SYSTEM REQUIREMENT SPECIFICATION

Functional Requirements

FR1 – Project Management
The system shall allow project owners to create, configure, and publish projects.

FR2 – Recruitment & Assignment
The system shall allow collaborators to apply and owners to approve applicants.

FR3 – Task Lifecycle Management
The system shall manage task states: *In Progress → Submitted → Approved / Revision*.

FR4 – Submission Versioning
Each submission shall create a timestamped, immutable version.

FR5 – XP Automation
The system shall award XP only after explicit approval by the project owner.

FR6 – XP Calculation Rules
XP shall be calculated using:

- Task difficulty

- Deadline adherence

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

FR7 – Mentorship Support
The system shall allow mentors to provide guidance and recommendations without evaluation authority.

FR8 – Audit Logging
All critical actions shall be logged immutably.

FR9 – Administration & Enforcement
The system shall support warnings, suspensions, and account bans.

Non-Functional Requirements

NFR1 – Transparency
All workflow transitions must be traceable through audit logs.

NFR2 – Determinism
XP calculation shall be rule-based and deterministic.

NFR3 – Security
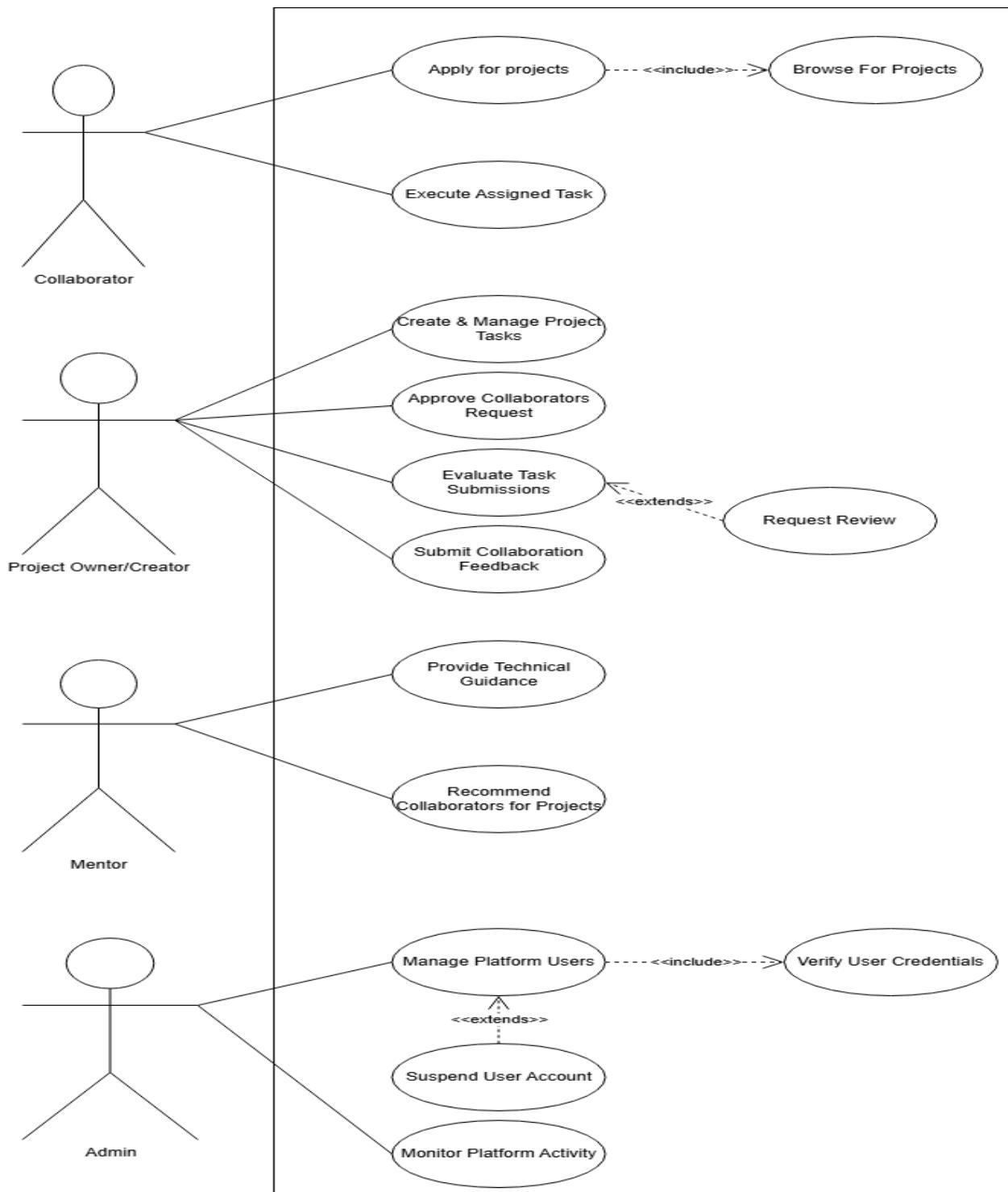Role-based access control must be enforced.

NFR4 – Reliability
XP transactions must be idempotent (exactly once).
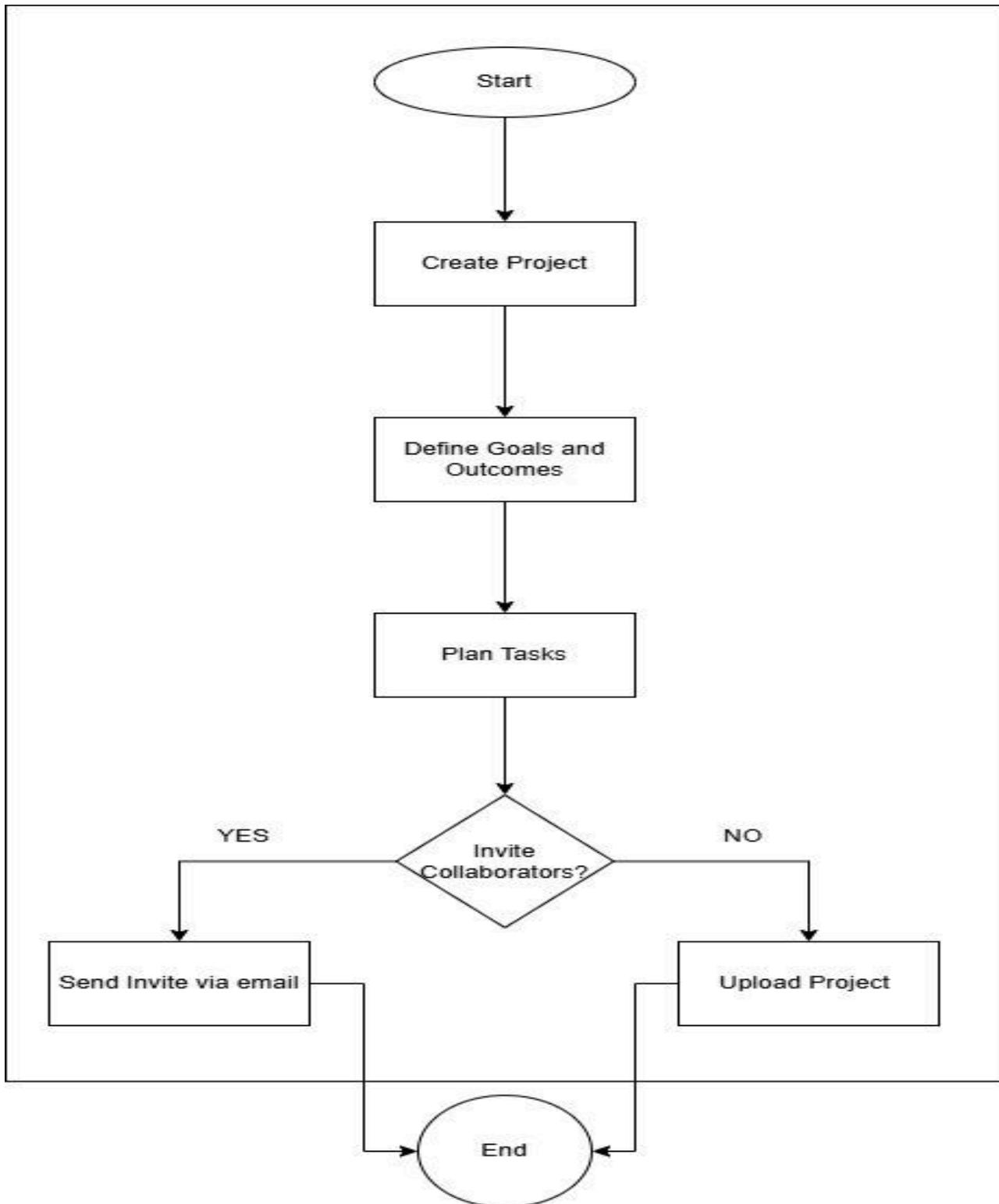
NFR5 – Scalability
System shall support concurrent users and multiple projects.

USE CASE DIAGRAM
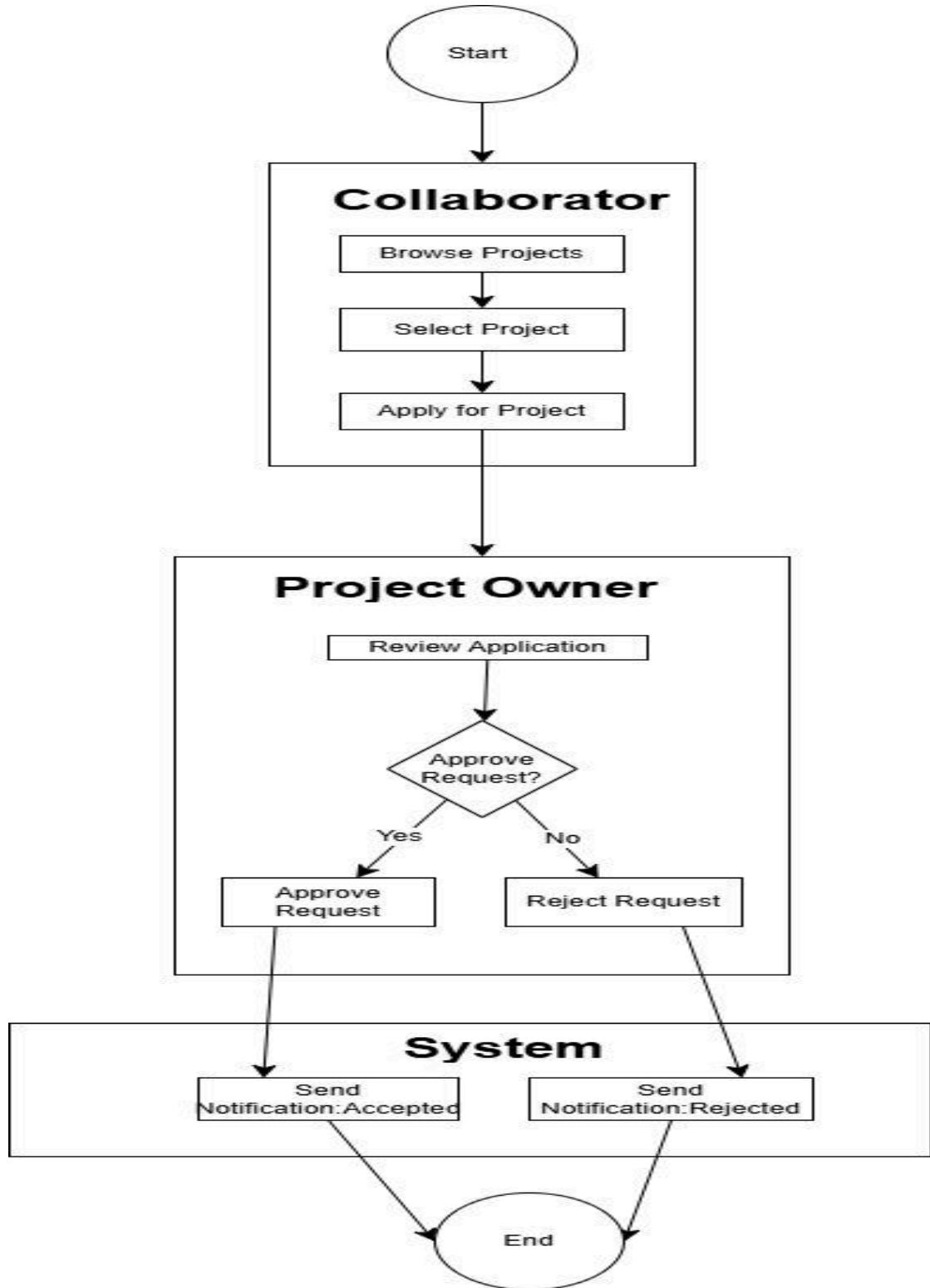
ACTIVITY DIAGRAMS
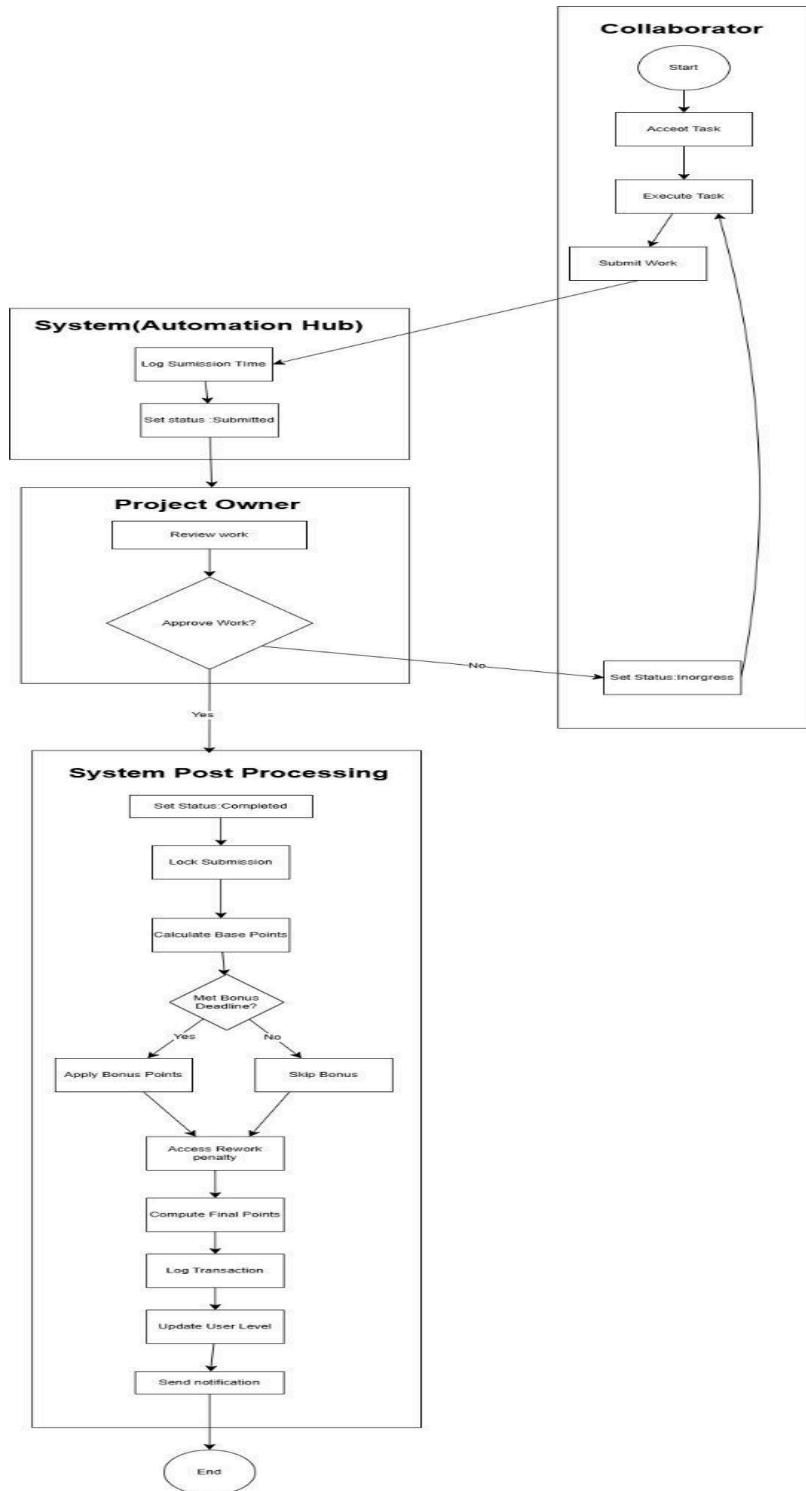
PROJECT CREATION
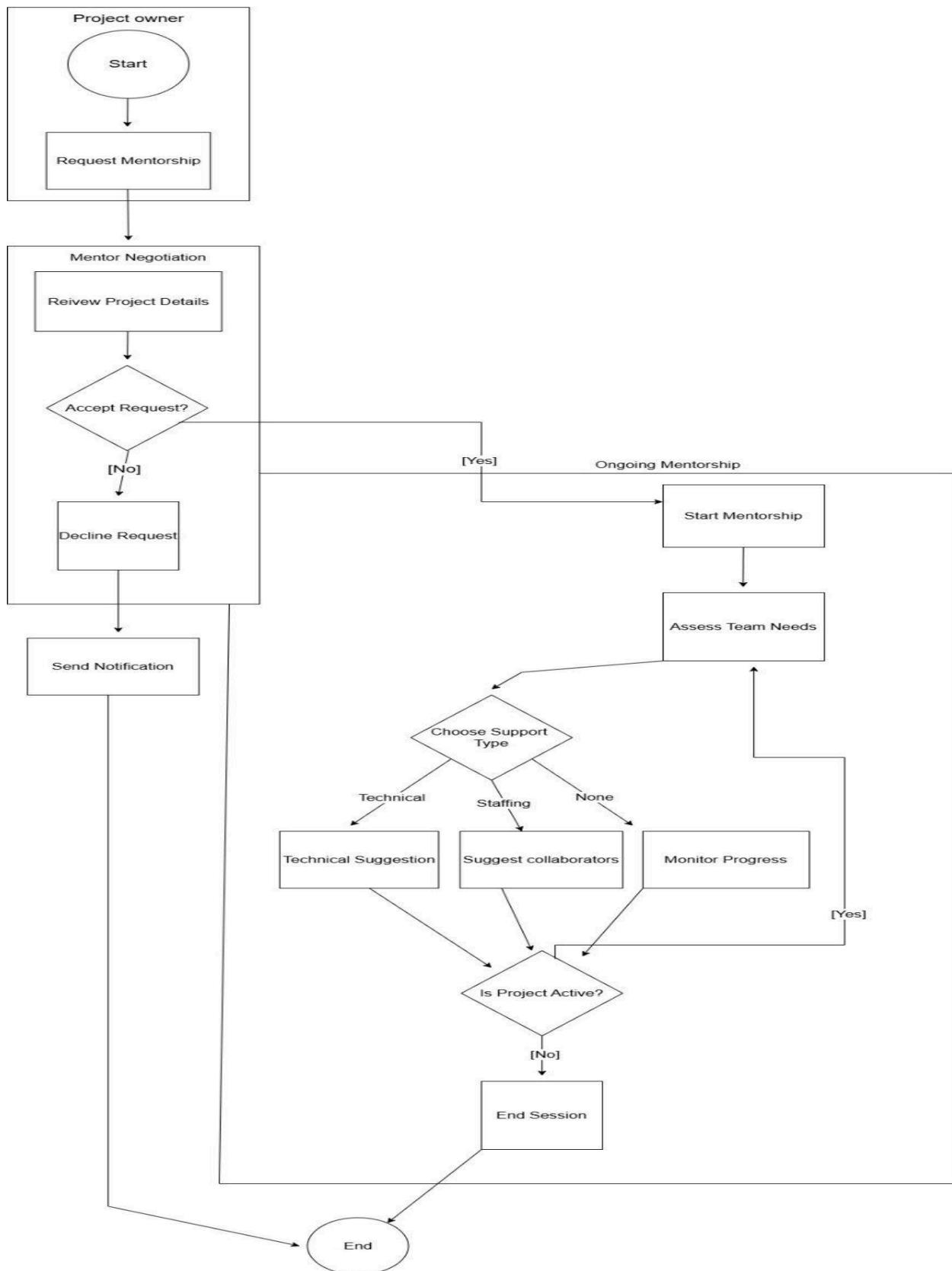
RECRUITMENT

TASK EXECUTION

Collaborator

Start

Acceot Task

Execute Task

Submit Work

Set Status:Inorgress

System(Automation Hub)

Log Sumission Time

Set status :Submitted

Project Owner

Review work

Approve Work?

No

Yes

System Post Processing

Set Status:Completed

Lock Submission

Calculate Base Points

Met Bonus Deadline?

Yes

No

Apply Bonus Points

Skip Bonus

Access Rework penalty

Compute Final Points

Log Transaction

Update User Level

Send notification

End

MENTORSHIP WORKFLOW

Project owner

Start

Request Mentorship

Mentor Negotiation

Reivew Project Details

Accept Request?

[No]

[Yes]

Decline Request

Ongoing Mentorship

Start Mentorship

Send Notification

Assess Team Needs

Choose Support Type

Technical

Staffing

None

Technical Suggestion

Suggest collaborators

Monitor Progress

[Yes]

Is Project Active?

[No]

End Session

End

ADMIN WORKFLOW

SEQUENCE DIAGRAM

Collaborative Project Marketplace

Actors: Project Owner, Collaborator, Mentor, Administrator
Lifelines: 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