOR SOLVING REAL-TIME PROBLEMS.

ABSTRACT	POs MAPPED	PSOs MAPPED
The **Task Management System** is a user-friendly software tool designed to create, assign, and track tasks with deadlines and priorities. It supports role-based access, automated reminders, and report generation to enhance productivity, collaboration, and time management. The system enables efficient workflow and better task organization for individuals and teams.	PO1 -3 PO2 -3 PO3 -3 PO4 -3 PO5 -3 PO6 -3 PO7 -3 PO8 -3 PO9 -3 PO10 -3 PO11-3 PO12 -3	PSO1 -3 PSO2 -3

Note: 1- Low, 2-Medium, 3- High

TABLE OF CONTENTS

CHAPTER 1
INTRODUCTION

1.1 OBJECTIVE

The main objective of the Task Management System is to provide an efficient platform for managing tasks by enabling users to create, assign, prioritize, and track tasks with deadlines. The system aims to improve productivity, streamline task handling, support collaboration among team members, and ensure timely completion of assigned work through real-time tracking, reminders, and reporting features.

1.2 OVERVIEW

The Task Management System is a desktop-based or web-based application that helps individuals and teams manage their daily tasks effectively. It includes features such as task creation, editing, deletion, priority setting, deadline management, task assignment to users, and progress tracking. The system offers role-based access, allowing administrators to manage users and tasks, while regular users can view and update their assigned tasks. Additional tools such as reminders and automated reports further enhance task visibility and timely completion.

1.3 SQL AND DATABASE CONCEPTS
1. Database Design

- Understanding Entity-Relationship (ER) modeling
- Defining entities like Users, Tasks, Reminders, and Assignments
- Use of **Primary Keys** and **Foreign Keys**
- Establishing relationships (One-to-Many, Many-to-Many)

2. Normalization

- Applying **First Normal Form (1NF)** to ensure atomicity
- Using **Second Normal Form (2NF)** to remove partial dependencies
- Implementing **Third Normal Form (3NF)** to eliminate transitive dependencies

3. SQL Data Definition Language (DDL)

- Creating tables using CREATE TABLE
- Defining constraints like PRIMARY KEY, FOREIGN KEY, NOT NULL, ENUM
- Altering or dropping tables when needed

4. SQL Data Manipulation Language (DML)

- Adding records with INSERT INTO
- Modifying records using UPDATE
- Removing data with DELETE
- Retrieving records using SELECT

5. JOIN Operations and Reporting

- Using JOIN to combine data across tables (e.g., tasks + users)
- Generating reports for tasks by status, deadlines, or assigned users
- Filtering data with WHERE, sorting with ORDER BY, and grouping with GROUP BY

CHAPTER 2

PROJECT METHODOLOGY

2.1 PROPOSED WORK

The proposed Task Management System aims to develop a comprehensive platform that facilitates the efficient handling of tasks through their entire lifecycle—from creation to completion. The system will be designed with user-friendly interfaces and robust backend support using SQL databases to ensure data consistency, security, and ease of access.

- **Database Design and Implementation**

  Design and implement a relational database schema using SQL to manage users, tasks, assignments, and task statuses, ensuring data integrity through proper constraints and normalization.

- **Task CRUD Operations**

  Develop functionalities to create, read, update, and delete tasks, allowing users to add detailed information such as deadlines, priorities, and descriptions.

- **User Assignment and Progress Tracking**

  Implement features to assign tasks to users, track task progress through statuses (Not Started, In Progress, Completed), and update task details dynamically.

- **Reminder and Notification System**

  Create a system to set and send reminders for upcoming task deadlines and notify users about task assignments or overdue tasks.

- **Reporting and Visualization**

  Build reporting capabilities to generate performance summaries and task status reports, with options to export data and visualize progress through charts or dashboards.

2.2 BLOCK DIAGRAM
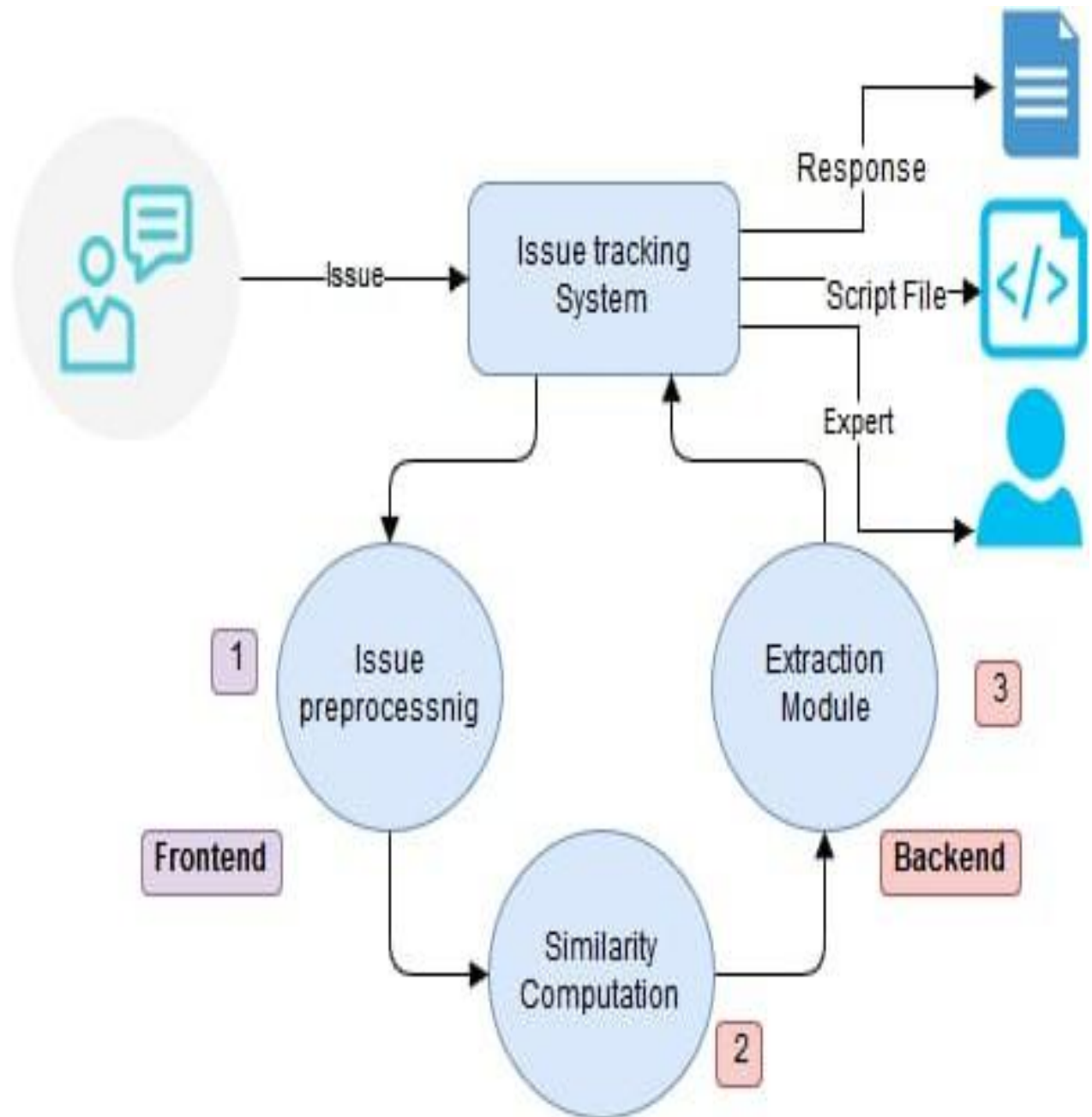
CHAPTER 3

MODULE DESCRIPTION

3.1 USER MANAGEMENT MODULE

Purpose:

Manage users of the system, including authentication, authorization, and user details.

Key Functionalities:

- Register new users (Admin, Manager, Employee roles).
- User login/logout with authentication.
- Role-based access control (e.g., only Admin can delete users).
- Edit and update user profiles (name, email, role, contact info).
- Maintain user status (active, inactive).

3.2 TASK MANAGEMENT MODULE

Purpose:

Allow creation, modification, assignment, and deletion of tasks.

Key Functionalities:

- Create new tasks with title, description, priority, and deadline.
- Edit task details (change description, priority, deadline).
- Assign tasks to one or more users.
- Delete tasks if no longer needed.
- Categorize tasks by project or department

3.3 TASK TRACKING & PROGRESS MODULE

Purpose:

Monitor the progress and status of assigned tasks.

Key Functionalities:

- Update task status: Not Started, In Progress, Completed, On Hold.
- Record timestamps for status changes (e.g., start date, completion date).
- Allow users to add progress notes or comments.
- Display task progress visually (e.g., progress bar or percentage completed).
- Track overdue tasks based on deadlines.

3.4 NOTIFICATION & REMINDER MODULE

Purpose:

Notify users about upcoming deadlines and important task updates.

Key Functionalities:

- Send reminders before task deadlines (e.g., 1 day before).
- Notify users when tasks are assigned or updated.
- Alert users of overdue tasks.
- Support multiple notification channels (email, in-app notifications).
- Schedule automatic reminders at configurable intervals.

3.5 REPORTS & ANALYTICS MODULE

Purpose:

Generate detailed reports to analyze task performance and user productivity.

Key Functionalities:

- Generate reports by user, task status, priority, and deadlines.
- View summary statistics (total tasks, completed tasks, pending tasks).
- Export reports in formats such as PDF and Excel.
- Visualize data with charts and graphs (e.g., task completion trends).
- Filter reports by date ranges, projects, or teams.

CHAPTER 4

CONCLUSION & FUTURE SCOPE

CONCLUSION

The Task Management System streamlines task creation, assignment, and tracking to boost organizational productivity. It features user management, progress monitoring, notifications, and reporting modules that ensure clear roles, deadlines, and real-time updates. Timely alerts prevent missed deadlines, while analytics provide insights for better decision-making. Built on a robust SQL database, the scalable system enhances workflow efficiency, task visibility, and teamwork, helping organizations achieve their goals effectively.

FUTURE SCOPE

- The system enhances productivity by organizing and managing tasks efficiently with clear priorities and deadlines.

- Real-time task tracking and automated reminders help users stay on schedule and avoid missing deadlines.

- Role-based access control and user authentication ensure secure data handling and access.

- The reporting and analytics features provide valuable insights for performance evaluation and decision-making.

- Future integration with mobile apps and cloud storage will allow users to manage tasks anytime, anywhere.

- AI-powered features and integration with tools like Slack or Microsoft Teams can significantly expand the system's functionality and automation capabilities

APPENDIX A – SOURCE CODE

```
-- Task Management System Database
-- Cleaned Version

CREATE DATABASE IF NOT EXISTS tms_db;
USE tms_db;


-- --------------------------------
-- Table: project_list
-- --------------------------------
CREATE TABLE `project_list` (
  `id` INT(30) NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(200) NOT NULL,
  `description` TEXT NOT NULL,
  `status` TINYINT(2) NOT NULL,
  `start_date` DATE NOT NULL,
  `end_date` DATE NOT NULL,
  `manager_id` INT(30) NOT NULL,
  `user_ids` TEXT NOT NULL,
  `date_created` DATETIME NOT NULL DEFAULT
CURRENT_TIMESTAMP,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

INSERT INTO `project_list` (`id`, `name`, `description`, `status`, `start_date`,
`end_date`, `manager_id`, `user_ids`, `date_created`) VALUES
(1, 'Sample Project', 'Lorem ipsum dolor sit amet, consectetur adipiscing elit. In
elementum, metus vitae malesuada mollis...', 0, '2020-11-03', '2021-01-20', 2,
'3,4,5', '2020-12-03 09:56:56'),
(2, 'Sample Project 102', 'Sample Only', 0, '2020-12-02', '2020-12-31', 2, '3',
'2020-12-03 13:51:54');
```

```sql
-- ------------------------------
-- Table: system_settings
-- ------------------------------
CREATE TABLE `system_settings` (
  `id` INT(30) NOT NULL AUTO_INCREMENT,
  `name` TEXT NOT NULL,
  `email` VARCHAR(200) NOT NULL,
  `contact` VARCHAR(20) NOT NULL,
  `address` TEXT NOT NULL,
  `cover_img` TEXT NOT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
INSERT INTO `system_settings` (`id`, `name`, `email`, `contact`, `address`,
`cover_img`) VALUES
(1, 'Task Management System', 'info@sample.comm', '+6948 8542 623', '2102
Caldwell Road, Rochester, New York, 14608', '');
-- ------------------------------
-- Table: task_list
-- ------------------------------
CREATE TABLE `task_list` (
  `id` INT(30) NOT NULL AUTO_INCREMENT,
  `project_id` INT(30) NOT NULL,
  `task` VARCHAR(200) NOT NULL,
  `description` TEXT NOT NULL,
  `status` TINYINT(4) NOT NULL,
  `date_created` DATETIME NOT NULL DEFAULT
CURRENT_TIMESTAMP,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
INSERT INTO `task_list` (`id`, `project_id`, `task`, `description`, `status`,
`date_created`) VALUES
(1, 1, 'Sample Task 1', 'Fusce ullamcorper mattis semper. Nunc vel risus ipsum.
Sed maximus dapibus nisl non laoreet.', 3, '2020-12-03 11:08:58'),
(2, 1, 'Sample Task 2', 'Sample Task 2', 1, '2020-12-03 13:50:15'),
(3, 2, 'Task Test', 'Sample', 1, '2020-12-03 13:52:25'),
(4, 2, 'test 23', 'Sample test 23', 1, '2020-12-03 13:52:40');
```

```
-- --------------------------------
-- Table: users
-- --------------------------------
CREATE TABLE `users` (
  `id` INT(30) NOT NULL AUTO_INCREMENT,
  `firstname` VARCHAR(200) NOT NULL,
  `lastname` VARCHAR(200) NOT NULL,
  `email` VARCHAR(200) NOT NULL,
  `password` TEXT NOT NULL,
  `type` TINYINT(1) NOT NULL DEFAULT 2 COMMENT '1 = admin, 2 =
staff',
  `avatar` TEXT NOT NULL DEFAULT 'no-image-available.png',
  `date_created` DATETIME NOT NULL DEFAULT
CURRENT_TIMESTAMP,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
INSERT INTO `users` (`id`, `firstname`, `lastname`, `email`, `password`,
`type`, `avatar`, `date_created`) VALUES
(1, 'Administrator', '', 'admin@admin.com',
'0192023a7bbd73250516f069df18b500', 1, 'no-image-available.png', '2020-11-
26 10:57:04'),
(2, 'John', 'Smith', 'jsmith@sample.com',
'1254737c076cf867dc53d60a0364f38e', 2, '1606978560_avatar.jpg', '2020-12-
03 09:26:03'),
(3, 'Claire', 'Blake', 'cblake@sample.com',
'4744ddea876b11dcb1d169fadf494418', 3, '1606958760_47446233-clean-noir-
et-gradient-sombre-image-de-fond-abstrait-.jpg', '2020-12-03 09:26:42'),
(4, 'George', 'Wilson', 'gwilson@sample.com',
'd40242fb23c45206fadee4e2418f274f', 3, '1606963560_avatar.jpg', '2020-12-03
10:46:41'),
(5, 'Mike', 'Williams', 'mwilliams@sample.com',
'3cc93e9a6741d8b40460457139cf8ced', 3, '1606963620_47446233-clean-noir-
et-gradient-sombre-image-de-fond-abstrait-.jpg', '2020-12-03 10:47:06');
```
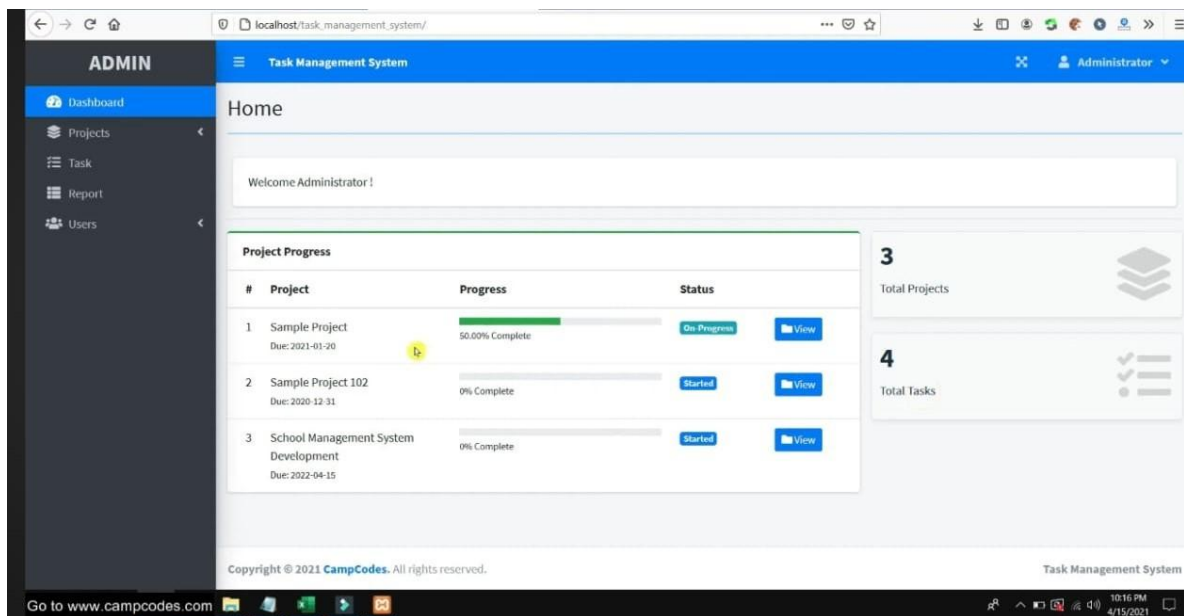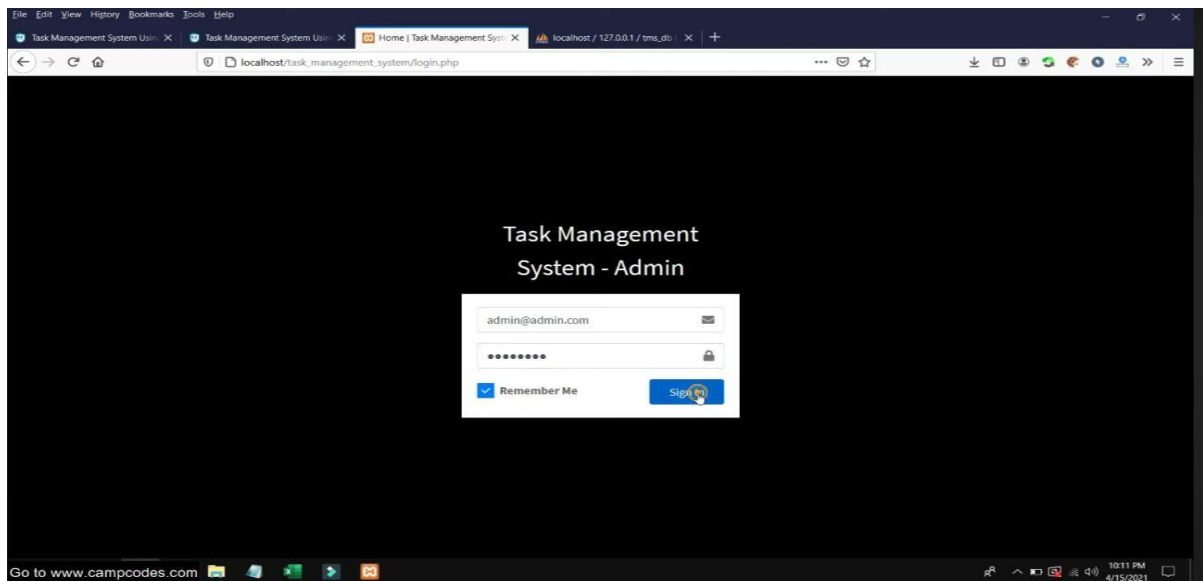
-- --------------------------------
-- Table: user_productivity
-- --------------------------------
CREATE TABLE `user_productivity` (
  `id` INT(30) NOT NULL AUTO_INCREMENT,
  `project_id` INT(30) NOT NULL,
  `task_id` INT(30) NOT NULL,
  `comment` TEXT NOT NULL,
  `subject` VARCHAR(200) NOT NULL,
  `date` DATE NOT NULL,
  `start_time` TIME NOT NULL,
  `end_time` TIME NOT NULL,
  `user_id` INT(30) NOT NULL,
  `time_rendered` FLOAT NOT NULL,
  `date_created` DATETIME NOT NULL DEFAULT
CURRENT_TIMESTAMP,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

INSERT INTO `user_productivity` (`id`, `project_id`, `task_id`, `comment`, `subject`, `date`, `start_time`, `end_time`, `user_id`, `time_rendered`, `date_created`) VALUES
(1, 1, 1, 'Sample Progress - Test 1, Test 2, Test 3', 'Sample Progress', '2020-12-03', '08:00:00', '10:00:00', 1, 2, '2020-12-03 12:13:28'),
(2, 1, 1, 'Sample Progress', 'Sample Progress 2', '2020-12-03', '13:00:00', '14:00:00', 1, 1, '2020-12-03 13:48:28'),
(3, 1, 2, 'Sample', 'Test', '2020-12-03', '08:00:00', '09:00:00', 5, 1, '2020-12-03 13:57:22'),
(4, 1, 2, 'asdasdasd', 'Sample Progress', '2020-12-02', '08:00:00', '10:00:00', 2, 2, '2020-12-03 14:36:30');

APPENDIX B - SCREENSHOTS

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