RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM – 602 105

RAJALAKSHMI
ENGINEERING COLLEGE

Laboratory Record Note Book

Name: . . . . . .

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Semester: . . . . . .

Academic Year: . . . . . .

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Certified that this is the bonafide record of work done by the above student

in the CS19442 – *Software Engineering Laboratory during the year 2023-2024*

Signature of Faculty in-charge

Submitted for the Practical Examination held on .....

Internal Examiner External Examiner

A REPORT ON PROJECT MILESTONE EVALUATION SOFTWARE

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EVALUATION SOFTWARE FOR PROJECT MILESTONES

OVERVIEW OF THE PROJECT

Statistics show that 70% of all projects fail, with one significant contributing factor being the lack of effective project management tools and practices. Additionally, 42% of companies don't understand the need for setting target milestones thus leading to inefficiencies and exhaustion of resources. Organizations and teams working on projects often struggle with tracking progress, evaluating performance, and ensuring that milestones are met on time. Effective project management and evaluation are crucial for the successful completion of projects.To overcome this problem, an effective software tool that could streamline the different components of an ongoing project and provide functionalities for setting targets and tracking progress is required.Such a tool would increase success rates drastically and enable organisations to grow exponentially.

Software Requirements Specifications

EXP_NO: 1 **DATE: 20-02-24**

1. Introduction

The Evaluation Software for Project Milestones aims to provide tools and functionalities for assessing and evaluating the achievement of milestones within a project. This document outlines the requirements for the software to enable effective evaluation of project milestones to ensure project success.

1.1. Purpose

The purpose of the Evaluation Software is to facilitate the evaluation of project milestones to determine progress, identify challenges, and make informed decisions to ensure successful project completion.

2. Scope

The software will encompass features for defining evaluation criteria, tracking project progress, generating reports, and providing insights to stakeholders. It will enable project managers and teams to effectively evaluate the achievement of milestones throughout the project lifecycle.

3. Functional Requirements

3.1. User Authentication and Authorization

The system should provide secure user authentication and authorization functionalities. Users should be able to register new accounts or log in with existing credentials. Access to different functionalities should be restricted based on user roles, ensuring that users can only access functionalities appropriate to their roles.

3.2. Project Management

The software should facilitate efficient project management by enabling project managers to create and manage projects. Project details such as name, description, and priority should be customizable. Projects should support the addition and removal of team members, with project managers assigning roles and permissions accordingly.

3.3. Milestone Management

Project managers should have the capability to define milestones for each project and track their progress. Milestones should have associated due dates and tasks. Automatic notifications should alert project managers and team members about approaching or overdue milestones, ensuring timely completion.

3.3. Milestone Management

As team members update status of their project software must be able to evaluate whether the set milestones are achieved or not, this gives a clear overview of the direction in which the project is headed.

3.5. Report generation

The system should provide project managers with a comprehensive report about the flow of their project once it is completed.Detailed reports should be available to analyse milestones achieved and tasks completed facilitating informed decision-making.

4.Non -Functional Requirements

4.1 Usability

The software interface shall be intuitive and user-friendly to facilitate easy navigation.It should provide clear instructions and guidance for conducting assessments.

4.2 Performance

The system should have fast response times for generating reports and accessing insights. It should be able to handle simultaneous assessments from multiple users without performance degradation.

4.3. Security

User authentication and authorization mechanisms shall be implemented to ensure data security. Access controls should be in place to restrict access to evaluation data to authorized users only.

4.4. Scalability

The system should be designed to scale effectively to accommodate increasing numbers of users and projects over time. This includes scalability in terms of both hardware infrastructure and software architecture to ensure optimal performance as the user base and project complexity grow.

4.5. Accessibility

The software should adhere to accessibility standards to ensure usability for users with disabilities. This involves providing features such as screen reader compatibility, keyboard navigation support, and text alternatives for non-text content to ensure inclusivity and accessibility compliance.

5.Constraints

1. It should be compatible with commonly used web browsers and operating systems.

2.The software should be capable of integrating with existing project management tools, collaboration platforms, and third-party services commonly used in project environments.

6. Conclusion

By meeting the outlined requirements, the software will facilitate informed decision-making and contribute to the successful completion of projects. In conclusion, By incorporating all the considerations into the SRS, the software can better meet the diverse needs and requirements of project stakeholders, ultimately contributing to the successful delivery of projects.

Agile – Scrum Methodology

EXP_NO: 2 **DATE:01-03-24**

1.Product Backlog

The product backlog defines the different features and functionalities the website intends to achieve.It outlines the value that the website would add to the users.

1.1.User Authentication and Access

1.2.Project Management

1.3.Milestone Management

1.4.Evaluation of Attainment of Milestones

1.5.Report Generation

2.Scrum Backlog

Sprint 1(2 weeks)

Sprint Goal: Implement basic user authentication and project management functionalities.

User Authentication and Authorization

Task 1: Set up user registration form and backend logic.

Task 2: Design and implement role-based access control system.

Sprint 2(3 weeks)

Sprint Goal: Set up Project Management Requirements.

Project Management

Task 3: Create database schema for storing project details.

Task 4: Implement project creation functionality for project managers.

Task 5: Develop UI for adding and removing team members to a project.

Sprint 3(4 weeks)

Sprint Goal:Implementation Milestone Management.

Milestone Management

Task 6: Develop UI for defining milestones with due dates and tasks.

Task 7: Implement backend logic for tracking milestone progress.

Evaluation of Attainment of Milestones

Task 8: Integrate task status updates with milestone evaluation logic.

Task 9: Implement notifications for approaching or overdue milestones.

Task 10: Implement machine learning model to evaluate success or failure at attaining milestones.

Sprint 4(3 weeks)

Sprint Goal: Implementaion of Report Generation

Report Generation

Task 11: Develop report generation functionality for project managers.

User Stories

EXP_NO: 3 **DATE:12-03-24**

1.User Stories as Functional Requirements

1.1.User Authentication and Access

1. As a user, I want to be able to log in with my credentials securely.

2. As a project manager, I want to be able to grant access to my teammates.

Acceptance Criteria:

- The login page should be accessible from the main navigation or a dedicated login link.
- The page should include fields for entering a username/email and password.
- The system should validate the entered username/email and password.

1.2.Project Management

1. As a project manager, I want to be able to create a new project with a name and description.

2. As a team member, I want to be able to view and join projects I'm assigned to.

Acceptance Criteria:

- The project manager should have access to a project creation form through the project management page or admin dashboard.
- The form should include fields for entering the project name and description.

- Upon submission, the system should create a new project with the provided name and description.

1.3.Milestone Management

1. As a project manager, I want to be able to define milestones for each project.

2. As a team member, I want to be able to update the status of tasks associated with milestones.

3. As a team member, I want to receive alerts about pending milestones.

Acceptance Criteria:

- The project manager should have access to a milestone creation form within the project details page.
- The form should include fields for the milestone name, description, due date, and associated tasksUpon submission, the system should create a new milestone with the provided details.

1.4.Evaluation of Attainment of Milestones

1. As a project manager, I want the software to evaluate whether set milestones are achieved based on the status of associated tasks.

2. As a team member, I want to receive feedback on milestone attainment based on my task updates.

Acceptance Criteria:

- The system should automatically evaluate the status of each milestone based on the status of its associated tasks.
- A milestone is considered achieved if all associated tasks are marked as "Completed."
- The project management dashboard should provide an overview of all milestones, their statuses, and their due dates.
- The overview should highlight any overdue or pending milestones.

1.5.Report Generation

1. As a project manager, I want to generate comprehensive reports on project flow and milestone achievements.

2. As a stakeholder, I want to access detailed reports to analyze milestones achieved and tasks completed.

Acceptance Criteria:

- The project flow report should include details on project timelines, task dependencies, task status, and milestone progress.
- The milestone achievement report should include details on each milestone, associated tasks, completion dates, and any delays or issues encountered.

User Stories as Non Functional Requirements

2.1.Performance

1. As a user, I want the website to load within a second, so I can access project information without delay.

2.2.Availability

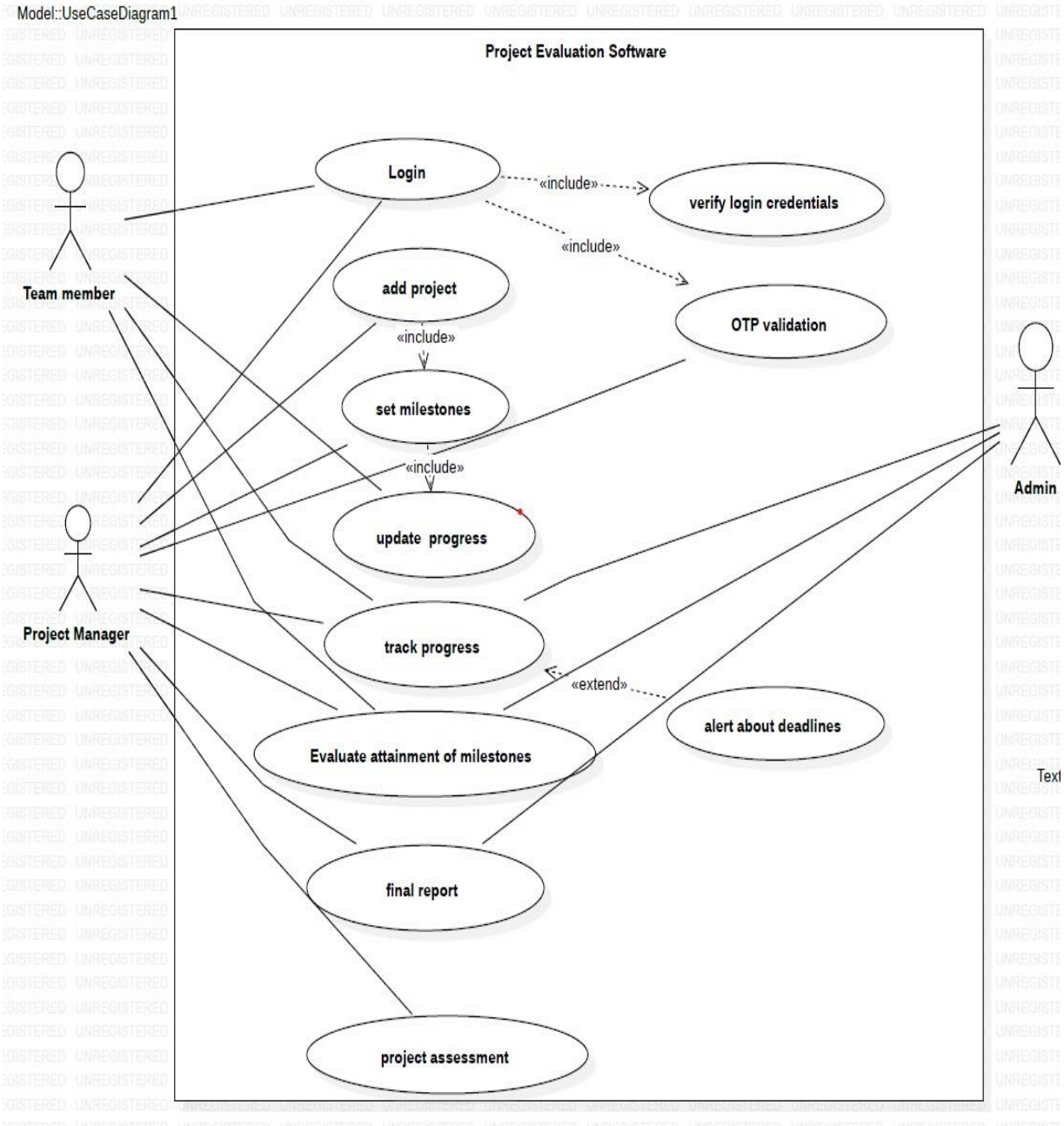
1. As a user, I expect the website to be available 24/7, ensuring access to project information at any time.

2.3.Security

1. As a user, I want my personal information to be securely stored and protected from unauthorized access.

Usecase Diagram

EXP_NO: 4 **DATE:19-03-24**



NFR-Non Functional Requirement

EXP_NO: 5 **DATE:29-03-24**

1. Performance

1.The system must load the milestone evaluation dashboard within 2 seconds under standard network conditions.

2.Queries to generate reports on milestone evaluations must execute within 5 seconds for datasets up to 1 million records.

2.Reliability

1.The system should have an uptime of 99.9%, ensuring high availability for global teams across different time zones.

2.Implement a disaster recovery plan with data backups every hour and the capability to restore the system within 30 minutes of a major failure.

3.Usability

1.The system should be intuitive and user-friendly, requiring no more than 2 hours of training for new users to become proficient in its basic functions.

4.Maintainability

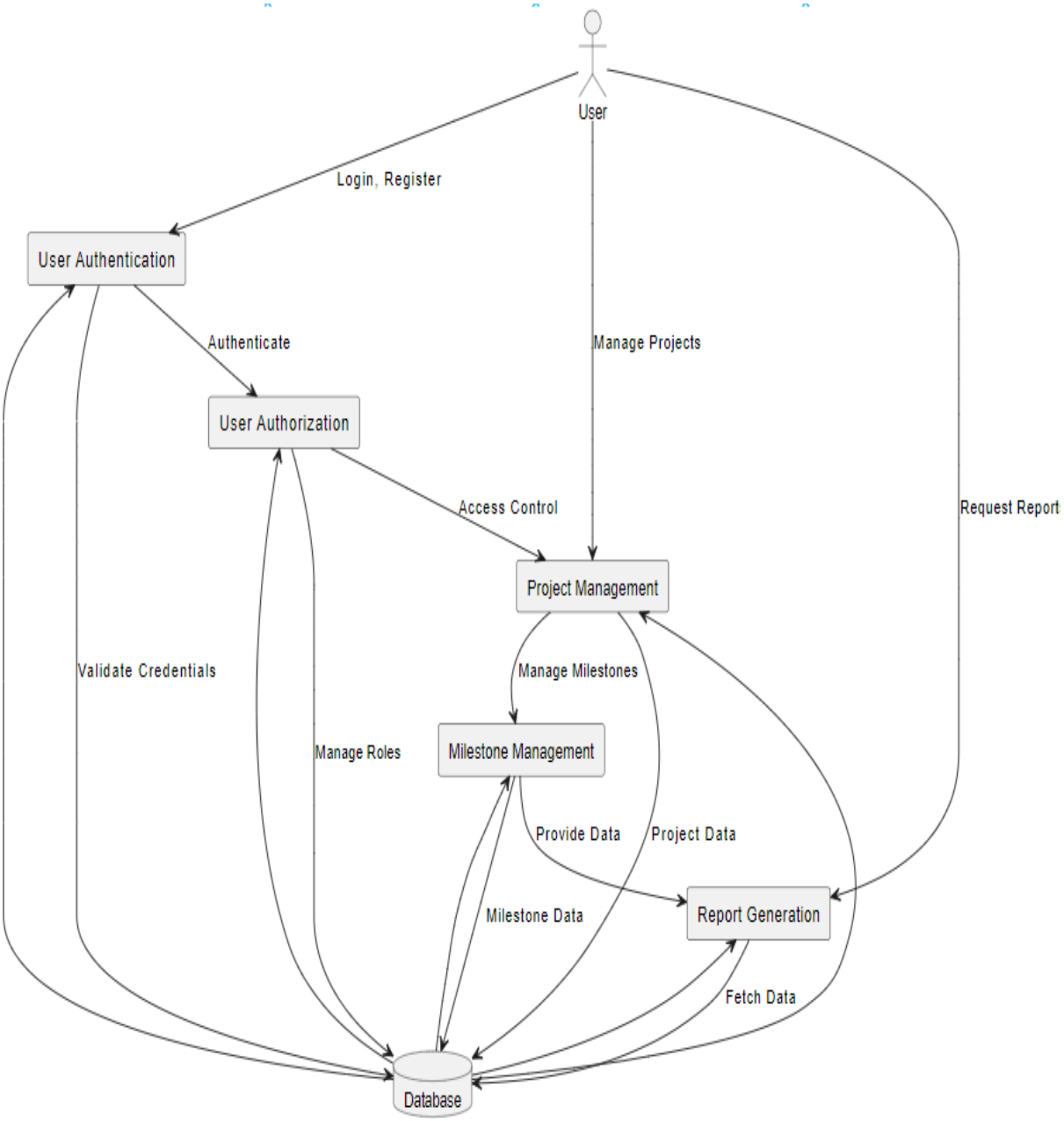
The system’s codebase should follow modular design principles, enabling updates and maintenance to be performed with minimal disruption to users.

5. Localization

The system should support localization features such as date formats, currency symbols, and number formats to cater to regional preferences and requirements.

Overall Architecture Diagram

EXP_NO: 6 **DATE:9-04-24**



Business Architecture

EXP_NO: 7 **DATE:19-04-24**

Current Process

Before the implementation of the project milestone evaluation website, the process might involve manual methods or disparate tools for managing projects, milestones, and reports. For example:

- Project Management: Teams may use spreadsheets or documents to track project details, tasks, and deadlines.
- Milestone Management: Milestones may be tracked manually, with notifications or reminders managed separately.
- Report Generation: Reports may be generated manually, requiring data collection from various sources and manual compilation.

Personas and Their Current Processes

Different personas within the organization have varying roles and interactions with the current processes:

- Project Managers: Responsible for overseeing project progress, they may spend significant time updating spreadsheets, communicating with team members, and generating reports.
- Team Members: Engaged in executing project tasks, they rely on project managers for task assignments and milestone updates.
- Administrators: Handle user access, permissions, and system configurations, often managing these manually or through separate tools.

• Stakeholders: Require visibility into project progress and milestone achievements, often relying on periodic reports or updates from project managers.

Business Problems

The current processes present several challenges and inefficiencies:

• Manual Effort: The reliance on manual methods for project, milestone, and report management leads to time-consuming data entry, updates, and report generation.

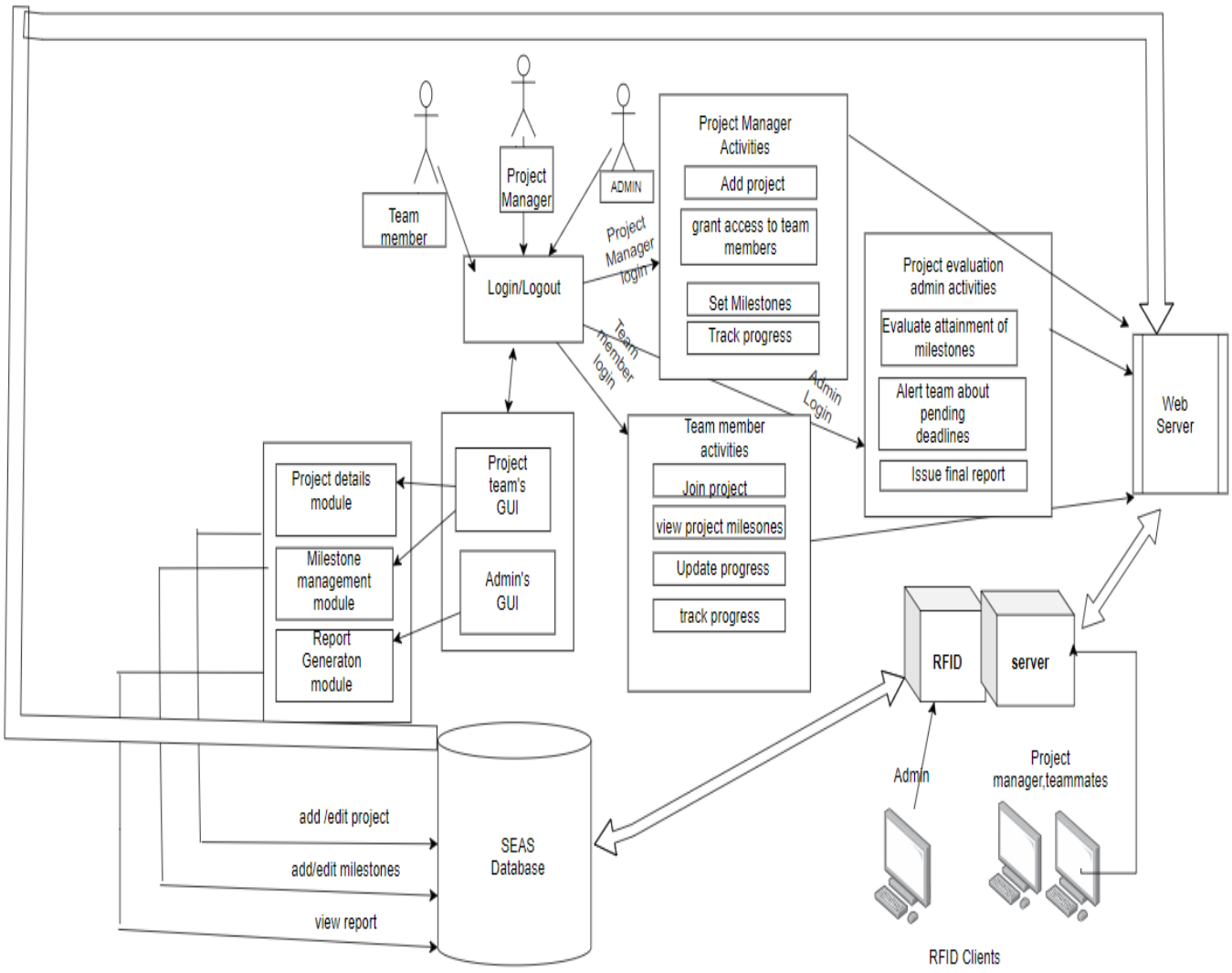
• Data Discrepancies: Disparate tools or manual methods may result in inconsistencies or errors in project data, affecting decision-making and project outcomes.

• Lack of Transparency: Limited visibility into project progress and milestone achievements may lead to misunderstandings or delays in project delivery.

• Limited Scalability: Manual processes or disparate tools may_not scale effectively as the organization grows or as project complexity increases.

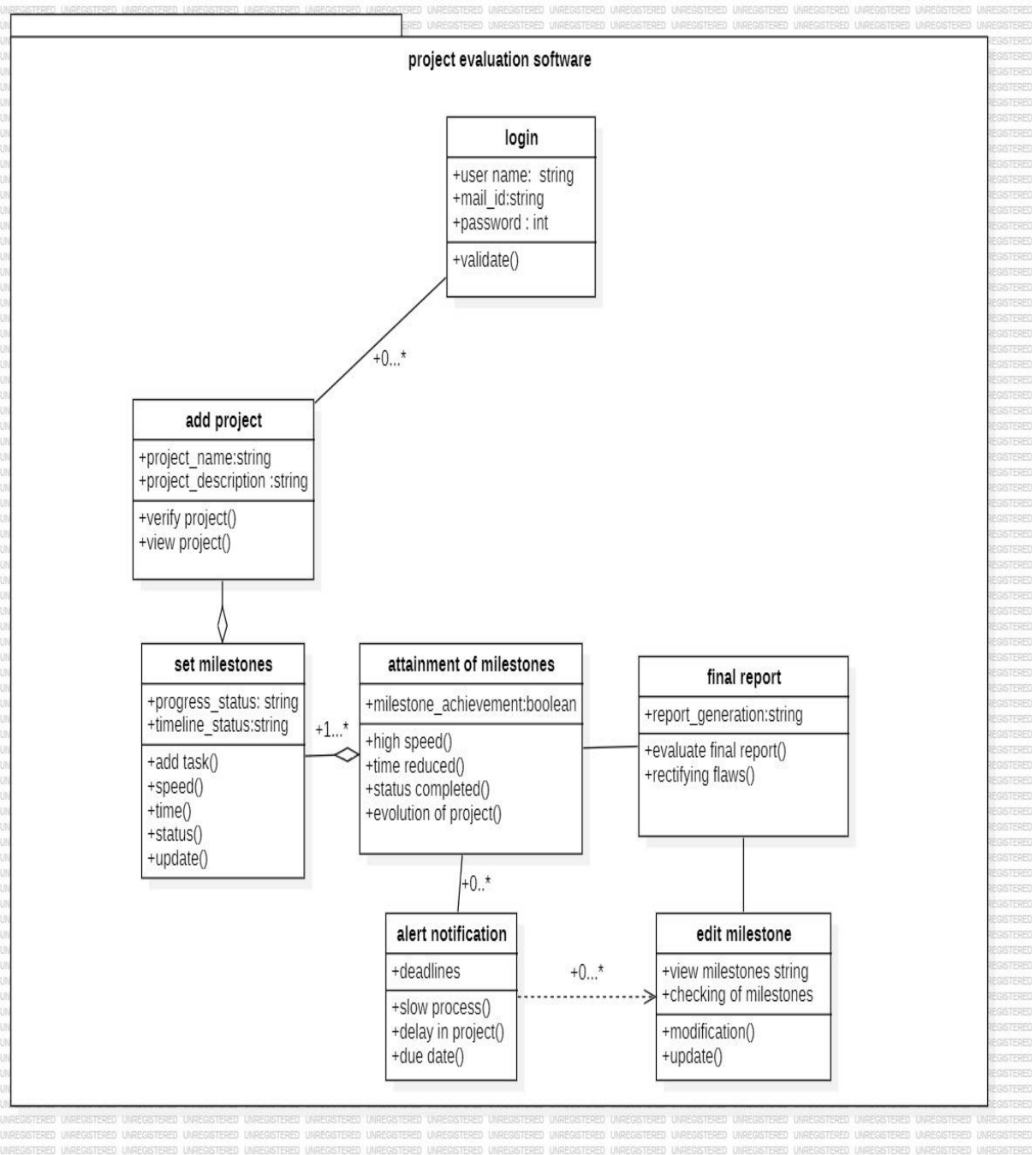
By addressing these business problems, the project milestone evaluation website aims to automate and streamline project management processes, improve data accuracy and transparency, and enhance collaboration and decision-making across the organization.

BUSINESS ARCHITECTURE DIAGRAM



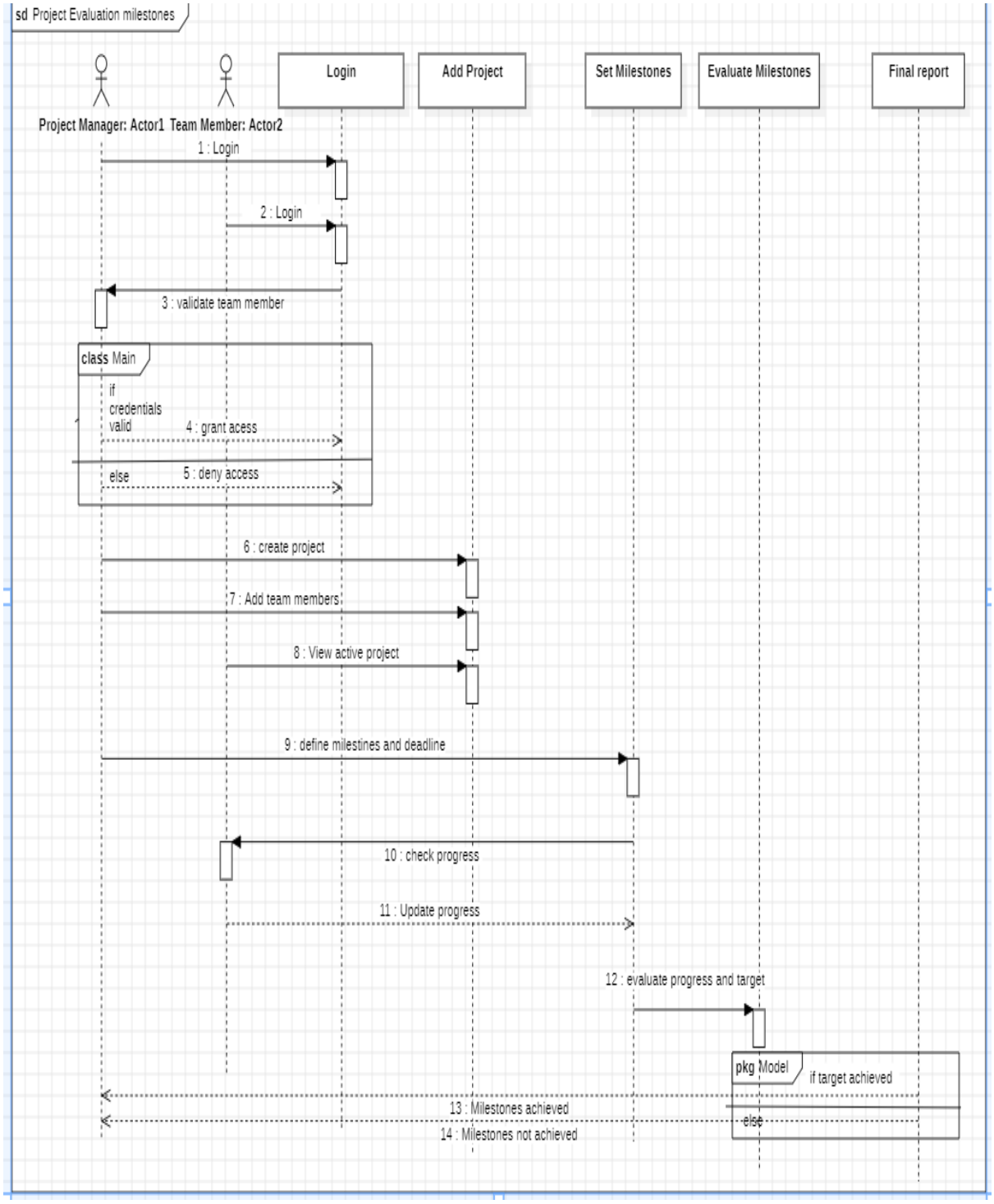
Class Diagram

EXP_NO: 8 **DATE:30-04-24**



Sequence Diagram

EXP_NO: 9 **DATE:10-05-24**



Architectural Pattern

Model View Controller

EXP_NO: 10 **DATE:17-05-24**

In a Project Milestone Evaluation System, using the Model-View-Controller (MVC) architecture can help organize the application into three interconnected components, separating internal representations of information from the ways that information is presented and accepted from the user

1. Model

The Model represents the data and business logic of the application. It directly manages the data, logic, and rules of the application.

Components:

Project: Represents project data, including project ID, name, description, start date, and end date.

Milestone: Represents milestone data, including milestone ID, name, description, due date, status, and associated tasks.

Task: Represents task data, including task ID, name, description, assignee, start date, due date, status, and associated milestone.

User: Represents user data, including user ID, name, role (e.g., project manager, team member, stakeholder), and credentials.

Report: Represents report data, including report ID, type, content, creation date, and associated project.

Notification: Represents notification data, including notification ID, type, content, recipient, and timestamp.

2. View

The View represents the UI components of the application. It displays data to the user and sends user commands to the controller.

Components:

Login View: UI for user authentication, allowing users to log in securely.

Dashboard View: UI for displaying an overview of projects, milestones, and tasks, tailored to user roles (project managers, team members, stakeholders).

Project Details View: UI for displaying detailed project information, including milestones and tasks.

Milestone Management View: UI for project managers to create, edit, and view milestones.

Task Management View: UI for team members to update the status of tasks.

Report View: UI for generating, viewing, and downloading reports.

Notification View: UI for managing and viewing notifications.

3. Controller

The Controller handles user input and updates the Model and View accordingly. It acts as an intermediary between Model and View, processing all business logic and incoming requests, manipulating data using the Model, and interacting with the Views to render the final output.

Components:

Authentication Controller: Manages user login, logout, and session management.

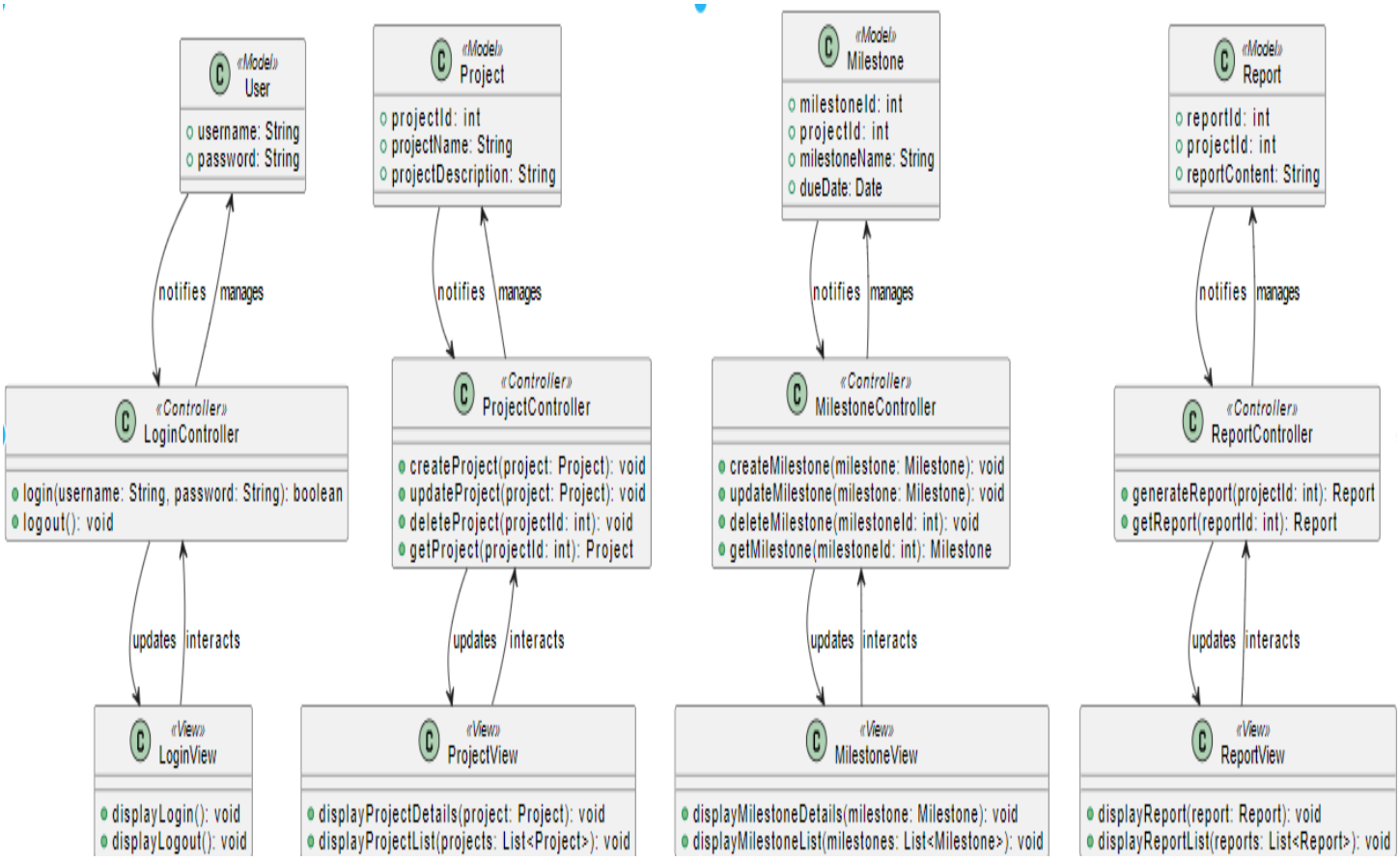
Project Controller: Handles creation, updating, and retrieval of project data.

Milestone Controller: Manages creation, updating, and evaluation of milestones.

Task Controller: Handles task updates and re-evaluates associated milestone statuses.

Report Controller: Manages report generation, retrieval, and export.

Notification Controller: Sends notifications to users based on milestone and task updates.



MVC ARCHITECTURE DIAGRAM