Homework 10

Project Elaborating Program with Extension (PEPE)

Software Engineering Principle

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PEPE (Project Elaborating Program with Extension)

Description

PEPE (Project Elaborating Program with Extension) is a web-based collaborative project management system designed to support software development teams throughout the entire Software Development Life Cycle (SDLC). It provides an integrated environment that enables teams to plan, organize, track, and manage software projects in a structured, transparent, and efficient manner.

The system is specifically targeted at students, academic project groups, and small software development teams who require a lightweight yet powerful tool to manage their projects without the complexity of enterprise-level platforms.

Objectives

PEPE aims to:

- Improve team collaboration and communication.
- Provide a centralized platform for project planning and documentation.
- Enable efficient task tracking, progress monitoring, and issue management.
- Assist teams in meeting deadlines through proper scheduling and milestone control.
- Provide insights into team productivity through basic analytics and reporting.

Key Features

1. Project Planning

- Create and manage multiple projects.
- Define project scope, goals, milestones, and deadlines.
- Visualize timelines using Gantt charts.

2. Task Management

- Break projects into tasks and subtasks.
- Assign tasks to team members.
- Set priorities, deadlines, and dependencies.
- Track task status: To Do, In Progress, Testing, Completed.

3. Collaboration & Communication

- Built-in comment system for tasks.
- Real-time notifications for task updates and deadlines.
- Activity feed to monitor project progress.

4. Reporting & Analytics

- Progress reports per project or per member.

5. User & Role Management

- Roles: Admin, Project Manager, Team Member.
- Access control based on roles.

6. Issue & Bug Tracking (Optional)

- Report bugs or issues via tickets.
- Assign severity levels.
- Track resolution status.

7. Visual Studio Code Integration with Extension (Optional)

- Interpret `TASK` from comment in code.
- Assign `TASK` to `@USER` or `@ROLE` via external task specification file in Markdown format.
- Interpret `TASK` from comment in code.

Benefits

- Reduces dependency on scattered tools like spreadsheets and chat apps.
- Improves project transparency and accountability.
- Enhances learning experience for students in team-based projects.
- Saves time by automating routine project management activities.

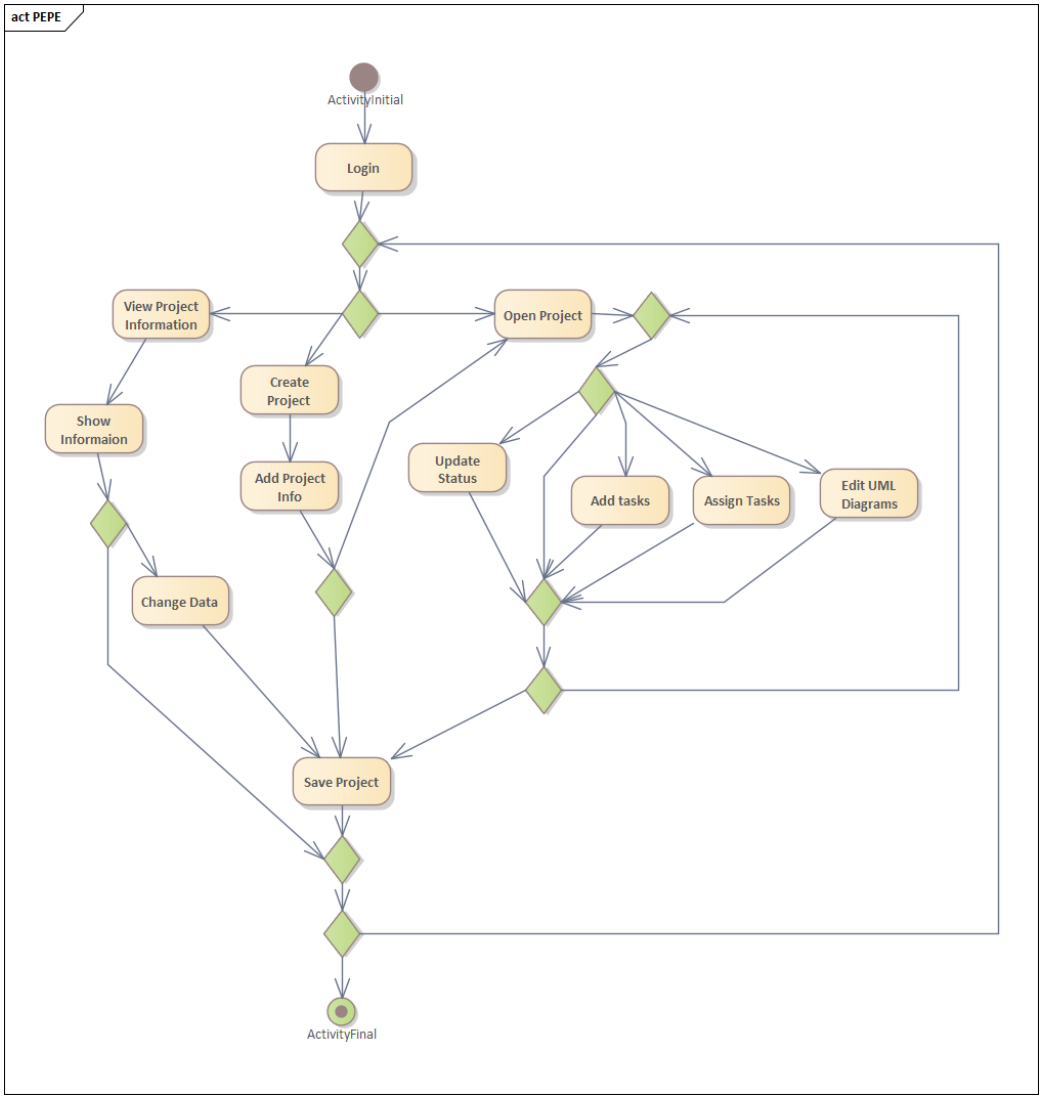
Target Users

- University students working on capstone or group projects.
- Small development teams and startups.
- Academic instructors supervising multiple student teams.

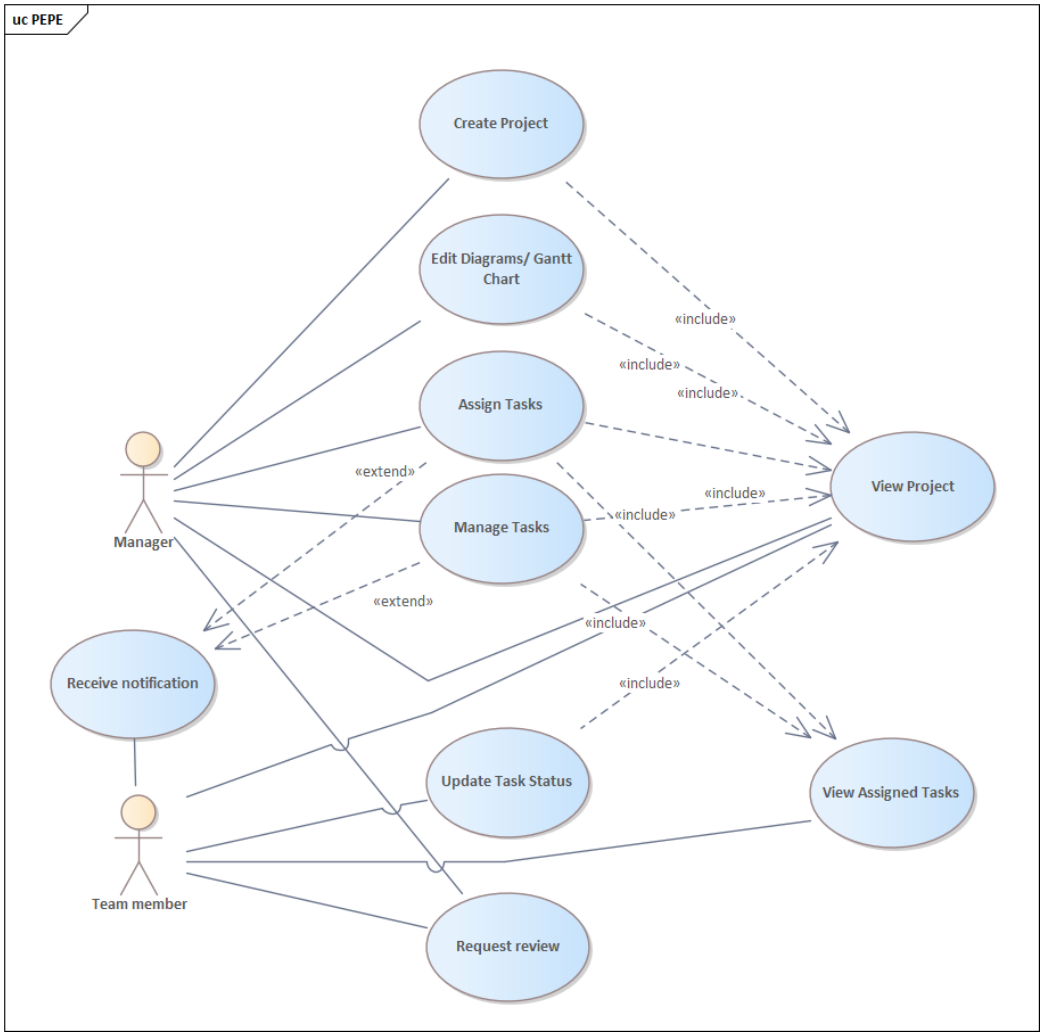
Conclusion

PEPE serves as a simple yet comprehensive project management solution that bridges the gap between theory and practice in software engineering. By providing essential planning, tracking, and collaboration features in one unified platform, it empowers teams to deliver projects on time with higher quality and better coordination.

Activity Diagram:



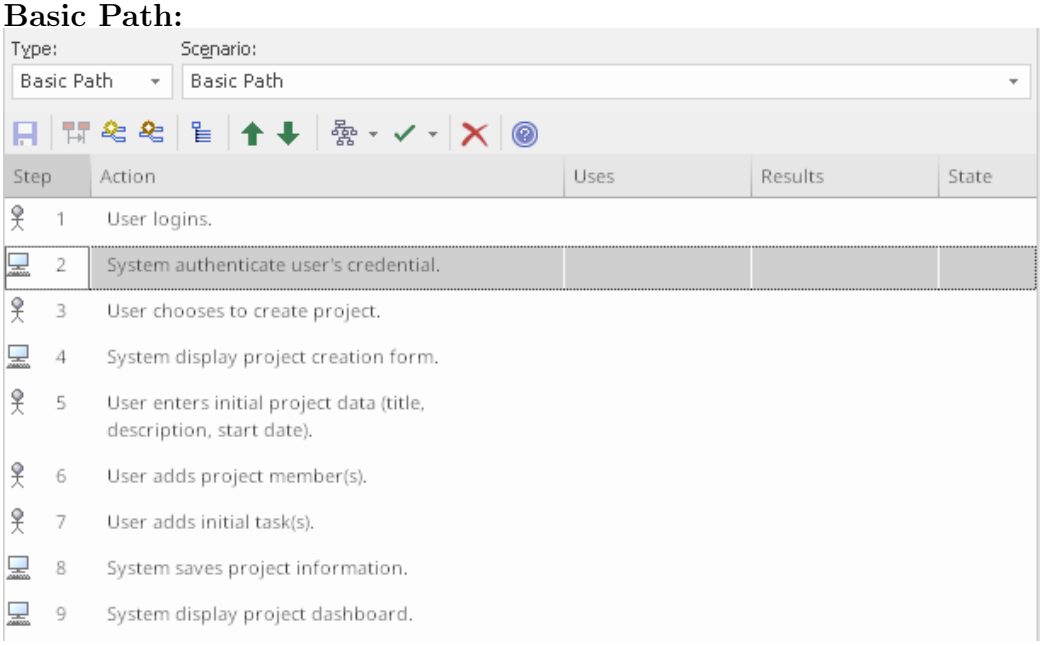
Use Case Diagram:



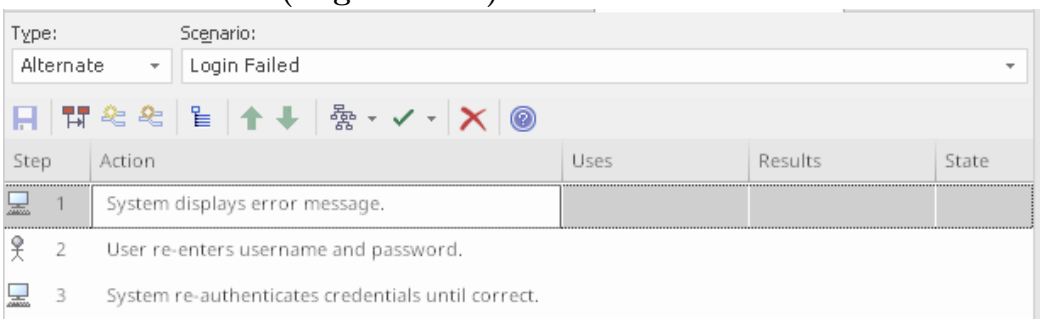
Course of Events:

Course of Event for Creating Project:

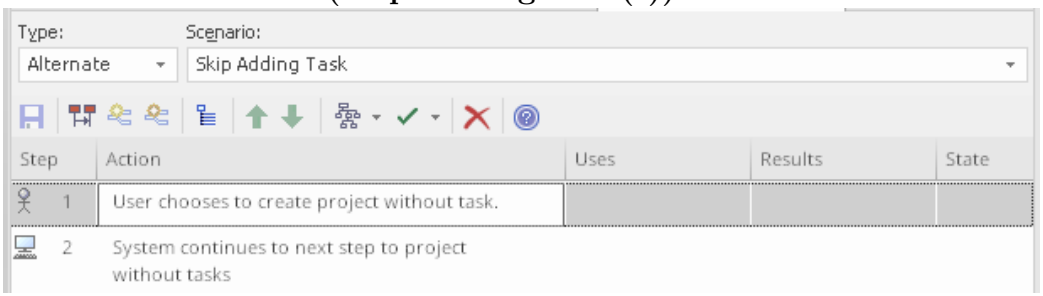
Basic Path:



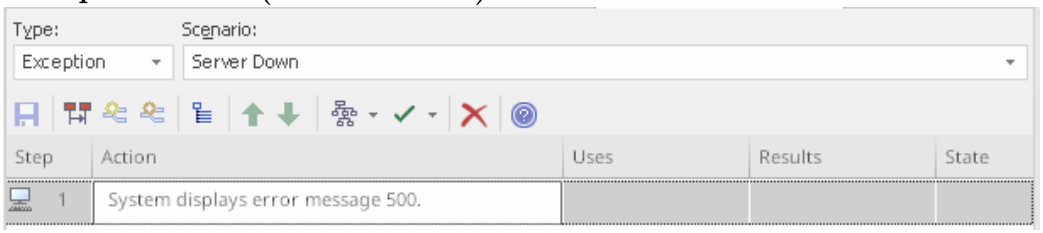
Alternative Path (Login Failed):



Alternative Path (Skip Adding Task(s)):



Exception Path (Server Down):



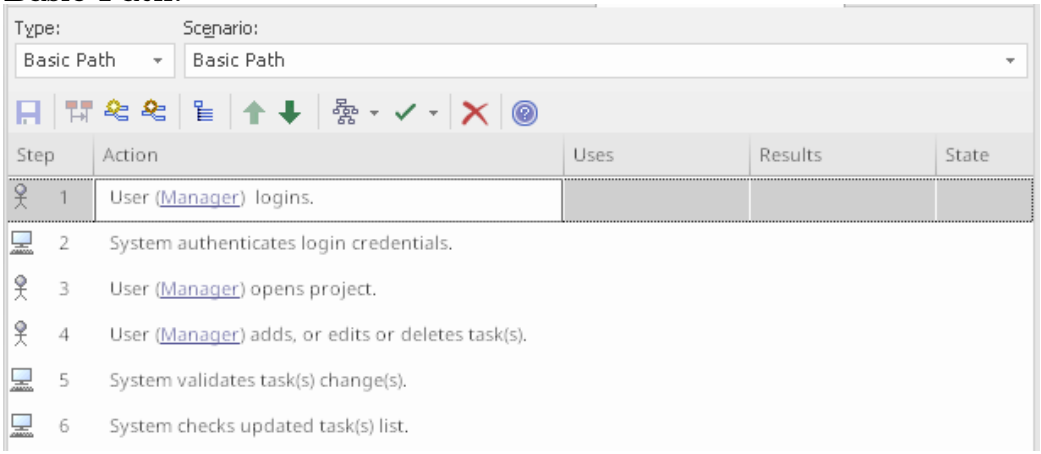
Entry Points:

Entry Points | Context References | Constraints

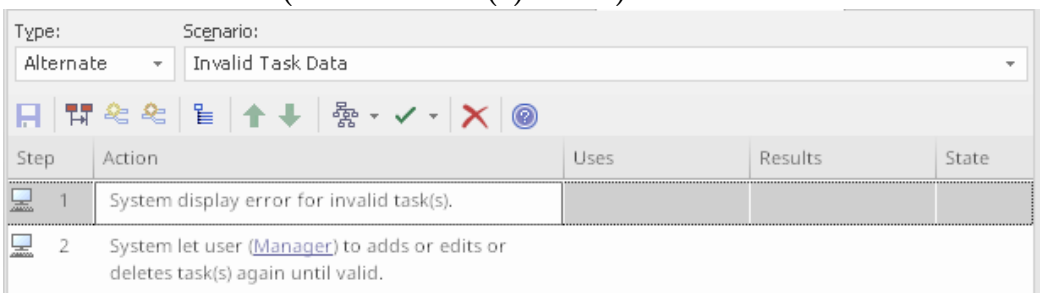
Step	Path Name	Type	Join
0	Basic Path	Basic Path	-
2a	Login Failed	Alternate	3
2b	Server Down	Exception	End
4a	Server Down	Exception	End
7a	Skip Adding Task	Alternate	8
8a	Server Down	Exception	End
9a	Server Down	Exception	End

Course of Event for Managing Task(s):

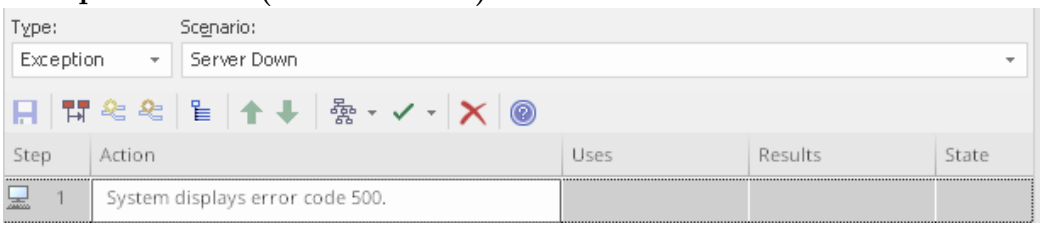
Basic Path:



Alternative Path (Invalid Task(s) Data):



Exception Path (Server Down):



Entry Points:

Entry Points | Context References | Constraints

Step	Path Name	Type	Join
0	Basic Path	Basic Path	-
2a	Server Down	Exception	End
5a	Invalid Task Data	Alternate	6
5b	Server Down	Exception	End
6a	Server Down	Exception	End

Course of Event for Review Requesting:

Basic Path:

Type: Basic Path | Scenario: Basic Path

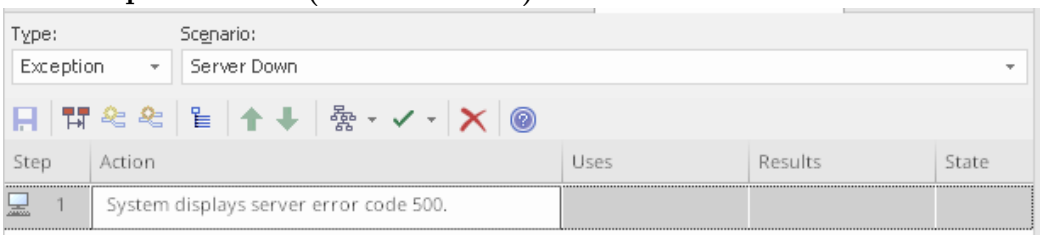
Step	Action	Uses	Results	State
1	User (Team Member) logins.			
2	System authenticates user credential.			
3	User (Team Member) selects completed task(s).			
4	User (Team Member) requests review.			
5	System review requests to user (Manager).			

Alternative Path (Task not Complete):

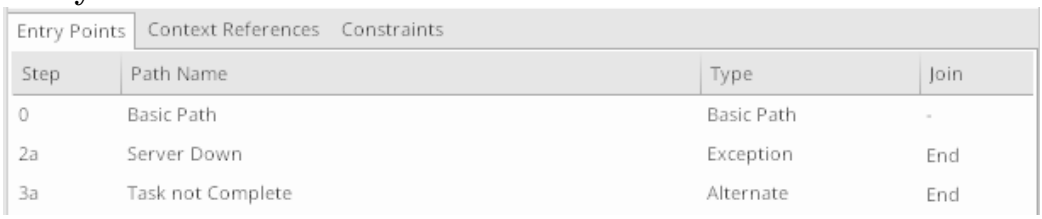
Type: Alternate | Scenario: Task not Complete

Step	Action	Uses	Results	State
1	System displays error task not complete.			

Exception Path (Server Down):



Entry Points:



Domain Model: