Final Project Report

1. INTRODUCTION

1.1 Project Overview

This project introduces a structured system to manage users, groups, roles, and workflows within a small project management team. It focuses on eliminating confusion, improving accountability, and automating task assignments using role-based access control and workflow automation.

1.2 Purpose

To provide an efficient, scalable, and secure system for managing project tasks with clear roles, access controls, and automated workflows.

2. IDEATION PHASE

2.1 Problem Statement

Lack of clear user roles, access control, and structured workflows causing inefficiencies in project management.

2.2 Empathy Map Canvas

Project Manager (Alice) and Team Member (Bob) face confusion regarding task responsibilities, progress tracking, and accountability.

2.3 Brainstorming

Ideas explored included manual tracking tools, basic role lists, and finally, a structured role-based access control system with automated workflows, which was selected.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

From project initiation to task completion, users experience a streamlined workflow with clear role definitions and automated notifications.

3.2 Solution Requirement

- Role Management
- Group Management
- Workflow Automation
- Task Assignment
- Access Control

- Audit Trails

3.3 Data Flow Diagram

Data flows between the Frontend, Backend, Database, Authentication Module, and Workflow Engine. (Detailed diagram available in Solution Architecture)

3.4 Technology Stack

- Frontend: ReactJS
- Backend: Node.js with Express
- Database: MongoDB
- Authentication: OAuth / SSO
- Hosting: Cloud-based

4. PROJECT DESIGN

4.1 Problem Solution Fit

The solution introduces role-based access control and workflow automation tailored to solve the accountability and task tracking problems faced by the team.

4.2 Proposed Solution

A web-based system providing user, group, and role management with automated workflows and notifications for task assignment and tracking.

4.3 Solution Architecture

The system consists of a Frontend, Backend API, Database, Authentication Module, and Workflow Engine. Architecture ensures scalability, security, and easy management.

5. PROJECT PLANNING & SCHEDULING

The project was executed in phases: Requirement Gathering, Design, Development, Testing, and Deployment, with weekly progress reviews.

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Load testing was performed to ensure the system handles multiple concurrent users. The system demonstrated acceptable response times under load.

7. RESULTS

7.1 Output Screenshots

System output includes role management interface, task assignment screens, and workflow status updates.

8. ADVANTAGES & DISADVANTAGES

Advantages:

- Clear accountability
- Improved task tracking
- Scalable design
- Enhanced security

Disadvantages:

- Requires initial setup time
- Dependent on internet connectivity

9. CONCLUSION

The project successfully provides a structured, scalable, and secure solution for user, group, and role management with automated workflows, improving overall project efficiency.

10. FUTURE SCOPE

Future improvements include mobile app development, advanced analytics dashboards, and integration with third-party project management tools.

11. APPENDIX

Source Code: Available upon request

Dataset Link: Not applicable

GitHub & Project Demo Link: To be shared by project deployment.