CS-3332 Software Engineering I — UML Models (Version 2)

System Concept:
This application helps users create a brand-new GitHub repository for a new idea or import an existing repository so they can continue contributing. Version 2 adds an Admin role for governance (permissions, approvals, audits).
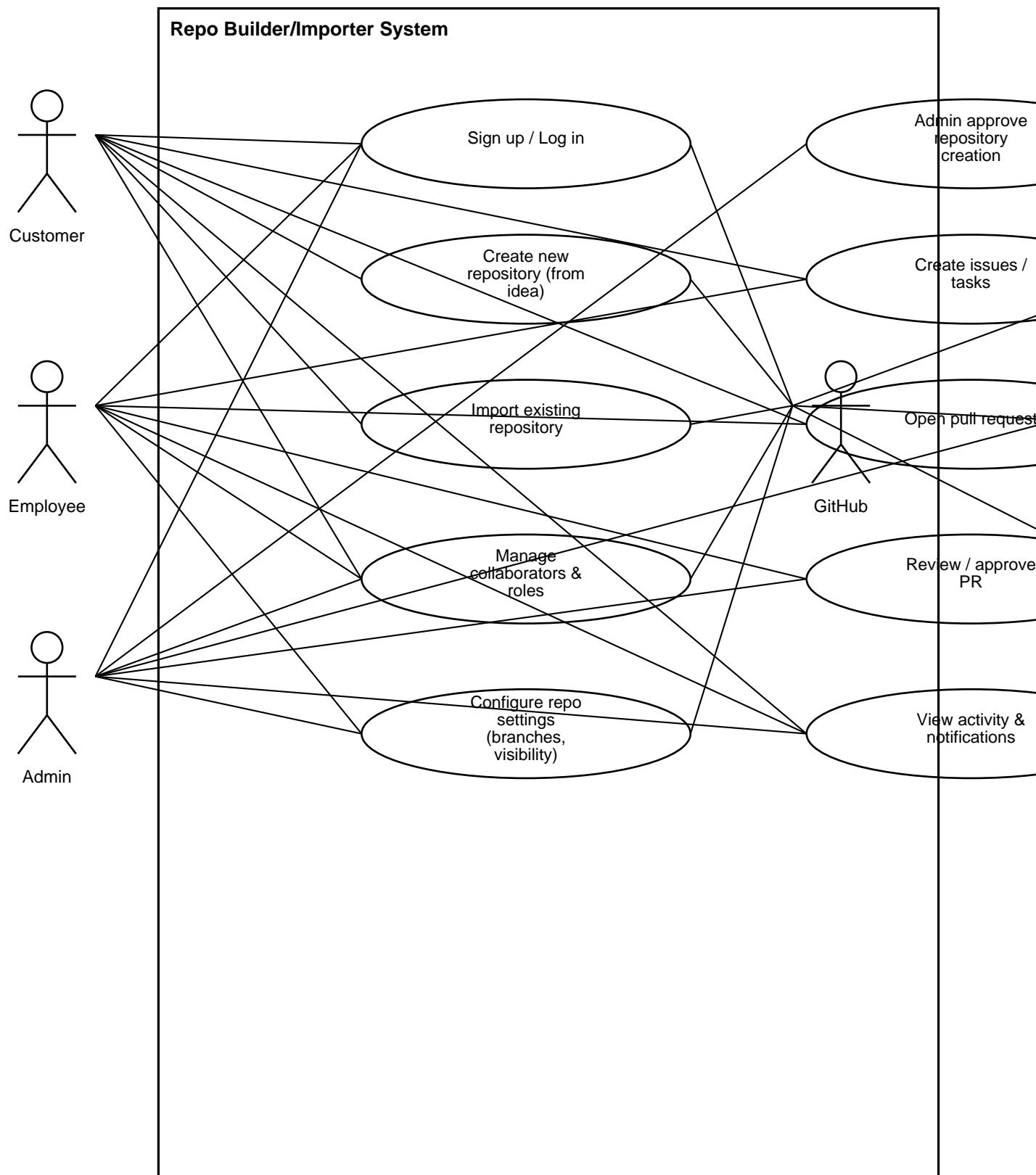
Deliverables in this PDF:
1) UML Use Case Diagram (with Admin)
2) UML Class Diagram (includes Admin + AuditLog)

Actors: Customer, Employee, Admin, GitHub (external system)

UML Use Case Diagram (Version 2)
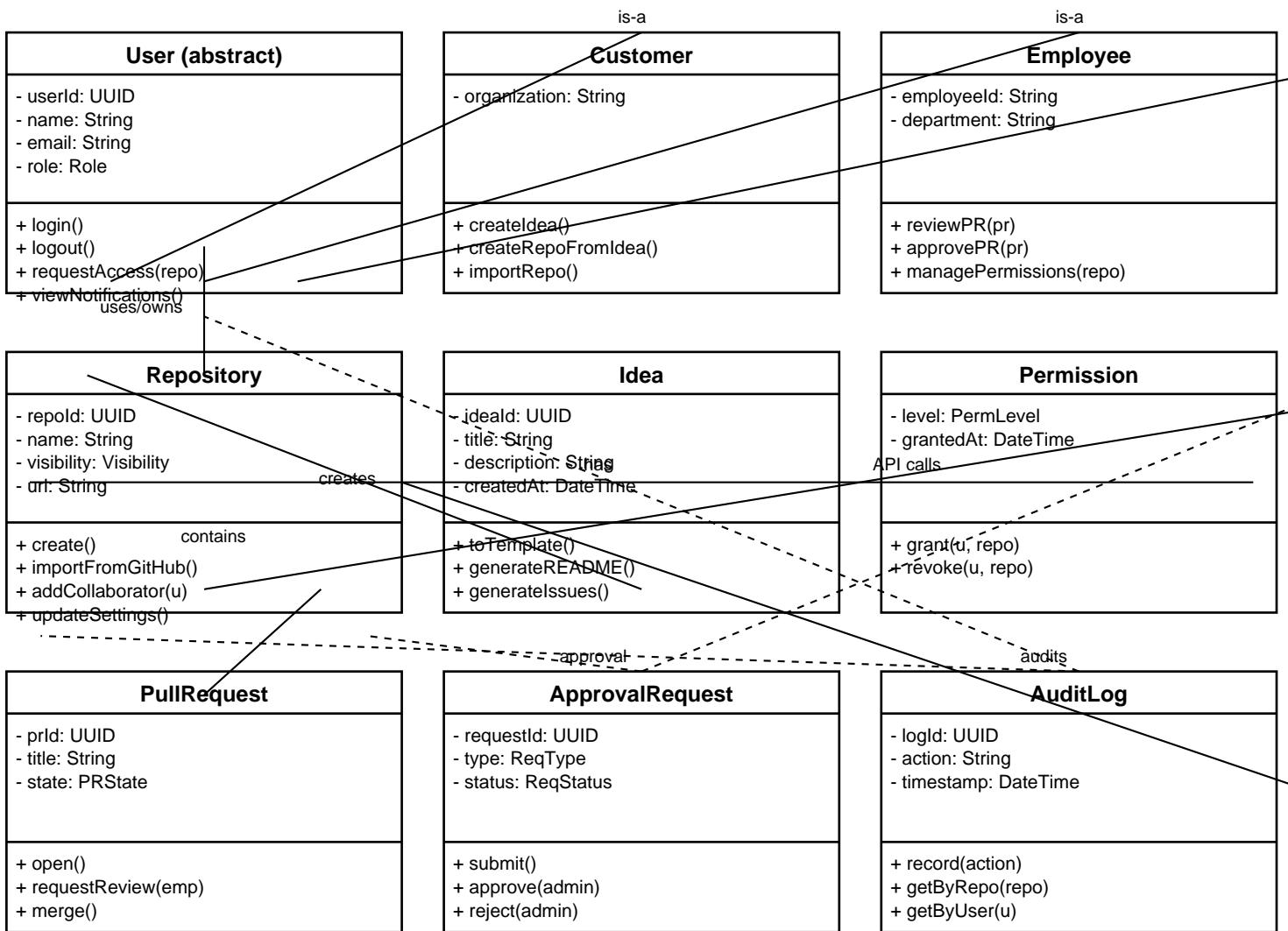
Admin included for governance + approvals

Repo Builder/Importer System

Customer

Employee

Admin

Sign up / Log in

Create new repository (from idea)

Import existing repository

Manage collaborators & roles

Configure repo settings (branches, visibility)

Admin approve repository creation

Create issues / tasks

Open pull request

GitHub

Review / approve PR

View activity & notifications

Admin is included to reflect real-world governance: approvals, audits, and security controls.

UML Class Diagram (Version 2)

Adds Admin + AuditLog + ApprovalRequest

is-a   is-a

User (abstract)

- userId: UUID
- name: String
- email: String
- role: Role

+ login()
+ logout()
+ requestAccess(repo)
+ viewNotifications()

uses/owns

Customer

- organization: String

+ createIdea()
+ createRepoFromIdea()
+ importRepo()

Employee

- employeeId: String
- department: String

+ reviewPR(pr)
+ approvePR(pr)
+ managePermissions(repo)

Repository

- repoId: UUID
- name: String
- visibility: Visibility
- url: String

creates

+ create()
+ importFromGitHub()
+ addCollaborator(u)
+ updateSettings()

contains

Idea

- ideaId: UUID
- title: String
- description: String
- createdAt: DateTime

+ toTemplate()
+ generateREADME()
+ generateIssues()

Permission

- level: PermLevel
- grantedAt: DateTime

API calls

+ grant(u, repo)
+ revoke(u, repo)

approval   audits

PullRequest

- prId: UUID
- title: String
- state: PRState

+ open()
+ requestReview(emp)
+ merge()

ApprovalRequest

- requestId: UUID
- type: ReqType
- status: ReqStatus

+ submit()
+ approve(admin)
+ reject(admin)

AuditLog

- logId: UUID
- action: String
- timestamp: DateTime

+ record(action)
+ getByRepo(repo)
+ getByUser(u)

Version 2 adds Admin governance (approvals + audits). Recreate in Lucidchart/draw.io using the same structure.