PROJECT MANAGEMENT SYSTEM

1. INTRODUCTION

1.1 PURPOSE

The purpose of this project is to design and implement a **Project Management System (PMS)** that helps teams efficiently manage projects, tasks, resources, and communication. The system will allow users to create and track projects, assign tasks, collaborate, and monitor progress

1.2 SCOPE

The system will be a **web-based** or **desktop** application that includes the following functionalities:

- User Management (Admins, Managers, Team Members, Clients)
- Project Creation, Assignment, and Tracking
- Task Management (Assigning, Updating, and Monitoring)
- Messaging and Notifications
- Reporting and Analytics

2. REQUIREMENTS

2.1 USER MANAGEMENT

User Roles

- Administrator (Manages the system, users, and settings)
- Project Manager (Creates and manages projects, assigns tasks)
- Team Member (Executes tasks assigned to them)
- Client (Views project progress and gives feedback)

User Features

- Register/Login (Username, Email, Password)
- Role-Based Access Control (RBAC)
- Update Profile & Change Password
- Forgot Password & Reset

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2.2 PROJECT MANAGEMENT

Project Creation

- Name, Description, Start Date, End Date, Status
- Assign **Project Manager**
- Invite **Team Members**

Project Status Tracking

- Active, On Hold, Completed, Cancelled
- Visual indicators for progress

Project Reports

- Summary of tasks
- View Deadlines
- View Team Members

2.3 TASK MANAGEMENT

Create & Assign Tasks

- Title, Description, Deadline
- Assign to Team Member
- Priority Levels (High, Medium, Low)

Task Tracking & Updates

- Change status: **To Do → In Progress → Completed**
- Add comments & attachments
- Mark dependencies (Task A must be done before Task B)

Notifications for Task Updates

- Team members get alerts when assigned a task
- Alerts for **task deadline approaching**

2.4 COMMUNICATION & COLLABORATION

Messaging System

- **Send messages** between team members
- **Group chats** for specific projects

Project-Based Notifications

- Alerts for **task assignments, project updates, new messages**
- Email and in-app notifications

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File Sharing

- Upload & download **documents, images, code files**
- Attach files to **tasks or messages**

2.5 REPORTING & ANALYTICS

Dashboard with Key Metrics

- Number of **Active/Completed Projects**
- Task Progress (e.g., **80% complete**)

Detailed Reports

- **Performance reports** for team members
- **Task completion reports** for managers

3. NON-FUNCTIONAL REQUIREMENTS

3.1 PERFORMANCE

- **Database queries** should be optimized to prevent delays or timeouts, especially for project/task retrieval.

3.2 SECURITY

- **Role-based access control (RBAC)**
- **Data encryption** for sensitive information
- Secure authentication (e.g., **hashed passwords, 2FA**)

3.3 USABILITY

- Simple & intuitive UI

3.4 RELIABILITY

- The system should be **reliable for basic project management use**, without frequent crashes or failures.
- There should be basic **error handling** to inform users when something goes wrong (e.g., task creation failure).

3.5 MAINTAINABILITY

- The system code should be well-organized and documented for easy updates or modifications

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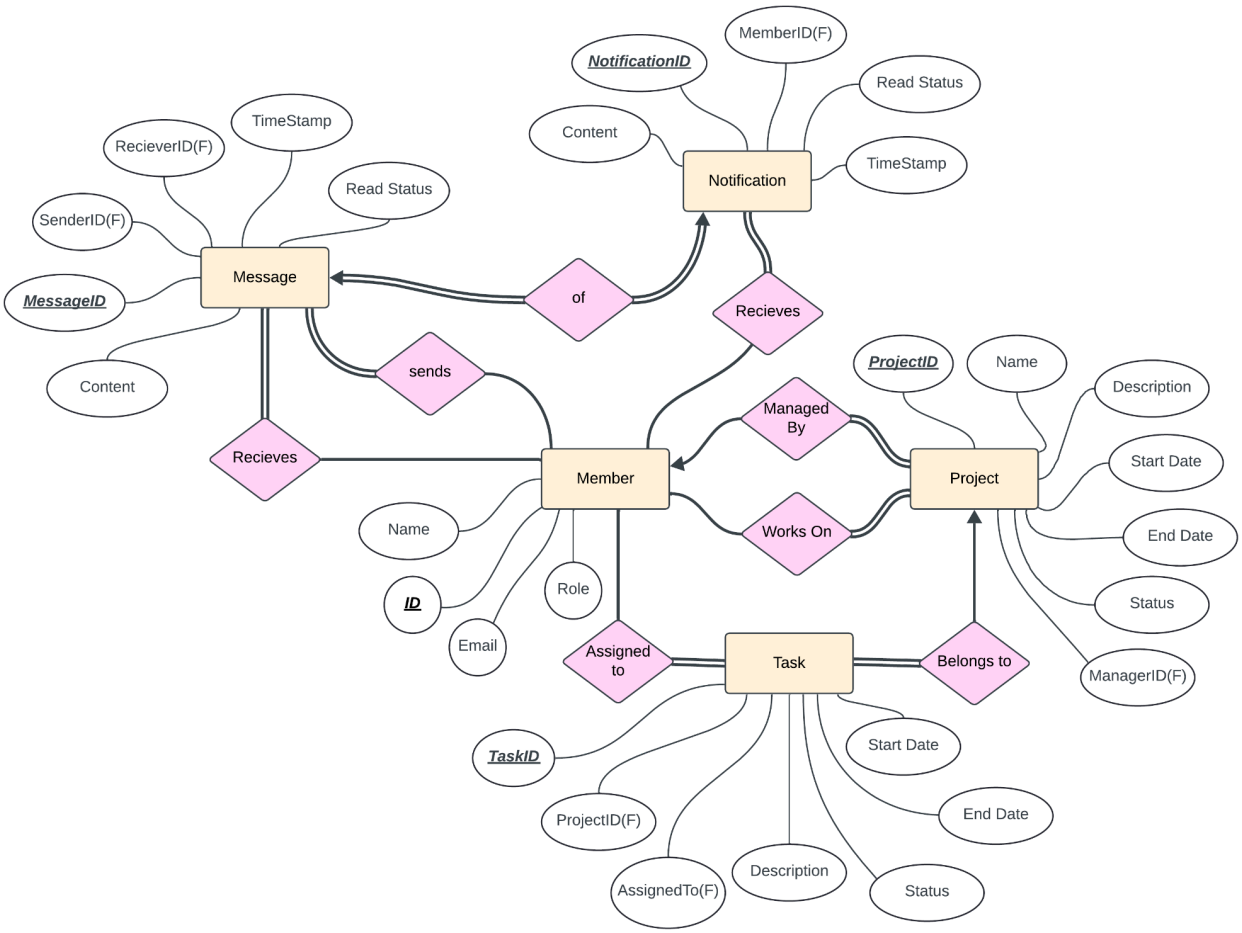
4. SYSTEM ARCHITECTURE

4.1 TECHNOLOGY STACK

Layer	TECHNOLOGY
Frontend	React.js / Angular / Vue.js
Backend	Node.js (Express) / Django / Spring Boot
Database	MySQL / PostgreSQL / MongoDB
Authentication	JWT / OAuth2
Hosting	AWS / Firebase / Digital Ocean

4.2 ER DIAGRAM



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5. CONCLUSION

This **Project Management System** will streamline **project tracking, team collaboration, and resource allocation**, making it easier for teams to complete projects efficiently.

6. TEAM MEMBERS

NAME	ROLL NUMBER	BRANCH
Anuraag Tandon	2023110	CSB
Tanmay Aggarwal	2023551	CSB
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