UB JOB PORTAL

Report #1

CMPS4131 - Software Engineering

Manual Medina

March 5, 2023

User Effort Estimation

		Team Member Name				
		Jahmur L	Jaheim L	Josias M	Tadeo B	Daniel M
	Project management (10 points)	**10%**	**5%**	**5%**	**75%**	**5%**
	Sec.1: Customer Statement of Requirements (9 points)				**100%**	
	Sec.2: System Requirements (6 points)	**45%**			**10%**	**45%**
	Sec.3: Functional Requirements Specification (30 points)	**19%**	**19%**	**19%**	**19%**	**24%**
	- Stakeholders					100%
	- Actors and Goals				100%	
	- Use Cases	100%				
	- Use Case Diagram			100%		
	- Traceabiily Matrix					100%
	- Fully Dressed Descriptions		100%			
	- Sequence Diagrams				75%	25%
	Sec.4: User Interface Specs(15 points)	**20%**		**37%**	**43%**	
	- Preliminary Design	25%		25%	50%	
	- User Effort Estimation			50%	50%	
Level	**Sec.5: System Architecture (15 points)**		**16.6%**	**33.3%**	**33.3%**	**16.6%**
	- UML Package Diagram				100%	
	- Architecture Styles				100%	
	- Mapping Subsystems to Hardware					100%
	- Connectors and Network Protocols			100%		
	- Global Control Flow			100%		
	- Hardware Requirements		100%			
	Sec.6: Plan of Work (5 points)			**100%**		

Responsibility

Table of Contents

CUSTOMER STATEMENT OF REQUIREMENTS

Problem Statement

Finding a job is hard. The problems students face

In Belize, it is common knowledge that finding a job after university, given your experience, is quite hard. To find a job, students must scour social media, newspapers, and company websites to find a vacancy in an organization. In addition, some students rely on asking friends, family, and others to learn about available jobs. This old way of finding a job is time-consuming and unproductive. Given the right tool, the time it takes to find a job vacancy can be used to apply for appropriate jobs. Other popular sites like Indeed or LinkedIn are great for individuals to post their resumes and more information about themselves. Also, these applications have integrated features to allow individuals to learn more about posted job vacancies easily. Unfortunately, many organizations in Belize still rely on older methods to get out their job applications and hire new candidates. Henceforth, a more modern but “Belizean” solution must be implemented to encourage organizations to use these new technologies further to enhance their search for the right student candidates. Furthermore, it helps students find jobs that best suit them.

Keeping track of applications (student perspective)

There is no guarantee of success in one job application in the current job market. Therefore, it is in their best interest that a student applies for as many jobs as possible. Remembering and revisiting the numerous applications and tracking their status can be unmanageable. Such tracking can be done using Excel spreadsheets. The drawback comes with the limiting factor of manually updating new rows of information, which could get numerous and frustrating. An integrated tool can make this feature seamless and more intuitive.

Keeping track of applications (employer perspective)

Places companies post vacancies include their websites, newspapers, or social media such as Facebook. In today's market, youth unemployment is 21.81% of the workforce aged 15 - 24 in 2022 (*Belize Youth Unemployment Rate 1991-2024*, n.d.). Therefore, we can deduce that a job application on social media can have numerous applicants. Usually, these applicants would have to submit their resumes through email, as this is the norm for professional communication in Belize. The employer must then examine the resumes and CVs provided through email. A short list is created with the individuals to interview. The employer is then obliged to respond to all the other applicants about the status of their resumes. In some cases, applicants are not told the status of their application and take the initiative to reach out, requesting an update. This whole process can become efficient for both applicants and employers by using a centralized job vacancy application. In such an application, employers can manage all job vacancy posts with related applicant information shortlists and issue application updates to candidates not considered. This speeds up the process of employers finding a suitable candidate and does not leave other candidates guessing if their resume was considered.

Companies may enjoy the organization of speaking with multiple candidates for a posted job

Another advantage of a centralized system is that a company can organize conversations between numerous shortlisted candidates about a particular vacancy. This streamlines the process of communication between employers and potential candidates without the stress of email conversations. As mentioned above, candidates not considered for the job can be easily updated through an employer's click of a button, removing the time to update each candidate individually.

Companies can reach more people and different kinds of people much faster

Companies sometimes need to find a suitable candidate quickly to fill an important role. Not all companies have the reach or the following to discover the best candidates. With the advent of a new job portal application for UB students, companies can leverage this tool to get their job vacancies directly in the eyes and interests of hundreds of students. Job posts can instantly reach candidates with different fields of expertise, degrees, and experience. This, in turn, minimizes the time an employer spends searching for a candidate. This also increases the chances of finding the perfect candidate for the role. The system puts the employer and candidate in direct contact with each other. An employer can converse with potential candidates, only taking the conversation to other applications if a video call is required.

Sending and receiving documents become faster and easier

Handling numerous documents and conversations through Gmail (the most common communication method in this process) can become messy, especially when handling numerous attachments spread across multiple messages in an email thread. Henceforth, an organized way to view all sent and received documents between parties can make processes for employers more intuitive. Such a feature is incredibly useful and helpful for employers, especially in limited time.

In conclusion, an application built to address these problems can ultimately impact Belize's youth unemployment rate. It allows employers to reach university candidates faster and allows students to find and apply for multiple jobs easily.

Glossary of Terms

Term	Definition
Employer/External User	The entity that makes job vacancy posts and considers candidates for hire.
Candidate/Applicant/Internal User	A UB student who applies for posts seeking an interview for hire.
Application	Submission of one's resume or other personal details to be considered for an interview or job.
Email Thread	A group of emails in an email conversation between two Gmail users.
Administrator	The user that had admin rights to verify job listings, verifying legitimacy of vacancies and users registered.
Analytics	The website will be able to
Client-Server Model	A computing architecture where tasks or services are divided between service providers (servers) and service requesters (clients). Clients initiate requests for services, while servers respond to those requests by providing the requested resources or performing the requested tasks, enabling distributed computing over a network.
Relational Database	A relational database is a type of database that organizes data into tables of rows and columns, with relationships defined between the tables, enabling efficient storage, retrieval, and manipulation of structured data.
REST API	REST API is an architectural style for an API that uses HTTP requests to access and use data, and exchange it securely over the internet. REST API is a way for two computer systems to communicate.
RESTful API	RESTful API is an interface that allows two different systems to exchange information over the internet with tight security. RESTful APIs is the web-service implementation of the

	REST architectural style and offers a scalable and simple method to construct APIs that are applicable to various programming languages and platforms.

SYSTEM REQUIREMENTS

Functional Requirements

Priority Weight	Description
1	Not important
2	Low importance
3	Normal
4	Important
5	Very Important

Identifier	PW	Requirement
REQ-1	5	The system shall allow internal users to access the UB Job Portal without an account.
REQ-2	2	The system shall allow internal and external users to register an account to access the UB Job Portal
REQ-3	1	The system shall allow registered internal users to upload their personal information and resume documents.
REQ-4	2	The system shall allow registered internal users to edit their profiles, including personal information and resume documents.
REQ-5	3	The system shall allow registered external users to upload company information.
REQ-6	5	The system shall allow registered external users to create vacant job posts.
REQ-7	1	The system shall allow registered external users to edit their profiles, including company information and job posts.
REQ-8	5	The system shall allow internal users to search for job posts based on criteria such as title, location, or company.
REQ-9	2	The system shall allow internal users to filter job post results based on preferences such as full-time/part-time, internship, or remote positions.

REQ-11	2	The system shall allow registered internal users to apply for job posts by submitting their resumes and any additional required documents.
REQ-12	1	The system shall provide a feature for registered external users to access and view registered internal user information and documents.
REQ-13	2	The system shall facilitate communication between registered external and internal users, allowing for instant messaging in regard to a job post.
REQ-14	3	The system shall allow registered external users to reach out to registered internal users directly regarding job opportunities or application statuses.
REQ-15	1	The system shall verify all users who sign up for the UB Job portal.
REQ-16	3	The system shall provide reporting and analytics capabilities to track usage metrics, such as the number of job postings, applications, and user interactions.

Non-Functional Requirements

Identifier	**PW**	**Requirement**
NONREQ-1	2	The system should be a clear, user-friendly, and understandable web app.
NONREQ-2	4	The system should use a method to move user data to the database and back to the user. The system should support integration with external services, such as job search engines or social media platforms, to extend its reach.
NONREQ-3	5	Administrators will be able to review vacancy positions and verify if it's eligible.
NONREQ-4	2	The system will be responsible for saving data from electronic forms into a database.
NONREQ-5	3	The platform should have a high level of reliability, minimizing downtime or service interruptions.
NONREQ-6	5	Data transmitted and stored should be encrypted to ensure the confidentiality and integrity of user information

NONREQ-7	2	The platform should have an intuitive and user-friendly interface for both companies and students.
NONREQ-8	5	Provide documentation and training materials for administrators, companies, and students. Offer customer support channels to address user queries and issues promptly.

On-Screen Appearance Requirements:

Identifier	PW	Requirement
ONSREQ-1	4	Design an intuitive and responsive layout that adapts to different screen sizes and resolutions. Provide clear navigation paths, ensuring users can easily find and access relevant information.
ONSREQ-2	3	Define a set of consistent icons and symbols for actions, alerts, and other visual cues to enhance user understanding.
ONSREQ-3	3	The platform's visual design should align with the school's brand guidelines, ensuring a consistent and cohesive appearance.

FURPS Table:

Functionality	● The platform shall provide companies with the ability to showcase and upload job vacancies. ● Students can browse, search, and view available job opportunities. ● Companies and students should have the option to register, creating individual profiles.
Usability	● With an intuitive user interface, the platform offers easy navigation and clear calls-to-action for companies and students, supported by informative feedback messages and user-friendly error handling. ● Accessibility standards are followed to provide an inclusive

	experience.
Reliability	● Data integrity measures are in place to ensure accuracy, and regular data backups prevent potential loss, contributing to a reliable platform. ● High system availability is maintained through robust hosting solutions, redundancy for critical components, and security measures to protect against vulnerabilities and loss of user information.
Performance	● The platform is optimized for low-latency response times, undergoing regular performance testing to identify and address any bottlenecks. ● Scalability measures and load balancing techniques are implemented to handle increased user traffic efficiently and maintain optimal performance.
Supportability	● Comprehensive documentation guides administrators, companies, and students, with additional troubleshooting guides and FAQs for user support. ● Training sessions and ongoing support channels, such as email or chat, are provided, and a systematic approach to software updates ensures continuous improvement while minimizing disruptions.

FUNCTIONAL REQUIREMENTS SPECIFICATION

Stakeholders:

1. **UB Students (Internal Users)**

- Easily access the UB Job Portal.
- Share personal info for job applications.
- Search for jobs that match their skills.
- Communicate smoothly with potential employers.

2. **Employers/Companies (External Users)**

- Post job openings on the UB Job Portal.
- Check out student profiles.
- Communicate with students about job opportunities.
- Manage and review job applications.

3. **Administrators**

- Verify and manage user registrations.
- Ensure posted jobs meet eligibility criteria.
- Provide support to both students and employers.

Actors and Goals

Actor	Type	Goals
Student	Initiating	Create an account Upload, delete, and update personal information and documents Apply for jobs Message employers about a job if considered
Employer	Initiating	Post job applications Upload, delete, and update company information Accept potential candidates Message candidates about a job and communicate further steps in the application process.
Administrator	Initiating	See system usage information

Use cases

Name	Description	Requirement Covered
UC 1 - StudentRegistration	• To allow the system to capture all fields entered when students register.	REQ-1, REQ-2 NONREQ-1, NONREQ-6, NONREQ-7,
UC 2 - StudentAuthentication	• Confirms that ONLY students from UB are allowed to register.	REQ-2, REQ-15
UC 3 - EmployerRegistration	• To allow the system to capture all fields entered when students register.	REQ-1, REQ-2, NONREQ-1, NONREQ-6, NONREQ-7,
UC 4 - EmployerAuthentication	• Confirms that ONLY legitimate businesses are allowed to register.	REQ-2 REQ-15
UC 5 - FilterJob	• To allow the system to decipher which listings are legitimate or fake.	REQ-8, REQ-9, NONREQ-1, NONREQ-7
UC 6 - InsertInfo	• To allow students to upload personal information & resume.	REQ-3, NONREQ-1, NONREQ-7
UC 7 - ChangeStudentInfo	• To allow students to edit their personal info & resume.	REQ-4, NONREQ-1, NONREQ-7 NONREQ-2
UC 8 - UploadCompanyInfo	• To allow employers to upload their company information for students	REQ-5,
UC 9 - ChangeCompanyInfo	• To allow employers to edit company info from the portal.	REQ-7 NONREQ-1, NONREQ-7 NONREQ-2
UC 10 - CreateJob	• To allow employers to	REQ-6

	vacant job posts for students.	
UC 11 - SearchJobListing	• To allow students to search through different job listings available.	REQ-8 REQ-9
UC 12 - ApplyJob	• To allow students to apply for jobs by submitting their resume.	REQ-11
UC 13 - Message	• To allow both students and employers to communicate with each other via instant messaging.	REQ-13 REQ-14
UC 14 - ViewDocuments	• To allow employers to view resumes.	REQ-12
UC 15 - ViewPersonalInfo	• To allow employers to view students' personal information uploaded.	REQ-12
UC 16 - Verify	• To allow the system to verify both students and employers identities.	REQ-15
UC 17 - AnalyzeStatistics	• To allow the administrator to view, provide reporting & analytics of usage statistics.	REQ-16 NONREQ-6

1. **Student Registration and Profile Creation**

- Description: Students sign up on the UB Job Portal and create profiles by sharing details about themselves, education, and skills.
- Actors: UB Student, System

2. **Job Vacancy Posting by Employers**

- Description: Employers upload job openings to the UB Job Portal, providing details like job descriptions, qualifications, and deadlines.
- Actors: Employer, System

3. **Job Search and Application by Students**

- Description: Students look for jobs, view details, and submit applications based on their preferences and qualifications.
- Actors: UB Student, System

4. **Communication between Employers and Students**
- Description: Employers and students chat through the platform regarding job applications, interview schedules, and application status.
- Actors: UB Student, Employer, System

5. **Job Application Tracking by Students**
- Description: Students track their job applications, receive updates, and efficiently manage multiple applications.
- Actors: UB Student, System

6. **Job Application Review and Shortlisting by Employers**
- Description: Employers review applications, shortlist candidates, and manage the recruitment process within the platform.
- Actors: Employer, System

Use Case Diagram

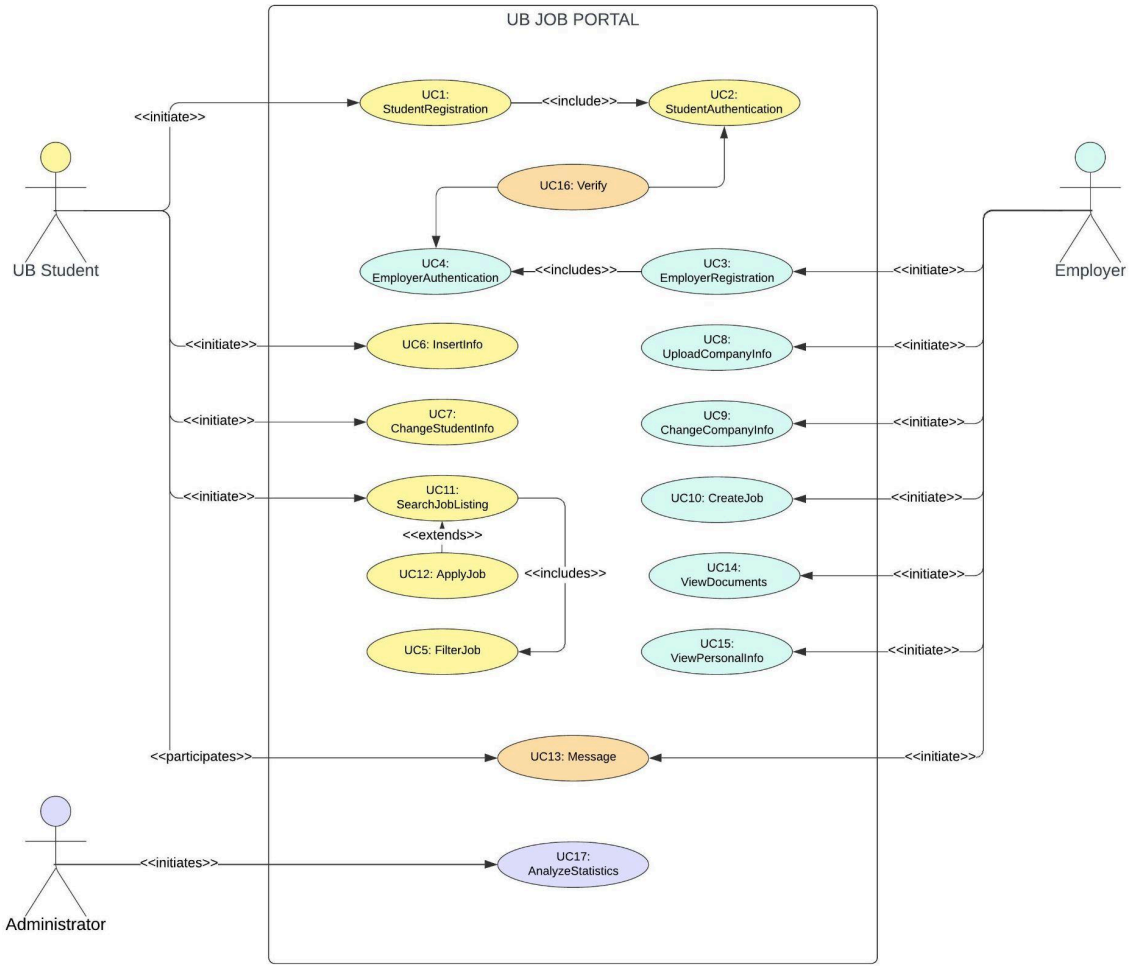


Figure 1 - Sequence Diagram of UB Job Portal

Traceability Matrix

PW Value		UC 1 - StudentRegistration	UC 2 - StudentAuthentication	UC 3 - Employer Registration	UC 4 - EmployerAuthnetication	UC 5 - Filter Job	UC 6 - Insert-Info	UC 7 - ChangeStudentInfo	UC 8 - UploadCompanyInfo	UC 9 - ChangeCompanyInfo	UC 10 - CreateJob	UC 11 - SearchJobListing	UC 12 - ApplyJob	UC 13 - Message	UC 14 - ViewDocuments	UC 15 - ViewPersonalInfo	UC 16 - Verify	UC 17 - AnalyzeStatistics
5	REQ-1	X		X														
2	REQ-2	X	X	X	X													
1	REQ-3						X											
2	REQ-4							X										
3	REQ-5																	
5	REQ-6								X		X							
1	REQ-7									X								
5	REQ-8					X						X						
2	REQ-9					X						X						
1	REQ-11												X					
1	REQ-12														X	X		
2	REQ-13													X				
3	REQ-14													X				
1	REQ-15		X		X												X	
3	REQ-16																	X
2	NOREQ-1	X		X		X	X	X	X	X								
4	NOREQ-2							X	X	X								
5	NOREQ-3																	
2	NOREQ-4																	
3	NOREQ-5																	
5	NOREQ-6	X		X														X
2	NOREQ-7	X		X		X	X	X	X	X								
2	NOREQ-8																	
4	ONSREQ-1	X		X			X	X	X	X		X						
3	ONSREQ-2	X		X														
3	ONSREQ-3	X		X														
	Total Weight	26	3	26	3	11	9	14	17	13	5	11	2	5	1	1	1	8

Table 1. Traceability Matrix according to system requirements and use cases weight

Fully-Dressed Description

UC-1	StudentRegistration
Related Requirements	REQ-1, REQ-2, NONREQ-1, NONREQ-6,NONREQ-7
Initiating Actor	Student
Actor's Goal	To allow the system to capture all fields entered when students register
Participating Actors	Administrator
Pre-Condition	
Post-Condition	
Flow of Events for Main Success Scenario	→ 1. The student access the registration site via the web portal or application → 2. They go the sign up section of the portal to create a new account → 3. The student inputs all necessary information on the sign up page (eg. name, phone number, etc.) → 4. Once done, the student will click the register button. ← 5. The system will ask the student to confirm the registration. The student confirms. ← 6. The system update the system with the new information added by the student

UC-3	EmployerRegistration
Related Requirements	REQ-1, REQ-2, NONREQ-1, NONREQ-6,NONREQ-7
Initiating Actor	Employer
Actor's Goal	To allow the system to capture all fields entered when employers register.
Participating Actors	Administrator
Pre-Condition	
Post-Condition	
Flow of Events for Main Success Scenario	→ 1. The Employer access the registration site via the web portal or application → 2. Once in the registration section, the employer will complete a registration form by providing necessary information. ← 3. The system may send a verification code to the provided email address or phone number. → 4. After the employer verifies, they log into using their credentials. → 5. The employer navigates to the job listing that they desire. → 6. After finding that job listing, they input their information on the application such as resume and other information. ← 7. The system will send an email confirmation stated that their application have been sent. → 8. The employer logs out of the web portal or application.

UC-5	FilterJob
Related Requirements	REQ-8, REQ-9, NONREQ-1, NONREQ-7
Initiating Actor	Employer
Actor's Goal	To allow the system to decipher which listings are legitimate or fake
Participating Actors	Administrator
Pre-Condition	
Post-Condition	
Flow of Events for Main Success Scenario	→ 1. The employer logs into the web portal or application → 2. They go through the site to check if any listings given are actual listing or fake listing. → 3. If a listing is fake, they will inspect it and check it. → 4. After inspection, they will go and remove the listing from the portal ← 5. The system will ask if you want to confirm to remove the listing. The employer will confirm. ← 6. The system will remove the listing from the portal. → 7. The employer will then log out of the portal.

UC-8	UploadCompanyInfo
Related Requirements	REQ-5, NONREQ-1, NONREQ-7, NONREQ-2
Initiating Actor	Employer
Actor's Goal	To allow employers to upload their company information for students
Participating Actors	Administrator
Pre-Condition	
Post-Condition	
Flow of Events for Main Success Scenario	→ 1. Employer logs into the portal via web portal or application → 2. The employer goes to the upload section of the portal → 3. They upload the information to the portal. ← 4. The system will then ask the employer to confirm the upload. → 5. The employer will confirm ← 6. The system will upload the necessary information to the portal. → The employer will log out of the site.

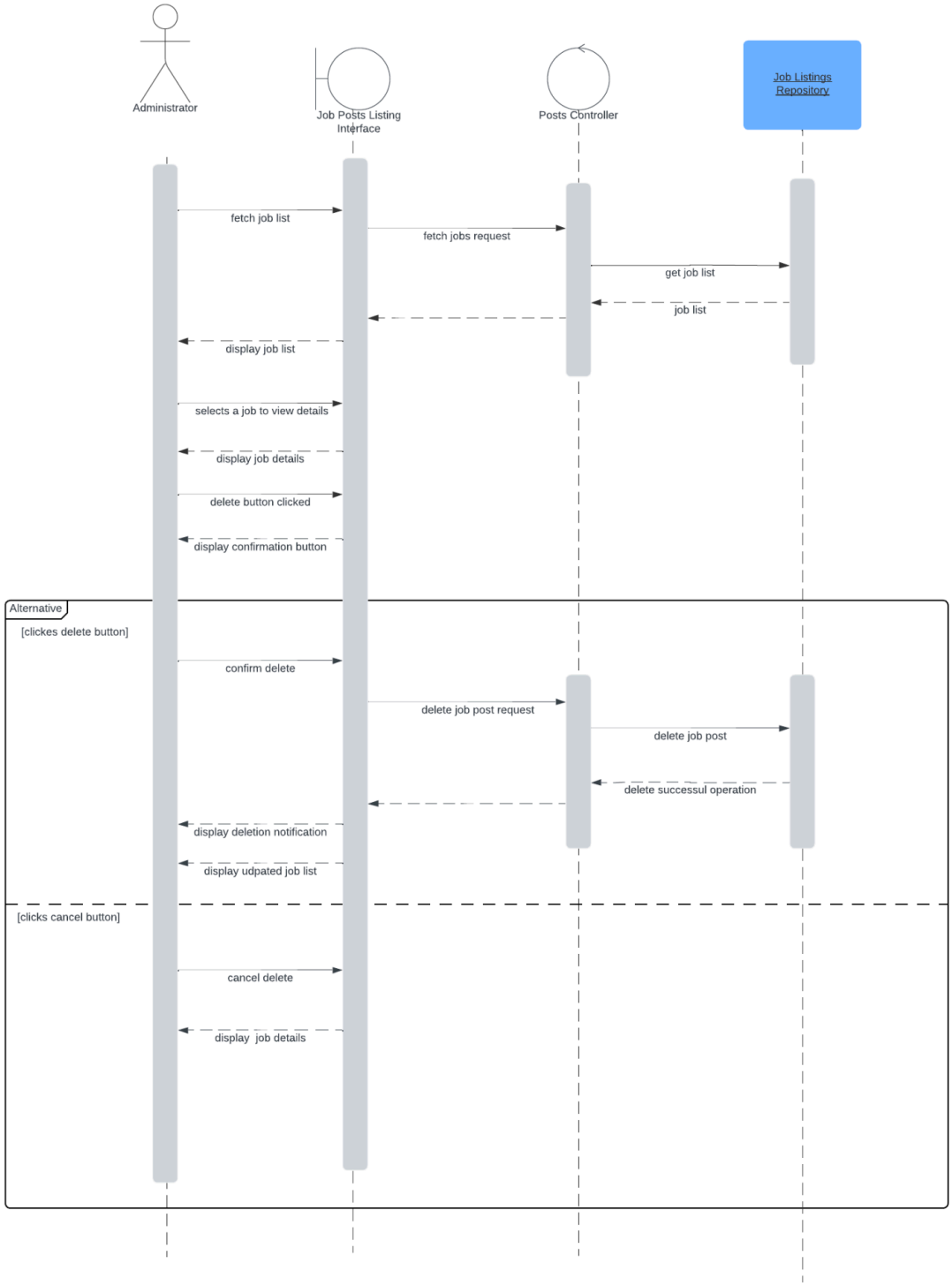
UC-9	ChangeCompanyInfo
Related Requirements	REQ-5, NONREQ-1, NONREQ-7, NONREQ-2
Initiating Actor	Employer
Actor's Goal	To allow employers to edit company info from the portal
Participating Actors	
Pre-Condition	
Post-Condition	
Flow of Events for Main Success Scenario	→ 1. Employer logs into the portal via web portal or application → 2. The employer will check if any information needs to be change. → 3. If any changes need to be made, the employer will change the information on the portal. ← 4. After making the changes, the system will ask if the employer wants to confirm the changes. The employer agrees to the changes. ← 5. The system will automatically update the portal. → 6. The employer logs out of the web portal or application.

Sequence Diagrams

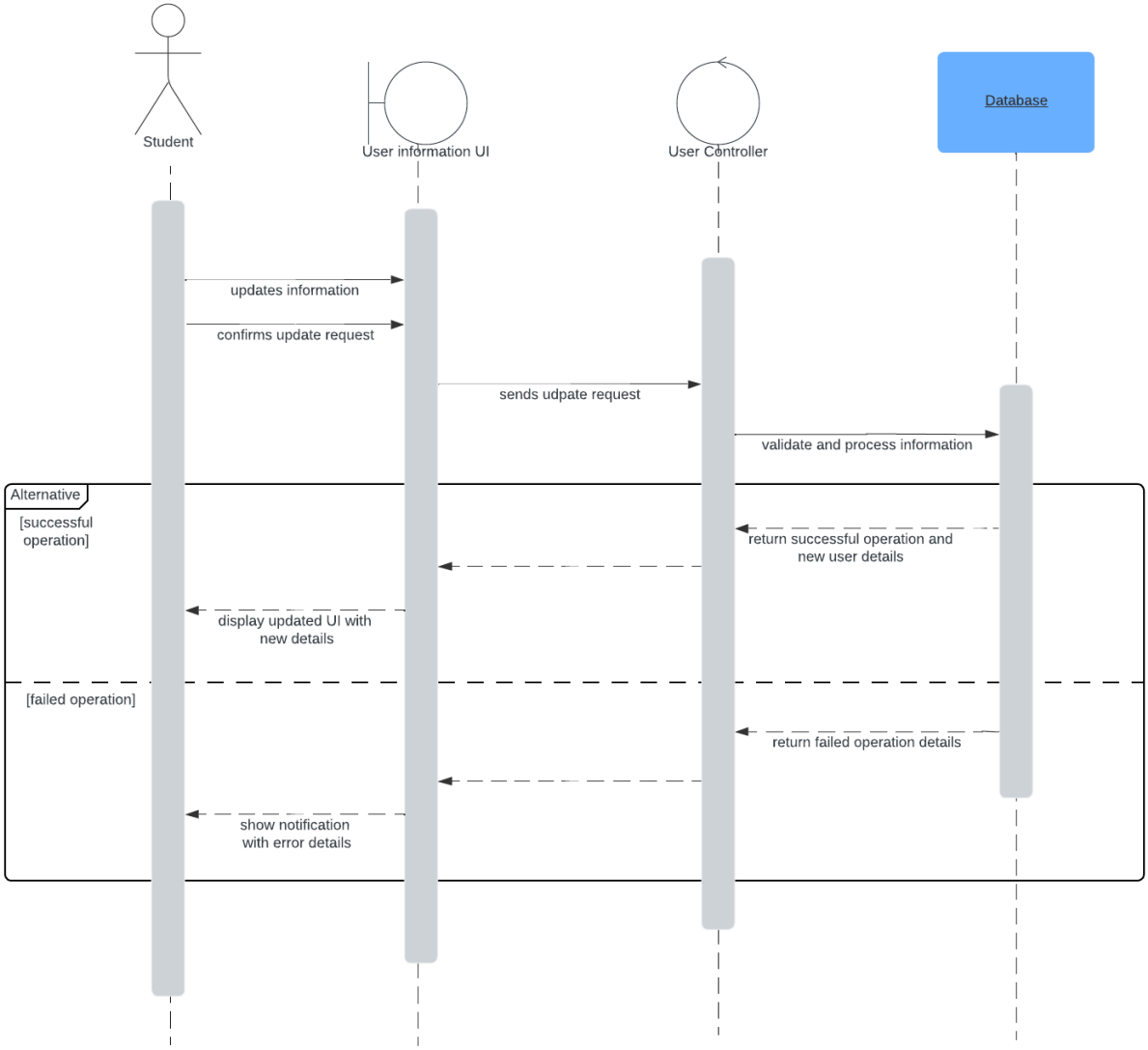
UC1 - Student Registration

UC3 - Employer Registration

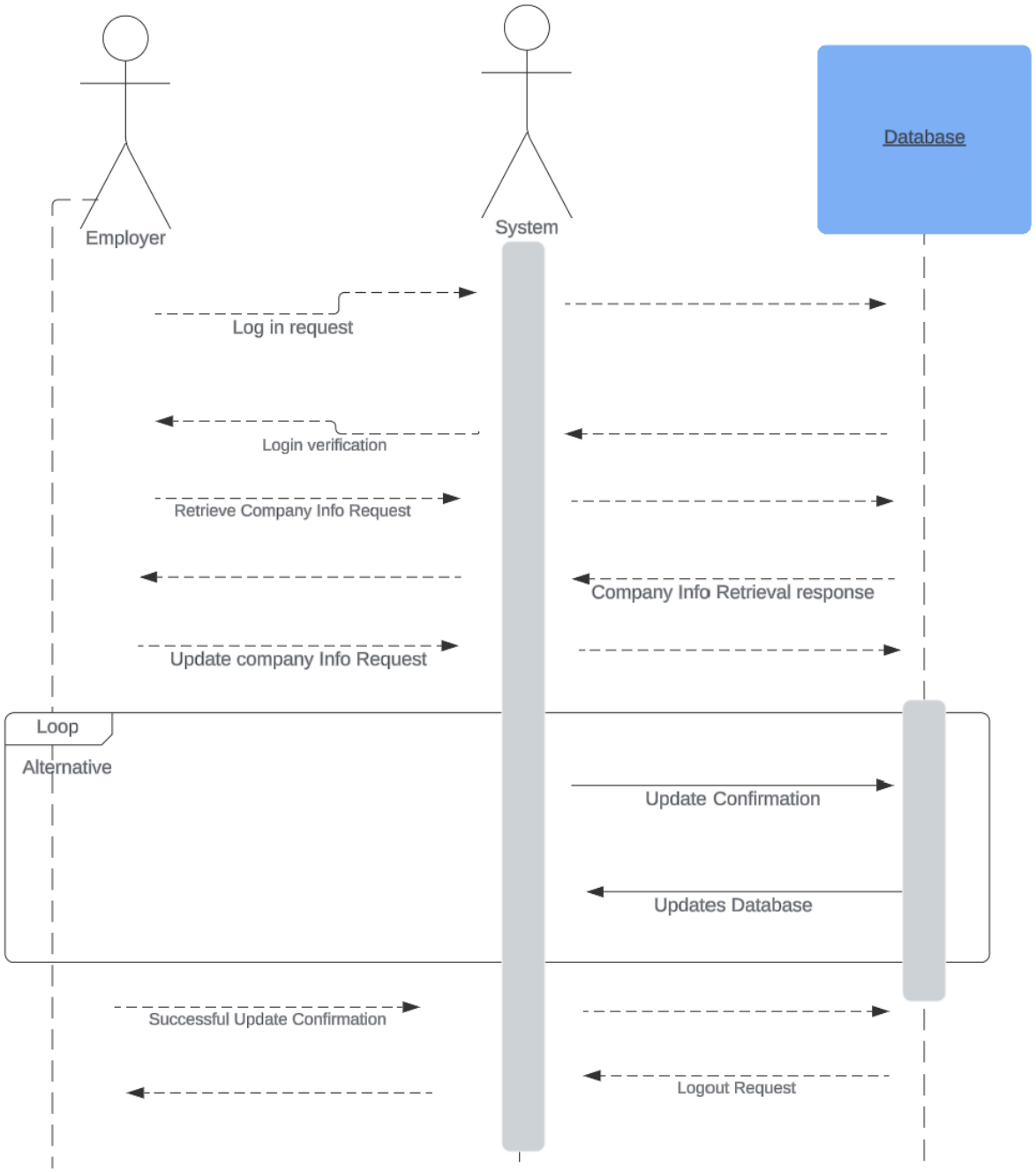
UC5 - Filter Job



UC8 Upload Company Information



UC9 ChangeCompanyInfo



Interface Specification

Preliminary Design

UC 1 - StudentRegistration

To create an account to apply for jobs, a student inputs their their first name, last name, email address, phone number, and password. With this account, students can be able to then log in using their email and password. By creating an account, students have access to job listings and have access to apply for jobs.

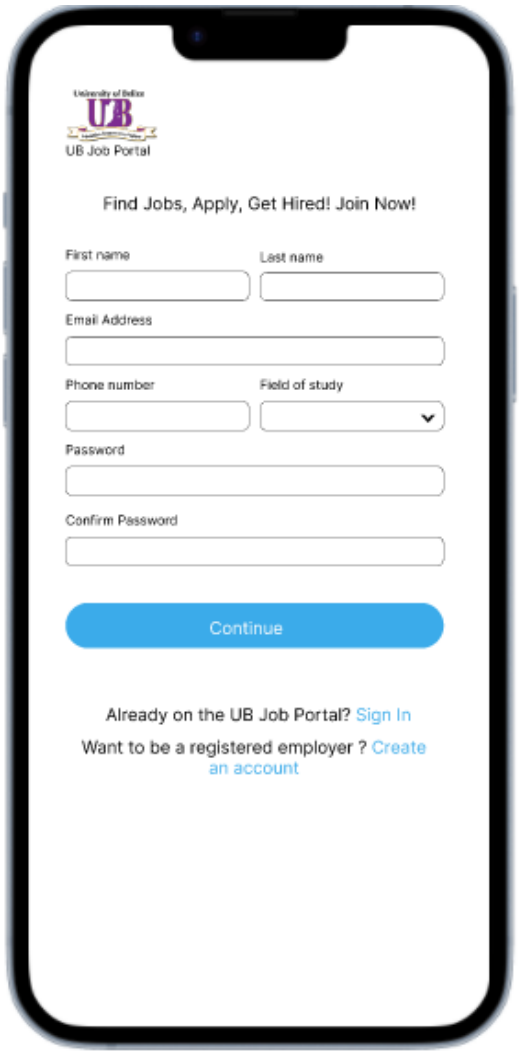


Figure 2 - Student registration screen

UC 3 - EmployerRegistration

To create an account to post jobs, their identity as an official business needs to be confirmed by an administrator. An employer inputs the following information to the sign-up form: company name, a contact person's name, and phone number, email address, company/social media website link, industry type, and any file that helps to verify their business entity. After approval, an employer can log in using their email and password. With this account, employers can create job posts and handle candidates.

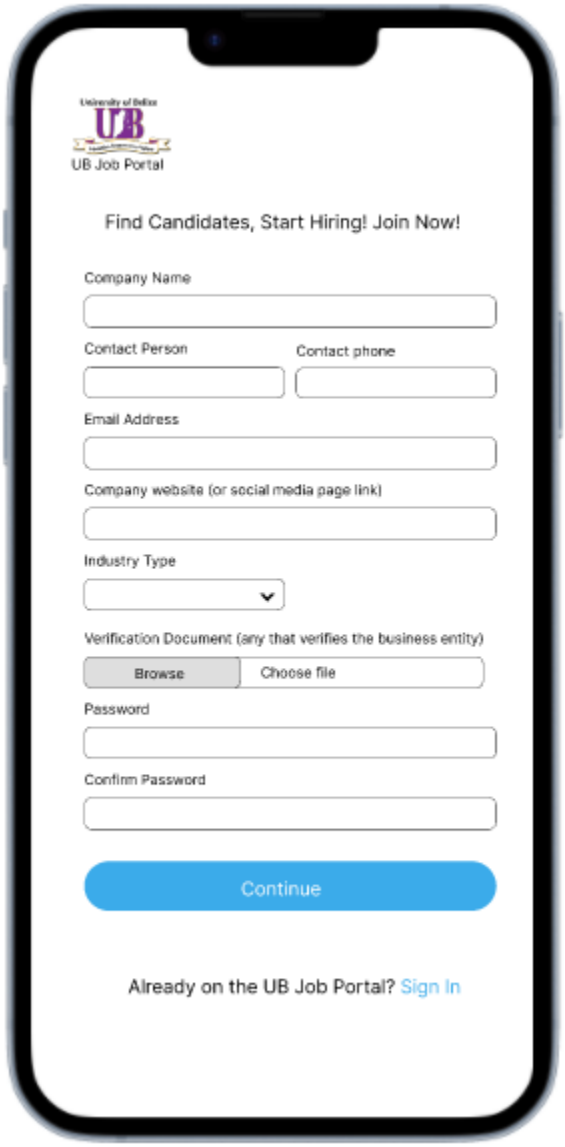


Figure 3 - Employer registration screen

UC 5 - FilterJob

In order for the administrator to verify the credibility of job listings he/she will cycle through each job vacancy that was posted by companies and the administrator has the option to select the specific one that didn't meet the criteria and it can be deleted with the tap of the “delete button”, administrator will be prompted with a warning message indicating that it won't be recovered after deletion..

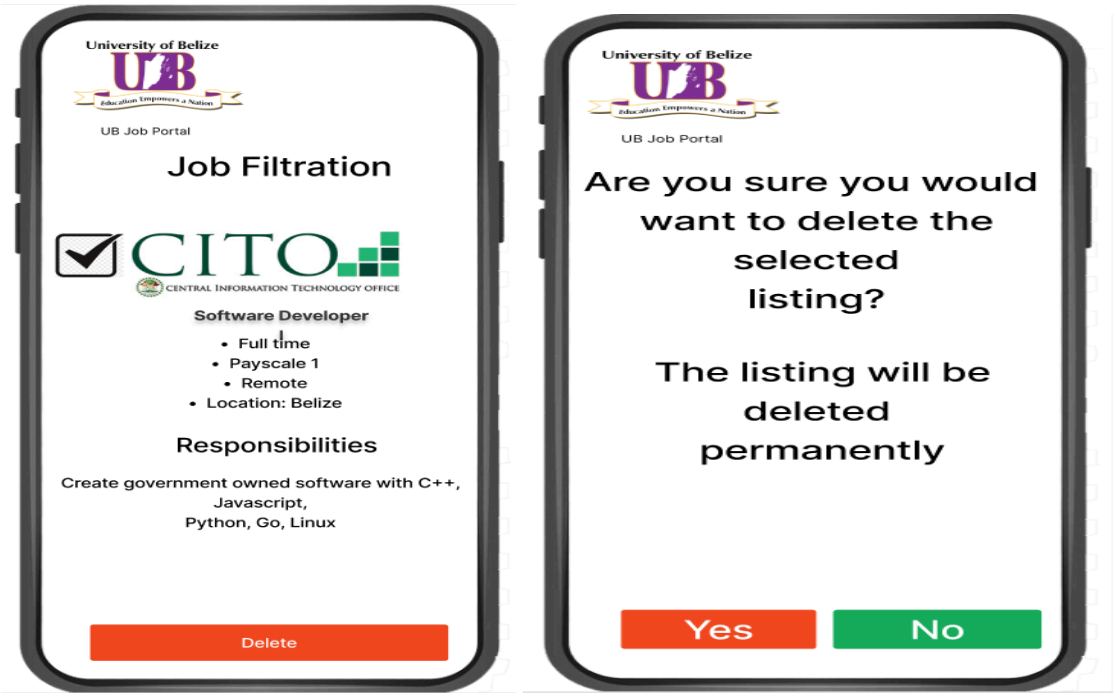


Figure 4 - Job Filtration Screen

UC9 ChangeCompanyInfo

To update the information so employers can efficiently manage and edit job postings with the latest company information for potential candidates.

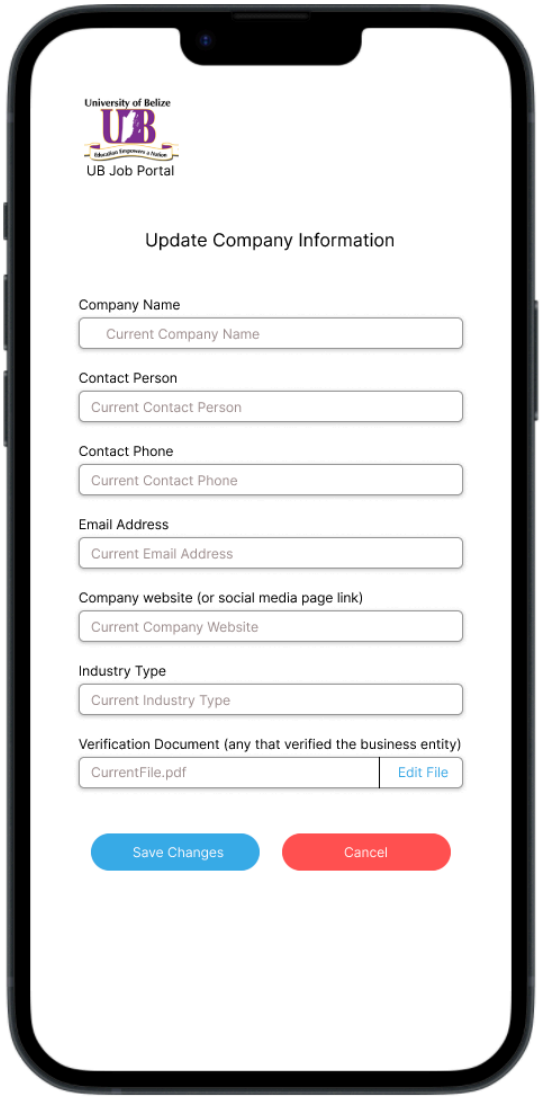


Figure 5 - Update Company Information Screen

User Effort Estimation

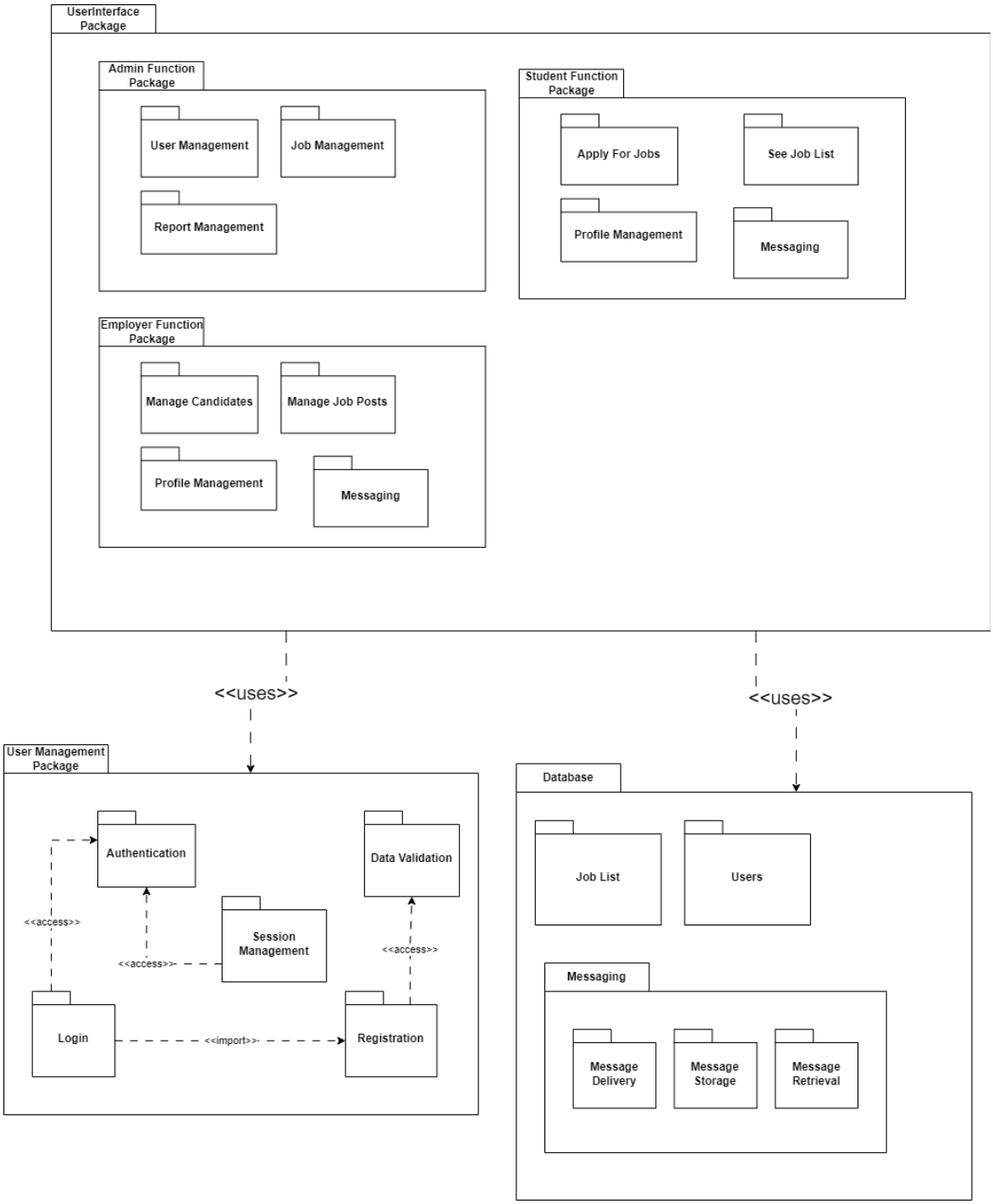
Scenario	Navigation	Data Entry
Student Registration	Click on first name field Click on last name field Click on email address field Click on phone number field Click on field of study dropdown Click field of study from drop-down list Click on password field Click on confirm password field Click continue button	Input first name Input last name Input email address Input phone number Input password Reinput password
Employer Registration	Click on company name field Click on contact person field Click on contact phone field Click on email address field Click on company website field Click on industry type dropdown Click industry type from the drop-down list Click on file input for verification document Click file input selection and confirm button Click on password field Click on confirm password field Click continue button	Input company name Input contact person Input contact phone Input email address Input company website Input password Reinput password
Update Company Info	Click on company name field Click on contact person field Click on contact phone field Click on email address field Click on company website field Click on industry type dropdown Click on file input for verification document Click on Save Changes button	Edit company name Edit contact person Edit contact phone Edit email address Edit company website Edit Industry type Edit file for verification document
Filter Job	Click on invalid job vacancy Click on the delete button	None

	Prompt window appears Click on yes to proceed with deletion Click on no to keep the job vacancy	

System Architecture

Identifying Subsystems

UML Package Diagram



Architecture Styles

The architecture of the job portal system follows a client-server model, with a web-based user interface for employers, students, and administrators interacting with a backend server for data processing and storage. Therefore, employers and students can access the service from any device with an internet connection and a web browser. Administrators may view reports and usage statistics on any device, but a desktop computer is most suitable. The UB job portal must handle personal user information over the internet, so reliable protocols such as HTTPS is mandatory.

Database
The system will utilize MySQL as the main relational database technology for all its storage, information processing, and retrieval needs.

Data Communication
The system will utilize a RESTful API so that any authorized requesting system can access and manipulate web resources on the UB Job Portal. All requests are performed using the internet's HyperText Transfer Protocol, and are restricted to GET, PUT, POST, and DELETE requests.

Object Oriented
The system will use object-oriented architecture and design principles to take advantage of modularity, reusability, improved maintainability, and enhanced collaboration.

Event Driven
Our system will use event-driven architecture as users perform actions such as applying for jobs, searching, filtering, and handling personal information. The system must log these events as usage reports are fundamental to the administrator and developers. These events also need to be processed promptly to ensure a good user experience.

Asynchronous messaging
Real-Time Communication: Asynchronous messaging can enable real-time communication between users, such as employers and job seekers, allowing immediate responses and quicker interactions during the hiring process.

Notification System: Asynchronous messaging can be used to implement a notification system that informs users about important updates, such as new job postings, application status changes, or messages from employers/recruiters.

Mapping Subsystems to Hardware:

The system primarily operates as a web application, with the client-side subsystem running on users' devices such as laptops, desktops, or mobile phones, utilizing standard web browsers. The server-side subsystem, including the database management system, runs on a centralized server. This server can be hosted either on-premises or on a cloud platform such as Amazon Web Services (AWS) or Microsoft Azure. Communication between the client and server subsystems occurs over the internet, utilizing standard network protocols such as HTTP or HTTPS. Additionally, data transfer between the server and the database requires a stable network connection with sufficient bandwidth to handle concurrent user requests efficiently.

Connectors and Network Protocols:

To enable companies to hire University of Belize students via a web portal, use HTTPS for secure communication, OAuth 2.0 for user authentication, and ODBC/JDBC for database connectivity. Employ WebSocket for real-time updates, SMTP for emails, and RESTful APIs or GraphQL for integration. Implement TLS/SSL for data security, strong measures against unauthorized access, and consider MQTT for instant messaging.

Global Control Flow

Execution Orderness:
The system adheres to a systematic, procedure-driven approach, ensuring a uniform user experience through a predefined sequence of steps.
It maintains a structured process, wherein each user undergoes the same linear progression when engaging with employers, submitting resumes, and participating in chats.

Time Dependency:
Notably, the system abstains from the use of timers, devoid of temporal constraints.
The system operates as a non-real-time entity, functioning within an event-response framework, wherein user actions prompt responses without adherence to real-time intervals.

Event-Response Type:
The system is architected as an event-response model, characterized by its responsiveness to user-initiated actions absent explicit real-time considerations.
It abstains from temporal periodicity, allowing for the natural unfolding of events as users engage in interactions, devoid of predefined time constraints.

Hardware Requirements:

The hardware requirements will likely depend on many factors, such as the scale of the portal, the number of users it needs to support, and different features that it offers. These are some of the basic hardware requirements

Storage → A sufficient amount of storage to store all the data in the portal. A SSD would be a faster choice.

RAM (memory) → Minimum of at least 2GB of RAM just for the smooth operation of request.

Processor (CPU) → A good CPU (doesn't have to be the latest version) to handle the load of the portal

Plan of Work

1. Requirements Gathering:

- Collaborate with stakeholders to understand their needs and expectations.
- Identify essential features, user roles, and specific integration requirements.

2. System Architecture Design:

- Plan the overall structure of the web portal, including database design, server architecture, and technology stack.
- Consider scalability, security measures, and performance optimization.

3. Technology Stack Selection:

- Choose appropriate programming languages, frameworks, and libraries based on project requirements.
- Select a database management system that aligns with scalability and data storage needs.

4. User Interface (UI) and User Experience (UX) Design:

- Design an intuitive and user-friendly interface that meets the needs of both companies and students.
- Implement responsive design for a seamless experience across devices.

5. Backend Development:

- Develop server-side logic and functionality to handle user authentication, data processing, and integration with external services.
- Implement RESTful APIs or GraphQL for smooth communication between the front and back end.

6. Frontend Development:

- Create the user interface based on the design, ensuring a responsive and visually appealing portal.
- Integrate frontend components with the backend using chosen web protocols.

7. Database Implementation:

- Set up the database structure based on the design specifications.
- Implement necessary security measures to protect sensitive information.

8. Security Implementation:

- Integrate TLS/SSL for secure data transmission.
- Implement user authentication and authorization mechanisms, utilizing OAuth 2.0 or JWT.
- Employ encryption and secure coding practices to safeguard against potential vulnerabilities.

9. Integration with University Systems:

- Collaborate with the University of Belize's IT department to integrate the portal with existing university systems.
- Ensure compliance with university data policies and standards.

10. Testing:

- Conduct thorough testing, including unit testing, integration testing, and user acceptance testing.
- Identify and resolve bugs, usability issues, and performance bottlenecks.

11. Deployment:

- Deploy the web portal on a secure and scalable hosting environment.
- Implement necessary monitoring tools to ensure system stability.

12. Training and Documentation:

- Provide training sessions for users and administrators.
- Develop comprehensive documentation for ongoing maintenance and future updates.

13. Launch:

- Officially launch the web portal for companies to start hiring University of Belize students.
- Monitor performance and user feedback post-launch for further improvements.

14. Finalize for Final Demonstration:

- Prepare system for final demonstration in class

Gantt Chart for the development of the System:

Task	Timeline													
	March							April						
	1	8	10	16	21	27	31	7	14	17	19	22	26	28

Requirements Gathering	1 Day													
System Architecture Design		7 Days												
Technology Stack Selection			2 Days											
User Interface (UI) and User Experience (UX) Design				6 Days										
Backend Development					5 Days									
Frontend Development						6 Days								
Database Implementation							4 Days							
Security Implementation								7 Days						
Integration with University Systems									7 Days					
Testing										3 Days				
Deployment											2 Days			
Training and Documentation												3 Days		
Launch													4 Days	
Finalize for														2

Final Demonstration														Days

References

Belize Youth unemployment rate 1991-2024. (n.d.). MacroTrends. https://www.macrotrends.net/countries/BLZ/belize/youth-unemployment-rate

Terra, J. (2023, October 1). Requirements Traceability Matrix (RTM): *UMass Blog - Know what's trending, get expert tips for your career, and learn from industry experts.* https://bootcamp.umass.edu/blog/project-management/requirements-traceability-matrix