



# American International University-Bangladesh (AIUB)

## Department of Computer Science

## Faculty of Science & Technology (FST)

### Title: "Student Skill Bridge."

A Software Engineering Project Submitted  
By

Semester: Summer 24-25		Section:	Group Number:	
SL	Student Name	Student ID	Contribution (CO3+CO4)	Individual Marks
1	Md.Mahabub Al Hashan Sourov	23-50693-1	50%	
2	Sadia Afrin Moumita	22-49830-3	25%	
3	Israt Jahan Dristi	22-49816-3	25%	
4				
5				

The project will be evaluated for the following Course Outcomes

CO3 (PO-g-1) <i>Select appropriate software engineering models, project management roles and their associated skills for the complex software engineering project and evaluate the sustainability of developed software, taking into consideration the societal and environmental aspects</i>		Total Marks	
Selection of Software Engineering Models: Process model selection and presents sufficient evidence to support argument for the model selection		[5 Marks]	
Role identification and Responsibility Allocation: Well-planned project with proper role identification and responsibility allocation in the project management activities		[5Marks]	
Formatting and Submission: Submission, Defense, Completeness, Spelling, grammar, and Organization of the Project report		[5Marks]	
Impact identification: Analysis of the impact of societal, health, safety, legal, and cultural issues		[5Marks]	
CO4 (PO-k-1) <i>Apply engineering management principles and economic decision making to develop software engineering project management plan.</i>		Total Marks	
Project WBS and Testcases: Relevant WBS (project task list) and testcases for the proposed project are stated properly.		[5Marks]	

Effort Estimation and Scheduling: Project estimation was described using proper effort estimation or schedules based on available project resources	[5Marks]	
Risk Management: Sufficient and appropriate risks are identified, analyzed, and properly categorized or prioritized.	[5Marks]	

## 1. PROJECT PROPOSAL

### 1.1 Background to the Problem

In Bangladesh, many students look for part-time jobs and internships to gain experience and support their education. However, most job platforms are made for professionals and don't match opportunities based on a student's background, skills, or interests. As a result, students often struggle to find the right internships or part-time work. The process is unorganized and lacks helpful features like video resumes, easy online applications, and virtual interviews. This project aims to create a platform designed for Bangladeshi students, making it easier for them to find suitable jobs and internships that match their profile.

#### Root Cause and Importance of the Problem:

Most job platforms in Bangladesh are made for professionals, not students. They don't match jobs or internships based on a student's education, skills, or need for flexible hours. This makes it hard for students to find suitable opportunities. The problem is important because many students rely on part-time work and internships to support their education and gain experience. Without the right platform, they miss out on chances to grow, earn, and prepare for their future careers.

### 1.2 Solution to the Problem and Process Model Selection

#### Project Scope and Features:

The **Student Skill Bridge** is an **AI-powered job and internship portal** targeted at Bangladeshi students. It addresses the gap where existing job platforms are not tailored for student needs.

#### Key Features:

- AI-based personalized job and internship recommendations.
- Student-friendly profiles highlighting academics & achievements.
- Upload and share **video resumes**.
- **Direct application** to client-posted jobs.
- **Online/physical interview scheduling** via integrated tools.
- **Smart dashboard** for students (applications, status) and employers (job posts, applicants).
- **Secure messaging system** (encrypted chat between student and employer).
- **Admin portal** for compliance, monitoring, and analytics.

### User Story Table:

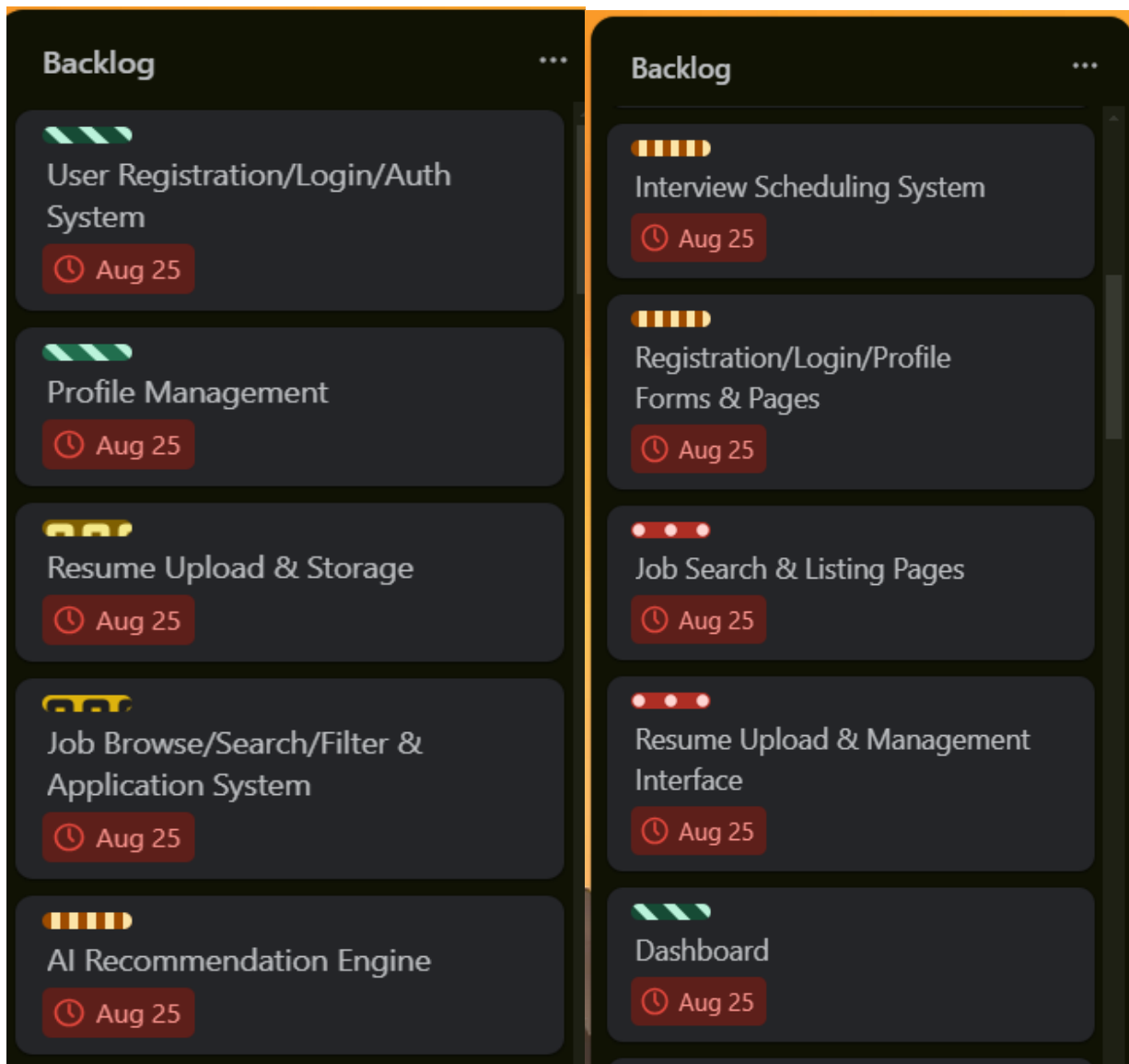
User Role	As a...	I want to...	So that...
Student	register and create a profile	employers can see my education, skills, and achievements	I can get matched to jobs
Student	upload video & written resumes	employers understand me better	I stand out to recruiters
Student	apply for jobs directly	I can get internships/part-time work	without using multiple platforms
Student	receive AI recommendations	jobs are based on my skills/preferences	I don't waste time
Student	schedule/join online interviews	I can connect with employers	without leaving the platform
Employer	post job/internship circulars	students can apply	I can hire quickly
Employer	review student applications	I can shortlist candidates	faster than traditional hiring
Employer	send messages/feedback	I can communicate with applicants	in one secure system
Admin	monitor user accounts & jobs	maintain compliance and quality	users trust the platform

### User Story Board (Trello):

Trello board with following **columns**:

- **Backlog** – AI recommendation engine, Secure messaging.

Screenshot (User Story Bord-Trello):



## Backlog

...



Employer  
Registration/Login/Auth

🕒 Aug 25



Job/Internship Posting  
Management (CRUD)

🕒 Aug 25



Candidate Profile & Resume  
Viewing

🕒 Aug 25



Interview Scheduling &  
Feedback System

🕒 Aug 25



Integration with shared  
Messaging module

🕒 Aug 25

## Backlog

...



Dashboard for posting jobs and  
viewing applicants

🕒 Aug 25



Candidate Review & Profile  
Interface

🕒 Aug 25



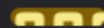
Interview Management UI

🕒 Aug 25



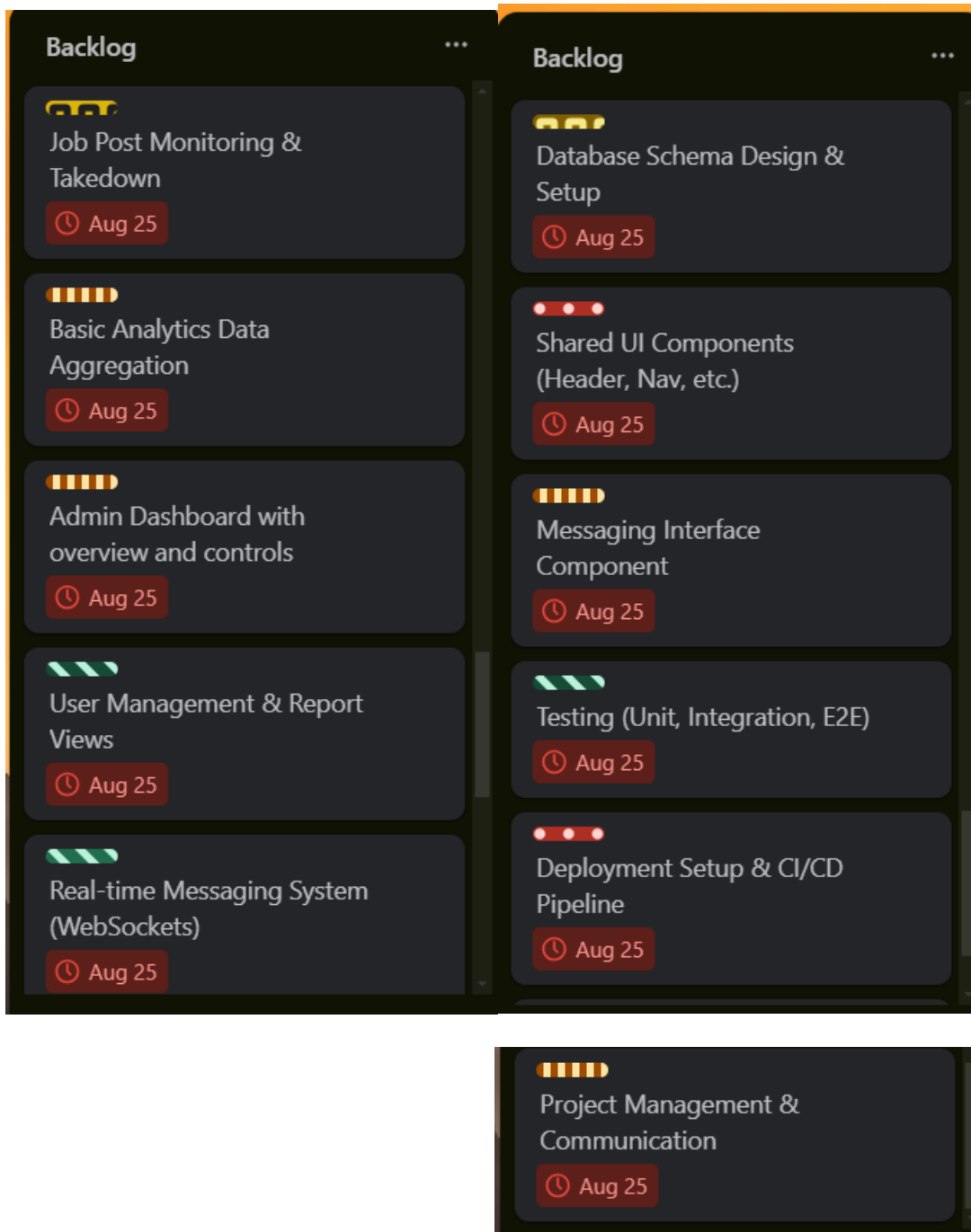
Admin Auth & Privileges

🕒 Aug 25



User Account Management  
(Activate/Suspend/Delete)

🕒 Aug 25



### Existing Software Solutions:

Platform	Focus	Limitation for Students
BDjobs	Bangladesh job market	Focused on full-time, not student jobs
Internshala	Internships (mainly India)	Limited for Bangladeshi students
LinkedIn	Global professional networking	Not tailored for part-time/student jobs
Fiverr/Upwork	Freelancing	Not designed for student internships

## Selected Software Development Process Model:

Chosen Model: Agile – SCRUM

### Justification:

- **Flexibility:** Requirements may change based on student/employer feedback.
- **Incremental delivery:** Features like AI, video resumes, messaging can be built sprint by sprint.
- **Continuous feedback:** Students and employers provide feedback after each sprint.
- **Team size fit:** Works well for a small team of 3–4 members.
- **Risk management:** Frequent testing reduces failure risk.

### Project Environment & Requirement Stability:

- **Environment:** Web + cloud-based with mobile-friendly UI.
- **Requirements:**
  - **Stable:** Core features like registration, login, resume upload.
  - **Likely to change:** AI recommendations, UI/UX improvements, interview modules.
- **Implication:** Agile Scrum supports changing requirements.

### Support for Team & Feasibility:

- **Team Size Fit:** Roles assigned – Product Owner, Scrum Master, Development Team.
- **Communication:** Daily stand-ups, sprint reviews, backlog grooming.
- **Feasibility:** Timeline  $\leq 9$  weeks (each sprint  $\sim 2\text{--}3$  weeks)  $\rightarrow$  achievable.

### Flexibility of Scrum Model:

- Easily adapts to **scope changes** (e.g., add gamified learning tasks).
- Supports **technology changes** (DB migration, new APIs).
- Responds to **user requirement changes** from feedback.

### Creative Insight – Real-Life Problem Solution:

- Current job portals **ignore student flexibility**.
- Student Skill Bridge introduces **AI matching**, **video resumes**, and **local internship targeting**, bridging the **education-to-work gap**.

## Target Group & Benefits:

### Target Users:

- **Students (Bangladesh)** → find internships/part-time work.
- **Employers (local businesses/organizations)** → find skilled students quickly.

### Benefits:

- Students → gain experience, income, career prep.
- Employers → access to a large student pool at low hiring cost.

### Contribution to Scientific Results:

- **Advances AI:** Personalized job matching.
- **Improves EdTech:** Integrating AI + career features.
- **New Model:** Student-centered hiring portal → filling research & market gap.

### Evidence for Model Selection:

- Case studies: LinkedIn, Internshala, Upwork successfully use Agile Scrum.
- Industry research: Agile improves **delivery speed, reduces risks, and ensures quality**.

### Risk Management in Scrum:

- **Requirement Risk:** handled via backlog grooming.
- **Technical Risk:** mitigated with early sprint testing.
- **User Adoption Risk:** reduced with continuous feedback integration.

### Scrum & Project Schedule:

- **Sprint 1:** User registration & authentication.
- **Sprint 2:** Student profiles, resume uploads.
- **Sprint 3:** Employer module (post jobs, review apps).
- **Sprint 4:** AI recommendation engine.
- **Sprint 5:** Messaging & interview scheduling.
- **Sprint 6:** Admin panel & final testing.

Scrum ensures **timely delivery**, focusing on most critical features first.



## Justification of Scrum vs. Alternatives:

Model	Why Not Suitable
<b>Waterfall</b>	Too rigid, no room for evolving requirements.
<b>V-Model</b>	Testing-focused, lacks flexibility for ongoing changes.
<b>Spiral</b>	Too complex & resource-heavy for student project.
<b>SCRUM</b>	Iterative, flexible, team-friendly, risk-managed.

**Conclusion:** SCRUM is the most suitable model for Student Skill Bridge.

## 1.3 Project Role Identification and Responsibilities

### Main Roles in the Project:

The **Student Skill Bridge** project is carried out by a **small Agile Scrum team**. Roles cover both **development** and **management** aspects:

- **Product Owner (PO)**
- **Scrum Master (SM)**
- **Development Team (Dev Team)**
- **Quality Assurance (QA) Engineer**
- **Project Manager (PM)**
- **Stakeholders (Students & Employers)**

### Responsibilities at Key Stages:

Stage	Product Owner (PO)	Scrum Master (SM)	Development Team	QA Engineer	Project Manager (PM)
<b>Requirements Gathering</b>	Define product vision, gather user needs, prioritize backlog	Facilitate discussions, ensure Agile principles	Provide technical input, estimate effort	Ensure requirements are testable	Align requirements with resources & timeline
<b>System Design</b>	Approve user stories & high-level design decisions	Guide collaboration, remove blockers	Create system architecture, UI/UX design, DB schema	Review design for testability	Ensure design fits budget & time
<b>Implementation</b>	Validate features match business goals	Ensure smooth sprint execution	Write code, integrate modules (frontend/backend/AI)	Prepare test cases in parallel	Monitor progress, allocate resources

<b>Testing</b>	Accept/reject deliverables	Ensure testing is integrated in sprints	Perform unit & integration tests	Execute functional, security, performance tests	Ensure quality standards are met
<b>Deployment</b>	Decide release readiness	Coordinate release sprint	Deploy system, fix bugs	Validate final release against requirements	Manage deployment risks & oversee release

### Roles for Decision-Making, QA, and Resource Management:

- **Decision-Making:**
  - **Product Owner** – decides feature priority and business alignment.
  - **Scrum Master** – process-related decisions.
  - **Project Manager** – resource allocation and major project-level decisions.
- **Quality Assurance:**
  - **QA Engineer** (primary).
  - **Development Team** (unit/integration tests).
  - **Scrum Master** ensures QA practices are followed.
- **Resource Management:**
  - **Project Manager** – human, financial, and technical resources.
  - **Scrum Master** – ensures efficient use of development resources.

### Distribution of Responsibilities Among Team Members:

Team Member	Role(s)	Key Responsibilities	Justification (Skills & Expertise)
	Product Owner	Define vision, gather requirements, maintain backlog	Strong in <b>requirement analysis &amp; user communication</b>
	Scrum Master	Facilitate sprints, remove blockers, ensure Agile practices	Skilled in <b>UI design &amp; system interface</b> ; good facilitator
	Developer + Project Manager	System architecture, DB design, project scheduling, COCOMO, Gantt chart	Strong in <b>estimation, scheduling, and planning</b>
	QA Engineer & Developer	Test planning, execution, bug tracking, deployment support	Experienced in <b>test cases &amp; test planning</b>

### Justification of Allocation

- **Requirement Gathering & Business Vision** → **Product Owner ()**: He worked on requirement analysis in earlier project stages.
- **Agile Process & UI** → **Scrum Master ()**: His UI/UX expertise ensures smooth sprint planning.
- **Scheduling, COCOMO, Management** → **Project Manager ()**: His previous work on Gantt charts and estimation makes him fit for PM.
- **Testing & Deployment** → **QA Engineer ()**: He designed test cases & test plans, making him responsible for quality.

## 2. SOFTWARE REQUIREMENTS SPECIFICATIONS (SRS) / PRODUCT REQUIREMENTS DOCUMENT (PRD)

### 2.1 Functional Requirements:

Item No.	Feature	Specification	Screen Definition	User Story	Acceptance Criteria
01	Student Registration & Login	Students can create accounts and log in securely.	Registration/Login screen with fields (name, email/phone, password).	As a student, I want to register/login with email/phone so that I can access the platform.	Registration succeeds only if all fields are valid, password meets complexity rules, and account data is securely stored.
02	Profile Management	Students can create and update their academic, skill, and achievement details.	Profile page with editable sections for personal, academic, and skill details.	As a student, I want to build a profile so that employers can view my qualifications.	Profile is saved correctly, visible to employers, and editable anytime.
03	Resume Upload (Video & Written)	Students can upload written (PDF/DOCX) and video (MP4) resumes.	Resume upload section with file chooser and preview.	As a student, I want to upload resumes so that I can showcase my skills better.	Only supported formats are accepted, invalid files are rejected, and resumes are linked to the student profile.
04	AI Job Recommendations	AI suggests relevant jobs based on student profiles.	Dashboard screen displaying recommended jobs.	As a student, I want AI-based job suggestions so that I can find relevant opportunities easily.	Recommendations match student skills/location and appear within 5 seconds.
05	Job Application	Students can apply for jobs directly from the portal.	Job details screen with an “Apply” button.	As a student, I want to apply for jobs so that I can secure part-time work/internships.	Applications are stored in the database and appear in “My Applications” dashboard.
06	Interview Scheduling	Employers and students can schedule interviews.	Calendar popup with options for online/physical interviews.	As a student/employer, I want to schedule interviews so that meetings are organized.	Valid date/time/location required, confirmation sent, online interviews open video link.

07	Application Tracking & Feedback	Students can track job application status and feedback.	Dashboard with status tracker and employer comments.	As a student, I want to track applications so that I know my progress.	Status updates (Applied, Shortlisted, Rejected, Hired) and feedback stored/displayed.
08	Messaging System	Students and employers can securely communicate.	Messaging interface with inbox, chat window.	As a user, I want to message securely so that I can communicate with others.	Messages are encrypted, delivered in real time, and only visible to sender/recipient.
09	Employer Job Posting	Employers can create and publish job/internship circulars.	Job posting form (title, description, requirements, deadline).	As an employer, I want to post jobs so that students can apply.	Posts must include valid details before publishing and are visible to students once approved.
10	Admin Management	Admins can monitor and manage users and job posts.	Admin dashboard with user/job controls.	As an admin, I want to manage accounts and posts so that the platform remains safe.	Admin can activate/suspend/delete accounts; approve/reject posts; all actions logged.

## 2.2 Non-Functional Requirements:

Item No.	Feature	Specification	Screen Definition	User Story	Acceptance Criteria
NFR-01	Performance	System must support $\geq 500$ concurrent users with fast response.	All screens (dashboard, job search, messaging).	As a student, I want the system to respond quickly so that I don't waste time waiting.	Most operations complete in $\leq 3$ seconds; AI recommendations load within 5 seconds.
NFR-02	Reliability	System must remain stable with high uptime and backup support.	Login, dashboard, job posting, and admin screens.	As an employer, I want the system always available so that I can manage my postings anytime.	$\geq 99.5\%$ uptime; automatic recovery; daily backups tested.
NFR-03	Integrity & Security	Protect user data with encryption, authentication, and role-based authorization.	Login screen, messaging system, admin panel.	As a student, I want my personal data to be secure so that I can trust the platform.	All sensitive data encrypted; HTTPS enforced; access restricted by role.
NFR-04	Usability	The platform must be mobile-	Responsive design across all screens.	As a user, I want a clean and simple	All core functions usable on mobile;

		friendly, accessible, and easy to use.		interface so that I can use it without technical skills.	interface passes WCAG accessibility checks.
NFR-05	Maintainability	System should be modular and easy to update or fix.	Developer/admin tools, backend APIs.	As an admin/developer, I want modular code so that I can apply updates or bug fixes quickly.	Code structured in modules; documentation available; version control in Git.
NFR-06	Scalability	Platform must grow with users, jobs, and data over time.	Database, dashboard, and job listings.	As an admin, I want the system to handle growth so that we can support thousands of users.	Database supports horizontal scaling; cloud hosting enables expansion without downtime.

### 3. PROJECT ESTIMATION AND SCHEDULING

#### 3.1 Effort and Cost Estimation

##### Project Scope Definition:

The document doesn't explicitly define the project's scope. However, it does outline the project's objectives in a "Project Proposal" section. The project's scope can be inferred from the system's functional requirements, such as student and employer registration, job recommendations, and interview scheduling.

##### Effort estimation:

Software Project Type=Organic

LOC :Source Lines of Code=14,000

E : Effort in person-months or person-years.

t : Project duration in months or years=0.38

B : Productivity Factors=2.4

P : Productivity Parameter = 1.05

A dynamic multivariable model for effort estimation

$$E = [LOC \times B^{0.333}/P]^3 \times (1/t^4)$$

$$=38.34$$

##### COCOMO:

$$\text{Effort} = PM = \text{Coefficient} \times \text{Effort Factor} \times (SLOC/1000)^P$$

$$=2.4 \times (14000/1000)^{1.05}$$

$$=38.34$$

$$\begin{aligned}
 \text{Development time} &= DM = 2.50 \cdot (PM)^{0.38} \\
 &= 2.50 \cdot (38.34)^{0.38} \\
 &= 9.48 \approx 10
 \end{aligned}$$

$$\begin{aligned}
 \text{Required number of people} &= ST \\
 &= PM/DM = 38.34/9.48 \\
 &= 4.04 \approx 4
 \end{aligned}$$

### Assumptions and Variations:

The document explicitly mentions several assumptions and variations, particularly in the Risk Management Plan, which is related to project uncertainty. It also notes that the estimations are subject to variation, stating that a "tight 9-week deadline" could lead to "reduced quality" and "missed goals". The report also highlights risks such as "delay in MERN stack development due to technical complexity" and "concurrent user traffic above 500 crashes the system," which could impact the effort and schedule. This shows an awareness of the factors that can cause variations in the estimation results.

## 3.2 Project Scheduling

### Task Breakdown and Responsibilities :

Task	Task Breakdown	Plan Effort (Person-Days)	Actual Effort (Person-Days)	Complete
1	User Registration/Login/Auth System	5	7	Yes
2	Profile Management	4	6	Yes
3	Resume Upload & Storage	6	9	Yes
4	Job Browse/Search/Filter & Application System	8	11	Yes
5	AI Recommendation Engine	5	8	Yes
6	Interview Scheduling System	4	6	Yes
7	Registration/Login/Profile Forms & Pages	7	10	Yes
8	Job Search & Listing Pages	6	8	Yes
9	Resume Upload & Management Interface	5	7	Yes
10	Dashboard	7	10	Yes
11	Employer Registration/Login/Auth	3	4	Yes
12	Job/Internship Posting Management (CRUD)	5	7	Yes
13	Candidate Profile & Resume Viewing	4	6	Yes
14	Interview Scheduling & Feedback System	5	7	Yes
15	Integration with shared Messaging module	3	5	Yes
16	Dashboard for posting jobs and viewing applicants	8	11	Yes
17	Candidate Review & Profile Interface	5	7	Yes
18	Interview Management UI	5	7	Yes
19	Admin Auth & Privileges	2	3	No
20	User Account Management (Activate/Suspend/Delete)	4	6	No
21	Job Post Monitoring & Takedown	3	5	No

22	Basic Analytics Data Aggregation	3	5	No
23	Admin Dashboard with overview and controls	6	8	No
24	User Management & Report Views	4	6	No
25	Real-time Messaging System (WebSockets)	10	15	No
26	Database Schema Design & Setup	5	7	No
27	Shared UI Components (Header, Nav, etc.)	3	5	No
28	Messaging Interface Component	2	4	No
29	Testing (Unit, Integration, E2E)	10	15	No
30	Deployment Setup & CI/CD Pipeline	5	8	No
31	Project Management & Communication	5	8	No

## Budget and Costs

- **Budget at Completion (BAC):** 113 person-days
- **Budgeted Cost at Work Scheduled (BCWS):** 95 person-days
- **Budgeted Cost at Work Performed (BCWP):** 95 person-days
- **Actual Cost at Work Performed (ACWP):** 136 person-days

## Performance Metrics

- **Schedule Performance Index (SPI):**  $SPI = BCWP / BCWS = 95 / 95 = 1$ . This means the project is **on schedule**.
- **Schedule Variance (SV):**  $SV = BCWP - BCWS = 95 - 95 = 0$  person-days. This confirms there is **no schedule variance**.
- **Cost Performance Index (CPI):**  $CPI = BCWP / ACWP = 95 / 136 \approx 0.70$ . A CPI less than 1 indicates the project is **over budget**.
- **Cost Variance (CV):**  $CV = BCWP - ACWP = 95 - 136 = -41$  person-days. The negative value shows a **cost overrun**.

## Project Progress

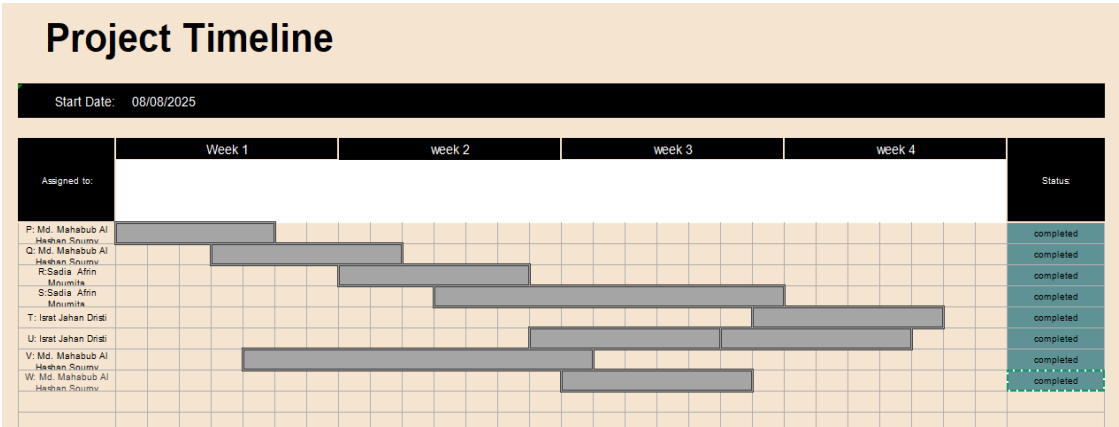
- **Percent scheduled for completion:**  $(BCWS / BAC) \times 100\% = (95 / 113) \times 100\% \approx 84.07\%$ .
- **Percent complete:**  $(BCWP / BAC) \times 100\% = (95 / 113) \times 100\% \approx 84.07\%$ .

## Effort Allocation (40-20-40 Rule)

Based on a total effort of **38.34 person-months**:

- **Analysis & Design (40%):**  $0.40 \times 38.34 = 15.34$  person-months.
- **Coding & Implementation (20%):**  $0.20 \times 38.34 = 7.67$  person-months.
- **Testing & Deployment (40%):**  $0.40 \times 38.34 = 15.34$  person-months. The total effort in hours is approximately **6,134.4 hours** (assuming 160 hours per person-month).

Timeline Charts:



- R&S: System Interface Design
- P:Work Breakdown Structure.
- T: Risk Management Plan.
- Q:Software cost estimation.
- V:Gantt Chart.
- W:Test Cases.
- U:Test Plan.



To prevent future delays, address these potential causes:

- **Unrealistic Deadlines:** Your initial effort estimates were too low. Revise the remaining plan based on the actual time spent.
- **Technical/Human Issues:** The extra effort suggests a need to identify technical challenges or improve team efficiency and communication.
- **Changing Requirements:** The cost overrun could be a symptom of scope changes or unclear requirements that led to extra work.



## 4. SOFTWARE DESIGN

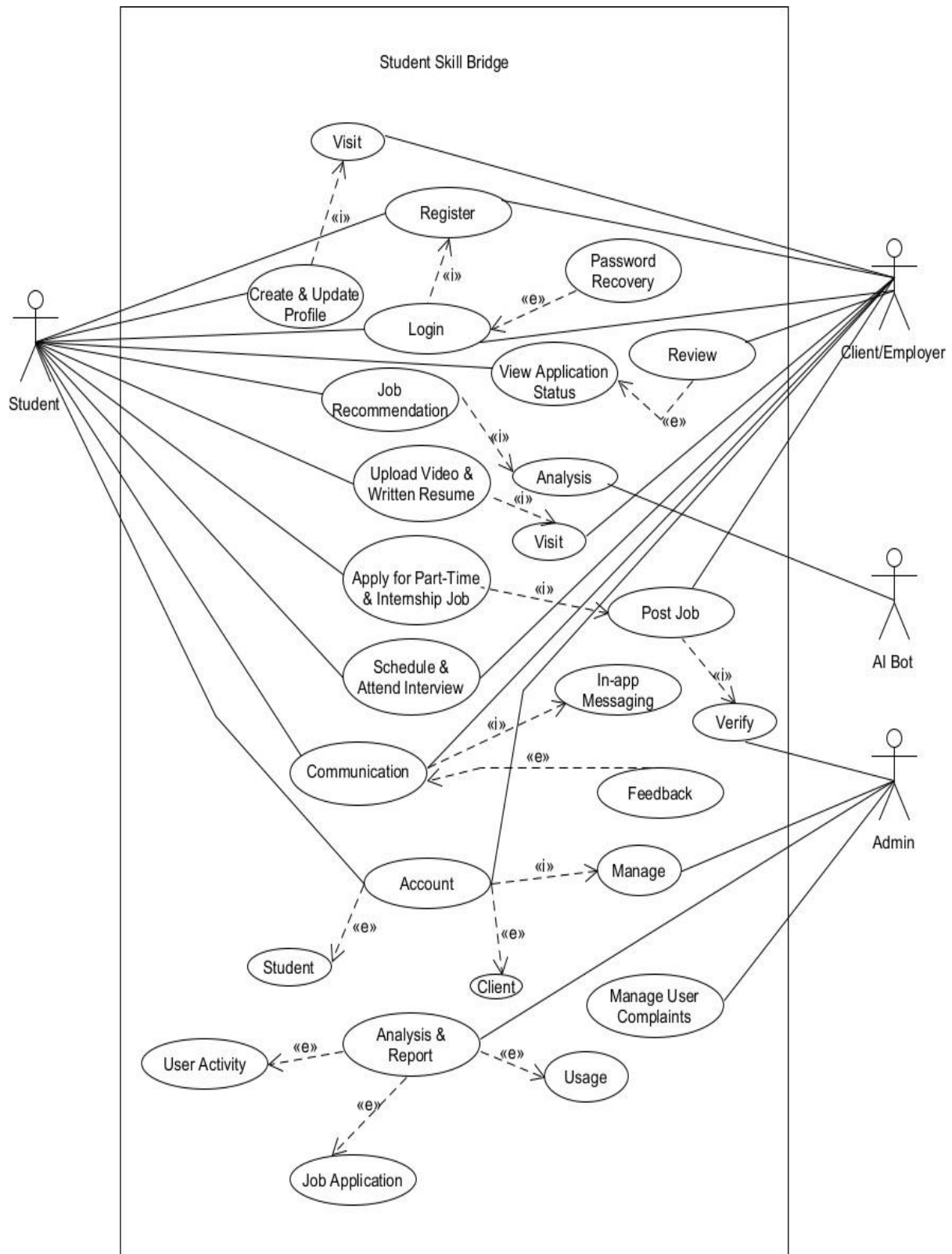
### 4.1 System Design

#### Work Breakdown Structure:

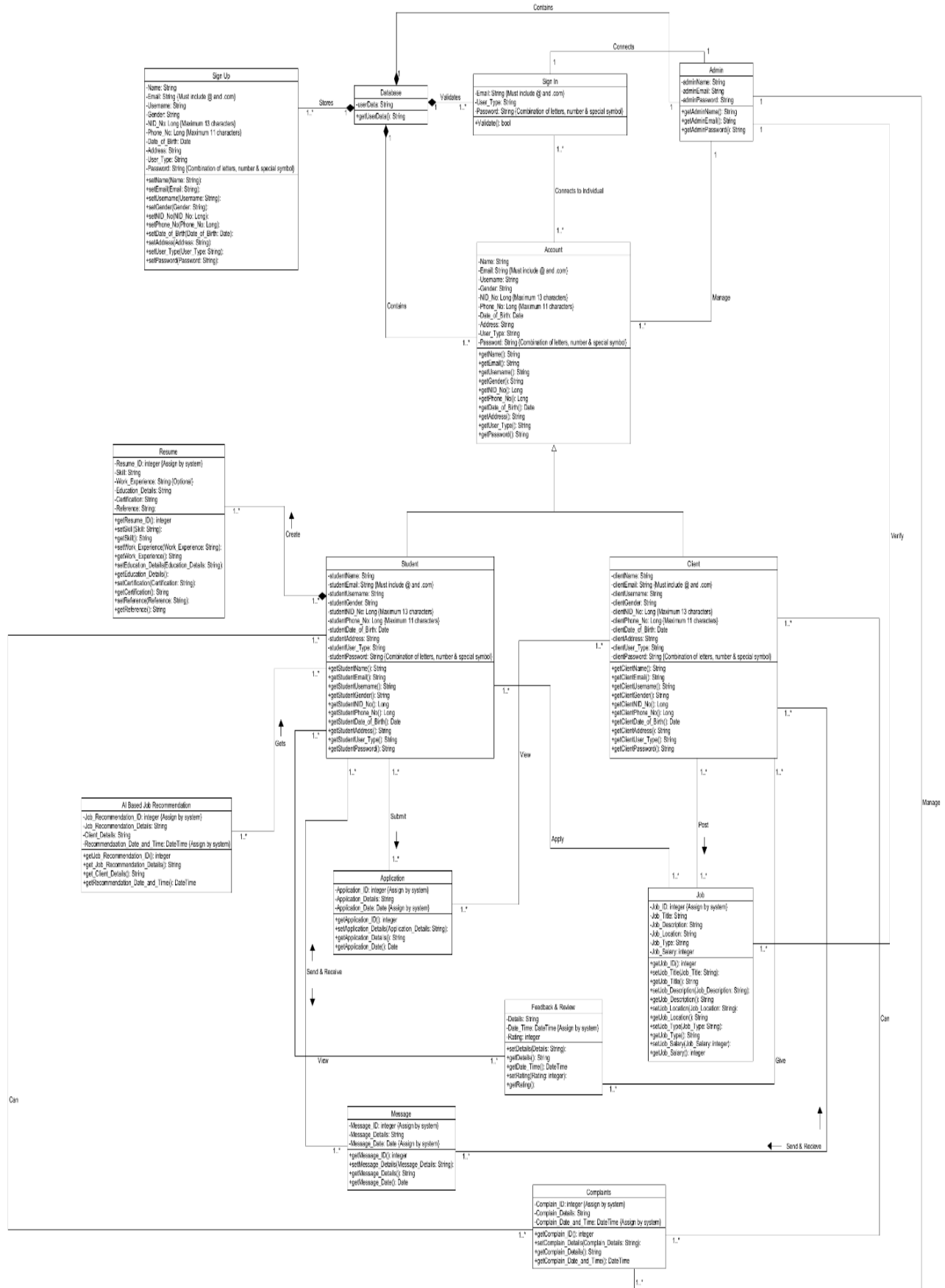


# Diagrams

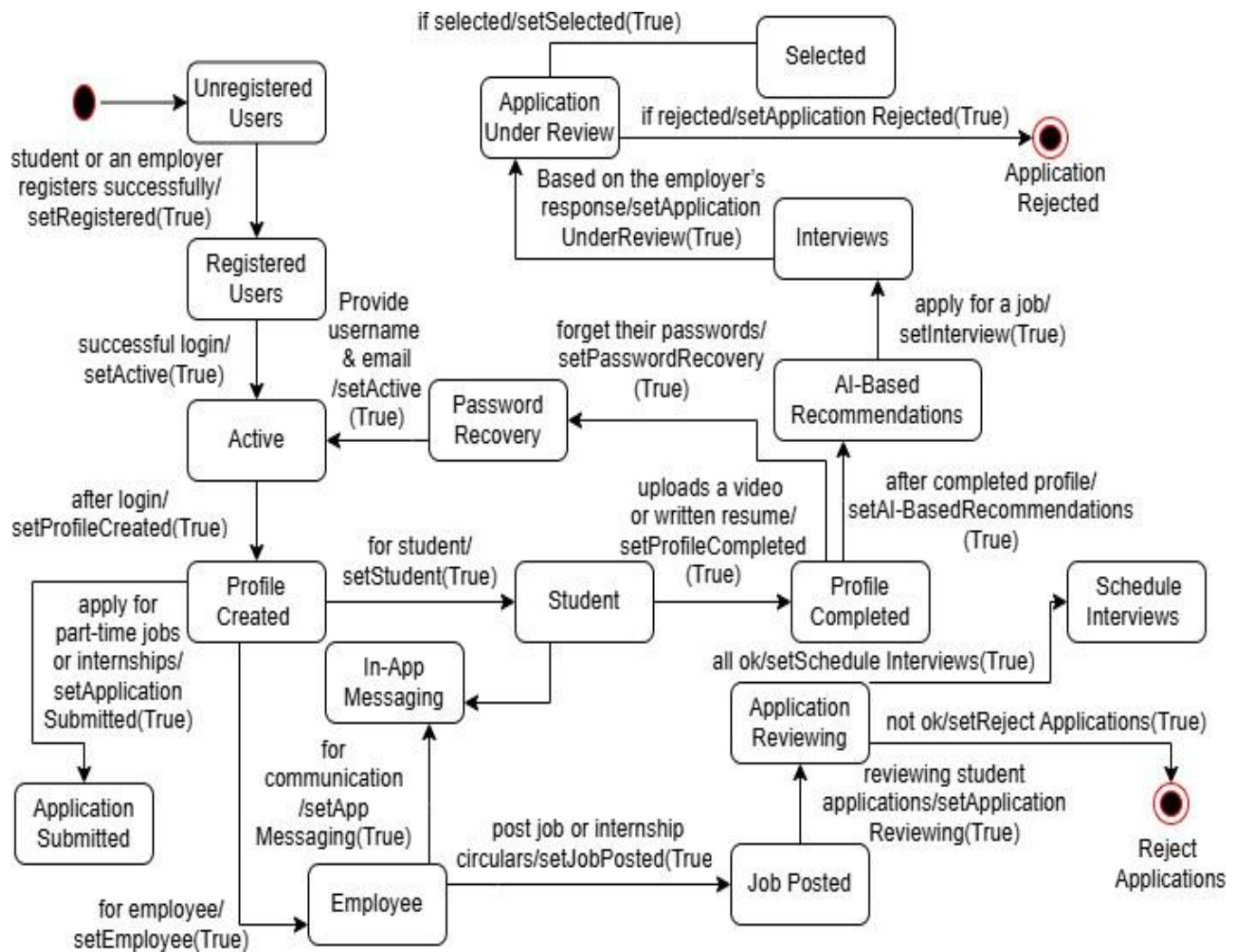
## Use Case Diagram:



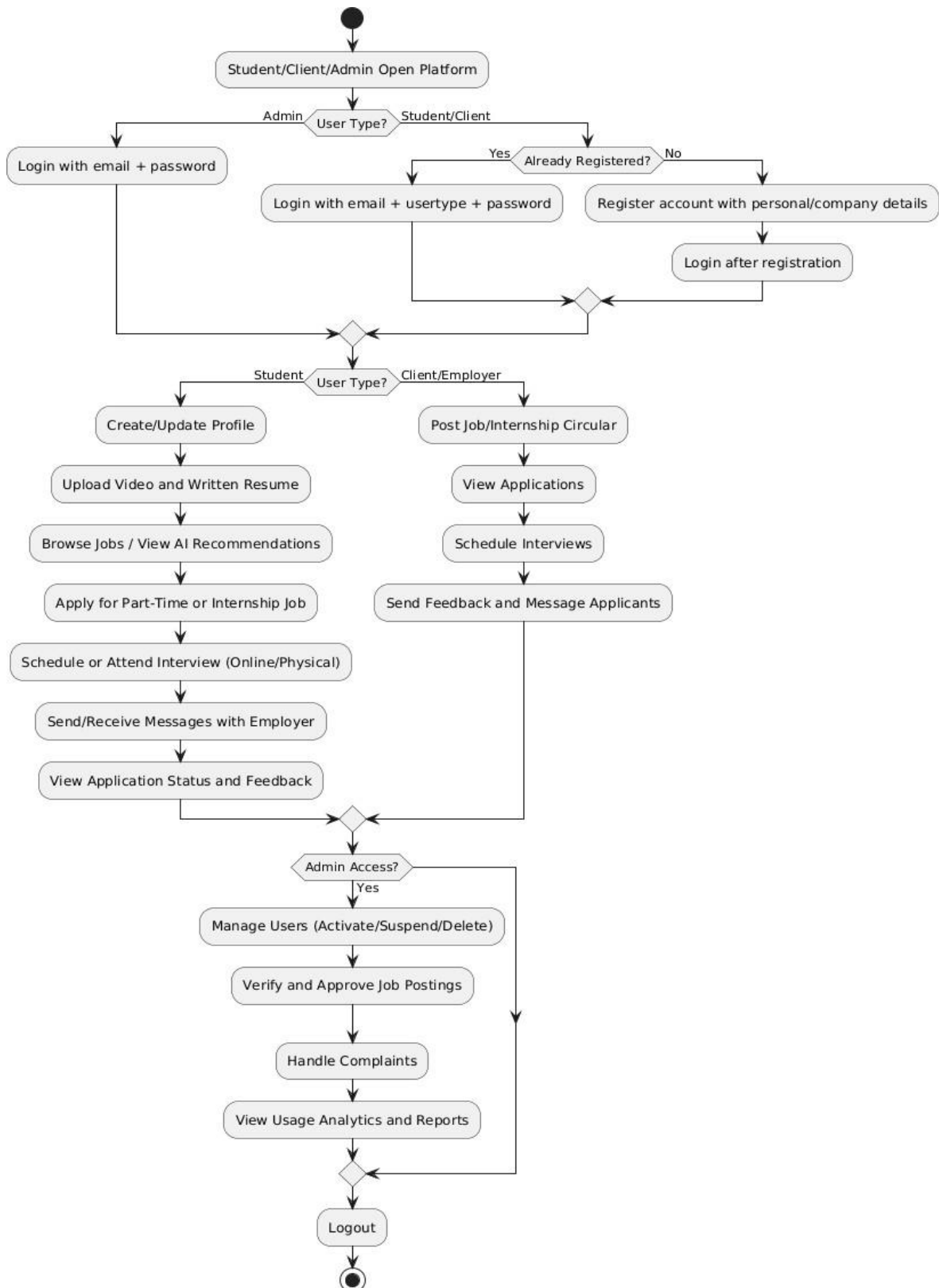
### Class Diagram:



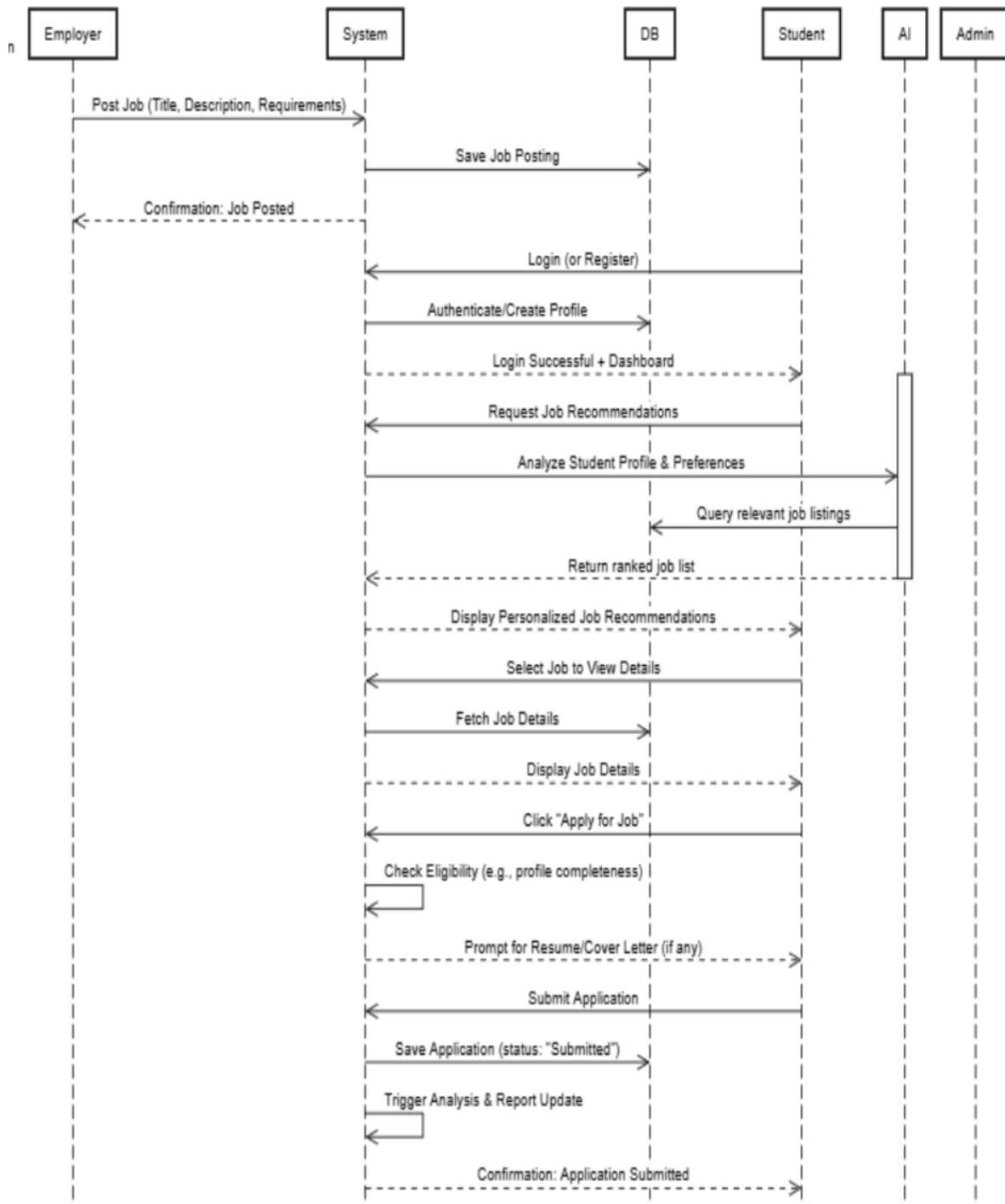
## State Diagram:

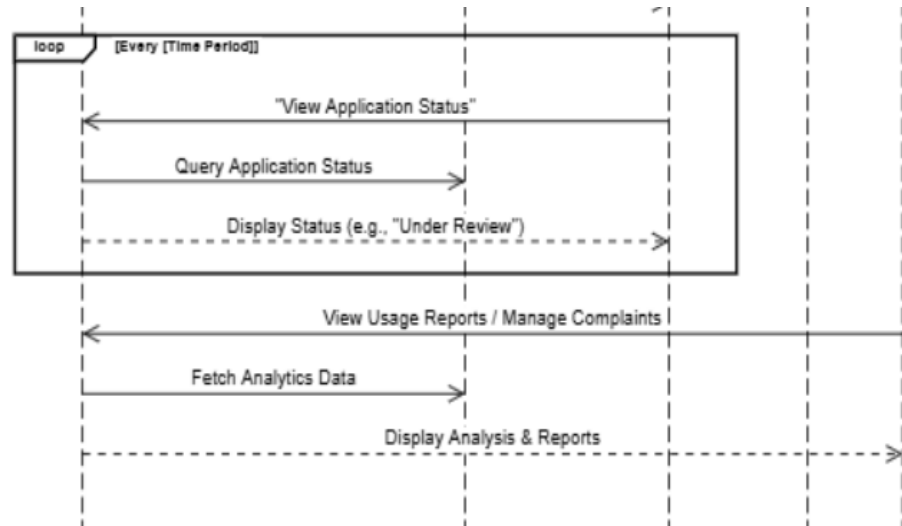


## Activity Diagram:



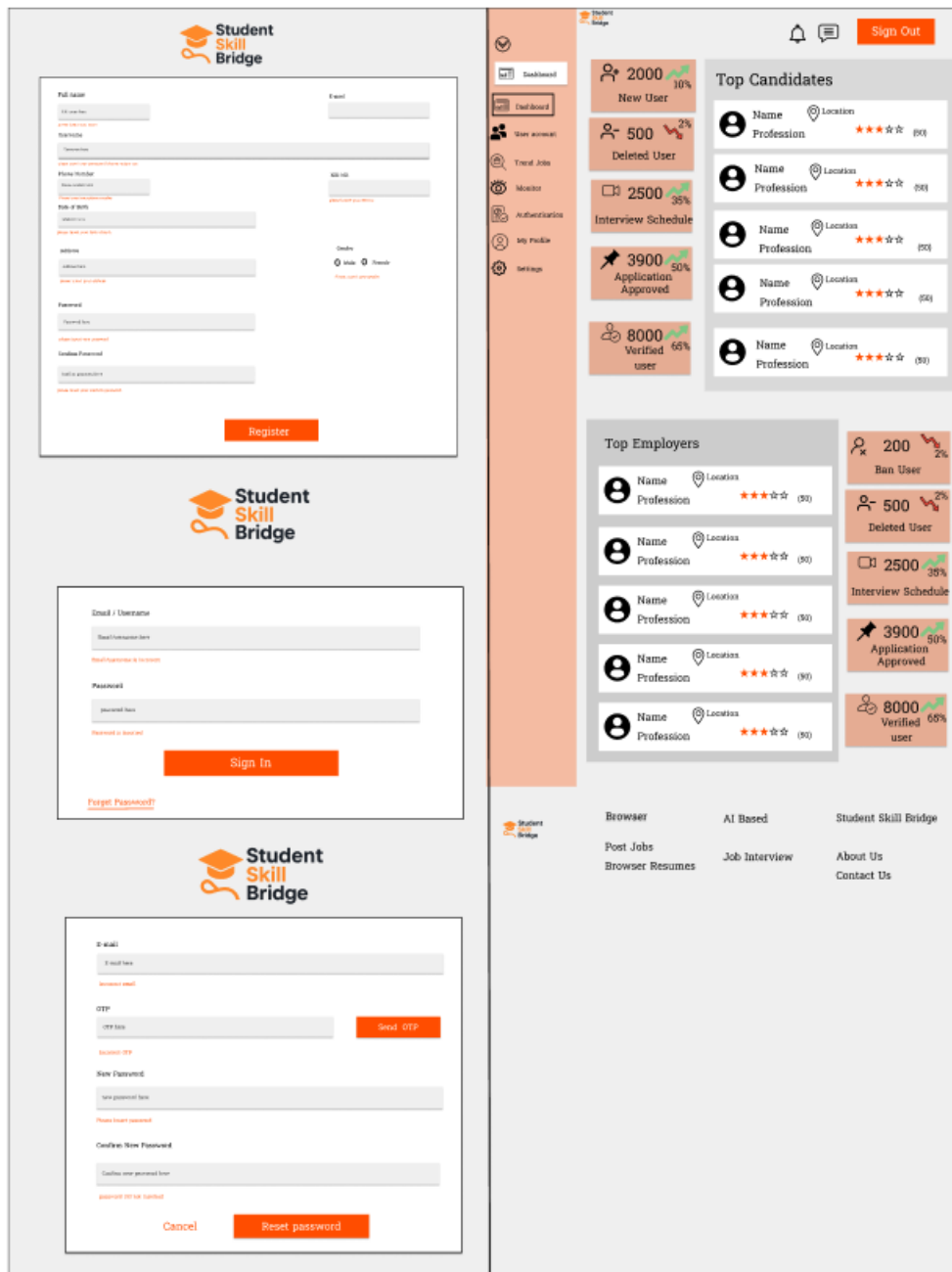
## Sequence Diagram:



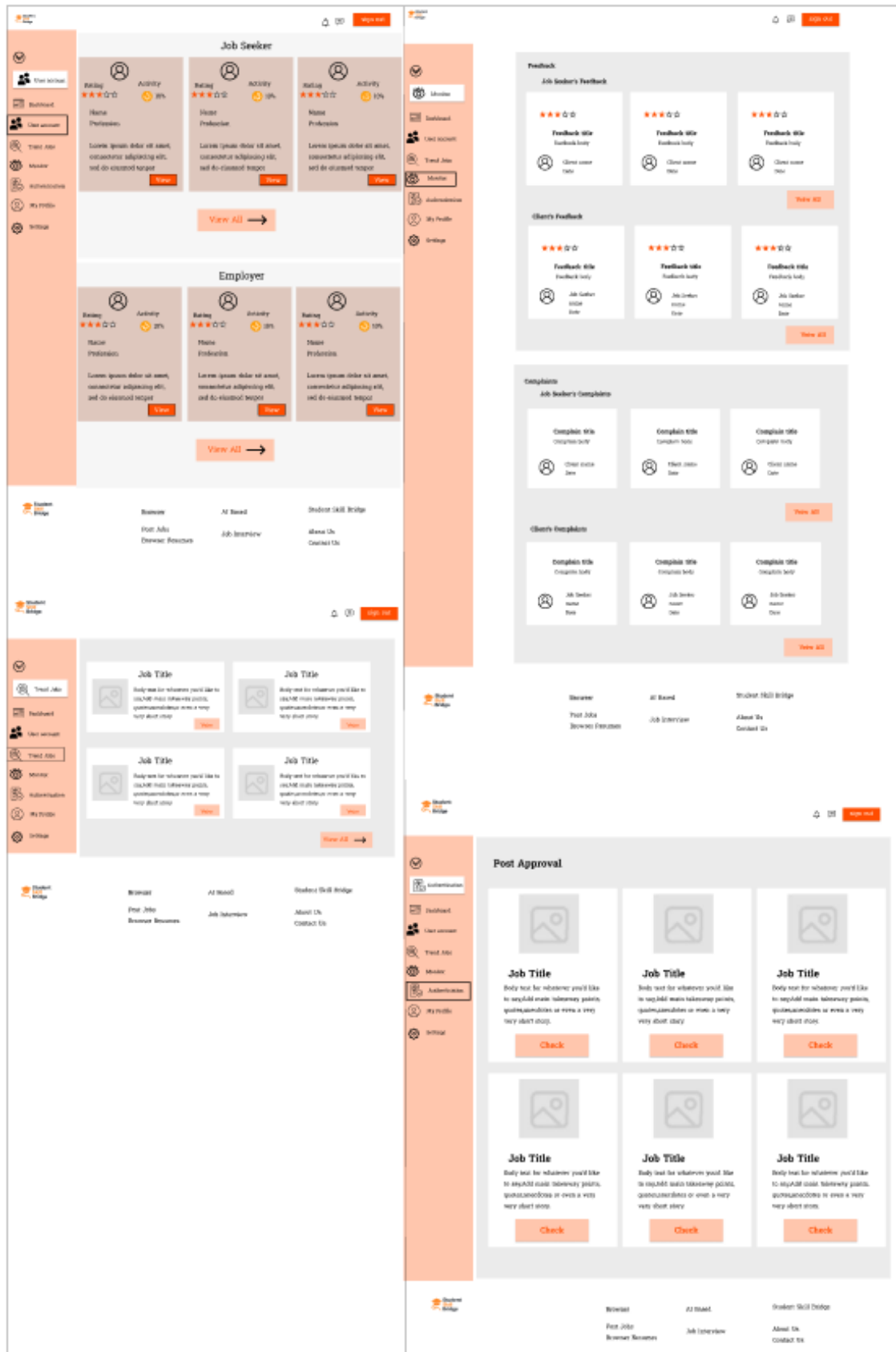


## 4.2 UI / Wireframe Design

### Screensorts of Clickable Prototype(Figma):







[Sign Out](#)

[My Profile](#)

Info

Name :

John Snow

E-Mail :

John.snow@gmail.com

phone Number :

01700-xxxxxx

NID No. :

7238193892630

Gender :

☒ Male
 ☐ Female

Address :

Bashundhara R/A, Dhaka

Update

[Dashboard](#)

[User Accounts](#)

[Trend Jobs](#)

[Monitor](#)

[Authentication](#)

[My Profile](#)

[Setting](#)

[Browse post Jobs](#)

[Browse Resumes](#)

[AI Based Job Interview](#)

[Student Skill Bridge About Us](#)

[Contact Us](#)

[Sign Out](#)

[Setting](#)

Security

old Password :

old password here

New password :

New password here

Confirm Password :

confirm password here

Update

[Browse post Jobs](#)

[Browse Resumes](#)

[AI Based Job Interview](#)

[Student Skill Bridge About us](#)

[Contact Us](#)

[Post Jobs](#)

[Browse Resumes](#)

[AI Based Job interview](#)

[Student Skill Bridge About Us](#)

[Contact Us](#)

[Dashboard](#)
[Profile](#)
[Resume](#)
[Find Jobs](#)
[Sign Out](#)

[Job Title](#)

Job Description

see more

[JOB Title](#)

Job Description

see more

[Job Title](#)

Job Description

See more

[Sign Out](#)

[Browse Jobs](#)

[Browse Companies](#)

[AI Based Job Recommendation](#)

[Profile Analysis](#)

[Student skill Bridge About Us](#)

[Contact Us](#)

[Dashboard](#)
[Profile](#)
[Resume](#)
[Find Jobs](#)
[Sign Out](#)

General

Name :

John snow

E-Mail :

John.snow@gmail.com

Phone Number :

01700-xxxxxxx

NID No. :

7238193892630

Gender :

☒ Male
 ☐ Female

Address :

Bashundhara R/A, Dhaka

Update

Security

Old Password :

old password here

New password :

New password here

Confirm password :

confirm password here

Update

[Browse jobs](#)

[Browse Companies](#)

[AI Based Job Recommendation](#)

[Profile Analysis](#)

[Student Skill Bridge About us](#)

[Contact Us](#)



### About

I am a Software developer  
Doxy test for whatever you'd like to say. Add main takeaway points, quotes, anecdotes, or even a really very short story.

→ [Edit Details](#)

### Project Portfolio

Attract and Impress Potential Clients By Displaying your best work.

[Add Project](#)

### Video Resume

Make connection with potential clients while building credibility and gaining trust.

[Add video Resume](#)

### Experience

Company Name  
Post Name  
Duration

[Edit Experience](#)

### Education

School Name  
Certificate Degree  
passing year

College Name  
certificate degree  
passing year

University Name  
certificate degree  
passing year

[Edit Education](#)

### Certifications

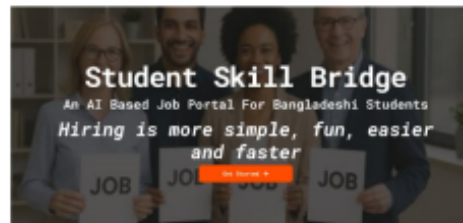
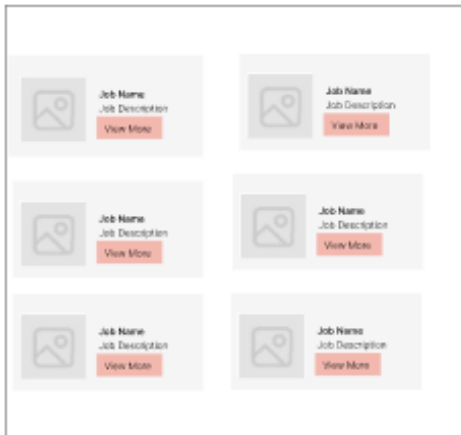
Showcase your mastery with certifications earned in your field.

[Add Certification](#)

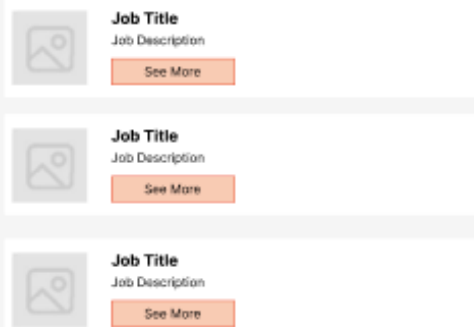
### Jobs


[Search Here](#)

[AI Recommendation](#)



### Posted Jobs




Dashboard Profile Post jobs

### General

Name :

E-mail :

Phone No :

NID No :

Gender : ☒ Male ☐ Female


Address:


### Security


Old Password :


New Password :

Confirm Password :


Browse Post jobs Browse Resumes


Job Interview


About Us Contact Us


Dashboard Profile Post jobs

Company Name\*

Job Position \*


Salary\*


Required Skills


Experience

Location\*

Job Description\*


Browse Post jobs Browse Resumes


Job Interview


About Us Contact Us

## 5. GIT WORKFLOW

Github Link: <https://github.com/MahabubSourov/-Student-Skill-Bridge->

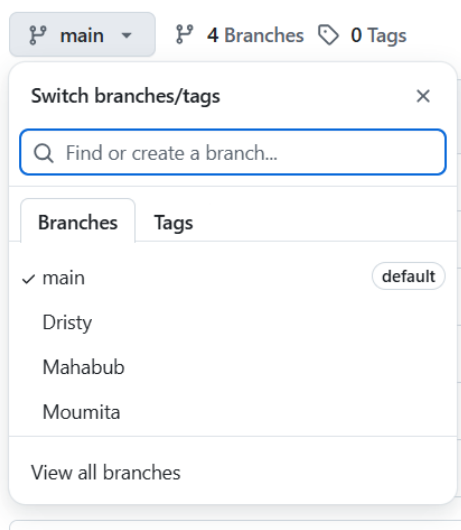


Figure: Branches of all team members

MahabubSourov / -Student-Skill-Bridge-

Q Type to search

<> Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

-Student-Skill-Bridge-

Public

Pin

Watch 0

main

1 Branch

0 Tags

Go to file

Add file

<> Code

MahabubSourov

Create reader

19378df · 7 minutes ago

17 Commits

Diagrams	Add files via upload	11 minutes ago
Docs	Create file	8 minutes ago
Excels	Add files via upload	31 minutes ago
PDF	Create reader	7 minutes ago
UI-Prototype Screensort	Add files via upload	19 minutes ago
README.md	Initial commit	1 hour ago

README

# -Student-Skill-Bridge-

Figure: Screenshot of Repository

MahabubSourov / -Student-Skill-Bridge-

<> Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

### Commits

main

Commits on Sep 25, 2025

Create reader

MahabubSourov authored 14 minutes ago

Create file

MahabubSourov authored 16 minutes ago

Delete Docs

MahabubSourov authored 16 minutes ago

Create Docs

MahabubSourov authored 16 minutes ago

Add files via upload

MahabubSourov authored 19 minutes ago

Create Docs

MahabubSourov authored 19 minutes ago

Add files via upload

MahabubSourov authored 27 minutes ago

<b>Create Screensort</b> MahabubSourov authored 37 minutes ago
<b>Add files via upload</b> MahabubSourov authored 39 minutes ago
<b>Create Excels files</b> MahabubSourov authored 39 minutes ago
<b>Delete Excels directory</b> MahabubSourov authored 42 minutes ago
<b>Create Files</b> MahabubSourov authored 43 minutes ago
<b>Delete Excels</b> MahabubSourov authored 44 minutes ago
<b>Create Excels</b> MahabubSourov authored 46 minutes ago
<b>Delete Excels</b> MahabubSourov authored 47 minutes ago
<b>Create Excels</b> MahabubSourov authored 1 hour ago
<b>Initial commit</b> MahabubSourov authored 1 hour ago

Figure: Screenshot of some commits

We have four branches main,,Dristy, Mahbub, Moumita

### 1. Clone the Repository

git clone <https://github.com/MahabubSourov/-Student-Skill-Bridge-cd-SoftwareAcademicProject>

### 2. Check Existing Branches

git branch

This shows all local and remote branches: main,Dristy, Mahbub, Moumita

### 3. Switch to Your Branch

Each member works in their own branch:

git checkout mahbub # Mahabub's branch

git checkout Dristy # Dristy's branch

git checkout Moumita # Moumita 's branch

### 4. Add and Commit Changes

**Stage files:**

git add .

**Commit with a message:**

git commit -m "Add feature XYZ"

### 5. Push Branch to Remote

git push origin mahabub # Mahabub pushes his branch

git push origin Dristy # Dristy pushes her branch

## 6. TESTING

1.1. The system shall allow students to register by providing their full name, email, username, gender, NID no, phone number, address, date of birth, user type (student), and password (must be 8 characters with a combination of letters, numbers, and special symbols).

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Surov		
Test Case ID: FR_1 Test Priority (Low, Medium, High): Medium		Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov		
Module Name: Student Registration Test Title: Verify student registration with required fields and password validation		Test Execution date: 10-09-2025		
Description: Ensure the system allows student users to register using a valid form with all required details and enforces password complexity				
Precondition (If any): <ul style="list-style-type: none"><li>➤ User must not already be registered</li><li>➤ Registration form must be accessible</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to the registration page		Registration form should be displayed	As expected	Pass

2. Enter full name	Md. Mahabub Al Hashan Surov	Name should be accepted	As expected	Pass
3. Enter email	<a href="mailto:mahabubsurov@gmail.com">mahabubsurov@gmail.com</a>	Email should be validated and accepted	As expected	Pass
4. Enter username	Hashan Surov	Username should be unique and accepted	As expected	Pass
5. Select gender	Male	Gender should be selected successfully	As expected	Pass
6. Enter NID number	56733234	NID should be numeric and accepted	As expected	Pass
7. Enter phone number	01836452333	Phone number should be validated and accepted	As expected	Pass
8. Enter address	Dhaka	Address should be accepted and stored	As expected	Pass
9. Enter date of birth	05/01/2001	Date of birth should be valid and stored	As expected	Pass
10. Select user type	Student	User type should be selected as "Student"	As expected	Pass
11. Enter password	12345678	Password should be minimum 8 characters and meet complexity requirements	As expected	Pass
12. Confirm password	12345678	Confirmed password should be matched with the entered password	As expected	Pass
13. Click on Submit		Registration should be successful and confirmation message should be displayed or user redirected	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Student is registered in the database</li> <li>➤ User credentials are securely stored (e.g., hashed password)</li> <li>➤ Student can now log in using registered credentials</li> </ul>				



1.2. The system shall allow students to login using their registered email, username, or phone number along with their password.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Surov	
Test Case ID: FR_2 Test Priority (Low, Medium, High): Medium			Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov	
Module Name: Student Login Test Title: Verify student login with email, username, or phone number			Test Execution date: 10-09-2025	
Description: Ensure students can log in using any of the registered identifiers (email, username, or phone number) with a valid password				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Student must already be registered</li><li>➤ Credentials must exist in the database</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to the login page		Login form should be displayed	As expected	Pass
2. Enter registered username and correct password	Username: hashansourov Password:12345678	User should be logged in and redirected to dashboard	As expected	Pass
3. Enter incorrect password	Username: hashansourov Password:12345687	There should be error message	As expected	Pass
4. Enter unregistered username	Username: hashansourov Password:12345687	There should be error message	As expected	Pass
Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database.				

1.3. The system shall allow students to create and update profiles containing academic information, skills, and achievements.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Surov		
Test Case ID: FR_3 Test Priority (Low, Medium, High): Medium		Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov		
Module Name: Login Session Test Title: verify login with valid username and password		Test Execution date: 10-09-2025		

Description: Test website login page				
Precondition (If any): User must have valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Navigate to the user profile page		Profile page should be displayed	As expected	Pass
2. Click on “Edit Profile” or “Create Profile”		Editable form should appear	As expected	Pass
3. Enter academic information	Degree: B.Sc in CSE Institute: ABC University CGPA: 3.75	Academic info should be accepted and stored	As expected	Pass
4. Enter skills	Skills: Java, Python, HTML	Skills should be accepted and stored	As expected	Pass
5. Enter achievements	Achievements: Hackathon 2023 Winner	Achievements should be accepted and stored	As expected	Pass
6. Click on “Save”		Profile data should be saved successfully, success message should appear	As expected	Pass
7. Re-navigate to profile page		Previously saved data should be visible	As expected	Pass
8. Update academic info	CGPA: 3.85	Updated academic info should replace previous entry	As expected	Pass
9. Add additional skill	Skill: React.js	New skill should be added without affecting existing ones	As expected	Pass
10. Update achievement	Achievement: Added “Internship at XYZ Ltd”	New achievement should be added	As expected	Pass
Post Condition: Profile data is saved and synced with the user database. Student can view and modify profile information at any time.				

1.4. The system shall allow students to upload video resumes and written resumes in supported formats.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_4 Test Priority (Low, Medium, High): Medium			Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Resume Upload Test Title: Verify upload of video and written resumes			Test Execution date: 10-09-2025	
Description: Ensure students can upload both video and written resumes using supported file formats (e.g., .pdf, .docx, .mp4, .mov)				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Student must be logged in</li><li>➤ Resume upload page must be accessible</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to Resume Upload page		Upload page should be displayed	As expected	Pass
2. Click on “Upload Written Resume”		File browser should open	As expected	Pass
3. Upload written resume in supported format	File: resume.pdf	File should be uploaded successfully	As expected	Pass
4. Upload written resume in unsupported format	File: resume.txt	System should show error: "Unsupported file format"	As expected	Pass
5. Click on “Upload Video Resume”		File browser should open	As expected	Pass
6. Upload video resume in supported format	File: resume.mp4	File should be uploaded successfully	As expected	Pass
7. Upload video resume in unsupported format	File: resume.mkv	System should show error: "Unsupported video format"	As expected	Pass
8. Attempt to upload a file exceeding allowed size	File: 300MB video	System should show error: "File size exceeds limit"	As expected	Pass
9. Verify uploaded resumes are listed/viewable		Uploaded files should appear on user profile or resume list	As expected	Pass

10. Replace an existing uploaded file	Upload new resume.pdf	New file should overwrite the old one	As expected	Pass
Post Condition: Valid video and written resumes are stored in the user profile and linked to the user account in the database. User can re-upload or update resumes anytime				

1.5. The system shall allow students to browse and apply for part-time jobs or internships listed on the platform.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_5 Test Priority (Low, Medium, High): Medium			Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Job/Internship Application Test Title: Verify student can browse and apply for part-time jobs or internships			Test Execution date: 10-09-2025	
Description: Validate functionality that allows students to browse available opportunities and apply to relevant jobs/internships				
Precondition (If any): User must be logged in as a registered student				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as a student	Username: hashansourov Password: 12345678	Student should be logged in and redirected to the dashboard	As expected	Pass
2. Navigate to “Job Opportunities” or “Internships” section		List of available part-time jobs/internships should be displayed	As expected	Pass
3. Browse the list of jobs/internships		Job titles, descriptions, and application buttons should be visible	As expected	Pass
4. Click on a job/internship post	Selected Job ID: PTJ001	Detailed job/internship information should be displayed	As expected	Pass
5. Click on “Apply” button	Job ID: PTJ001	Application form or	As expected	Pass

		confirmation should appear		
6. Submit application	Resume: resume.pdf Cover Letter: optional	Success message or notification should confirm application submission	As expected	Pass
7. Verify application appears in "My Applications" section		The job/internship should be listed in the student's applications	As expected	Pass
Post Condition: The student's job/internship application is stored in the database and visible in their profile/application history.				

1.6. The system shall display AI-based job recommendations to students based on their profile data and preferences.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Sourov		
Test Case ID: FR_6 Test Priority (Low, Medium, High): High		Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov		
Module Name: AI-Based Job Recommendations Test Title: Verify AI-based job recommendations for students		Test Execution date: 10-09-2025		
Description: To ensure the system displays personalized job/internship recommendations				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Student must be logged in</li><li>➤ Profile must be completed with relevant academic and skill information</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as a student	Username: hashansourov Password: 12345678	Student should be logged in and redirected to dashboard	As expected	Pass
2. Ensure student profile is filled with academic background, skills, and preferences	e.g. Skill: Python Interest: Data Science Location: Dhaka	Profile should be saved and preferences stored	As expected	Pass
3. Navigate to "Recommended Jobs" section		Recommended job list based on student profile	As expected	Pass

		should be displayed		
4. Verify relevance of recommended jobs	Profile: Python, Data Science Job Title: Data Analyst Intern	Jobs shown should match student's skills and preferences	As expected	Pass
5. Click on a recommended job	Job ID: AIJ001	Job detail page should open with complete job information	As expected	Pass
6. Apply for the recommended job	Job ID: AIJ001 Resume uploaded	Application should be submitted successfully	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Recommended job list is updated in real-time based on profile changes.</li> <li>➤ Application appears in the "My Applications" section.</li> <li>➤ AI module logs feedback for future recommendation improvements.</li> </ul>				

1.7. The system shall allow students to schedule or attend online/physical interviews with employers.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Sourov		
Test Case ID: FR_7 Test Priority (Low, Medium, High): High		Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov		
Module Name: Interview Scheduling Test Title: Verify student can schedule and attend online/physical interviews		Test Execution date: 10-09-2025		
Description: Validate that students are able to schedule and join interviews (online or physical) as per employer’s availability				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Student must be logged in</li><li>➤ Student must have applied to at least one job/internship</li><li>➤ Employer must have sent an interview invitation</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as a student	Username: hashansourov Password: 12345678	Student should be redirected to dashboard	As expected	Pass
2. Navigate to “Interview Invitations” section		List of interview	As expected	Pass

		requests should be displayed		
3. View interview details	Interview ID: INT001 Type: Online Date: 2025-09-17 Time: 11:00 AM	Interview details should be shown clearly	As expected	Pass
4. Choose interview slot (if scheduling is allowed)	Slot: 2025-09-17 at 11:00 AM	Interview should be confirmed and added to student's schedule	As expected	Pass
5. Click "Join" for online interview at scheduled time	Platform: Zoom/Integrated video Join link provided	Video call interface should open and allow interview session	As expected	Pass
6. Attend physical interview	Location: Dhaka Office, 4th Floor Time: 3:00 PM	Physical interview details should be displayed with a map/directions	As expected	Pass
7. Check interview status post-attendance	Status: Completed / Pending Feedback	Interview should be marked as attended or pending review	As expected	Pass
<b>Post Condition:</b> <ul style="list-style-type: none"> <li>➤ Interview participation is logged in the database.</li> <li>➤ Employer can provide feedback or change interview status.</li> <li>➤ Student receives notifications/reminders before interviews.</li> </ul>				

1.8. The system shall enable students to view the status of their applications and feedback provided by employers.

Project Name: Student Skill Bridge	Test Designed by: Md. Mahabub Al Hashan Surov
Test Case ID: FR_8 Test Priority (Low, Medium, High): High	Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov
Module Name: Application Tracking & Feedback Test Title: Verify student can view application status and employer feedback	Test Execution date: 10-09-2025

Description: Ensure that students can track the progress of their applications and view any feedback left by employers				
Precondition (If any): <ul style="list-style-type: none"> <li>➤ Student must be logged in</li> <li>➤ Student must have applied for at least one job/internship</li> <li>➤ Employer must have updated the status or left feedback</li> </ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as a student	Username: hashansourov Password: 12345678	Student dashboard should be displayed	As expected	Pass
2. Navigate to “My Applications” section		List of applied jobs/internships should be shown	As expected	Pass
3. Select an application to view details	Application ID: APP123	Application details (job title, company, applied date) should be visible	As expected	Pass
4. Check current application status	Status: Under Review / Shortlisted / Rejected / Hired	System should show updated application status	As expected	Pass
5. Check for employer feedback	Feedback: “Strong portfolio, but need more team project experience.”	Feedback section should display message left by employer	As expected	Pass
6. Return to dashboard or browse other applications		Navigation should be smooth and persistent login maintained	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Students are informed of application progress and employer comments.</li> <li>➤ Data is stored and visible until the application process concludes.</li> <li>➤ Students can use feedback to improve future applications.</li> </ul>				



1.9. The system shall provide secure in-app messaging functionality for students to communicate with employers.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_9 Test Priority (Low, Medium, High): High			Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: In-App Messaging Test Title: Verify secure messaging between student and employer			Test Execution date: 10-09-2025	
Description: Ensure students can securely send and receive messages to/from employers within the platform				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Student and employer must both be registered users</li><li>➤ Student must have applied to at least one job or have an ongoing interview/application</li><li>➤ Both users must be logged in</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as a student	Username: hashansourov Password: 12345678	Student dashboard is displayed	As expected	Pass
2. Navigate to “Messages” or “Inbox” section		Messaging interface should load	As expected	Pass
3. Open conversation with employer	Employer ID: EMP1002	Chat history should load securely with timestamps	As expected	Pass
4. Type and send a message	“Hello, I’m excited about the opportunity!”	Message should be sent and appear instantly in chat	As expected	Pass
5. Receive response from employer	Message: “Thanks for your interest. Let’s schedule a call.”	Employer message should appear in real-time	As expected	Pass
6. Attempt to send a message to an unauthorized employer	Employer not linked to student application	Error message or restriction should be shown	As expected	Pass
7. Refresh or log out and log back in		All previous messages should persist securely	As expected	Pass

Post Condition:

- Messages are encrypted during transmission
- Only involved users can view the conversation
- No messages are accessible from outside the app or by unauthorized users

1.10. The system shall allow user to recover their password by providing their username/email.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Sourov		
Test Case ID: FR_10 Test Priority (Low, Medium, High): High		Test Designed date: 10-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov		
Module Name: Password Recovery Test Title: Verify password recovery via username or email		Test Execution date: 10-09-2025		
Description: Ensure users can securely recover their account by initiating a password reset using their registered email or username				
Precondition (If any): <ul style="list-style-type: none"><li>➤ User must be registered on the platform</li><li>➤ User must have access to the registered email address</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to the login page		Login form should be displayed	As expected	Pass
2. Click “Forgot Password” link		Password recovery page should appear	As expected	Pass
3. Enter registered email	Email: <a href="mailto:mahabubsourov@gmail.com">mahabubsourov@gmail.com</a>	System should validate email and send recovery instructions	As expected	Pass
4. Enter registered username (alternative test)	Username: hashansourov	System should validate username and send recovery instructions to	As expected	Pass

		associated email		
5. Check email inbox for recovery link	Email received from: support@studentskillbridge.com	Email with password reset link/code should be received	As expected	Pass
6. Click reset link and enter new password	New Password: P@ssw0rd9	Password should meet security rules and be updated	As expected	Pass
7. Login with new password	Username: hashansourov Password: P@ssw0rd9	Login should succeed with the new password	As expected	Pass
8. Attempt with invalid email/username	Email: fakeuser@mail.com	System should show error: "User not found"	As expected	Pass
Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database.				

2.1.The system shall allow employers to register by providing their company name, email, username, gender, nid no, phone number, address, date of birth, user type (employer/client), and password (must be 8 characters with a combination of letters, numbers, and special symbols).

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_21 Test Priority (Low, Medium, High): High			Test Designed date: 08-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Employer Registration Test Title: Verify employer registration with required information			Test Execution date:08-09-2025	
Description: Ensure the system allows employer registration using all required fields with validation and secure password rules				
Precondition (If any): Employer is not yet registered in the system				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)

1. Navigate to registration page		Employer registration form should be displayed	As expected	Pass
2. Enter company name	CodeTech Ltd.	Company name should be accepted	As expected	Pass
3. Enter email	codetech.hr@gmail.com	Valid and unique email should be accepted	As expected	Pass
4. Enter username	codetech2025	Unique username should be accepted	As expected	Pass
5. Select gender	Male	Gender should be recorded	As expected	Pass
6. Enter NID number	78945612	Numeric NID should be accepted	As expected	Pass
7. Enter phone number	01912345678	Valid phone number format should be accepted	As expected	Pass
8. Enter address	Gulshan, Dhaka	Address should be saved	As expected	Pass
9. Enter date of birth	01/01/1985	Date should be valid	As expected	Pass
10. Select user type	Employer	“Employer” user type should be selected successfully	As expected	Pass
11. Enter password	Codetech@2025	Password should meet complexity rules (min 8 characters, mix of letters, numbers, symbols)	As expected	Pass
12. Confirm password	Codetech@2025	Passwords should match	As expected	Pass
13. Submit the registration form		Employer should be registered successfully and receive a confirmation message or redirection	As expected	Pass

Post Condition:

- Employer account is created and stored in the database
- Employer can now log in and access employer-specific dashboard
- System ensures secure handling of password (e.g., hashing)

2.2The system shall allow employers to login using their registered email, username, or phone number along with their password.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_22 Test Priority (Low, Medium, High): High			Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Login Session Test Title: Verify employer login using email, username, or phone number			Test Execution date:08-09-2025	
Description: Validate that registered employers can log in using their email, username, or phone number with the correct password				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Employer must be registered</li><li>➤ Correct login credentials must exist in the database</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to login page		Login form should be displayed	As expected	Pass
2. Login with email and password	Email: codetech.hr@gmail.com Password: Codetech@2025	Employer should be logged in and redirected to dashboard	As expected	Pass
3. Login with username and password	Username: codetech2025 Password: Codetech@2025	Employer should be logged in successfully	As expected	Pass
4. Login with phone number and password	Phone: 01912345678 Password: Codetech@2025	Employer should be logged in successfully	As expected	Pass
5. Attempt login with incorrect password	Email: codetech.hr@gmail.com Password: WrongPass123	System should display an error message:	As expected	Pass

		"Invalid credentials"		
6. Attempt login with unregistered email	Email: fake@unknown.com Password: Any	System should show error: "User not found" or "Invalid credentials"	As expected	Pass
7. Attempt login with blank fields		System should prompt user to enter required login fields	As expected	Pass
			As expected	Pass
<b>Post Condition:</b> <ul style="list-style-type: none"> <li>➤ On successful login, employer session is created and user is redirected to the employer dashboard</li> <li>➤ On failed login, access is denied with appropriate error feedback</li> </ul>				

2.3.The system shall allow employers to post job/internship circulars with details such as title, description, requirements, and deadlines.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Surov		
Test Case ID: FR_23 Test Priority (Low, Medium, High): High		Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov		
Module Name: Job Posting Test Title: Verify job/internship circular posting by employer		Test Execution date:08-09-2025		
Description: Ensure the employer can post a job/internship circular with all required information (title, description, requirements, deadline)				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Employer must be logged into the system</li><li>➤ Employer must have access to job posting functionality</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as employer	Username: codetech2025 Password: Codetech@2025	Employer dashboard should be displayed	As expected	Pass
2. Navigate to “Post Job/Internship” section		Job posting form should be displayed	As expected	Pass

3. Enter job/internship title	Software Intern	Title field should accept and store the text	As expected	Pass
4. Enter job description	Knowledge of Python, Git, problem solving skills	Requirements should be accepted and listed clearly	As expected	Pass
6. Set application deadline	19/09/2025	Deadline should be valid future date and stored	As expected	Pass
7. Submit job post		System should validate input and post the job successfully	As expected	Pass
8. View posted job		Job should appear under employer's "My Posts" section and be visible to students	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Job/internship circular is saved in the database</li> <li>➤ It is published on the platform and visible to students</li> <li>➤ Employer can edit or delete the post later if needed</li> </ul>				

2.4The system shall enable employers to review student applications, including resumes and profiles.

Project Name: Student Skill Bridge	Test Designed by: Md. Mahabub Al Hashan Sourov
Test Case ID: FR_24 Test Priority (Low, Medium, High): High	Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov
Module Name: Application Review Test Title: Verify employer can review student applications	Test Execution date:08-09-2025
Description: Ensure the system allows employers to access and review student-submitted applications, resumes, and profile details	
Precondition (If any): <ul style="list-style-type: none"> <li>➤ Employer must be logged in</li> </ul>	

➤ Students must have applied to at least one of the employer's posted jobs				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as employer	Username: codetech2025 Password: Codetech@2025	Employer dashboard should be displayed	As expected	Pass
2. Navigate to “Applications” or “Received Applications” section		List of student applications for posted jobs should be displayed	As expected	Pass
3. Select a job posting to view applications	Job ID: JOB321	All applicants for the selected job should be listed	As expected	Pass
4. Click on a student’s name to view profile	Student: Md. Mahabub Al Hashan Surov	Full profile with educational info, skills, and experience should load	As expected	Pass
5. Open attached resume	Resume file: Faysal_CV.pdf	Resume should open or download for review	As expected	Pass
6. View application date and message (if any)	Application Date: 01/09/2025	Application details should be clearly shown	As expected	Pass
7. Mark or rate application (optional)	Status: Reviewed / Shortlisted	Employer can update status or leave internal notes	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Employer has reviewed student applications and can filter or act on them</li> <li>➤ System logs employer views and actions for tracking</li> </ul>				

2.5The system shall allow employers to schedule interviews (live video or physical) with applicants.

Project Name: Student Skill Bridge	Test Designed by: Md. Mahabub Al Hashan Surov
Test Case ID: FR_25 Test Priority (Low, Medium, High):High	Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Surov
Module Name: Interview Scheduling Test Title: Verify employer can schedule interviews with applicants	Test Execution date:08-09-2025
Description: Ensure the system allows employers to schedule online or physical interviews with student applicants	



Precondition (If any): <ul style="list-style-type: none"> <li>➤ Employer and student must be registered</li> <li>➤ Student must have applied to the employer's job/internship</li> </ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as employer	Username: codetech2025 Password: Codetech@2025	Employer dashboard should be displayed	As expected	Pass
2. Navigate to "Applications" section		List of received applications should be shown	As expected	Pass
3. Select a student application	Applicant: Md. Mahabub Al Hashan Sourov	Application details should be displayed	As expected	Pass
4. Click "Schedule Interview"		Interview scheduling form should appear	As expected	Pass
5. Select interview type	Type: Live Video / Physical	Options should be selectable and properly recorded	As expected	Pass
6. Set date, time, and (if applicable) location or video link	Date: 08/09/2025 Time: 11:00 AM Location: Banani Office Link: Zoom/Google Meet	Interview details should be validated and saved	As expected	Pass
7. Submit interview invite		Student should receive notification and interview should be logged	As expected	Pass
8. View scheduled interviews in dashboard		Employer can see upcoming scheduled interviews with status	As expected	Pass

**Post Condition:**

- Interview is scheduled and stored in database
- Student is notified via the system (and possibly email)
- Employer can reschedule or cancel if necessary

2.6The system shall allow employers to send feedback and communicate with applicants via secure in-app messaging.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_26 Test Priority (Low, Medium, High): High			Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: In-App Messaging & Feedback Test Title: Verify employer can send feedback and communicate with applicants securely			Test Execution date:08-09-2025	
Description: Ensure that employers can send messages and feedback to student applicants through a secure messaging system				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Employer and student must both be registered</li><li>➤ Student must have applied to a job posted by the employer</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as employe	Username: codetech2025 Password: Codetech@2025	Employer dashboard should load	As expected	Pass
2. Navigate to “Applications” section		List of student applications should be displayed	As expected	Pass
3. Select a student from the list	Applicant: Md. Mahabub Al Hashan Sourov	Application details and contact options should appear	As expected	Pass
4. Click on “Message” or “Send Feedback”		Secure messaging window should open	As expected	Pass
5. Type and send message/feedback	Message: "Your resume looks good. Let's discuss further."	Message should be sent and logged in system	As expected	Pass
6. Student responds to message		Employer receives message in real-time within platform	As expected	Pass

7. View message history		Full conversation should be visible and secure	As expected	Pass
8. Attempt to message unrelated student	Student not applied to employer job	System should restrict access and show error	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Messages are encrypted and securely stored</li> <li>➤ Only employer and relevant applicant can access the conversation</li> <li>➤ Feedback and message logs are maintained for audit and reference</li> </ul>				

2.7.The system shall allow user to recover their password by providing their username/email

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Sourov		
Test Case ID: FR_27 Test Priority (Low, Medium, High): High		Test Designed date:08-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov		
Module Name: Password Recovery Test Title: Verify employer password recovery via username/email		Test Execution date:08-09-2025		
Description: Ensure employers can securely recover their password using registered username or email				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Employer account must exist</li><li>➤ Email must be accessible by the employer</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Navigate to login page		Login form should be displayed	As expected	Pass
2. Click on “Forgot Password”		Password recovery page should appear	As expected	Pass
3. Enter registered email	Email: codetech.hr@gmail.com	System should validate and send reset link	As expected	Pass
4. Alternatively, enter registered username	Username: codetech2025	Reset link should be sent to	As expected	Pass

		associated email		
5. Check email for recovery link	Email received: subject "Reset Your Password"	Link should direct to password reset page	As expected	Pass
6. Enter and confirm new password	New Password: Codetech@2026	Password should meet complexity rules and be updated	As expected	Pass
7. Login with new password	Username: codetech2025 Password: Codetech@2026	Login should be successful with new credentials	As expected	Pass
8. Try reset with invalid username/email	Email: wrong@mail.com	Error: "User not found" or similar message	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Password is securely updated</li> <li>➤ Employer can log in using the new password</li> <li>➤ Old reset links expire automatically for security</li> </ul>				

3.1. The system shall allow administrators to manage user accounts (students/employers), including activation, suspension, or deletion.

Project Name: Student Skill Bridge		Test Designed by: Md. Mahabub Al Hashan Sourov		
Test Case ID: FR_31 Test Priority (Low, Medium, High): High		Test Designed date:09-06-2025 Test Executed by: Md. Faysal Khan		
Module Name: User Account Management (Admin) Test Title: Verify administrator can manage user accounts		Test Execution date:09-09-2025		
Description: Ensure administrators can view, activate, suspend, or delete student and employer accounts				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Administrator must be logged in</li><li>➤ User accounts must exist in the system</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as administrator	Username: admin Password: Admin@123	Admin dashboard should load	As expected	Pass

2. Navigate to “User Management” section		List of all registered users should be displayed	As expected	Pass
3. Search for a user account	Username: hashansourov (student)	Matching user profile should be shown	As expected	Pass
4. Select action: Suspend user	Action: Suspend	User account should be marked as suspended and access disabled	As expected	Pass
5. Select action: Activate user	Action: Activate	Suspended account should be re-enabled	As expected	Pass
6. Select action: Delete user	Action: Delete	Account should be permanently removed or archived (based on system rules)	As expected	Pass
7. Attempt action on already deleted user	User previously deleted	System should show error or warning message	As expected	Pass
8. Verify logs or audit trail		All actions should be logged with timestamp and admin info	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ User account states are updated in the database</li> <li>➤ Suspended users cannot log in</li> <li>➤ Deleted users are permanently removed or marked inactive</li> <li>➤ Admin actions are logged for audit purposes</li> </ul>				

3.2. The system shall enable administrators to monitor and verify job/internship postings for compliance with platform policies.

Project Name: Student Skill Bridge	Test Designed by: Md. Mahabub Al Hashan Sourov
Test Case ID: FR_32 Test Priority (Low, Medium, High): High	Test Designed date:09-09-2025

			Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Job/Internship Compliance Monitoring Test Title: Verify admin can monitor and verify job/internship posts			Test Execution date:09-09-2025	
Description: Ensure that administrators can view, verify, and take action on job/internship postings for policy compliance				
Precondition (If any): <ul style="list-style-type: none"><li>➤ Admin must be logged in</li><li>➤ Employers must have posted job/internship circulars</li></ul>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as administrator	Username: admin Password: Admin@123	Admin dashboard should be displayed	As expected	Pass
2. Navigate to “Job/Internship Posts” section		List of all employer-posted jobs/internships should be shown	As expected	Pass
3. Select a job post for review	Job ID: JOB654	Job post details should be displayed	As expected	Pass
4. Check for compliance flags (e.g. missing info, inappropriate content)	Description contains promotional links	System should highlight content that may violate policy	As expected	Pass
5. Approve compliant post	Status: Approve	Job is marked as active and visible to students	As expected	Pass
6. Reject or flag non-compliant post	Status: Rejected Reason: "Contains promotional content"	Post should be hidden or marked as non-compliant	As expected	Pass
7. View audit logs of review actions		Action taken by admin should be recorded with timestamp	As expected	Pass
Post Condition: <ul style="list-style-type: none"><li>➤ Job posts are filtered and moderated for quality and policy compliance</li><li>➤ Admin decisions are logged</li></ul>				



- Students only see verified/compliant listings

3.3. The system shall provide administrators with analytics and reports on system usage, user activity, and job application trends.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_33 Test Priority (Low, Medium, High): Medium			Test Designed date:09-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Admin Analytics & Reporting Test Title: Verify administrator access to system analytics and reports			Test Execution date:09-09-2025	
Description: Ensure administrators can access reports and dashboards showing usage metrics, user activity, and job application trends				
Precondition (If any): ➤ Administrator must be logged in ➤ Platform must have user activity and job application data available				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as administrator	Username: admin Password: Admin@123	Admin dashboard should be accessible	As expected	Pass
2. Navigate to “Analytics” or “Reports” section		Analytics dashboard should load	As expected	Pass
3. Select “System Usage” report	Filter: Last 30 days	Report should show number of logins, registrations, and sessions	As expected	Pass
4. Select “User Activity” report	Filter: User type = Student	Data on student logins, applications, and messages should be displayed	As expected	Pass
5. Select “Job Application Trends” report	Filter: Internships, Region = Dhaka	System should display number of applications over time, per job, and per location	As expected	Pass

6. Export report as PDF or CSV	Format: CSV	File should be generated and downloaded	As expected	Pass
7. View chart visualizations	Report: Application Trends	Interactive charts/graphs should be correctly displayed	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ Admin has access to accurate, real-time system metrics</li> <li>➤ Reports can be exported for record-keeping or presentation</li> <li>➤ Visual insights support platform decision-making</li> </ul>				

3.4. The system shall allow administrators to address user complaints or issues through a dedicated support interface.

Project Name: Student Skill Bridge			Test Designed by: Md. Mahabub Al Hashan Sourov	
Test Case ID: FR_34 Test Priority (Low, Medium, High): High			Test Designed date:09-09-2025 Test Executed by: Md. Mahabub Al Hashan Sourov	
Module Name: Admin Support & Complaint Handling Test Title: Verify administrator can manage user complaints via support interface			Test Execution date:09-09-2025	
Description: Ensure administrators can view, respond to, and resolve user-submitted complaints or issues via the platform's support system				
Precondition (If any): <div>➤ Admin is logged in</div> <div>➤ One or more complaints have been submitted by users (students or employers)</div>				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Login as administrator	Username: admin Password: Admin@123	Admin dashboard should be displayed	As expected	Pass
2. Navigate to “Support” or “Complaints” section		List of submitted complaints/issues should be displayed	As expected	Pass
3. Click on a complaint to view details	Complaint ID: CMP102 User: Faysal Khan	Full complaint message and user contact info should be shown	As expected	Pass
4. Assign complaint to admin/staff	Assigned to: support_agent01	Complaint status updated to “In	As expected	Pass

		Progress” and assigned user recorded		
5. Respond to complaint via messaging or notes	Message: “We are reviewing your issue. You’ll get an update soon.”	Message is logged and visible to the user via their support inbox	As expected	Pass
6. Change complaint status	Status: Resolved Close Date: 06/06/2025	Complaint should be marked as resolved and moved to history/archive	As expected	Pass
7. View complaint resolution history		Admin should see timeline/log of all actions taken on the complaint	As expected	Pass
Post Condition: <ul style="list-style-type: none"> <li>➤ The selected complaint is marked as resolved and no longer appears in the active complaints list.</li> <li>➤ All actions taken by the administrator (viewing, assigning, responding, updating status) are logged in the system's complaint timeline.</li> <li>➤ The user who submitted the complaint receives a notification or update with the resolution status and admin response in their support inbox.</li> </ul>				

## 7. SOFTWARE PRODUCT METRICS

Information Domain Value ( <b>FP unadjusted</b> )	Count	Simple	Average	Complex	Total
Number of external inputs (EIs)	12	3	4	6	48
Number of external outputs (EOs)	10	4	5	7	50
Number of external inquiries (EQs)	8	3	4	6	32
Number of internal logical files (ILFs)	9	7	10	15	90
Number of external interface files (EIFs)	3	5	7	10	21
Total Unadjusted Function Points (UFP)					241

## Software Maturity Index (SMI) Calculation :

### Possible values of MT (Total Modules)

1. 1 FP = 1 Module  $\rightarrow$  MT =241
2. 1 Module = 5 FP  $\rightarrow$  MT =241/5=48.2  $\approx$  48
3. 1 Module = 10 FP  $\rightarrow$  MT = 241/10=24.1  $\approx$  **24**
4. 1 Module = 15 FP  $\rightarrow$  MT = 241/15= **16.07** $\approx$ 16

### Maintenance Changes Assumption

Fa (Added modules) = 8

Fc (Changed modules) =10

Fd (Deleted modules) =2

### Formula

$$\text{SMI} = (\text{MT} - (\text{Fa} + \text{Fc} + \text{Fd})) / \text{MT}$$

### Calculations

$$\text{MT} = 48, \text{SMI} = (48 - (8 + 10 + 2)) / 48 = (48 - 20) / 48 = 28 / 48 \approx \mathbf{0.583}$$

$$\text{MT} = 24, \text{SMI} = (24 - (8 + 10 + 2)) / 24 = (24 - 20) / 24 = 4 / 24 = \mathbf{0.1666 \approx 0.167}$$

$$\text{MT} = 16, \text{SMI} = (16 - (8 + 10 + 2)) / 16 = (16 - 20) / 16 = -4 / 16 = \mathbf{-0.25}$$

$$\text{MT} = 8, \text{SMI} = (8 - (8 + 10 + 2)) / 8 = (8 - 20) / 8 = -12 / 8 = \mathbf{-1.5}$$

### Description:

**If SMI is near 1, system is stable. If much lower (<0.7) system is unstable.**

## 8. CONCLUSION AND FUTURE WORK

### Conclusion:

The "Student Skill Bridge" project was conceived to address a critical gap in the Bangladeshi market: the lack of a dedicated, student-centric platform for finding part-time jobs and internships. Existing solutions are often tailored for full-time professionals, leaving students to navigate an unorganized and inefficient process. This project successfully designed and developed a comprehensive web-based portal that bridges this gap by leveraging modern technologies like AI for personalized matching, video resumes for richer candidate presentation, and integrated tools for seamless communication and interview scheduling.

By adopting the Agile Scrum methodology, the development process was highly adaptive, allowing for incremental feature delivery and continuous integration of feedback from potential users (students and employers). This approach ensured that the final product aligns closely with user needs and market realities. The platform not only simplifies the job search and hiring process but also introduces innovative features that

empower students to showcase their potential effectively and help employers discover talent efficiently. The "Student Skill Bridge" stands as a viable, sustainable solution that contributes to easing the transition from education to employment for the youth of Bangladesh.

### **Future Work:**

While the current version of "Student Skill Bridge" fulfills its core objectives, there are several avenues for future enhancement and expansion to increase its impact and reach:

- **Advanced AI and Machine Learning:** The recommendation engine can be enhanced with more sophisticated ML models that consider a wider range of behavioral data, skill trends, and successful placement outcomes to provide even more accurate and personalized job matches.
- **Gamification and Skill Development:** Integrating micro-learning modules or coding challenges can help students upskill directly on the platform. A gamified system with badges and scores for completing profiles and skillsets could increase user engagement.
- **Mobile Application Development:** A dedicated native mobile app for iOS and Android would provide greater accessibility and convenience for students and employers on the go, featuring push notifications for new matches, messages, and interview reminders.
- **Integration with University Systems:** Partnering with universities to integrate academic data (with student consent) could automate profile creation and verify academic credentials, adding a layer of trust and convenience.
- **Expansion to a Broader Youth Market:** The platform could be expanded to include fresh graduates and entry-level job seekers, becoming a comprehensive career-launching platform for young talent across Bangladesh.
- **Advanced Analytics Dashboard for Employers:** Providing employers with detailed analytics on their posts, applicant demographics, and market trends would offer significant added value and help them make data-driven hiring decisions.
- **Blockchain for Credential Verification:** Exploring blockchain technology to create tamper-proof digital certificates for academic credentials and work experience could significantly enhance the platform's credibility and trustworthiness.

