SYSTEM REQUIREMENT SPECIFICATION

Functional Requirements

Project Management
The system shall allow project owners to create, configure, and publish projects.

Recruitment & Assignment
The system shall allow collaborators to apply and owners to approve applicants.

Task Lifecycle Management
The system shall manage task states: *In Progress → Submitted → Approved / Revision*.

Submission Versioning
Each submission shall create a timestamped, immutable version.

XP Automation
The system shall award XP only after explicit approval by the project owner.

XP Calculation Rules
XP shall be calculated using:

- Task difficulty

- Deadline adherence

- Rework penalty
  Final XP = Base XP + Bonus − Penalty

Mentorship Support
The system shall allow mentors to provide guidance and recommendations without evaluation authority.

Audit Logging
All critical actions shall be logged immutably.

Administration & Enforcement
The system shall support warnings, suspensions, and account bans.

Non-Functional Requirements

Transparency
All workflow transitions must be traceable through audit logs.

Determinism
XP calculation shall be rule-based and deterministic.
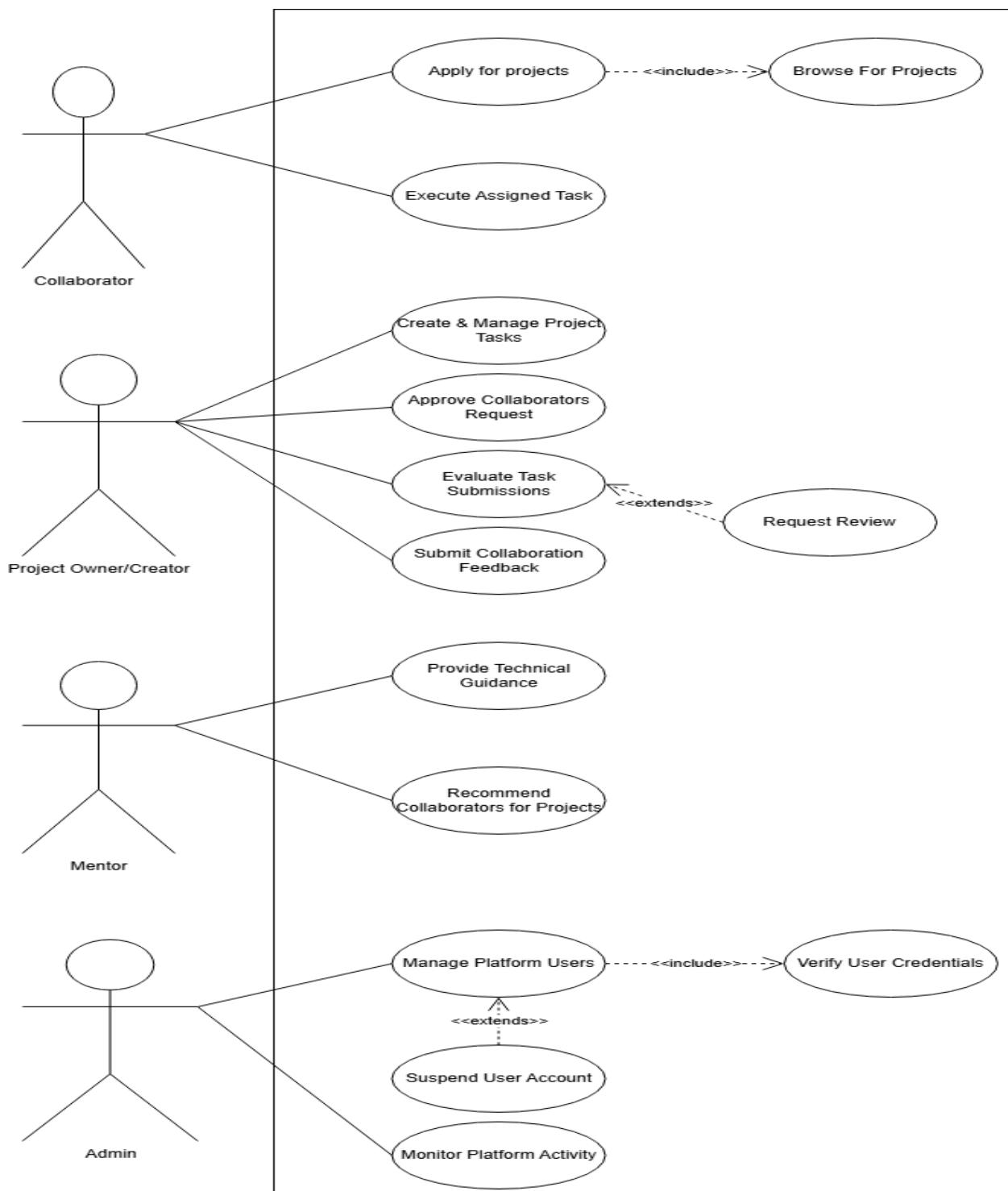
Security
Role-based access control must be enforced.

Reliability
XP transactions must be idempotent (exactly once).
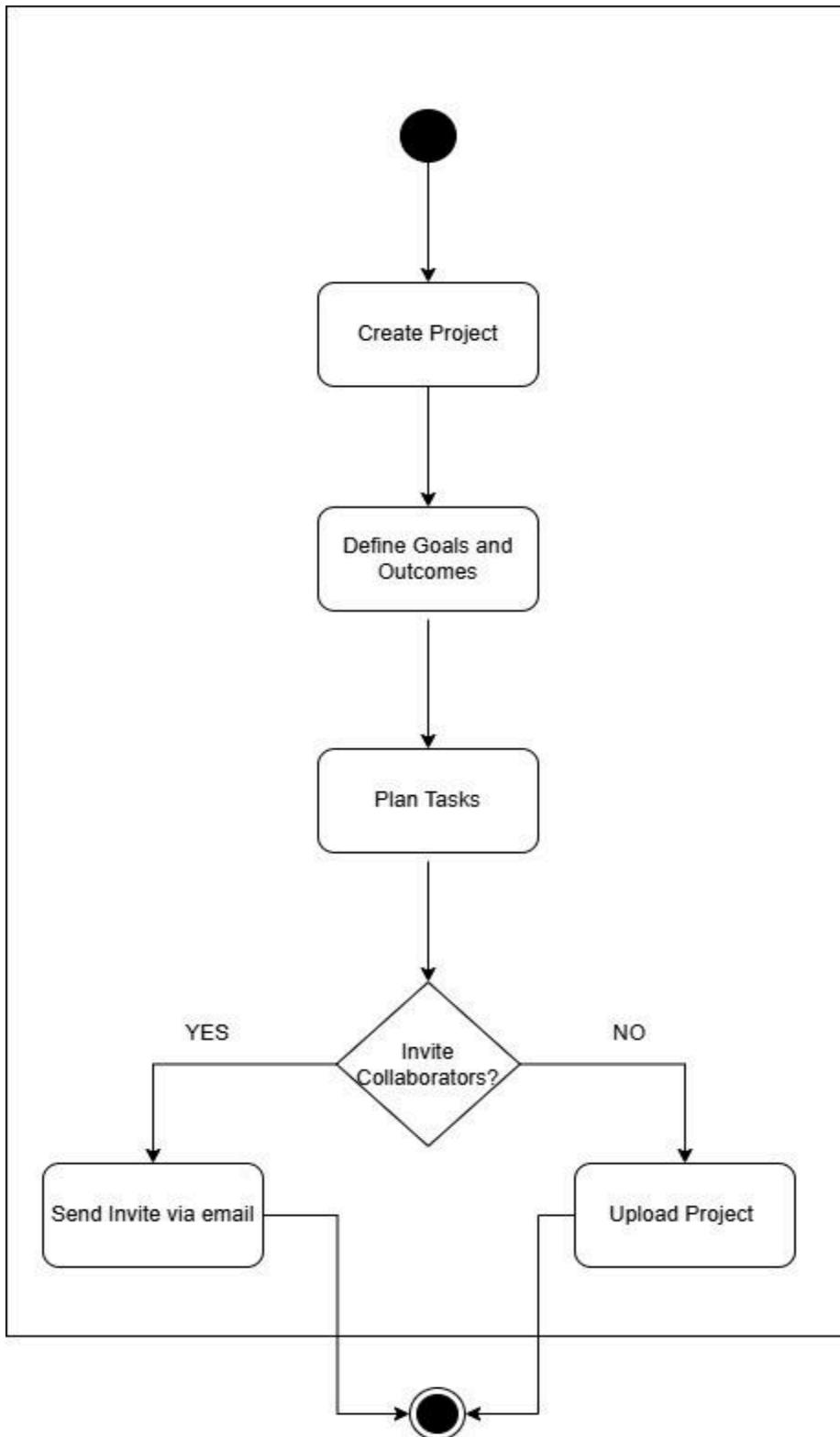
Scalability
System shall support concurrent users and multiple projects.

USE CASE DIAGRAM
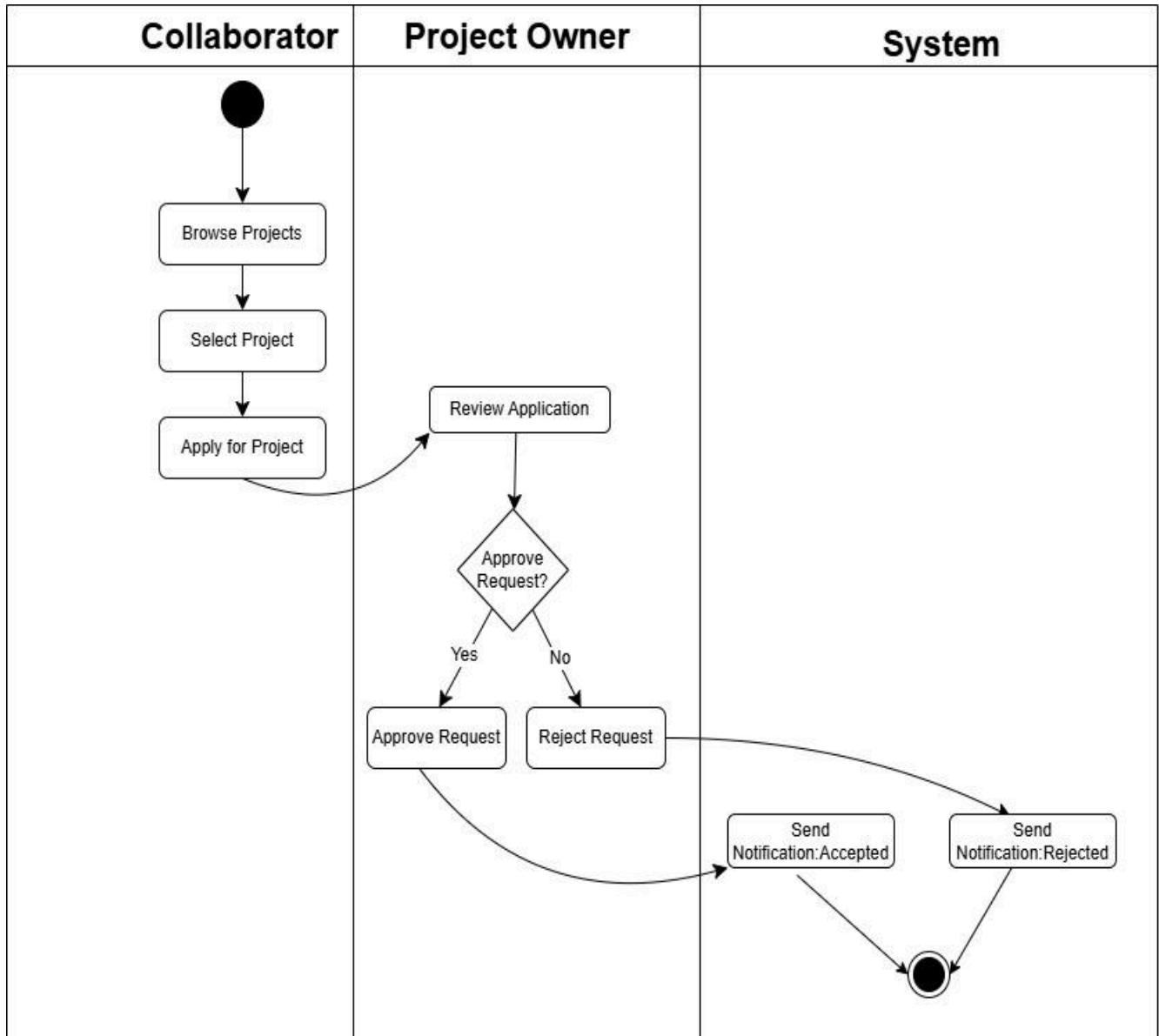
ACTIVITY DIAGRAMS
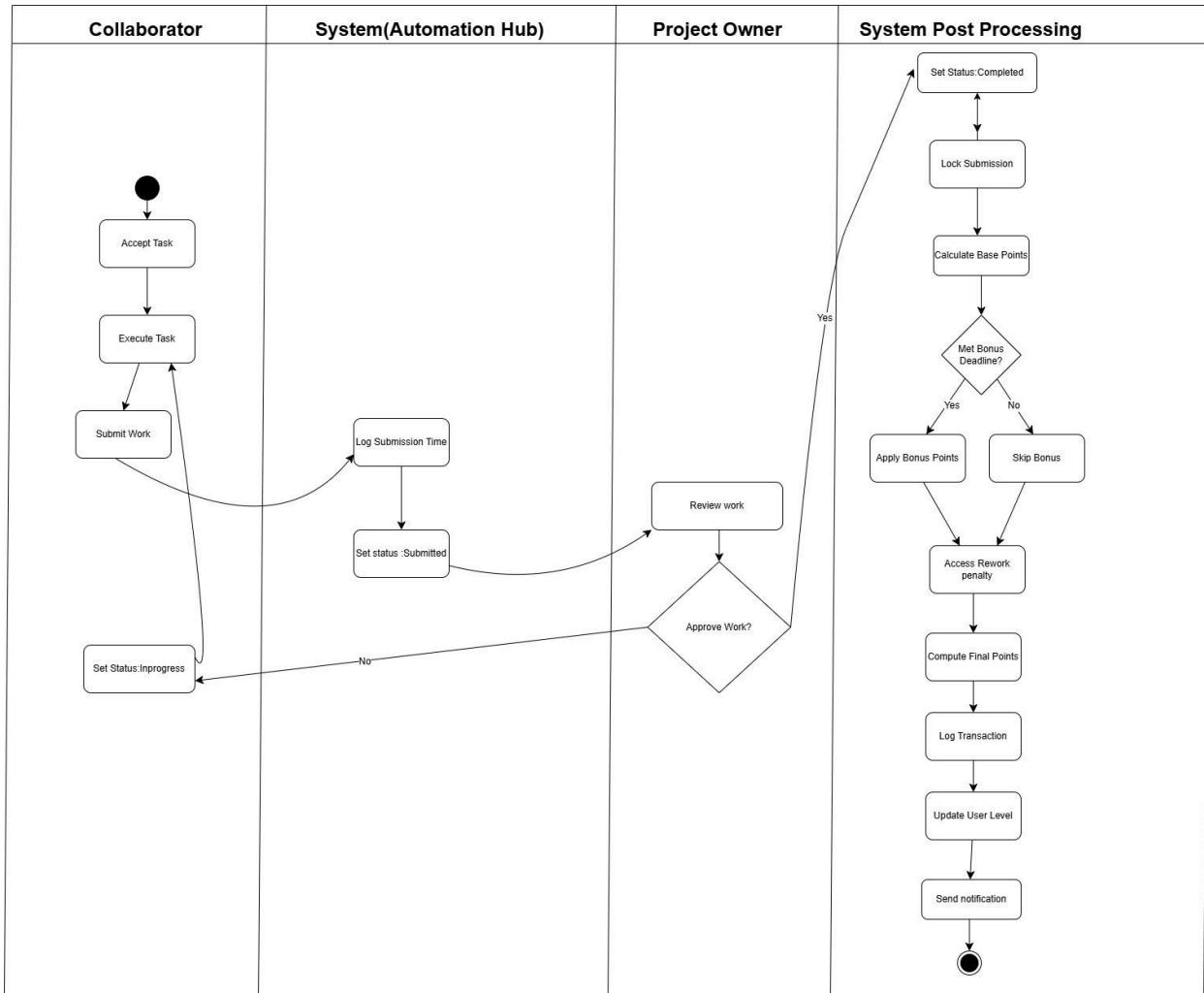
PROJECT CREATION
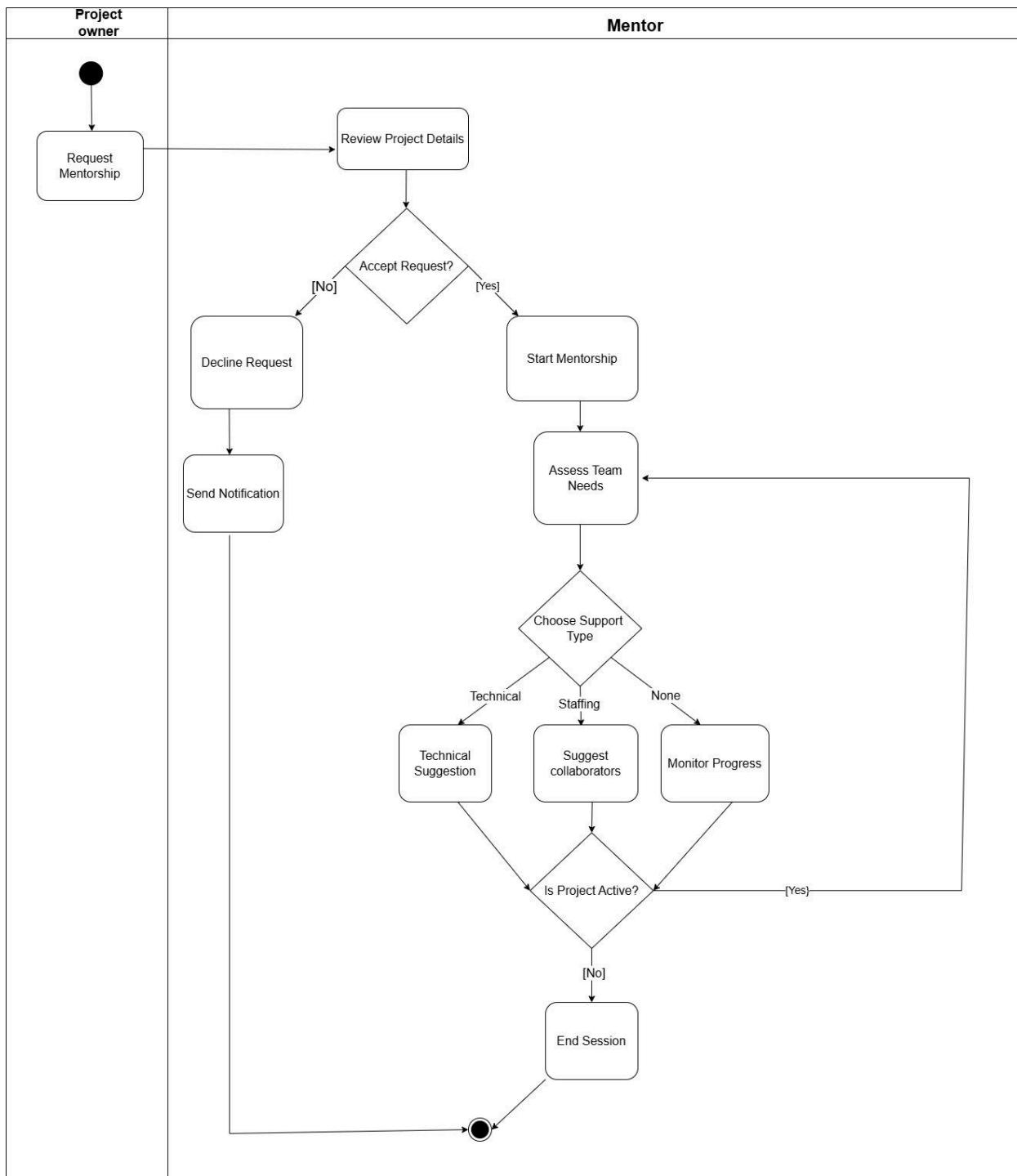
RECRUITMENT

TASK EXECUTION

Collaborator	System(Automation Hub)	Project Owner	System Post Processing
●			Set Status:Completed
Accept Task			Lock Submission
Execute Task			Calculate Base Points
Submit Work	Log Submission Time		Met Bonus Deadline?
	Set status :Submitted	Review work	Yes — Apply Bonus Points / No — Skip Bonus
Set Status:Inprogress		Approve Work?	Access Rework penalty
		No	Compute Final Points
		Yes	Log Transaction
			Update User Level
			Send notification
			◉

MENTORSHIP WORKFLOW

Project owner	Mentor

Project owner:

● → Request Mentorship

Mentor:

Review Project Details

↓

Accept Request?

[No] → Decline Request → Send Notification

[Yes] → Start Mentorship

↓

Assess Team Needs

↓

Choose Support Type

- Technical → Technical Suggestion
- Staffing → Suggest collaborators
- None → Monitor Progress

↓

Is Project Active?

[Yes] → Assess Team Needs

[No] → End Session

End Session → ●

ADMIN WORKFLOW

SEQUENCE DIAGRAM

Collaborative Project Marketplace

Actors: Project Owner, Collaborator, Mentor, Administrator
Participants: Project Core Service, Mentor Service, XP Engine, Admin Service

Setup & Task Definition

- 1 Create Project
- 2 Project Live
- 3 Define Task List
- 4 Tasks Published

Recruitment & Assignment

- 5 Apply for Project
- 6 Notify New Applicant
- 7 Approve Applicant
- 8 Notify "Welcome to Team"
- 9 Assign Task to Collaborator
- 10 Notify "Task #101 Assigned"

Mentorship Logic

opt [Project Needs Guidance]
- 11 Request Mentor
- 12 Notify "Help Needed"

alt [Mentor Accepts]
- 13 Click Accept
- 14 Link Mentor to Project
- 15 Notify "Mentor Joined"

opt [Talent Scouting]
- 16 Recommend Specialist
- 17 Generate Invite
- 18 Send Invitation

[Mentor Declines]
- 19 Click Decline
- 20 Notify "Request Declined"

Execution & XP Automation

loop [Task Submission Cycle]
- 21 Upload / Revise Work
- 22 Notify "Review Needed"
- 23 View Submission

alt [Work Approved]
- 24 Click Approve
- 25 Trigger XP Calculation

XP Logic
1. Get Difficulty
2. Check Deadline
3. Calc Points

- 26 Update Leaderboard
- 27 XP Awarded
- 28 Set Status "Completed"
- 29 Notify "Task Done & XP Earned"

Loop Ends

[Work Rejected]
- 30 Click Reject
- 31 Set Status "Revision"
- 32 Notify "Fix & Resubmit"

Retry Required

Closure & Oversight

- 33 Mark Project Finished
- 34 Archive Project Data
- 35 Generate Final Report
- 36 Report Ready

opt [Security Check]
- 37 Ban User
- 38 Suspend Access
- 39 User Suspended