



**SENG\_491/CMPE\_491**

**Graduation Project**

**Analysis Report**

**For**

**KariyerLAB**

**TEDU Software/Computer Engineering Department**

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# 1. Introduction

Today's students face numerous challenges while building their careers, particularly in finding internships, job opportunities, and scholarships. One of the most significant obstacles is accessing reliable and accurate information. Many students experience wasted time and effort due to misleading or fraudulent advertisements. The proliferation of fake or incomplete postings online makes it increasingly difficult for students to identify suitable opportunities.

Furthermore, the complexity of application processes and the lack of company feedback lead to frustration and a decline in motivation. Students often have limited insights into the working conditions, organizational culture, and feedback from previous employees regarding the companies to which they apply. This lack of transparency forces students to make decisions without adequate information, increasing the likelihood of poor choices or missed opportunities.

The digitalization surge following the pandemic has heightened competition, underscoring the need for students to better showcase their qualifications and access appropriate opportunities. However, many students struggle to organize their applications, monitor their statuses, and obtain clear updates throughout the process.

Considering these challenges, a platform is urgently needed to help students navigate their search for internships, jobs, and scholarships in a more efficient, reliable, and transparent manner. This project aims to address these issues and facilitate students' progress toward their career goals.

## 1.1 Description

This project aims to develop a web platform where students can easily and reliably find internship, job, and scholarship opportunities. The key features of the platform are as follows:

- Verified Listings

Only verified companies will be allowed to post opportunities on the platform. All job, internship, and scholarship advertisements will undergo a strict review process to ensure their authenticity. This will eliminate fake listings and provide students with a trustworthy environment for their career searches.

- Company Ratings and Reviews:

Students will be able to rate and leave detailed reviews for the companies they have applied to, interned with, or worked for. These ratings and reviews will provide valuable insights into company culture, working conditions, and reliability. As a result, future applicants will make more informed decisions based on the experiences of their peers.

- Personalized Profiles

Users will have the option to create detailed profiles showcasing their resumes, academic achievements, skills, and certifications. These profiles will serve as digital portfolios that can be shared with potential employers, increasing their chances of standing out among other applicants.

- Application Tracking

The platform will include an intuitive dashboard where students can track the status of their applications. Notifications and updates will inform them about important milestones, such as interview invitations or decisions, making the application process more organized and less stressful.

- Company Profile Pages

Companies will have dedicated pages on the platform to introduce themselves and highlight their opportunities. These pages will include information about the company's mission, values, and work environment, along with detailed descriptions of open positions or programs. This feature will help students gain a better understanding of potential employers before applying.

- Ethics and Transparency

All companies posting opportunities on the platform will be required to meet specific criteria and comply with ethical standards. This will foster a transparent ecosystem where students can trust the listings they explore.

## 2. Proposed System

### 2.1 Overview

This project aims to solve the difficulties that students face when accessing reliable internships, jobs, and scholarship opportunities. It aims to provide a secure and effective system that connects students with reliable organizations by creating a web-based platform. The platform will provide a comprehensive solution for students' needs and will include the following features: verified advertisements, a company rating and comment system, customizable user profiles, applicant tracking system, and company introduction pages. In addition, all companies and advertisements will be carefully checked in line with ethical standards and transparency principles. It will use a scoring system to prevent students' most basic problems such as not receiving a response, a late response, or being eliminated undeservedly. In this way, it aims to help students progress more smoothly in their careers prevent them from wasting time, and help them reach their career goals with more conscious and confident steps.

### 2.2 Functional Requirements

#### 2.2.1 Create CV

- Users can create their CVs using the template CV theme. In this way, they can easily deliver their summary information to the employer. Our template CV theme contains all the information that a CV should have. It includes all the necessary information about the user, such as experience, education, age, and hobbies.

#### 2.2.2 Create Profile

- Users must have a profile for each user who is an employer or a job seeker. This profile includes summary information such as contact information and personal information about the job seeker. A profile design that summarizes information about the institution is required for the employer. Images can be included in the profile.

### 2.2.3 Apply for the Internship

- The user looking for a job/internship can send information about himself/herself to the employer through the application function. In this way, the employer becomes aware of the user and includes the person in the evaluation process.

### 2.2.4 Apply for the Job

- The user looking for a job/internship can send information about himself/herself to the employer through the application function. In this way, the employer becomes aware of the user and includes the person in the evaluation process.

### 2.2.5 Apply for the Scholarship

- Institutions can also publish scholarship advertisements on their profiles and these advertisements can be applied for by individual users. In this way, employers are informed about the candidates and carry out the evaluation.

### 2.2.6 Write Comment

- Employers or job seekers can state their satisfaction or dissatisfaction from the moment they are involved in any process until the end of the process. In this way, people share with other users whether the institution has managed this process correctly.

### 2.2.7 Do Evaluation

- Students evaluate the internship, job, or scholarship advertisements they apply for. This evaluation includes the processes, communication, or overall application experience of the company they apply to. Companies will display these evaluations graphically and evaluate on their behalf.

### 2.2.8 Publish the Posts

- Companies should be able to publish a new job posting after creating it. The published job posting should be viewable by users according to the relevant category (internship, job, scholarship). Before the job posting is published, the system verifies the job posting by warning about missing or incorrect information.

### 2.2.9 Delete the Posts

- Companies should be able to delete internship, job, and scholarship advertisements they publish on the platform when necessary. This process can be used if the advertisement is no longer valid, contains incorrect information, or if there is a need to update the advertisement.

### 2.2.10 Feedback to User

- Companies that post ads should be able to provide feedback to protect users from fake ads and inform users of suspicious situations. This feature will be implemented to increase the security of applications. Today, there are quite a few fake ads in some applications. We expect companies to respond sensibly to applications made to ads.

### 2.2.11 Write a Comment

- Users can comment on specific posts, such as internship, job, or scholarship listings, and view comments from other users. Comments must be in text and have a character limit (e.g. 500 characters). Comments are listed chronologically.

### 2.2.12 Login

- Our login form has two main fields: username and password. If you successfully log in, you will be directed to the home page. During login, the password field is securely masked; that is, it appears as " \*\*\*\* " while entering the password.

### 2.2.13 Log Out

- A log-out feature is provided so users can safely end their active sessions and exit the system.

### 2.2.14 Display the Data

- Users who post ads can view their internship, job, and scholarship applications graphically. With metrics such as application numbers, accepted/rejected applications, application status, and this data must be up-to-date.

### 2.2.15 Get the Help From Chat Bot

- Chat Bot is an add-on that aims to speed up the job search process of individual users. By using Chat, users can filter the advertisements for themselves more quickly and thus avoid the hassle of scanning all the advertisements. Chat Bot aims to save time.

## 2.3 Nonfunctional Requirements

### 2.3.1 Performance Requirement

- **Loading Time:** Pages should load quickly to enhance user experience. For example, the homepage should be targeted at a load time of less than 3 seconds.
- **Response Time:** Quick response to user interactions is crucial. Response time to user interface interactions should be at most 2 seconds. They are providing immediate feedback rather than making users wait after clicking a button.
- **Scalability:** The website should be able to handle increasing user traffic without a decrease in performance.
- **Caching:** Caching frequently accessed data and pages to enhance performance, especially for sites with dynamic content.
- **Database Optimization:** Optimizing database queries for fast performance. Techniques such as database indexing and minimizing unnecessary queries can be employed.

### 2.3.2 Safety Requirements

- **Data Backup and Recovery:** Implementing regular data backups and establishing procedures for data recovery in case of system failures or data loss incidents.
- **Disaster Recovery Plan:** Develop a comprehensive plan to restore system functionality at the end of a natural disaster, cyberattack, or other unforeseen incidents.
- **Secure Transmission of Sensitive Information:** Ensuring that sensitive information such as payment details or personal data is transmitted securely over the network using encryption and secure protocols (e.g., HTTPS).
- **Access Control and User Permissions:** Implementing access control mechanisms to restrict unauthorized access to sensitive data and functionalities within the system.
- **Error Handling and Logging:** Implementing robust error handling mechanisms to gracefully handle unexpected errors and log relevant information for troubleshooting purposes without exposing sensitive data.

### 2.3.3 Security Requirements

- **Internal Security Requirements:** For internal security, the system uses TLS encryption for every data exchange. It performs routine security checks to prevent any risks and limits who can see what based on their job.
- **JWT Security Requirement:** JWT is necessary to authenticate user sessions and securely transport identity information. Measures such as properly signing and encrypting JWTs, ensuring reliable key management, and setting appropriate token expiration times should be taken.
- **CORS Security Requirement:** CORS must be configured correctly in the web application. This involves configuring CORS to allow the browser to load resources from other domains in a manner that does not pose security risks. Incorrect CORS settings may expose the application to risks where attackers could exploit security vulnerabilities.

### 2.3.4 Testing

- The system should be tested regularly under different scenarios. Performance, security, and functionality tests should be performed to ensure that the system works correctly. In addition, improvement studies should be carried out based on user feedback.

### 2.3.5 Accessibility

- It should be fully compatible with mobile devices and different screen sizes. The page's structure and content should be arranged to improve the user experience on different devices.
- The menu and page structure should be simple, understandable, and easy to navigate. Users should be able to easily access the information they are looking for.
- Drop-down menus should be accessible with the keyboard or using assistive technology. In addition, menus and other navigation elements should work smoothly on mobile devices.

### 2.3.6 Exception Management

- Users' errors should be handled appropriately by the system. If there is an issue, the user should be given instructions on what to do and be presented with informative error messages

## 2.4 Pseudo Requirements

- Version Control
  - Git will be used for version checking and tracking.
- Implementation Languages
  - KariyerLAB will be a web application using ReactJS for the Front-End.
  - REST service will be implemented using a Node.js environment to provide endpoints for the Front-End to communicate.
  - PostgreSQL database will be utilized by the backend to store user data.
- Frameworks, Libraries, and External API's
  - ExpressJS for REST API middleware environment and routing.
- Target Platform
  - KariyerLAB will have a server. The app will be available for Chrome, Edge, Safari and Mozilla.

## 2.5 System Models

### 2.5.1 Scenarios

Use Case 1:	Log In
Description:	This is the process of admin logging into the KariyerLab.



Actors:	All users
Preconditions:	Users must have their ID and password.
Step 1:	Admins or viewers navigate to the login page.
Step 2:	Admins and viewers must log in with their ID and password.
Step 3:	They click on the login button.
Step 4:	The system verifies the credentials.
Step 5:	If the credentials are correct:
Alternative Scenario:	If the credentials are incorrect:
Functional Requirement	2.2.13

Use Case 2:	Log out
Description:	This is the process of admin logging out of the KariyerLab.
Actors:	All users
Preconditions:	The user must have logged into the system before.
Step 1:	The user clicks on the profile symbol
Step 2:	Click on Log out
Functional Requirement	2.2.14

Use Case 3:	Create CV
Description:	Users can create their CV using the template CV theme
Actors:	job or internship seekers
Preconditions:	A user must be created with a job or internship seekers
Step 1:	Log in with a normal account
Step 2:	Click on the Profile tab

Step 3:	Click on the Create CV button
Step 4:	Fill in all the blanks that should be in a CV
Step 5:	Click on the save button.
Functional Requirement	2.2.1

Use Case 4:	Create Profile
Description:	This is the process of Creating a profile for companies
Actors:	Users (Companies)
Preconditions:	A user must be created with a company account
Step 1:	Log in with a company account
Step 2:	Click on the Profile tab
Step 3:	Fill in the required information for the profile section.
Step 4:	Click on the save button
Functional Requirement	2.2.2

Use Case 5:	Create Profile
Description:	This is the process of Creating a profile for job or internship seekers
Actors:	job or internship seekers
Preconditions:	A user must be created with a job or internship seekers
Step 1:	Log in with a student account
Step 2:	Click on the profile tab
Step 3:	Fill in the required information for the profile section.
Step 4:	Click on the save button
Functional Requirement	2.2.2

Use Case 6:	Apply for the Internship
Description:	This is the step where internship applications take place.
Actors:	internship seekers
Preconditions:	A user must be created with a job or internship seekers
Step 1:	Log in with a normal account
Step 2:	Find internships on the home page

Step 3:	Click which one you want to review.
Step 4:	Click the Apply button to find the one you think is suitable.
Alternative Scenario:	If the one you are viewing is unsuitable, check out other listings.
Functional Requirement	2.2.3

Use Case 7:	Apply for the job
Description:	This is the step where job applications take place.
Actors:	Job seekers
Preconditions:	A user must be created with a normal account
Step 1:	Log in with a normal account
Step 2:	Find a job on the home page
Step 3:	Click which one you want to review.
Step 4:	Click the Apply button to find the one you think is suitable.
Alternative Scenario:	If the one you are viewing is unsuitable, check out other listings.
Functional Requirement	2.2.4

Use Case 8:	Apply for the scholarship
Description:	This is the stage where scholarship applications take place.
Actors:	Scholarship seekers
Preconditions:	A user must be created with a normal account
Step 1:	Log in with a normal account
Step 2:	Find a Scholarship on the home page
Step 3:	Click which one you want to review.
Step 4:	Click the Apply button to find the one you think is suitable.
Alternative Scenario:	If the one you are viewing is unsuitable, check out other listings.
Functional Requirement	2.2.5

Use Case 9:	Write comment
Description:	Applicants or applicants can comment on a process from the moment they are involved in it.
Actors:	Companies, job seekers, students
Preconditions:	You must have an account
Step 1:	Apply for a job, internship, or scholarship
Step 2:	The process begins
Step 3:	Adding a comment about the process
Functional Requirement	2.2.6

Use Case 10:	Do Evaluation
Description:	Companies review the evaluations made about them
Actors:	All users
Preconditions:	Users should evaluate companies
Step 1:	Apply for a job, internship, or scholarship
Step 2:	The process begins
Step 3:	The process ends
Step 4:	Companies see reviews graphically
Functional Requirement	2.2.7

Use Case 11:	Publish the Post
Description:	Shows that companies post by category (internship, job, scholarship).
Actors:	Users (Companies)
Preconditions:	A user must be created with a company account
Step 1:	Log in as a company to the system
Step 2:	Click on Publish the post button
Step 3:	All necessary blanks regarding the post are filled in completely.
Step 4:	Click on the Publish button
Alternative Scenario:	The system warns about missing information.
Functional Requirement	2.2.8

Use Case 12:	Delete the post
Description:	Companies can delete the post if necessary.
Actors:	Companies
Preconditions:	A user must be created with a company account
Step 1:	Log in to the system as a company
Step 2:	Find the post which you are searching
Step 3:	Click delete button
Functional Requirement	2.2.9

Use Case 13:	Feedback to user
Description:	Protects users from fake posts
Actors:	All users (Except companies)
Preconditions:	*****
Step 1:	Log in to the system as a student
Step 2:	Apply for a job, internship, or scholarship
Step 3:	Users reach the end of the process
Step 4:	The evaluations made as a result of the application are displayed.
Step 5:	Users can check whether to apply or not based on the evaluation.
Functional Requirement	2.2.10

Use Case 14:	Write a comment
Description:	This is the process of admin logging into the Licman UI.
Actors:	Admin, Viewer
Preconditions:	Users must have their ID and password.
Step 1:	Admins or viewers navigate to the login page.
Step 2:	Admins and viewers must log in with their ID and password.
Step 3:	They click on the login button.
Step 4:	The system verifies the credentials.
Step 5:	If the credentials are correct:
Alternative Scenario:	If the credentials are incorrect:
Functional Requirement	2.2.11

Use Case 15:	Display the data
Description:	Users who post ads can view their internship, job, and scholarship applications graphically.
Actors:	Company owner
Preconditions:	*****
Step 1:	Company owners navigate to the login page.
Step 2:	Company owners must log in with their ID and password.
Step 3:	They click on the login button.
Step 4:	Click on the profile tab
Step 5:	Select the graphics
Functional Requirement	2.2.12

Use Case 16:	Get help from the chatbot
Description:	By using Chat, users can filter the advertisements for themselves more quickly and thus avoid the hassle of scanning all the posts
Actors:	Students
Preconditions:	***
Step 1:	Admins or viewers navigate to the login page.
Step 2:	Admins and viewers must log in with their ID and password.
Step 3:	They click on the login button.
Step 4:	Look at the corner of the screen
Functional Requirement	2.2.13

## 2.5.2 Use Case Model

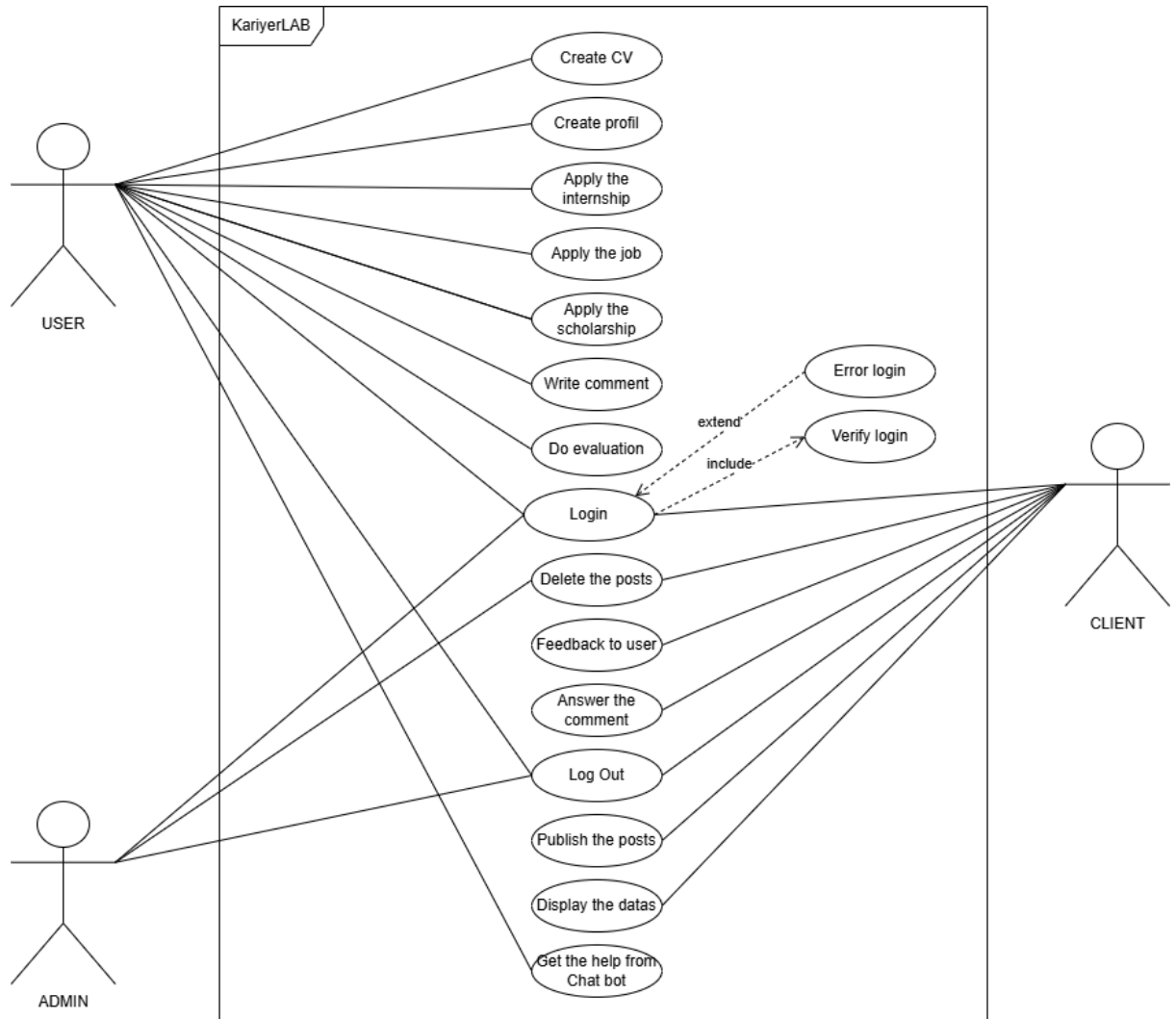


Figure 1: Use Case Diagram

## 2.5.3 Object and Class Model

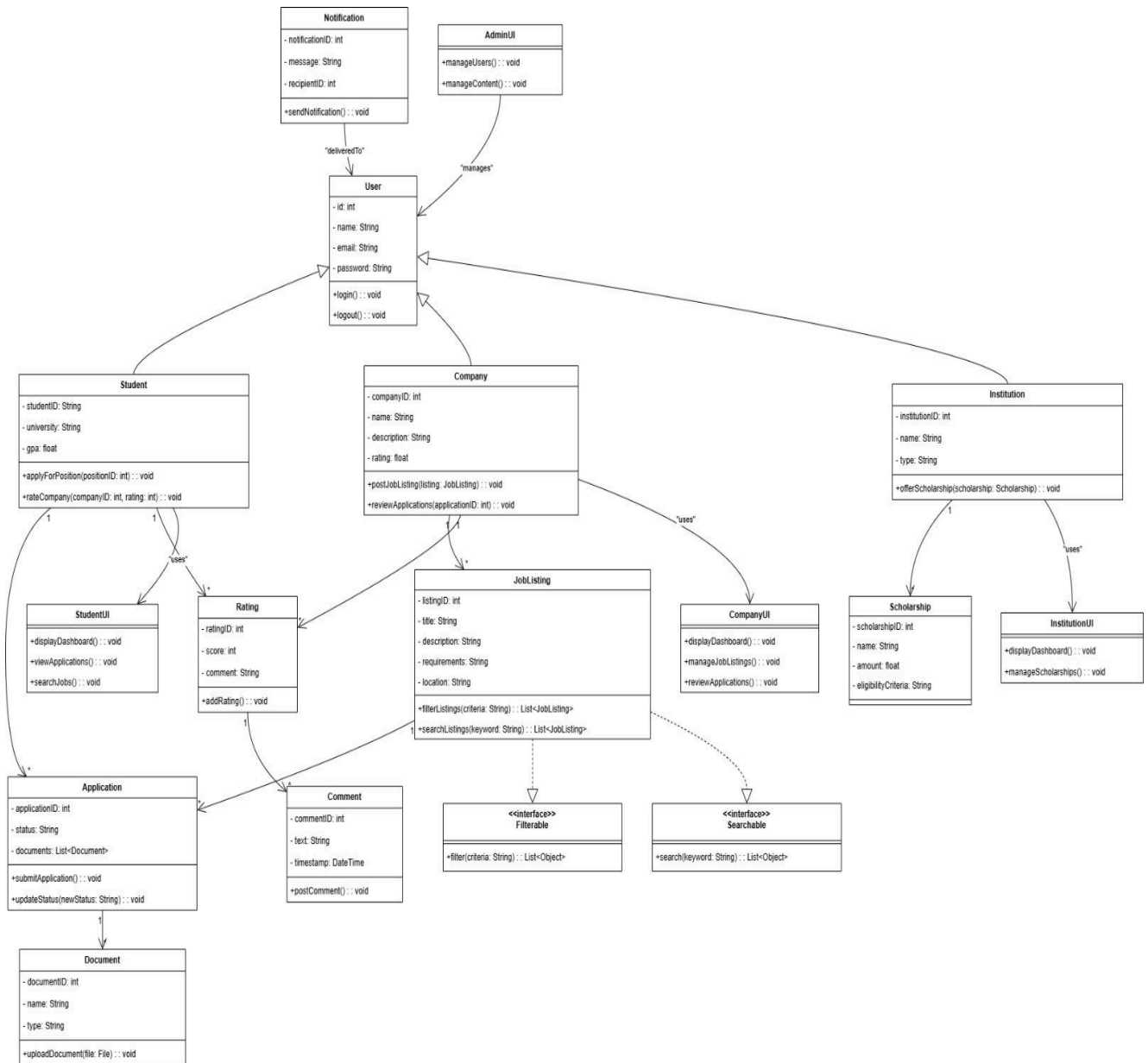


Figure 2: Class Diagram



## 2.5.4 Dynamic Models

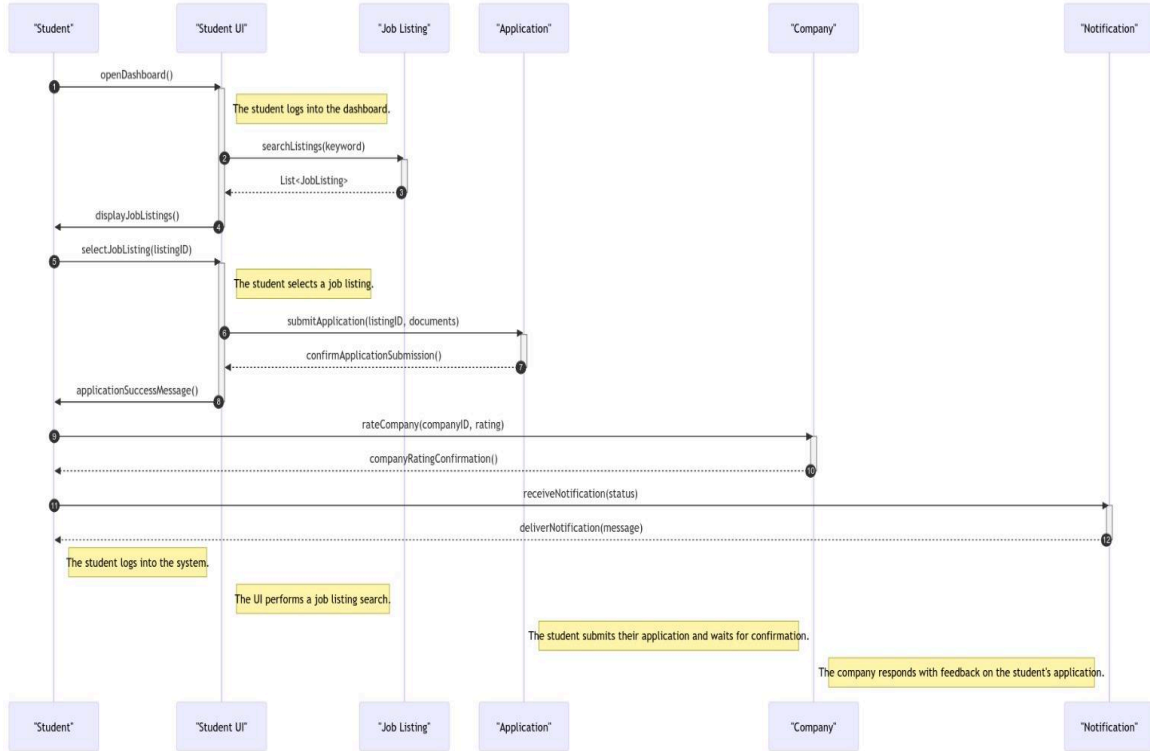


Figure 3: Sequence Diagram

## 2.5.5 User Interface - Navigational Paths and Screen Mock-ups

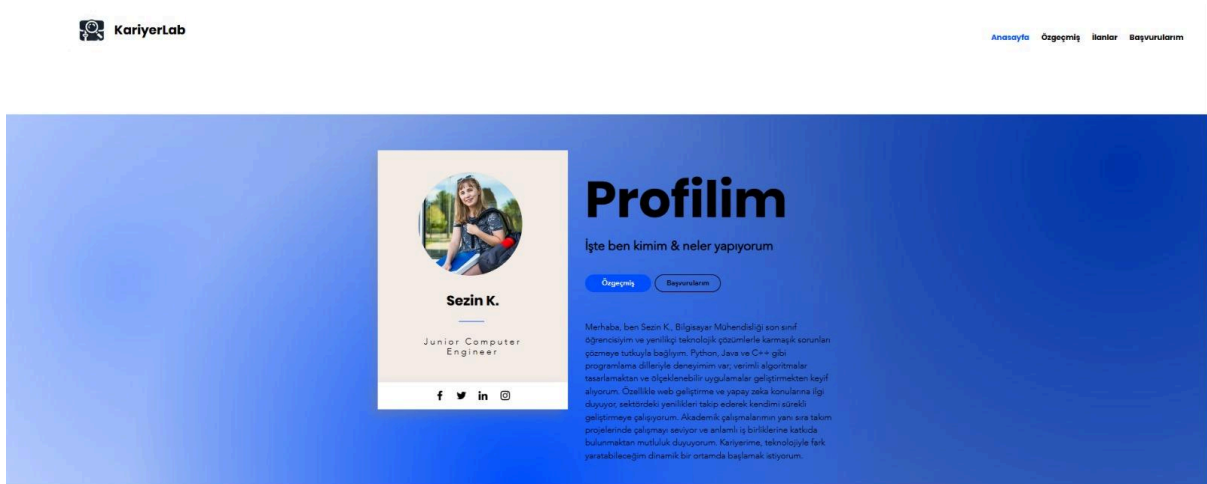


Figure 4: User Profile Page

On this page, our users will create their profiles and write the necessary information about themselves in this section. They will also add their social media accounts and profile photos to this section.

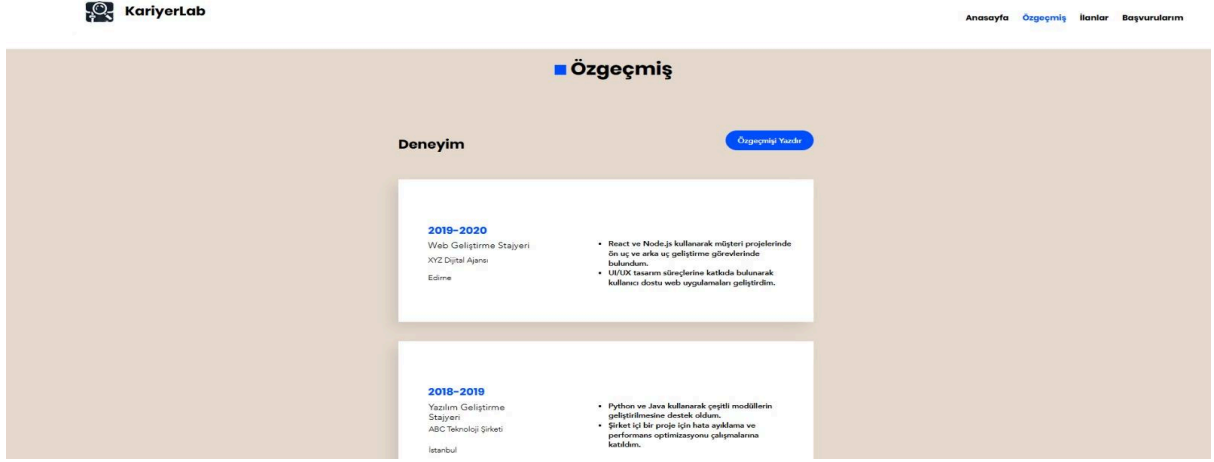


Figure 5: User CV

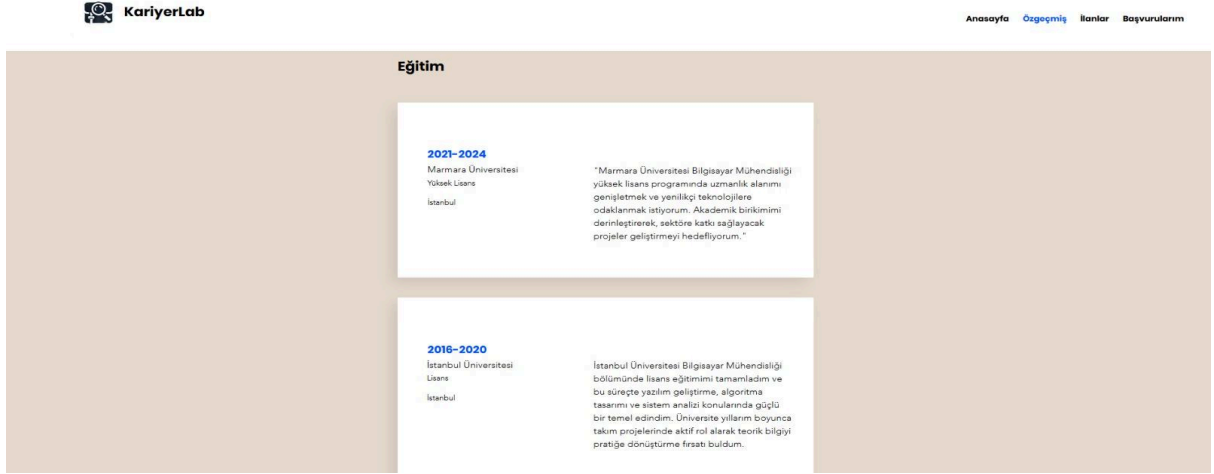


Figure 6: User Education

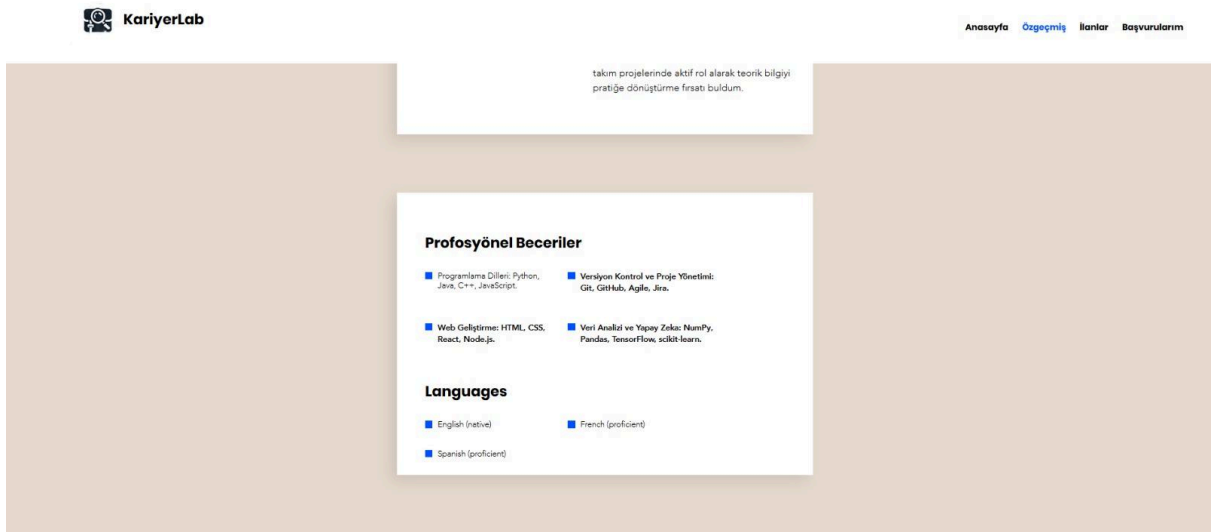


Figure 7: User Skills

On the CV page, users will be able to display the schools they attended in their academic life, their GPA, professional skills, and previous internship or work experience.

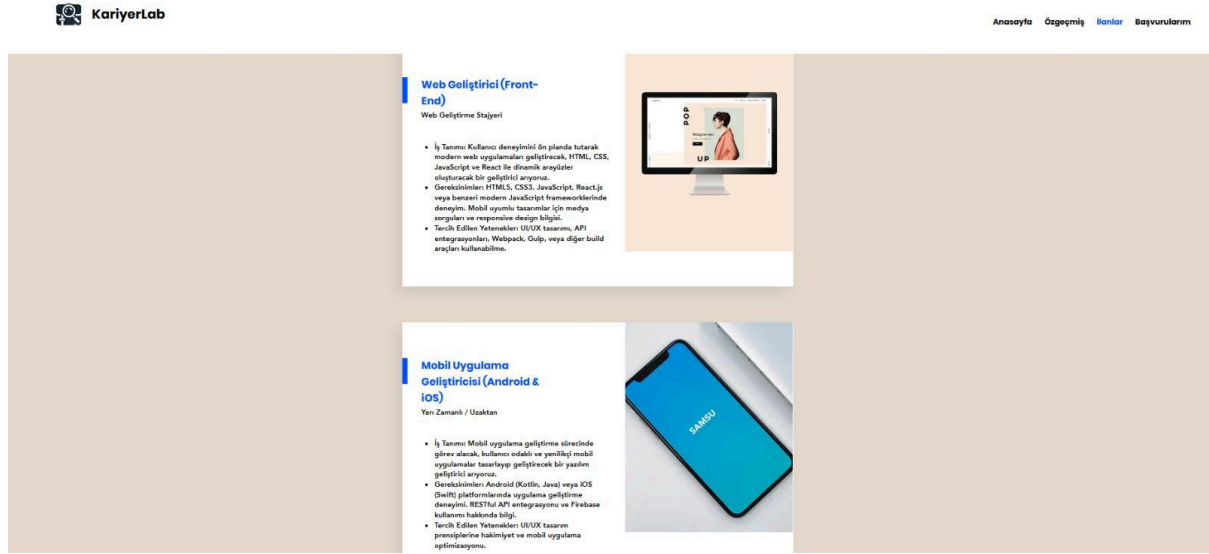


Figure 8: Apply advert page

The page where users can apply for internships, jobs, and scholarships will look like this: When the user clicks on the relevant ad, they will see the necessary information about the ad and will be able to apply.



Figure 9: Evaluation Page

After applying for job postings, users will be able to evaluate the job postings based on feedback and indicate their satisfaction.

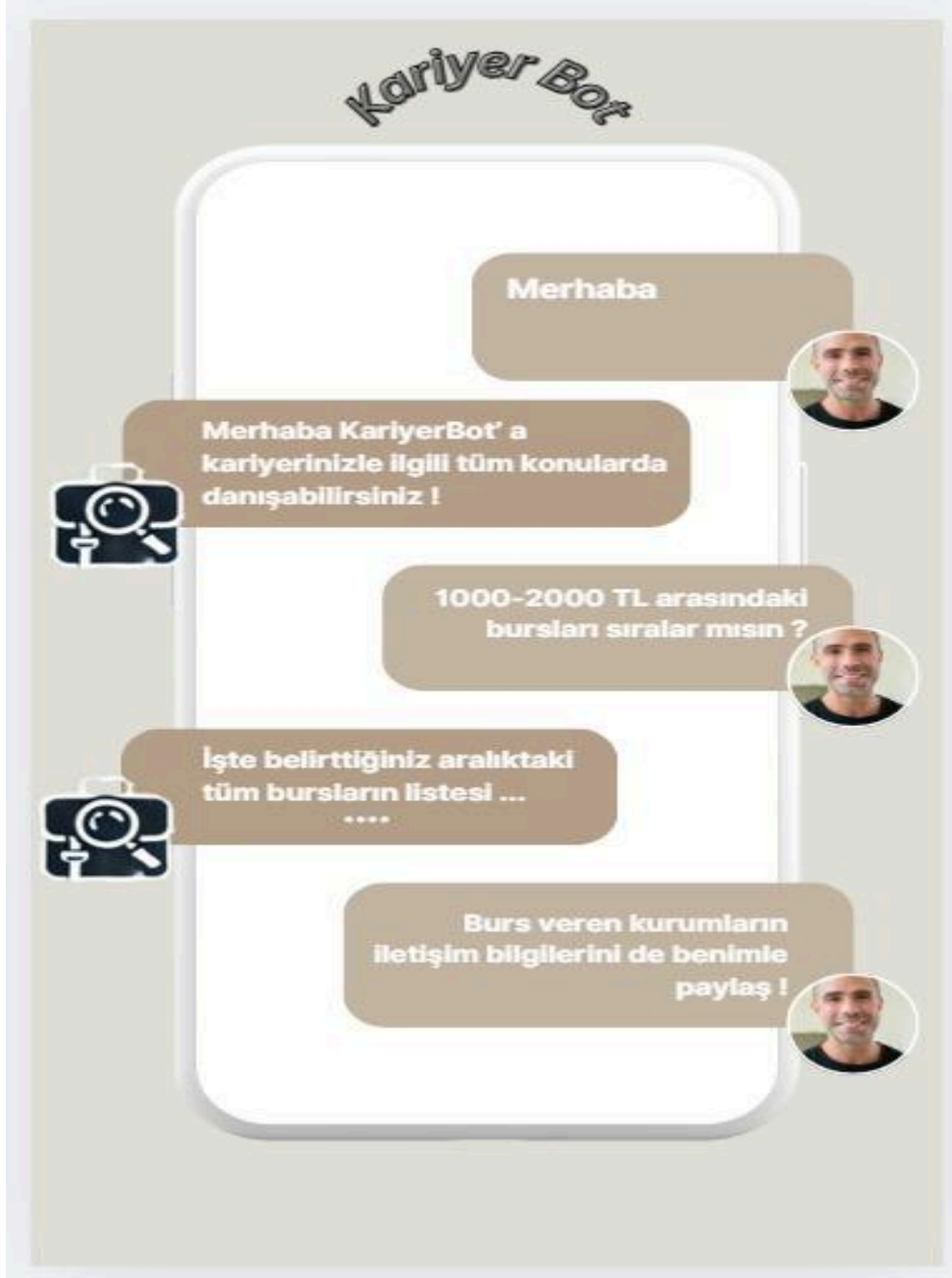


Figure 10: Chat-Bot Page

Users will be able to ask questions they are curious about and get advice from the chatbot here.

### 3. Glossary

**Admin:** The people who have the system owner.

**Users, Applicants:** Students who registered in the system

**Companies:** Companies posting ads on the website.

### 4. References

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