



Faculty of Engineering and Information Technology
Computer Engineering Department

Careerly+

Graduation Project Report

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Disclaimer Statement

This report was prepared by Samya Hamed and Eman Abdelazeez as part of the requirements for the Bachelor Degree in Computer Engineering at the Faculty of Engineering and Information Technology. The content of this report reflects the views and work of the students only.

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Abstract

Careerly Plus is an AI-driven, all-in-one career development and recruitment platform that connects job seekers, employers, and administrators within a single integrated system. Unlike existing solutions that primarily focus on either job seekers or employers, Careerly Plus combines key features from both perspectives to deliver a balanced, flexible, and efficient experience with minimal limitations.

The platform enables users to create personalized profiles, access customized dashboards, and benefit from AI-powered career guidance services. These services include intelligent CV building, automated pre-interview assessments with detailed feedback, personalized job recommendations, and suggested learning resources aimed at enhancing professional skills and employability.

For employers, Careerly Plus streamlines the recruitment process by providing tools for job posting, automated candidate grading and ranking, and efficient communication mechanisms such as acceptance and rejection notifications. These features significantly reduce the time and effort required for candidate evaluation and decision-making.

By integrating recruitment management, professional development, and AI-based mentoring into a single platform, Careerly Plus presents a scalable and cost-effective solution that supports continuous learning, improves recruitment efficiency, and enhances career growth beyond the capabilities of existing market solutions.

The platform is developed using modern technologies, with a web front-end built using React and a mobile application developed using React Native to ensure a responsive and consistent user experience across devices. The back-end is implemented using .NET, providing a secure, scalable, and robust architecture capable of supporting AI-driven services and real-time processing.

Chapter 1: Introduction

1.1 Statement of the Problem

People looking for a job or a chance to learn new things like students, people who just graduated or those who do not have a lot of experience have a hard time finding something that is just right for them. They want something that uses the skills they have something they're good at and something that is about things they like. Most people use websites like Facebook or other sites to look for jobs or training. These sites do not always have everything they need to really help people find a job or get better at what they do. People need something to help them find a job that is a good fit for their skills and the things they are interested in, like training or employment opportunities. These platforms do not have tools to help users figure out what they are good at or what they need to work on. This means people are applying for jobs and things that may not be right for them because they do not really know what they can do. The platforms lack tools to help users see what their skills are or what they are bad at so people are just trying things out without knowing if they will be good, at them.

Making a resume and applying for jobs or training is really hard. Can be different every time. This means people have to put in their information over and over, on websites, which is a waste of time and energy. There is also no system to remind people about important things so they might miss out on good opportunities or have to wait a long time to hear back about their applications. People have to deal with this when they are applying for jobs or training opportunities.

Companies and organizations have a lot of problems when they are trying to find the people for a job. They get applications from people who are not a good fit for the job they posted. This means that the people in charge of hiring have to do a lot work to look through all the applications. It takes them a time to decide who is a good candidate.

The websites that companies use to find new employees do not have tools to help them figure out if someone is a good fit for the job. Companies and organizations also have a hard time scheduling interviews, with people who want a job. They usually do this by phone or email which's not a very good way to do it. Companies and organizations have to deal with these problems every time they are looking for new people to hire.

Therefore, the need arises for an integrated and intelligent platform that brings together job and training seekers and companies in a single environment. This platform should provide

AI-powered tools to support skills development, analyze the compatibility between applicants and available opportunities, and facilitate more efficient and effective application, recruitment, and communication processes.

1.2 Objectives

This project is meant to help us get the things we need to fix the problems we found in the way we recruit and train people. The main things we want to achieve with Careerly Plus are different, for each type of Careerly Plus user so we have grouped the things we want to achieve with Careerly Plus like this:

For Job Seekers (Students, Graduates, and Professionals):

- Enable users to create and manage a personal account to access all platform services.
- Allow job seekers to browse job and training posts published by companies in an organized and user-friendly manner.
- Provide the ability to apply directly for job or training opportunities through the platform.
- Enable users to create, update, and download a professional CV using built-in CV builder tools.
- Provide AI-powered skill assessment tests based on the user's selected skills to evaluate their current knowledge and competencies.
- We can give people tests that are just for them. These tests are based on the jobs they want to do or the training programs they want to join. The people tests are created using intelligence so they are a fit for what the people need. We make sure the people tests are not too long so the people can see if they are good for the job or the training program they want.
- We want to help people find out what they are good at and what they need to work on. Our goal is to use intelligence to look at the skills of people and tell them what they do well and what they do not do well.
- We will give people ideas on how they can improve the skills they're not good at.
- People can use this information to make their skills better. People can become better at what they do. The things they are good, at the skills will become even stronger.
- Send notifications related to application status updates(Accepte,Rejecte,Screening), interview invitations.

- Improve the overall job search experience by centralizing job discovery, application, assessment, and communication in one platform.

For Companies:

- Let companies make and control their official company accounts. This means companies can create these accounts and then manage them. Companies will be able to make sure their accounts are real and trustworthy. This is, about company accounts that are verified.
- Enable companies to publish job and training posts with detailed descriptions and required skills.
- Provide tools to receive, review, and manage job and training applications efficiently.
- Utilize AI-based analysis to evaluate the compatibility between applicants' skills and the requirements of a specific job or training opportunity.
- The platform should let companies set up interviews with the people they want to talk to. This means companies can use the platform to schedule interviews, with selected applicants.
- Provide real-time notifications to companies when:
 - Someone has sent in an application, for a job or to get some training.
 - When Schedule for applications.

For Admin:

- Have full control over the entire system and all platform functionalities.
- Manage all user roles, including job seekers and employers.
- Review, verify, and validate employer accounts by examining the uploaded official documents to ensure their authenticity.
- Approve or reject employer accounts based on the verification results in order to maintain platform credibility and ensure trustworthiness of all employer profiles.
- Access comprehensive statistics and analytics for both employers and job seekers, including:
 - Number of registered users.
 - Job and training applications.

1.3 Significance of the Work

Finding the job is a big deal. It is very important for what you want to do with your career. The right job or training helps you learn things and get better at what you do. This also helps you get a job in the future.

The Careerly Plus platform is a tool, for people who are looking for a job. It helps people find a job and build their career in a way that makes sense.

The Careerly Plus platform is really helpful for people who are looking for a job. They can find out about jobs and training programs from companies that are verified so they know it is real. This means they do not have to look over the internet or check lots of different social media sites to find what they need.

The Careerly Plus platform makes things easier because it has everything, in one place. People can look at all the jobs that are available make their own CVs send in their applications and then see what is happening with those applications. The Careerly Plus platform saves people a lot of time and effort because they can do all of this in one place.

Companies do not have to rely on ways of hiring people that involve looking at applications by hand and talking to people in a disorganized way. Now companies can use the platform to handle job applications and training applications in a way set up interviews and get updates right away. This makes the hiring process easier. Helps employers and people looking for jobs work together better. The recruitment process is made simpler, with the platform. This helps companies and job applicants to work together more smoothly with the recruitment process.

Additionally, by integrating AI-powered features such as skill assessment tests, short exams tailored to applied opportunities, and applicant–job compatibility analysis, Careerly Plus creates a smarter and more connected recruitment ecosystem that benefits both job seekers and companies.

1.4 Organization of the Report

This report is organized to provide a clear and structured overview of the project’s development journey. It begins by discussing the main constraints encountered, the relevant standards and codes applied, and the ways in which earlier coursework supported the project’s foundation. The literature review then explores existing studies and related work that helped inform and shape the project’s approach. The methodology chapter describes the development process in detail, including the design and functionality of the platform’s interfaces and features. This is followed by the results and discussion chapter, which presents the key outcomes and reflects on their significance. The report concludes with a final summary that highlights the overall achievements and offers recommendations for future improvements.

Chapter 2: Constraints, Standards/Codes, and Earlier Coursework

2.1 Constraints

Several challenges came up during the development of the application and website:

1. Limited experience with mobile app development made the beginning of the project difficult. Since this topic wasn't covered in classes, it took extra time to research and test different tools and technologies before choosing the right ones.
2. AI Services had a limited free time period that affected testing. It was used to select and view locations, but the free trial only lasted for a short time. After that, the service stopped working unless payment was added, causing delays.
3. Performance issues during React Native development also caused slow progress. Android Studio, the tool used for building the app, ran slowly on the available computers. This led to lags and crashes, especially when using the emulator, which made development slower and more difficult.

2.2 Standards and Codes

The project made use of various technologies, tools, and best practices to ensure efficient and well-structured development:

- React was used for developing the web application's frontend.
- React Native was used for building the mobile application.
- Expo Go was used as the primary environment for developing and testing the mobile application .
- ASP dotnet was used for backend development. It follows a feature-based modular design combined with principles of the MVC (Model-View-Controller) pattern. Each feature or core entity is organized as a separate module containing its own models, services (acting as the business logic layer), controllers, and routes. This structure keeps the code

modular and organized by responsibility, making it easier to scale, maintain, and develop new features independently.

- Python was utilized to develop AI-related functionalities through the integration of Gemini and Groq for intelligent processing.
- Microsoft Azure was utilized to deploy the application, implement email services, and use Blob Storage for secure cloud-based file storage and management.
- MySQL was used as the database management system.
- Git and GitHub were used for source code management and version control.
- Postman was used for testing and verifying API functionality.
- The system followed the REST architectural style to ensure clear and consistent communication between components.

2.3 Earlier Coursework

The development of this application was supported by key courses in the Computer Engineering program that provided important knowledge and skills:

- **Programming Courses (C Programming, Data Structures, and Algorithms):** these courses cover how to write clear and efficient code. The study of algorithms helps optimize performance and improve data handling in the application.
- **Database Systems:** this course teaches how to design and manage databases. It includes organizing data using MySQL and writing queries to access and update information, which is essential for effective data management in the application.
- **Web Programming :** these courses cover both basic and advanced web development. The initial part focuses on HTML, CSS, and JavaScript for building responsive and interactive web pages.
- **Software Engineering and Advanced Software Engineering:** these courses introduce best practices in software development, including software architecture, design patterns, and project management. Applying these methods ensures the application is well-structured, scalable, and easy to maintain.
- **Distributed Operating Systems (DOS) course** introduced cloud computing concepts that were essential for the deployment process. The knowledge gained from this course supported deploying the application on cloud infrastructure, ensuring better scalability, availability, and efficient resource utilization.

Chapter 3: Literature Review

People have done extensive research on how artificial intelligence can be used to improve recruitment systems and make the hiring process more effective for both job seekers and employers. Artificial intelligence plays a significant role in analyzing large numbers of resumes, identifying qualified candidates, and determining how well an applicant fits a specific job. A systematic review on the use of artificial intelligence in employee recruitment shows that AI can significantly speed up the hiring process by automating resume screening and using predictive techniques to assess job–candidate compatibility, while also highlighting challenges such as bias and fairness issues [1].

In addition to efficiency, researchers have explored how AI can improve the job seeker’s experience. One study introduced an AI-based recruitment system designed to guide job seekers throughout the hiring process. The results showed that such systems can make hiring decisions appear more transparent, fair, and trustworthy compared to traditional recruitment methods [2].

Another line of research focused on developing intelligent systems that understand the meaning of resumes and job descriptions rather than relying solely on keyword matching. These AI-driven semantic similarity systems aim to interpret the actual content and context of skills and requirements, leading to more accurate and inclusive job matching outcomes [3]. Such systems improve matching quality and reduce mismatches between job seekers and employers.

Further investigations into AI recruitment fairness examined job seekers’ perceptions of AI-based and traditional hiring methods, indicating that combining both approaches may enhance perceived fairness and overall recruitment effectiveness [4].

Together, these studies highlight the growing role of artificial intelligence in recruitment and emphasize the importance of intelligent matching and assessment systems that support informed decision-making for both job seekers and employers.

Chapter 4: Methodology

This section displays the different website and mobile application interfaces with clear and simplified explanations.

4.1 Landing Screen

The Landing screen is the first screen that appears when you open the website or launch the mobile application. This screen reflects the application's identity.

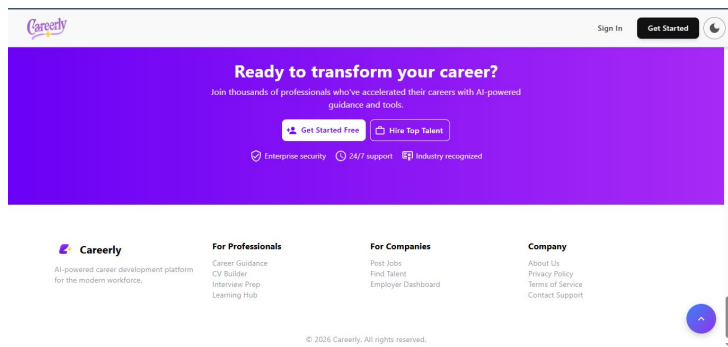
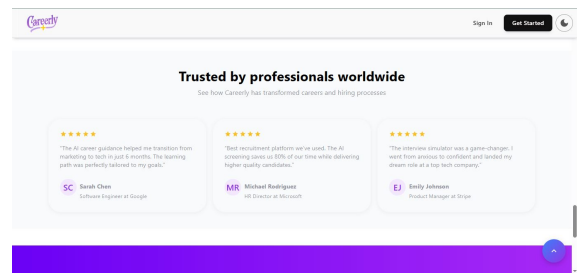
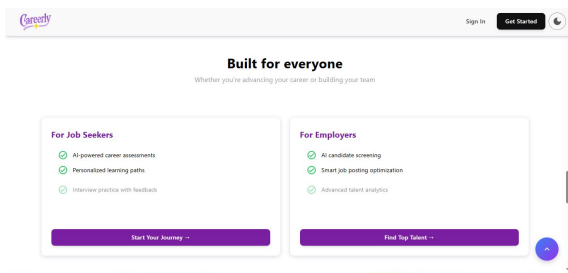
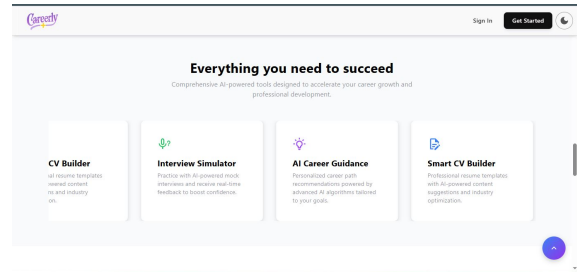
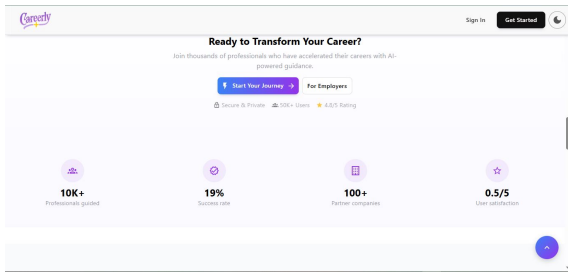
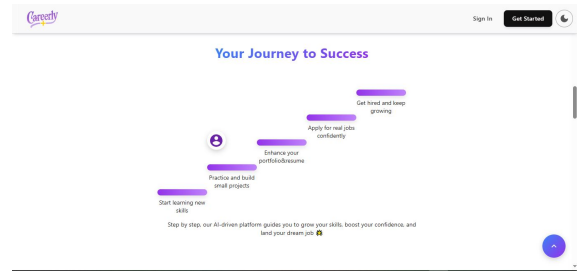
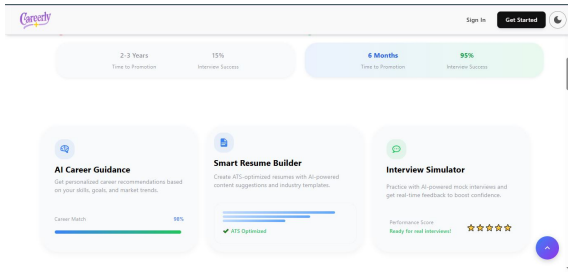
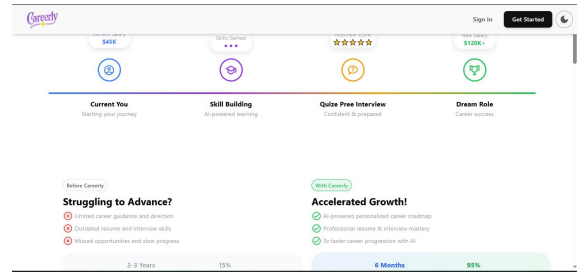
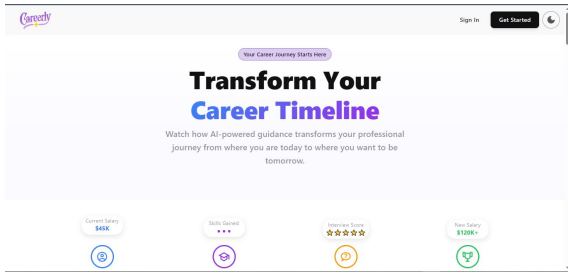


Figure 4.1: Landing Screen (Website)

4.2 Authentication Screens

The application/website includes a set of authentication screens that allow users to securely access their accounts. These include:

4.2.1 Login Screens

This screen allows existing users to log in using their email address and password. The login process is only possible if the account has a validation code. If it hasn't, a button will appear prompting users to resend their validation code to their email.

Additionally, companies are only permitted to log in after their license has been verified and approved by the administrator.

Website:

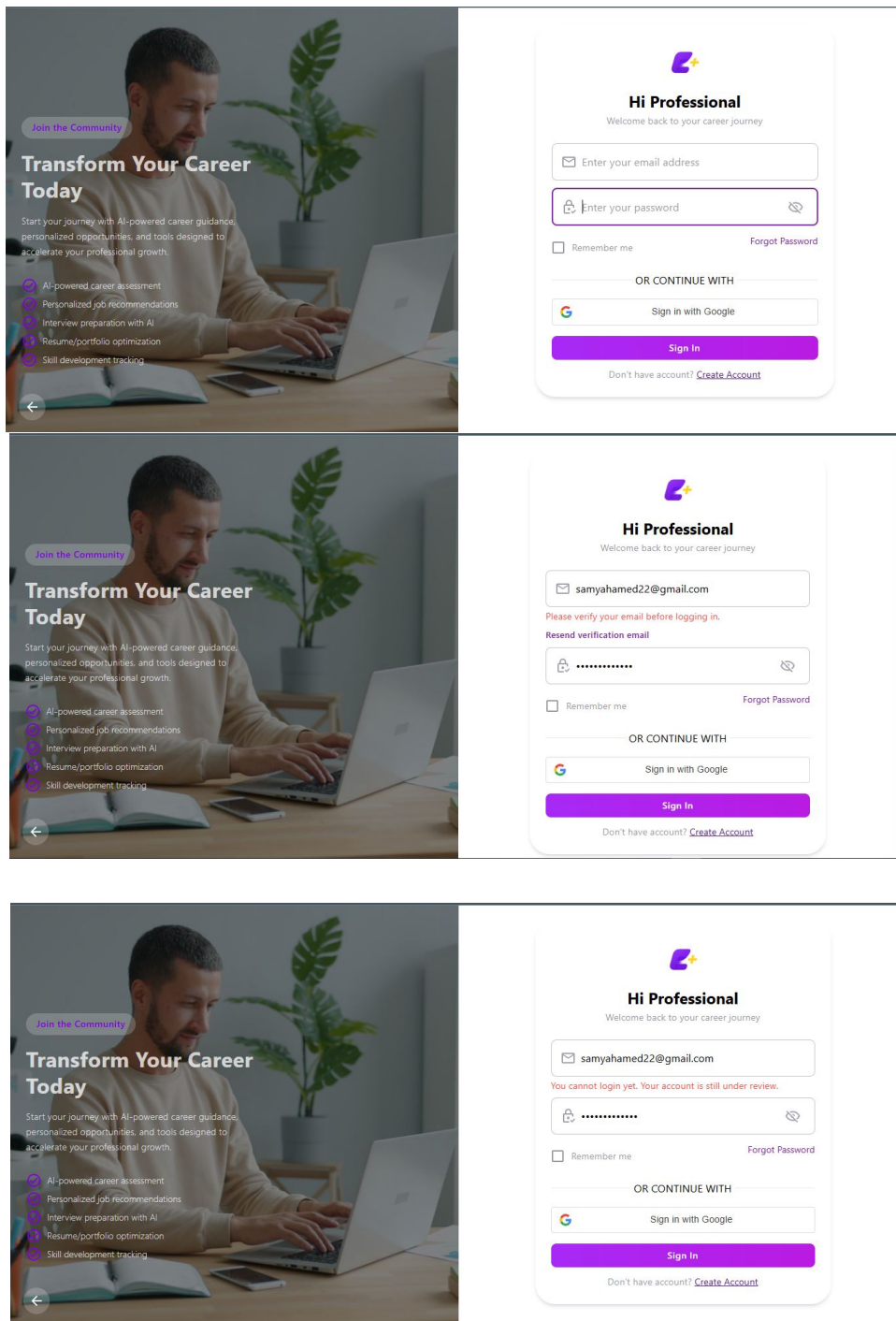


Figure 4.2: Login Screens

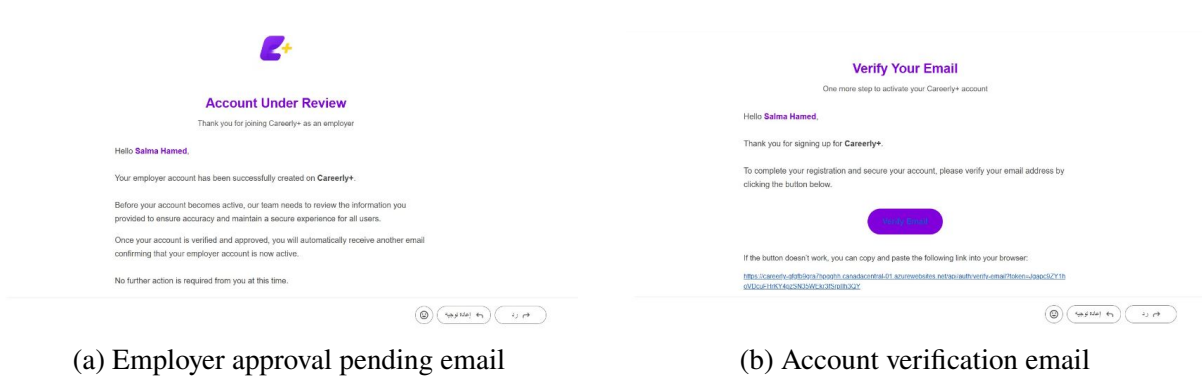


Figure 4.3: System Email Notifications

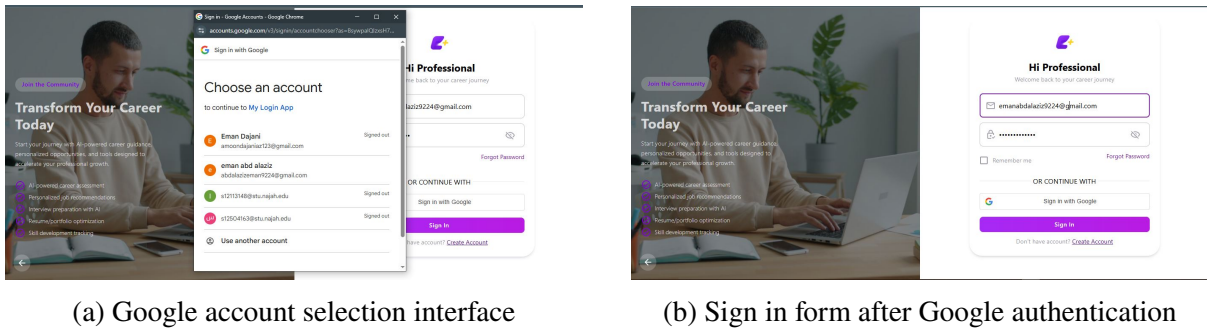


Figure 4.4: Sign In Using Google

Mobile:

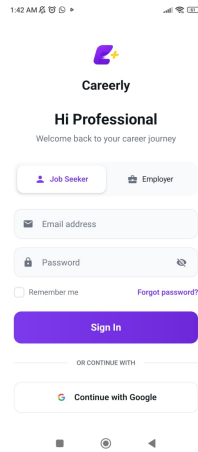


Figure 4.5: Login on mobile

4.2.2 Registration Screens

The registration screen allows two types of users (job seekers and companies) to create an account. To register, users must provide their full name, email address, mobile phone number, password, and date of birth, in addition to company documentation to verify the company's existence and prevent impersonation.

- After completing the form, the user must confirm their email address via a verification code sent to their email to activate the account and enable login.
- When creating an account using Google, the form changes and does not require verification.

Website:

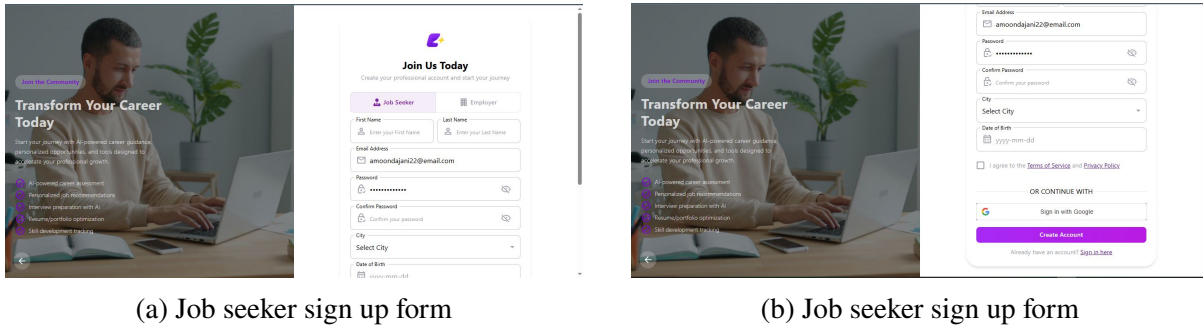


Figure 4.6: Job Seeker Sign Up Screens

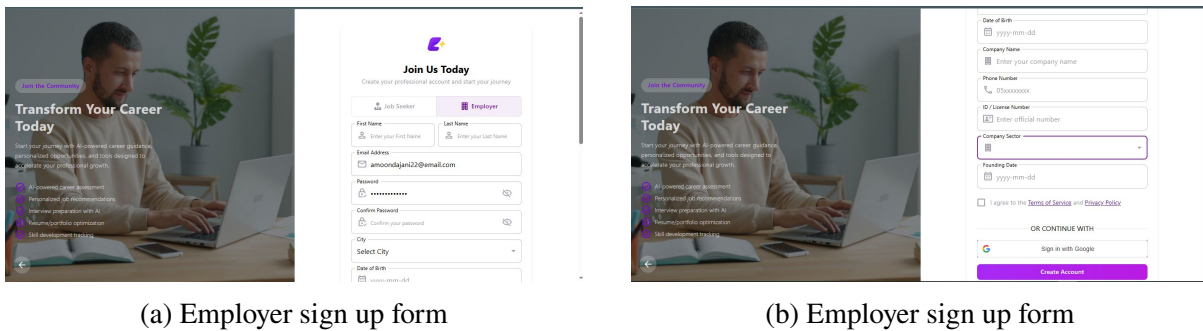


Figure 4.7: Employer Sign Up Screens

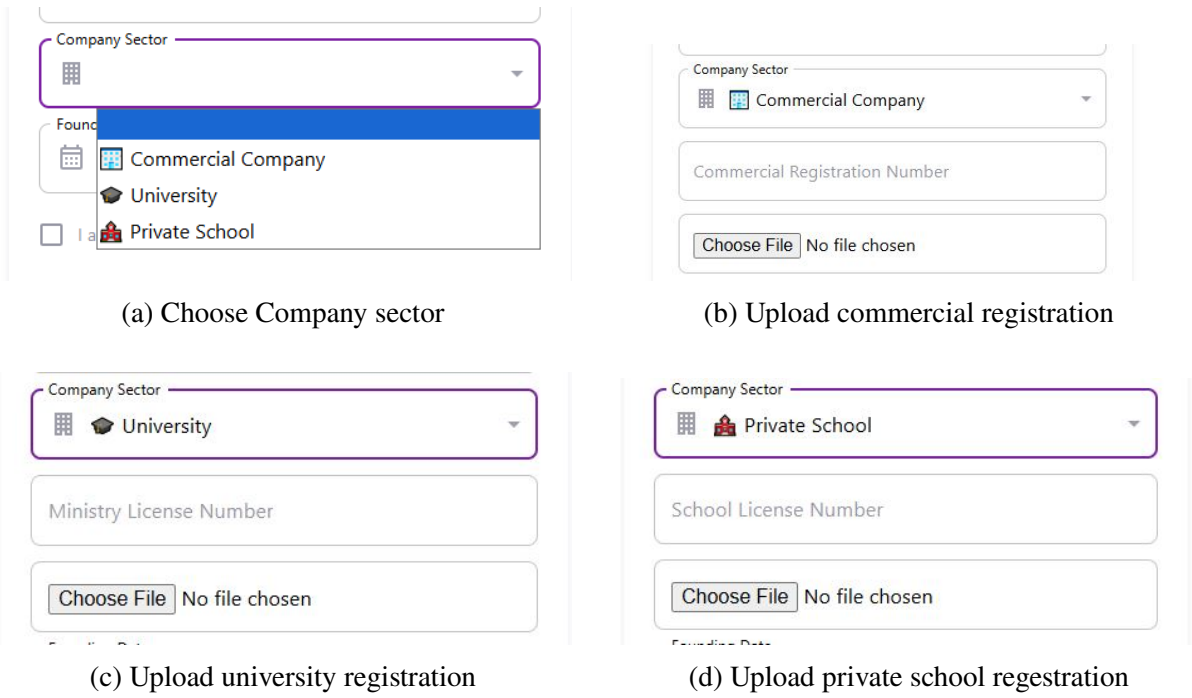


Figure 4.8: Employer File Upload During Sign Up

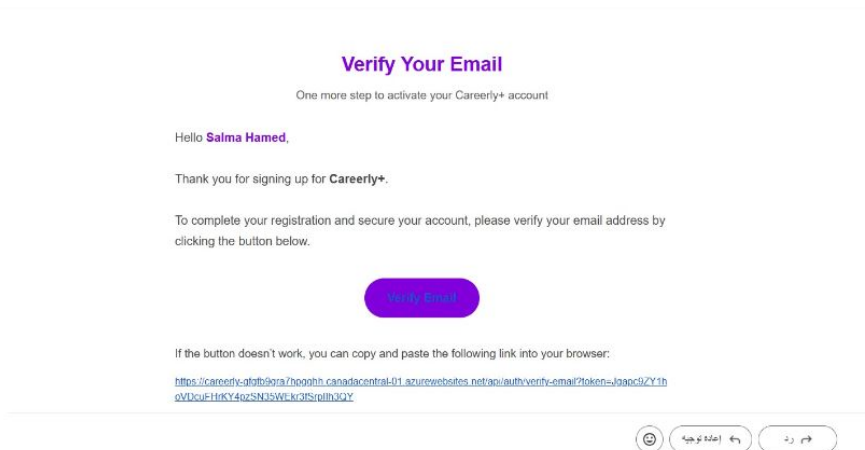
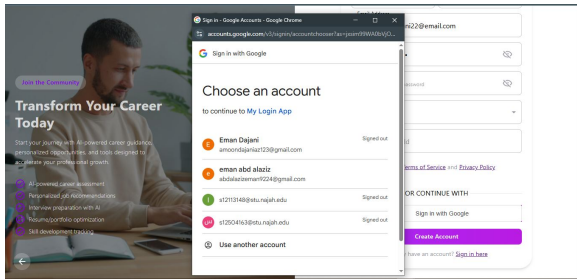
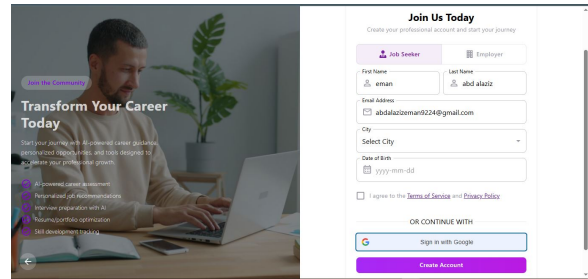


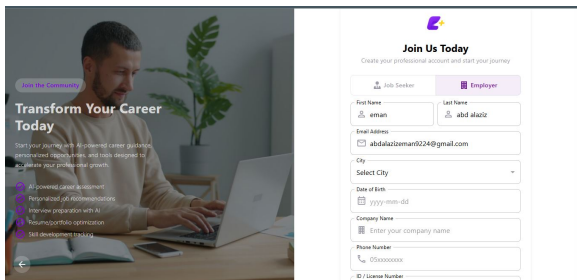
Figure 4.9: Email verification screen after sign up



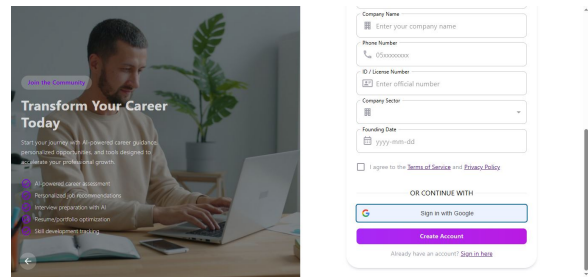
(a) Google sign-up option selection



(b) Job seeker registration form using Google



(c) Employer registration form using Google



(d) Employer document upload during Google sign-up

Figure 4.10: Sign Up Using Google

Mobile:

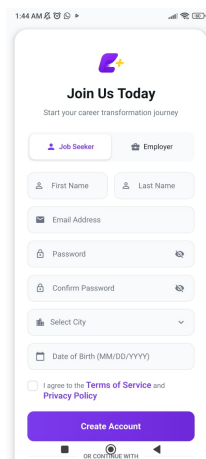
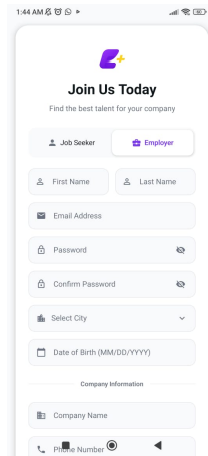
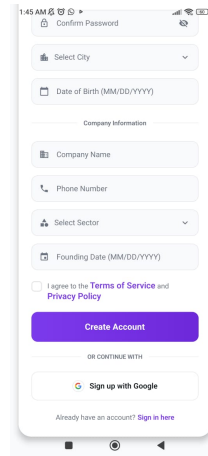


Figure 4.11: Job-seeker Sign-up on Mobile



(a) Personal Information



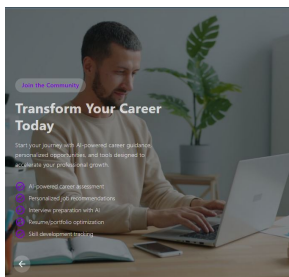
(b) Company Information

Figure 4.12: Employer Sign Up on Mobile

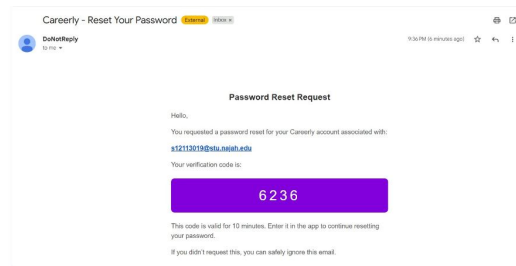
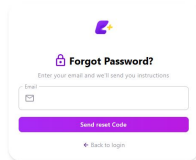
4.2.3 Forgot Password Screens

This screen helps users recover their account if they forget their password. The user first enters their email address, then receives a One-Time Password (OTP) to that email. After verifying the OTP, the user is allowed to create a new password and regain access to their account securely.

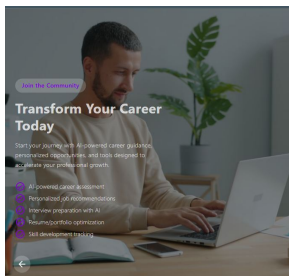
Website:



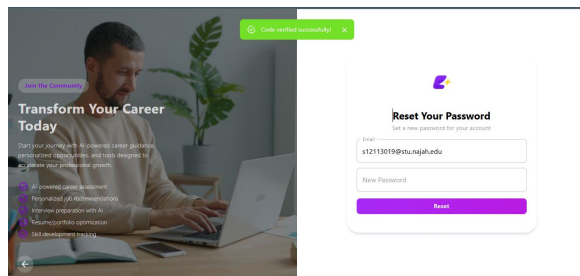
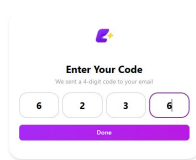
(a) Entering the registered email address



(b) Password reset email received



(c) Entering the verification code sent to email



(d) Setting a new password

Figure 4.13: Forgot Password Process

Mobile:

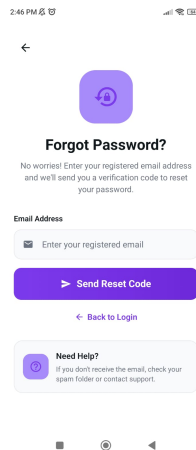


Figure 4.14: Forgot Password on Mobile

4.3 Job-Seeker Screens

The Careerly Plus platform provides a set of user-friendly interfaces designed specifically for job seekers to help them search for suitable job and training opportunities and manage their career development process efficiently. These interfaces enable users to explore opportunities, build their professional profiles. The main job seeker interfaces and functionalities include:

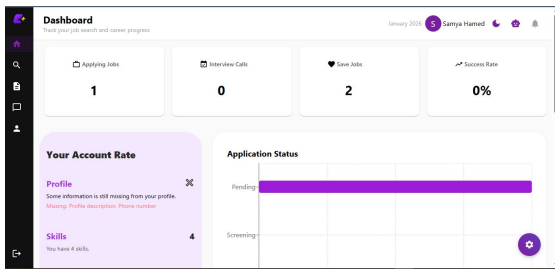
- The job seeker layout is designed to ensure easy and quick access to essential features across all pages of the platform. It includes an integrated AI chatbot and a notification system, both displayed as icons in the header section of every job seeker page. This consistent placement allows users to access assistance and stay updated at any time without navigating away from their current page, thereby improving usability and overall user experience.

4.3.1 Dashboard

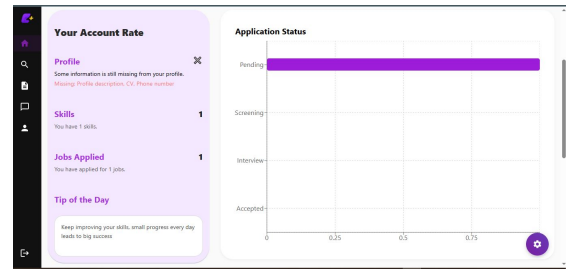
The dashboard provides job seekers with quick and essential information presented through informative cards that display key statistics related to their job search activities. It also includes an account completeness indicator that alerts users when important profile information is missing, helping them improve their chances of being matched with suitable opportunities. In addition, the dashboard displays simple statistics and motivational tips that are updated daily to encourage continuous engagement with the platform.

Furthermore, the dashboard contains a visual chart illustrating the jobs and training opportunities the user has applied for, along with the current status of each application, such as accepted, rejected, or under review. A detailed table is also provided to list all submitted applications to companies, allowing users to easily track and manage their application history.

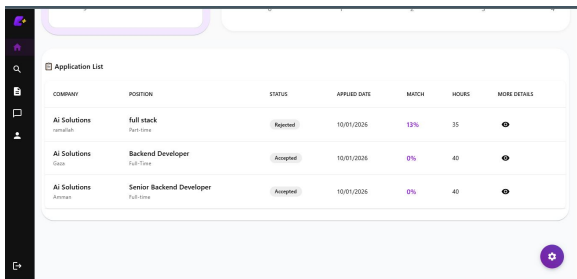
Website:



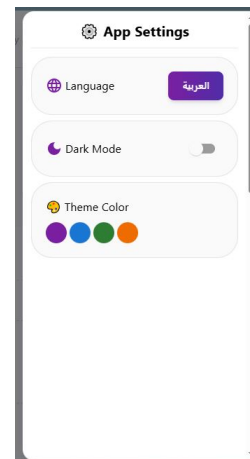
(a) Cards and Layout



(b) Daily Updates and Application Status



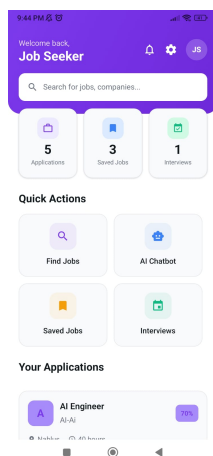
(c) Application List



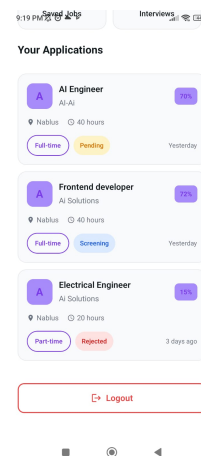
(d) Settings Interface

Figure 4.15: JobSeeker Dashboard Screen

Mobile:



(a) First image



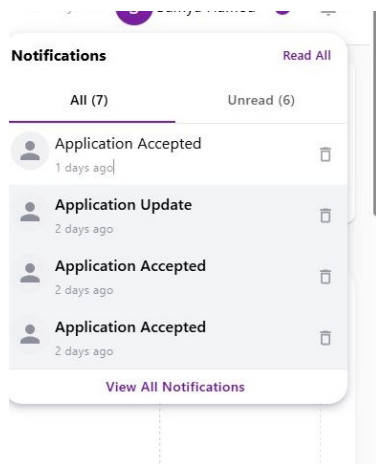
(b) Second image

Figure 4.16: JobSeeker Dashboard on Mobile

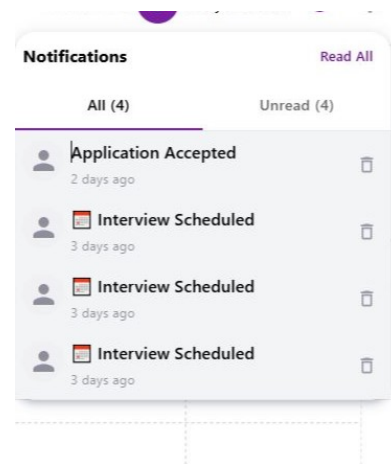
4.3.2 Notification System

The notification system for job seekers is designed to keep users informed through both email and in-platform notifications. This system ensures timely communication regarding important updates related to the user's account and job applications. Notifications are sent in the following cases:

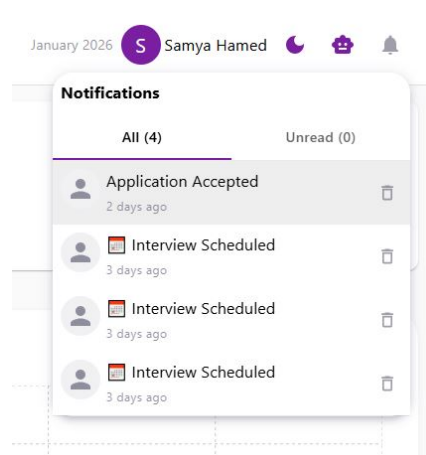
- When an interview is scheduled.
- When there is an update in the status of a job or training application submitted to companies.
- When the account password is changed for security purposes.



(a) Notification dialog



(b) Delete notification



(c) Mark all as read

Figure 4.17: Notification Screen

4.3.3 Chat-bot

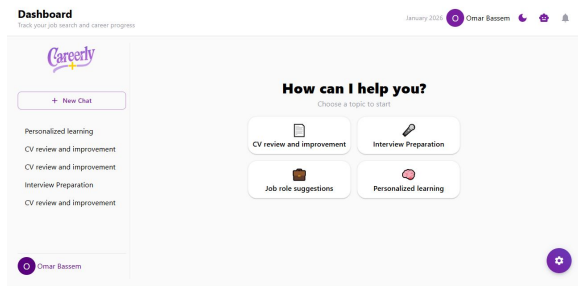
The Careerly Plus chatbot is designed to support job seekers in four key areas: resume review and optimization, interview preparation, job suggestions, and building personalized learning paths, as outlined in the user interface. Unlike traditional static assistants, the chatbot uses a dynamic, interactive approach, engaging with the user by asking targeted questions and gradually gathering relevant information during the conversation. This conversational approach allows the system to better understand the job seeker's background, skills, experience level, and career goals, enabling it to provide more personalized and effective support.

As the interaction progresses, the chatbot's role extends beyond data collection to include practical guidance and personalized, intelligent responses. It helps users enhance their resume content, prepare for job interviews with relevant questions and guidance, suggest career paths aligned with their skills and interests, and boost their technical and professional capabilities through targeted learning recommendations. This feature aims to provide ongoing career support that empowers job seekers to grow and make confident, informed career decisions.

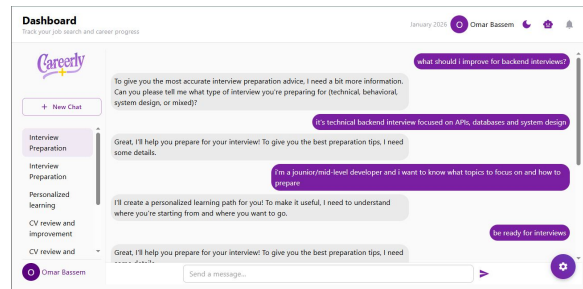
To achieve this level of intelligence and responsiveness, a high-performance Large Language Model (LLM) is employed on the Groq platform. This model provides rapid response times and efficient request processing, ensuring a seamless and interactive user experience with minimal delays. The chatbot also utilizes an intelligent Intent Detection mechanism. This mechanism analyzes the user's message and conversation context to determine the type of assistance required and then routes the request to the appropriate processing sequence, whether it be a resume, interview, job proposal, or learning path. The conversation history and previously collected information are also passed on to ensure contextual continuity.

Furthermore, the context extracted from user interactions, such as skills, experience level, and career goals, is stored. This allows the system to provide more accurate and personalized responses in subsequent interactions, reduce question repetition, and improve the quality of recommendations. Thus, Careerly Plus's chatbot represents an integrated intelligent system that goes beyond the traditional concept of robotic assistance, combining chain-based design, inference using Groq linguistic models, and interactive context management to provide continuous, personalized career support that enables job seekers to develop their careers efficiently and confidently.

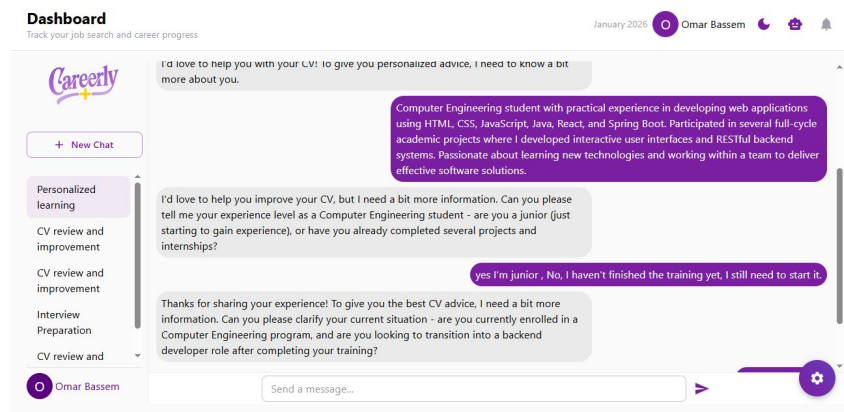
Website:



(a) Topic Choose to start chatting



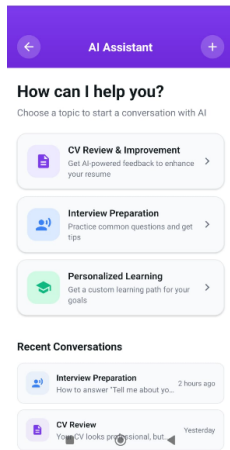
(b) Interview Chat



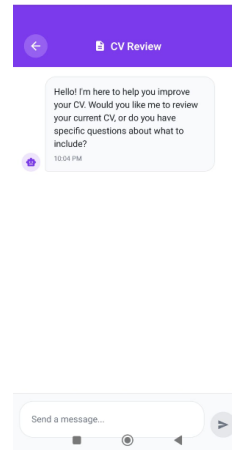
(c) Personalized learning Chat

Figure 4.18: Chatbot Screen

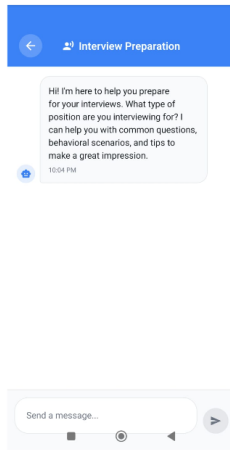
Mobile:



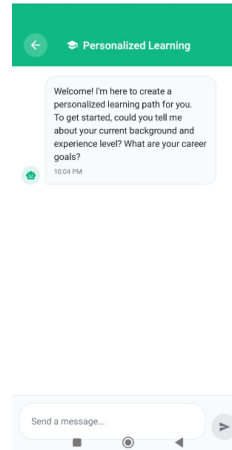
(a) Topic Choose to start chatting



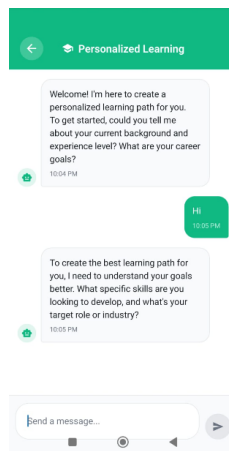
(b) CV Review



(c) Interview Preparation



(d) Personalized Learning



(e) Start Chatting

Figure 4.19: Chatbot on Mobile

4.3.4 Search Job/Internship Screen

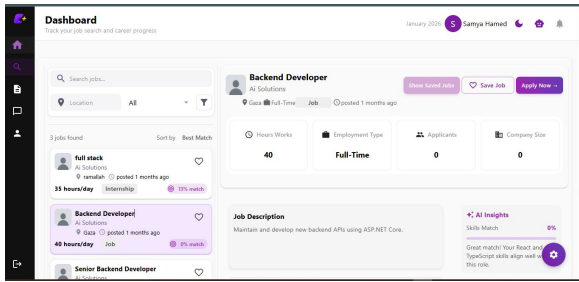
The search page allows job seekers to explore both job and training opportunities published by companies through the platform. Users can search for opportunities and apply multiple filters, such as job title, location, and opportunity type (job or internship), to refine the search results based on their preferences.

The displayed jobs and internships are ranked according to a matching percentage that reflects how well each opportunity aligns with the user's skills and profile information. This matching percentage also considers the geographic proximity between the opportunity location and the user's place of residence. In the case of training opportunities, the university GPA is additionally included as part of the matching criteria. The matching percentage is calculated using artificial intelligence techniques powered by Gemini AI.

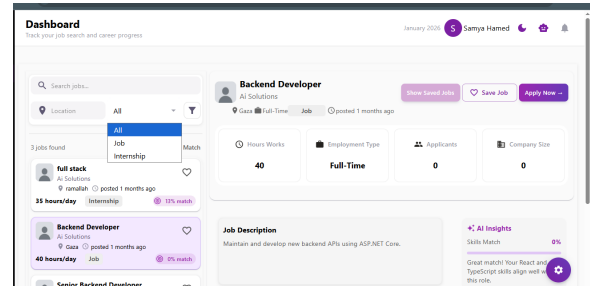
Job seekers can view detailed information about each opportunity, whether it is a job or an internship, and access the company profile that published the post. The platform allows users to apply for the desired position through an application form, where the internship application form differs slightly from the job application form based on the opportunity requirements.

Once a user has applied for a specific position, they are prevented from applying to the same position again. Additionally, job seekers can mark positions or opportunities as favorites using a dedicated favorite icon for easier access in the future.

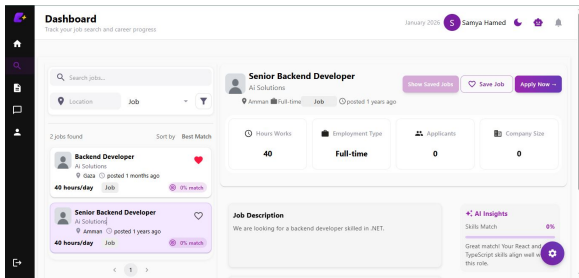
Website



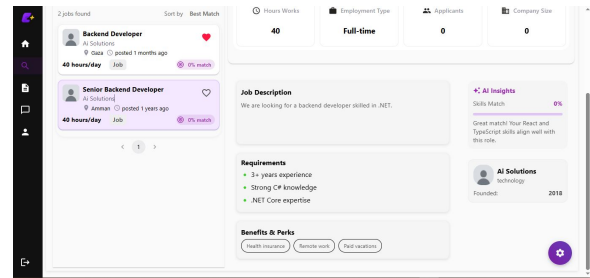
(a) Search Screen



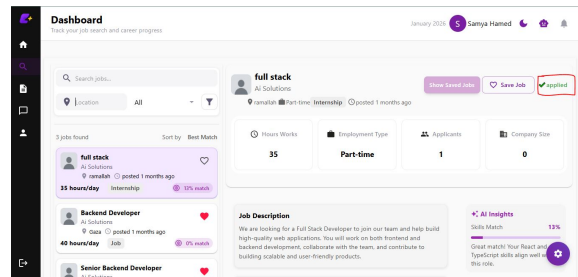
(b) Search Filter



(c) Job/Internship Details

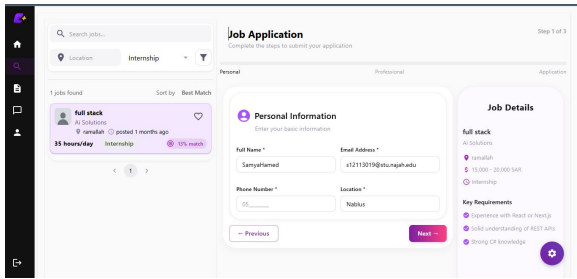


(d) Job/Internship Details

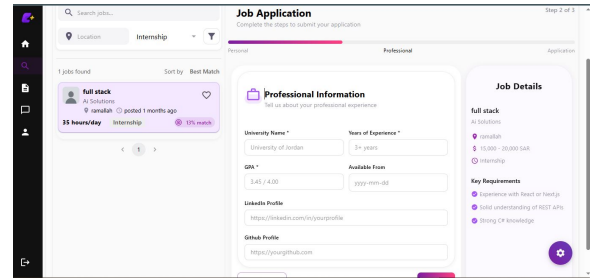


(e) Preventing duplicate job applications

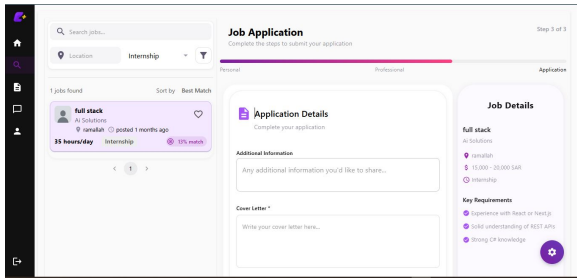
Figure 4.20: Search Screen



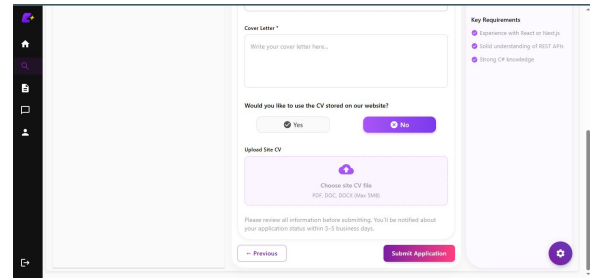
(a) Step 1: Personal information



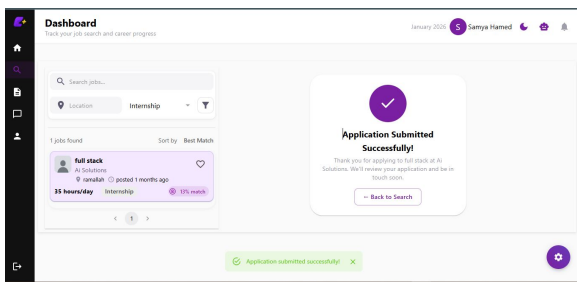
(b) Step 2: Professional information



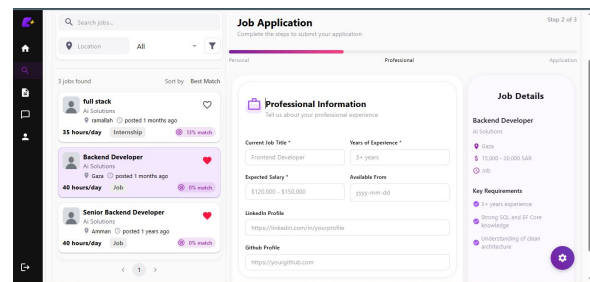
(c) Step 3: Application details



(d) Step 4: Application details (continued)

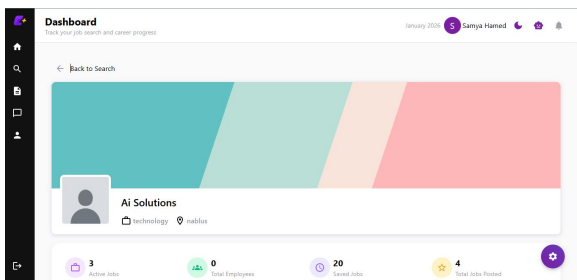


(e) Application submitted successfully

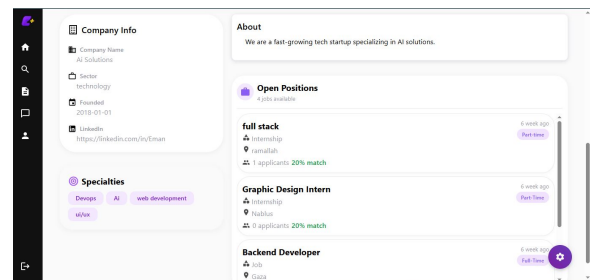


(f) Difference between internship and job forms

Figure 4.21: Apply Form for Internship



(a) Company profile overview



(b) Company profile details

Figure 4.22: Company Profile Screens

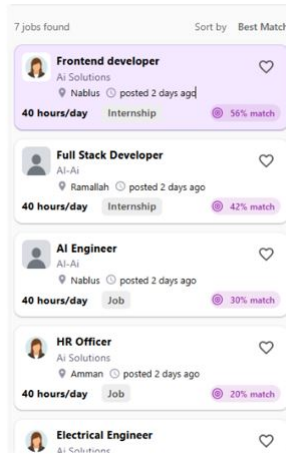
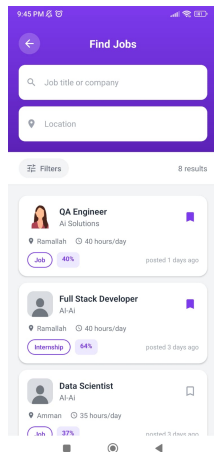
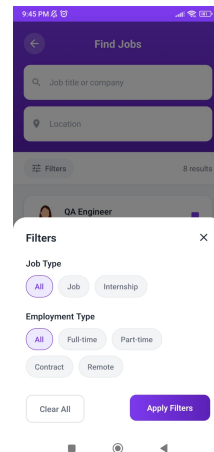


Figure 4.23: Sorted Jobs/Internships by match percent

Mobile:



(a) Search Page



(b) Filter to Search

Figure 4.24: Search Jobs/Internships on Mobile

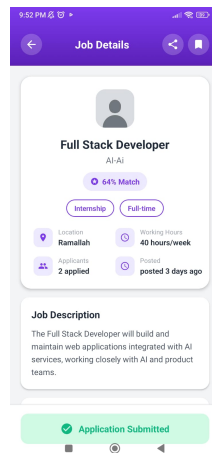
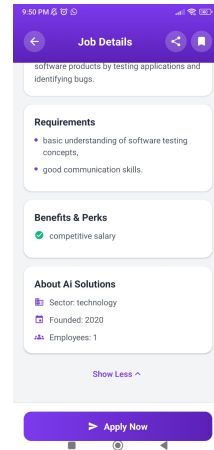
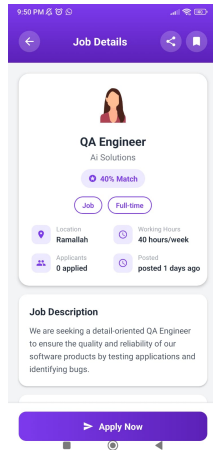
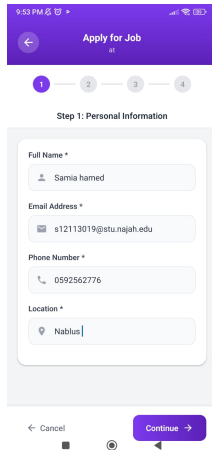
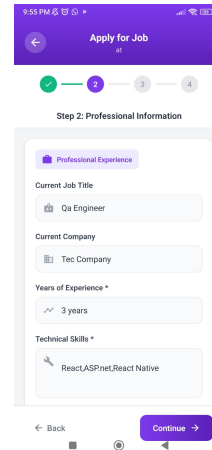


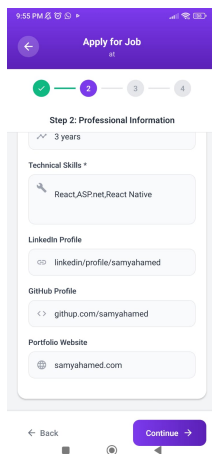
Figure 4.25: Job Details on Mobile



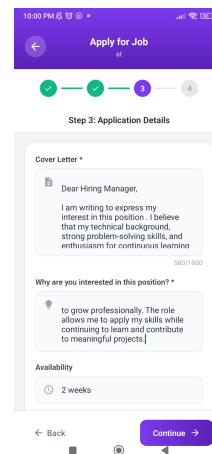
(a) Step 1: Personal Information



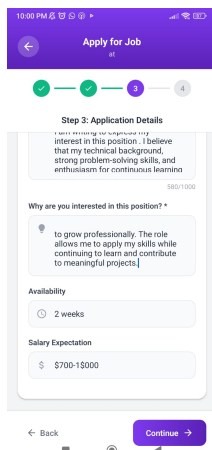
(b) Step 2: Professional Information



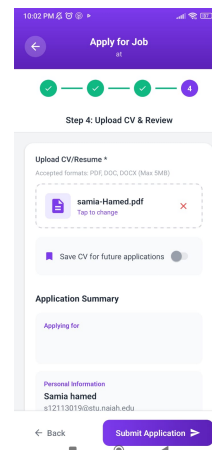
(c) Step 2: Professional Information (continued)



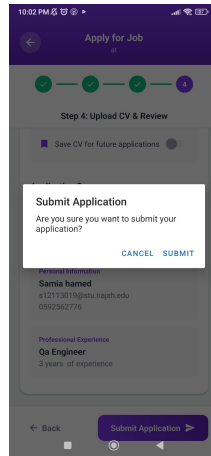
(d) Step 3: Application Details



(e) Step 3: Application Details (continued)



(f) Step 4: Upload CV & Cover Letter



(g) Submit Form

Figure 4.27: Apply Form on Mobile

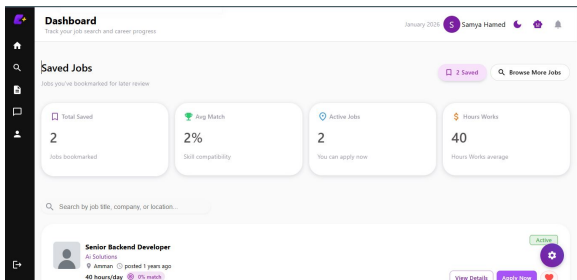
4.3.5 Saved Jobs /Internships Screen

The Saved Jobs page is designed to help job seekers easily access and manage the jobs and internships they have marked as favorites. This page allows users to quickly revisit preferred opportunities without the need to search for them again.

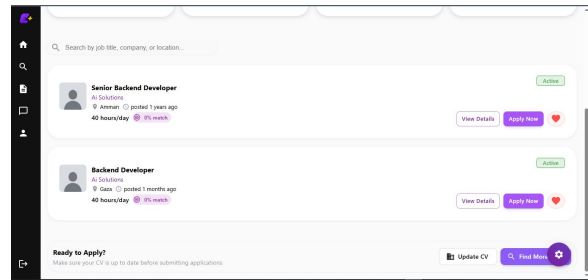
Through this page, job seekers can view summary statistics displayed in informative cards that reflect the number of saved jobs and internships. The page also provides quick navigation options, allowing users to move directly to the CV page or return to the search page for further exploration.

Additionally, users can apply for positions that have been saved as favorites directly from this page. Detailed information about each job or internship can be viewed through a dialog window, and users can access the profile of the company that posted the opportunity. This functionality ensures a smooth and efficient experience when managing and applying for preferred opportunities.

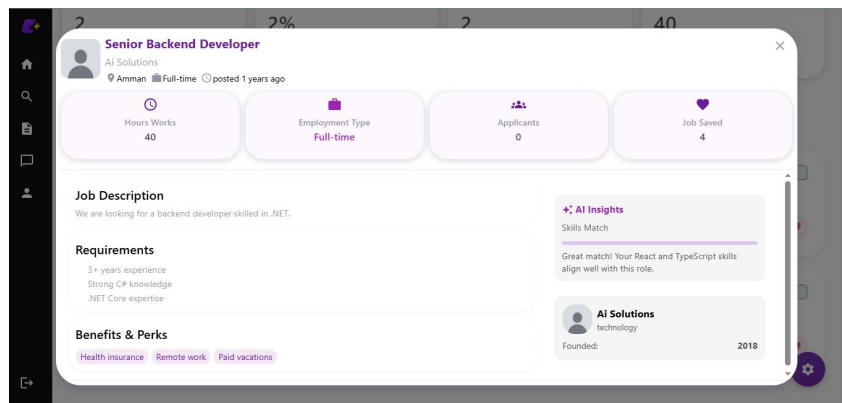
Website:



(a) First part: Cards



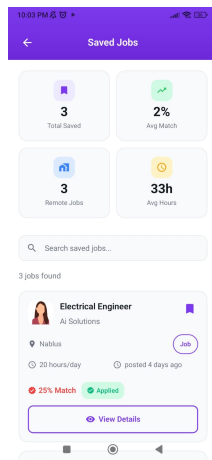
(b) Second part: Jobs and internships



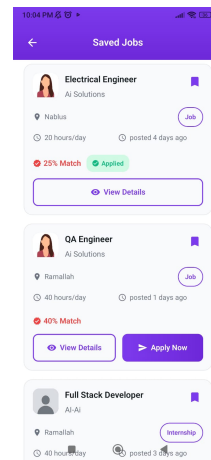
(c) Third part: Post details

Figure 4.28: Saved Jobs/Internships Screens

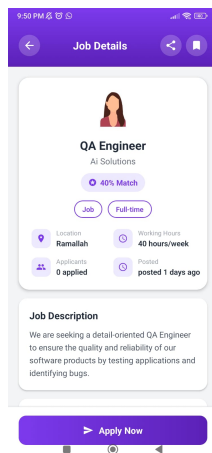
Mobile:



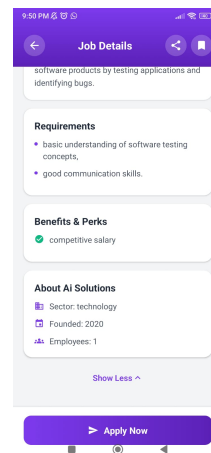
(a) Cards



(b) Saved Jobs/Internships



(c) Details-Part 1



(d) Details-Part 2

Figure 4.29: Saved Jobs/Internships on Mobile

4.3.6 CV Builder Screen

The CV page is structured as a step-based process displayed on the left side of the interface, guiding job seekers through completing their CV in an organized and intuitive manner. The CV consists of five main required sections that must be completed in order to achieve 100% progress. The progress indicator helps users track their completion status throughout the process.

All information added to the CV can be edited or deleted at any time, providing flexibility and ease of use. Users can preview their CV in real time through a dedicated view icon, allowing them to see the layout and content as it will appear in the final version. Once the CV is completed, users can download it directly to their device using the download option.

In addition, the CV page includes an AI-enhancement feature that assists users in improving the quality and clarity of the written content. This feature helps refine paragraphs such as

the professional summary and descriptions of skills, projects, and work experience, ensuring a more polished and professional CV.

The CV creation process includes the following steps:

- Personal Information
- Professional Summary
- Certifications
- Education
- Skills
- Languages
- Projects
- Work Experience

Website:

The screenshot shows the 'Personal Information' section of the CV Builder. The completion progress is 0%. The form includes fields for First Name (Sanyia), Last Name (Hamad), Email (s12113019@stu.nqjtu.edu), Phone, Location (Nablu), and GitHub link. There is an 'AI Enhance' button and a 'Save Draft' button.

(1) Personal Information section

The screenshot shows the 'Professional Summary' section of the CV Builder. The completion progress is 40%. The form contains a text area with a pre-filled summary: 'A Computer Engineering graduate with a robust academic background in programming, software development, and computer systems. Demonstrated experience in academic projects involving web and mobile application development, databases, and RESTful APIs. Highly motivated and a quick learner, seeking an internship to gain hands-on experience and contribute to a collaborative, professional work environment.' There is an 'AI Enhance' button and a 'Save Draft' button.

(2) Professional Summary section

The screenshot shows the 'Add Work Experience' section of the CV Builder. The completion progress is 40%. The form includes fields for Job Title, Company, Start Date, and End Date. There is a 'Save' button and an 'AI Enhance' button.

(3) Add Work experience

The screenshot shows the 'Work Experience' section of the CV Builder. The completion progress is 60%. It displays a list of work experience entries. The first entry is 'front end Engineer — atal' from 2021-12-14 to Present, with a description: 'Developed and maintained responsive user interfaces using HTML, CSS, and JavaScript. Built dynamic and reusable UI components using React to enhance user experience and performance. Collaborated with back-end developers and designers to integrate APIs and translate UI/UX designs into functional web pages. Ensured cross-browser compatibility and optimized applications for maximum speed and scalability. Debugged and fixed UI issues while continuously improving code quality and maintainability. Participated in code reviews and followed best practices in front-end development.'

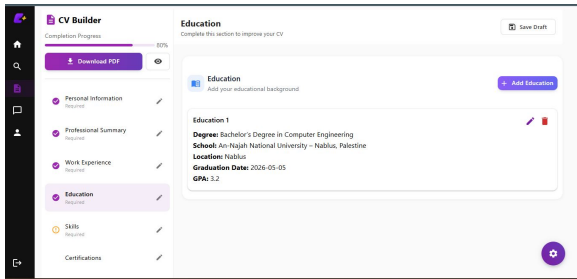
(4) Work experience section

The screenshot shows the 'Edit Work Experience' section of the CV Builder. The completion progress is 60%. It displays the same work experience entry as in (4), but with an 'Update' button instead of 'Save'.

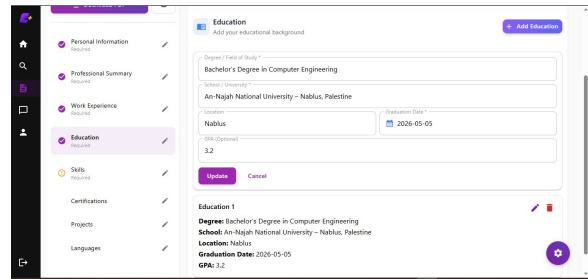
(5) Edit Work experience

The screenshot shows the 'Add Education' section of the CV Builder. The completion progress is 60%. The form includes fields for Degree / Field of Study, School / University, Location, and Graduation Date. There is a 'Save' button and an 'AI Enhance' button.

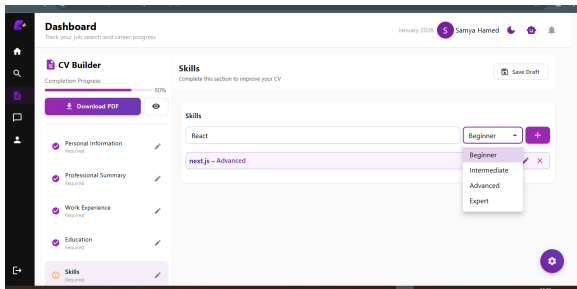
(6) Add Education



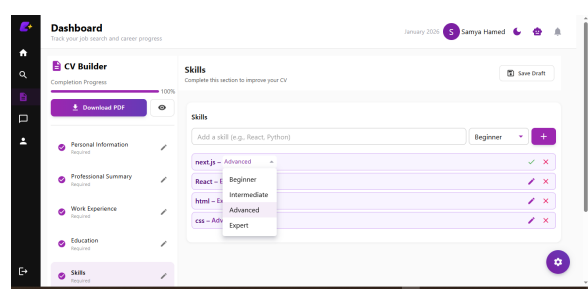
(7) Education section



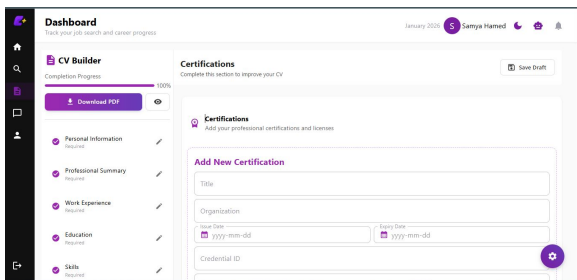
(8) Edit Education section



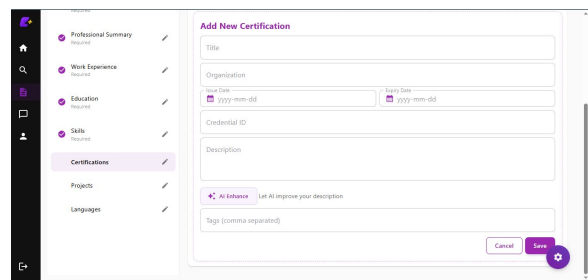
(9) Skills selection interface



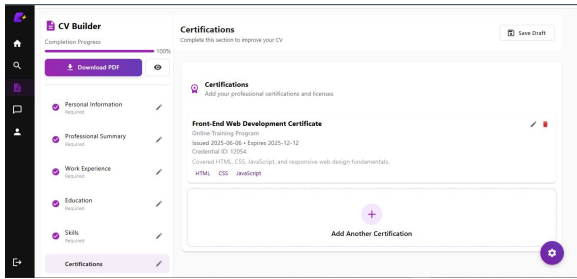
(10) Skills edit interface



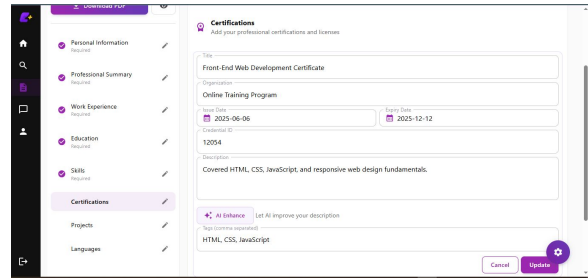
(11) Certification section



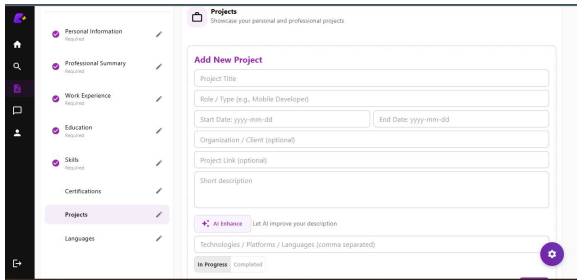
(12) Add Certification section



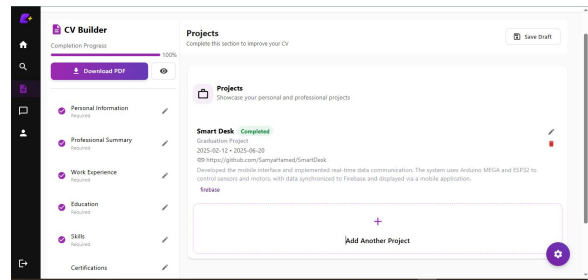
(13) Certification section



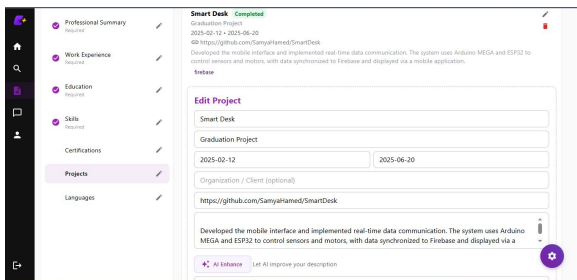
(14) Edit Certification section



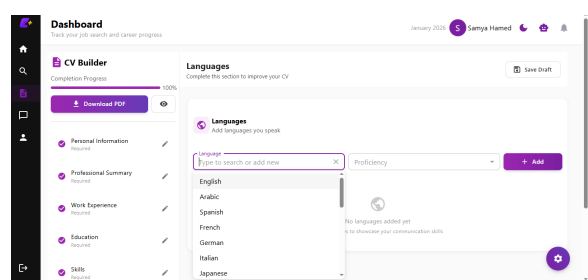
(15) Add Project details section



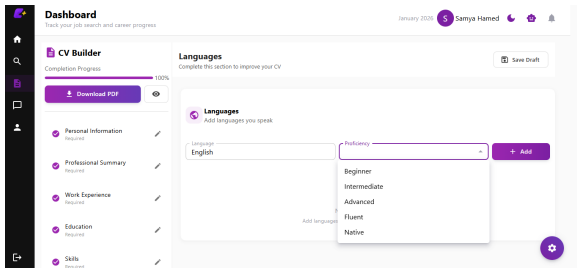
(16) Project details section



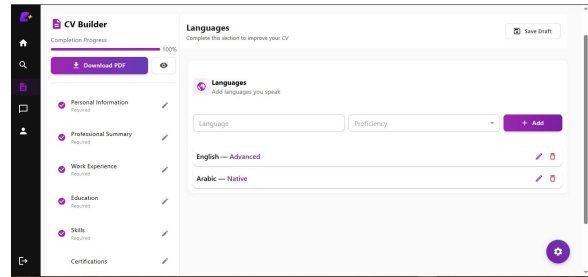
(17) Edit Project details section



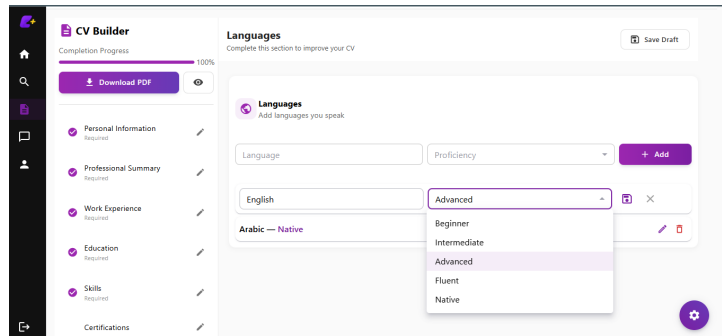
(18) Language selection interface



(19) Language level selection



(20) Language section



(21) Edit Language level

Figure 4.30: CV Screens

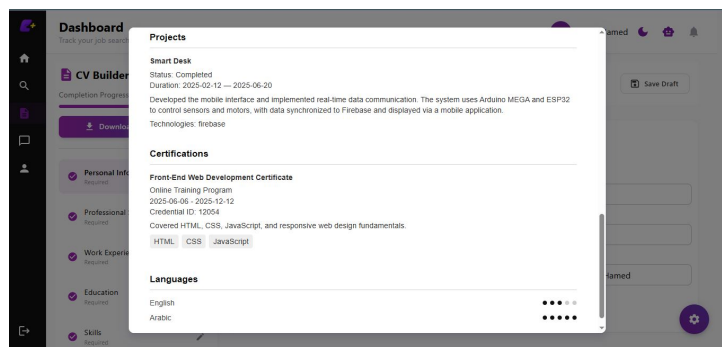
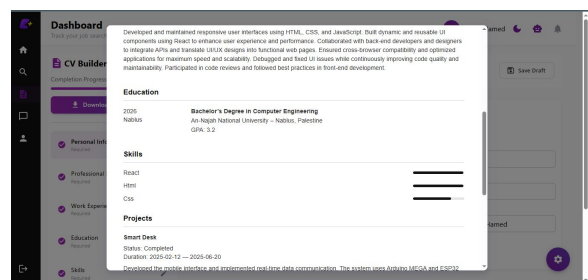
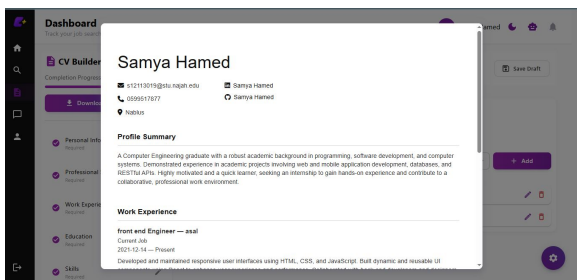


Figure 4.31: CV View Screens

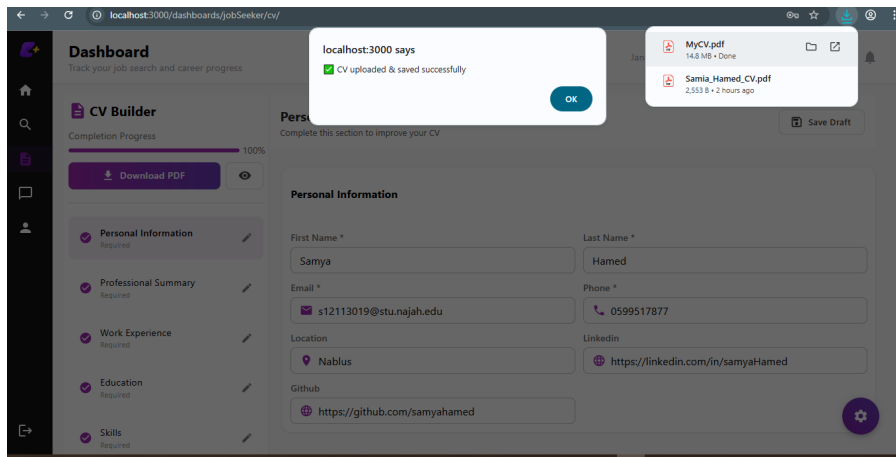


Figure 4.32: CV download process

4.3.7 Questions Screen

The Questions page is divided into two main sections, each designed to support job seekers in preparing for job and training opportunities and improving their skills using artificial intelligence.

The first section focuses on pre-interview practice questions related to the jobs or internships that the user has applied for. When the user selects the practice option, the AI generates five questions tailored to the specific position applied for. At the end of each practice session, the system displays the user's score along with a review of the questions and answers. Each time the practice feature is used, a new set of questions is generated, ensuring variation and continuous improvement. These questions are generated using Gemini AI.

The second section is dedicated to skill-based questions. In this section, the job seeker selects a specific skill and the desired difficulty level before starting the practice session. Upon initiating practice, AI-generated questions related to the selected skill and level are displayed. The Progress tab provides AI-based recommendations that highlight the user's strengths and weaknesses based on performance in skill-related questions. According to the identified weaknesses, the system suggests relevant courses to help improve specific skills. Similar to the first section, each practice session generates different questions created by Gemini AI.

Website:

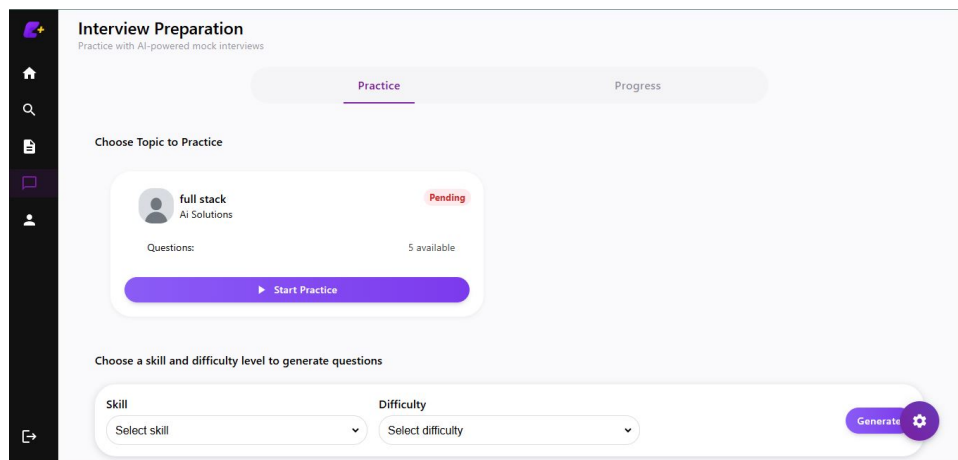
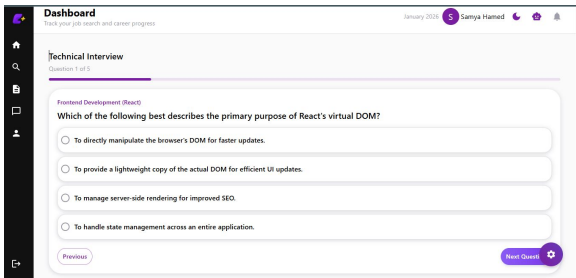
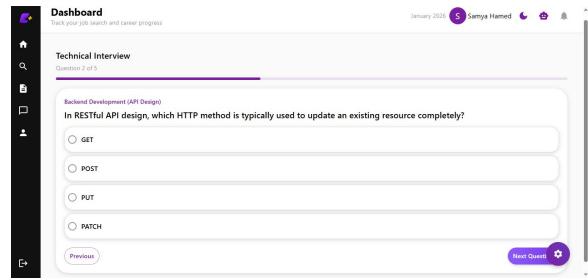


Figure 4.33: Interview Preparation Screen

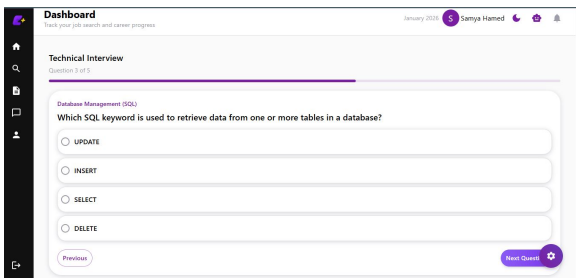
First Part:



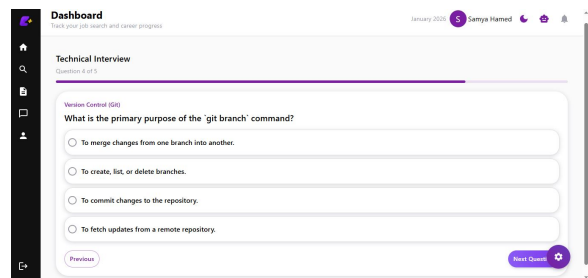
(1) Question 1



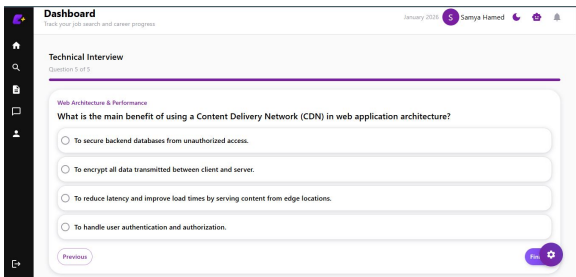
(2) Question 2



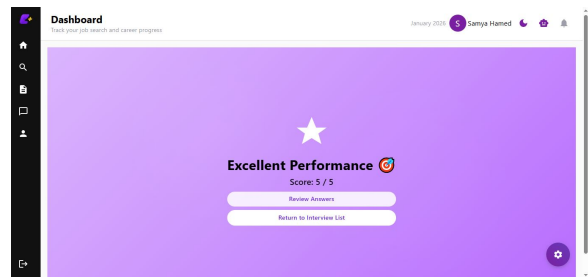
(3) Question 3



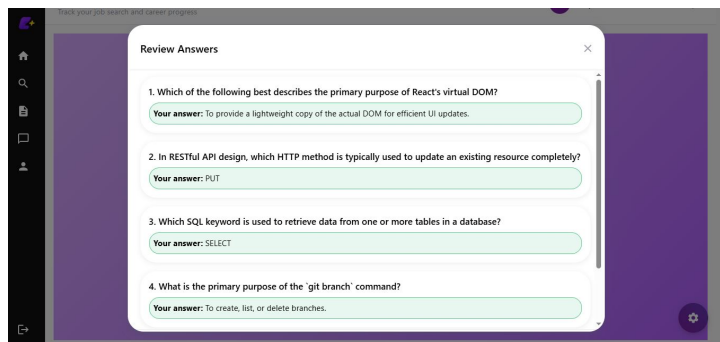
(4) Question 4



(5) Question 5



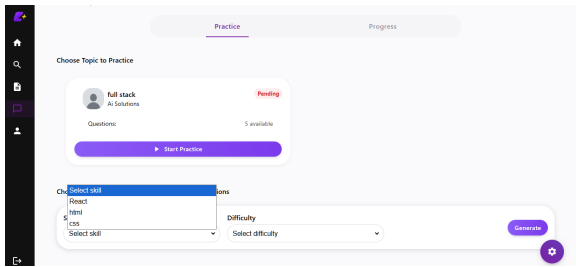
(6) Score



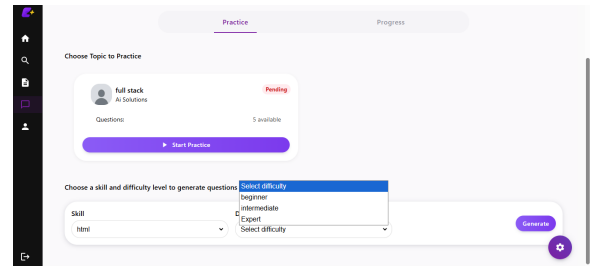
(7) Question Review

Figure 4.34: Application Questions

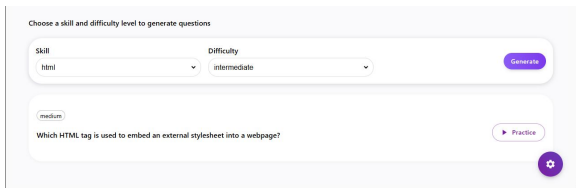
Second Part:



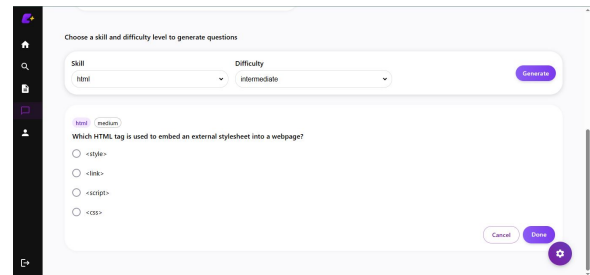
(1) Choose skill



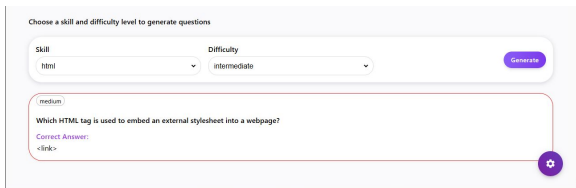
(2) Choose question level



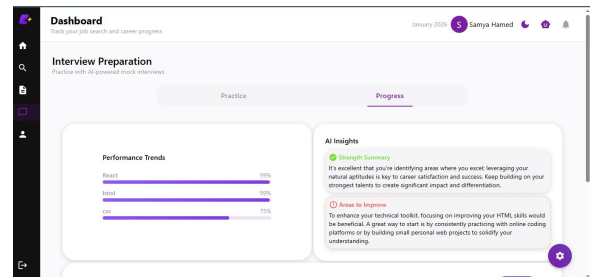
(3) Generate Question



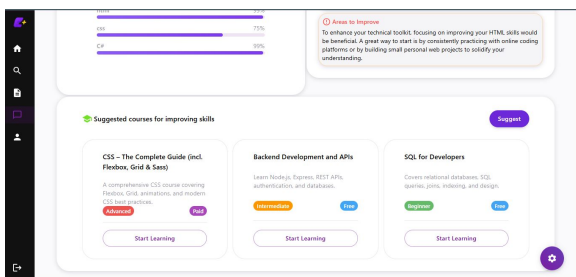
(4) The Question and Options



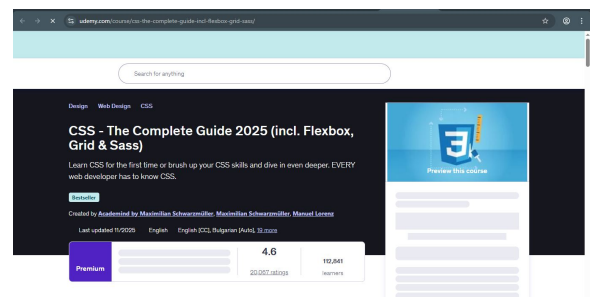
(5) Answer of the question



(6) Progress



(7) Courses suggestion

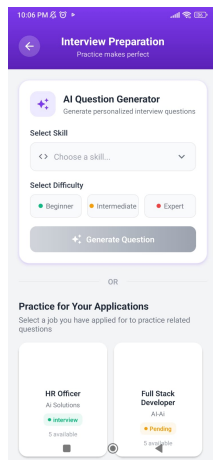


(8) Course

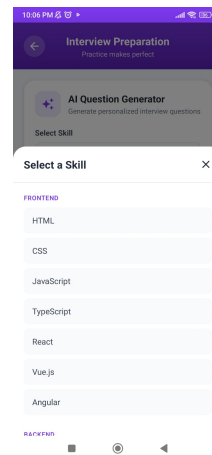
Figure 4.35: Skills Questions

Mobile:

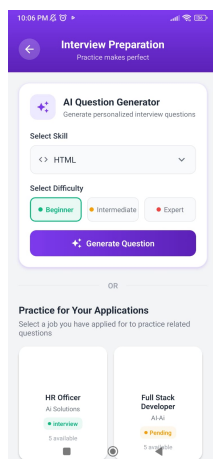
First Part:



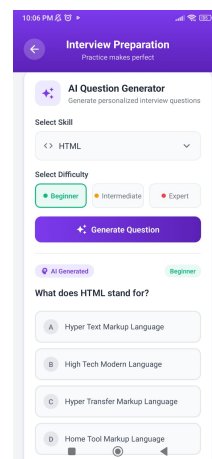
(a) Skills Question Part



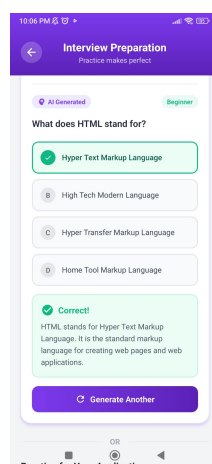
(b) Choose Skill



(c) Choose difficulty level



(d) Generate Question

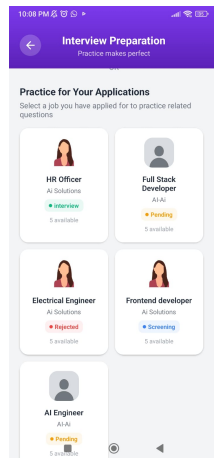


(e) Question Answer

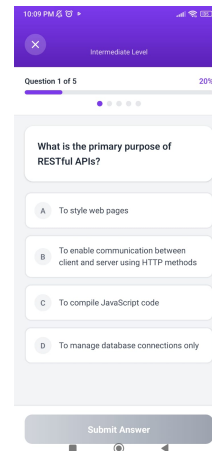
Figure 4.36: Interview Preparation - Skills Questions on Mobile

Second Part:

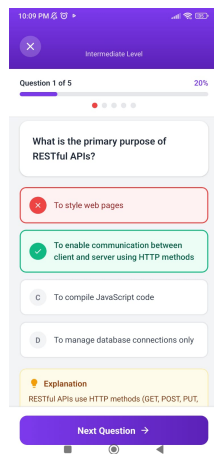
This section consists of five questions, similar to the web version, but two questions were presented to illustrate the process in the mobile application.



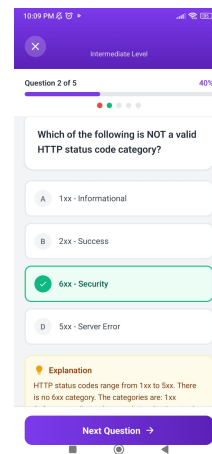
(a) Applications Apply



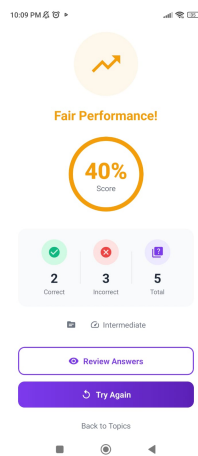
(b) Question 1



(c) Question Answer



(d) Question 2



(e) Score

Figure 4.37: Interview Preparation - Application Questions on Mobile

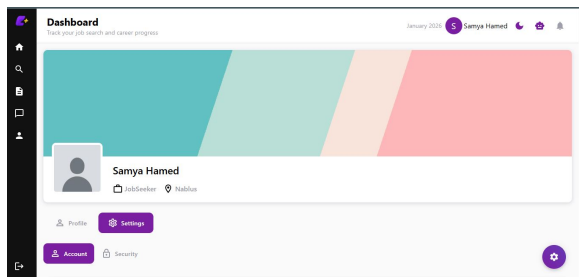
4.3.8 Profile Screen

The Profile page is divided into two main tabs designed to help job seekers manage their personal information and account settings efficiently.

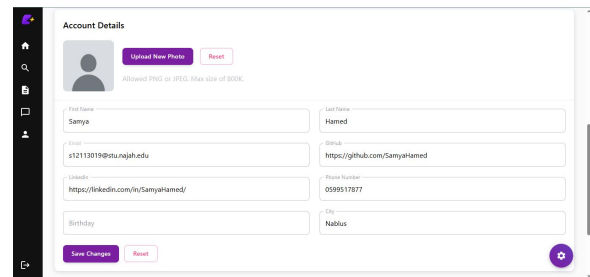
The first tab, Profile, displays the user’s skills and essential personal information, including education details, certifications, university name, and GPA in the case of students applying for training opportunities. Users have full control over this information, as they can add, edit, or delete any of the listed details at any time. Any information added or updated through the Profile tab is automatically reflected in the CV page, where it can also be edited or removed, ensuring consistency between the profile and the CV.

The second tab, Settings, allows users to manage their account preferences and security options. Through this tab, users can change their password or reset it in case it is forgotten. They can also update their personal information, change their profile picture, or reset it to the default image. Additionally, users have the option to deactivate their account. Once the account is deactivated, it remains recoverable for a period of 14 days. If the user logs in during this period, the account is reactivated normally; otherwise, the account is permanently deleted after the 14-day period.

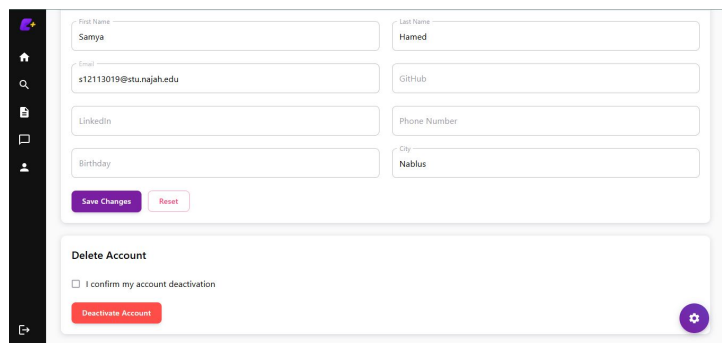
Website:



(a) Account

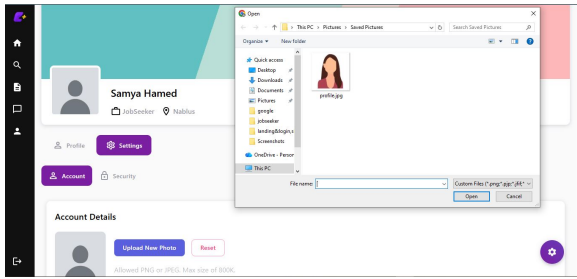


(b) Account Details

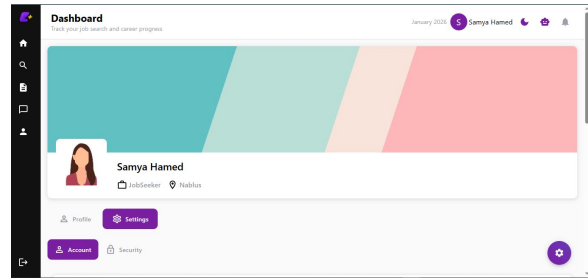


(c) Delete Account

Figure 4.38: Setting-Account



(a) Choose photo to change



(b) Result

Figure 4.39: Change Photo

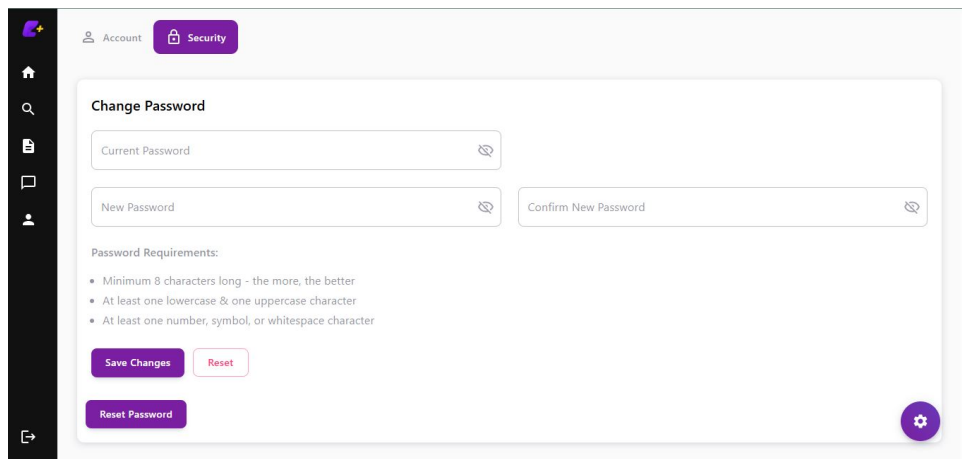
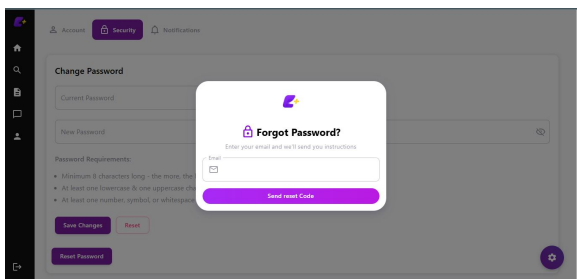
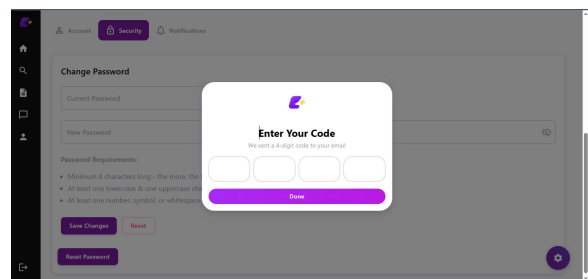


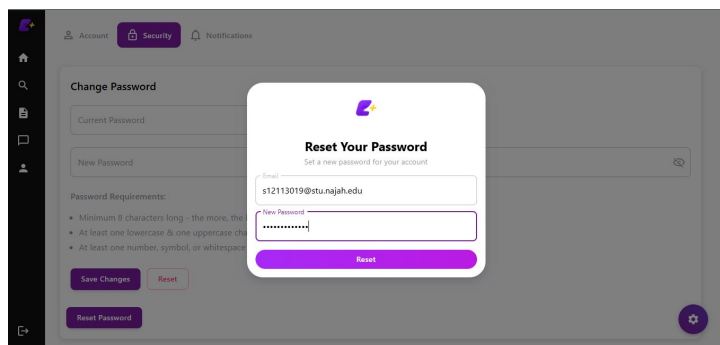
Figure 4.40: Setting-Security



(a) Write Email



(b) Code



(c) New password

Figure 4.41: Reset Password

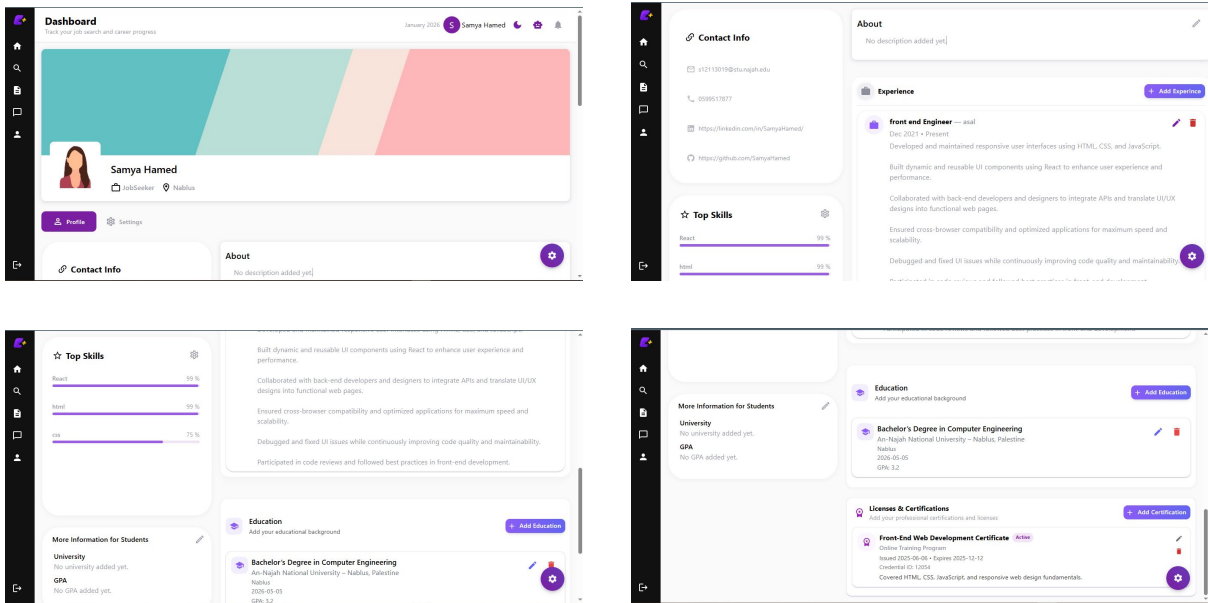


Figure 4.42: Profile Tab

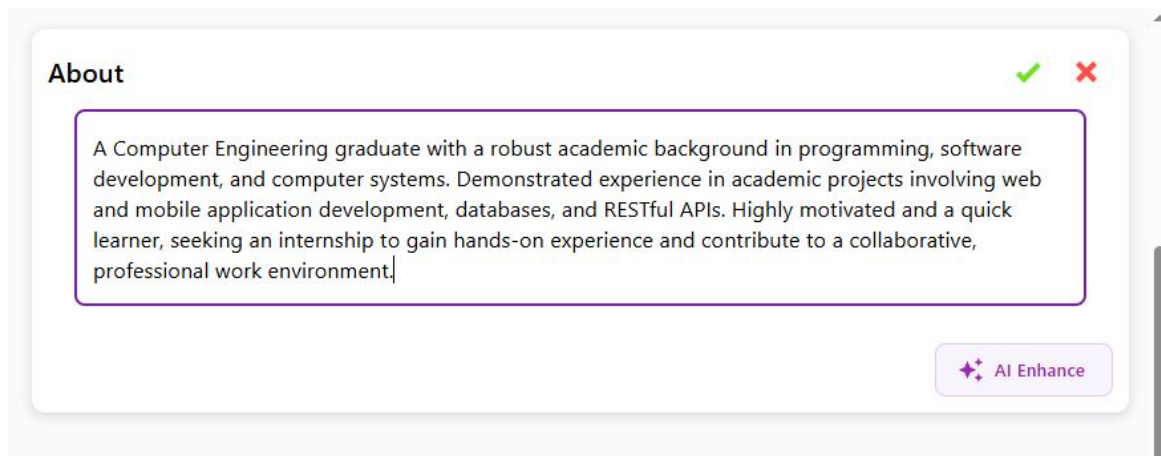


Figure 4.43: About Part

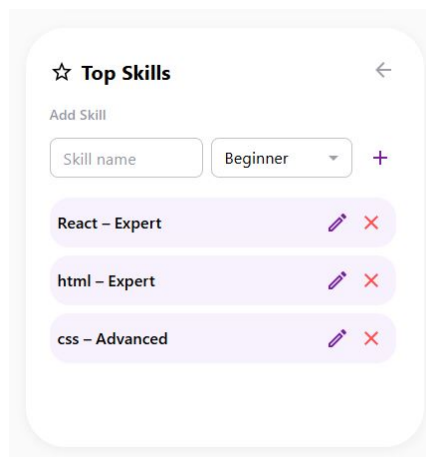


Figure 4.44: Skills Part

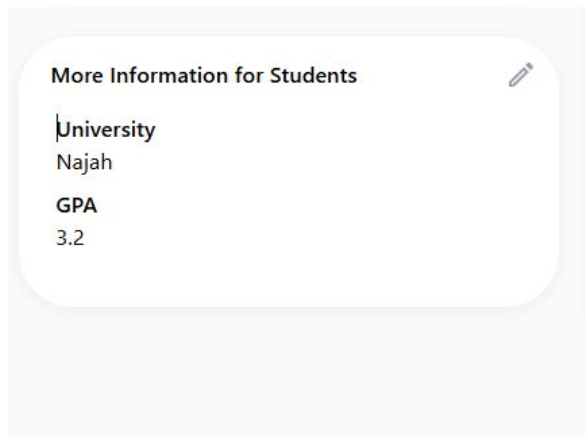
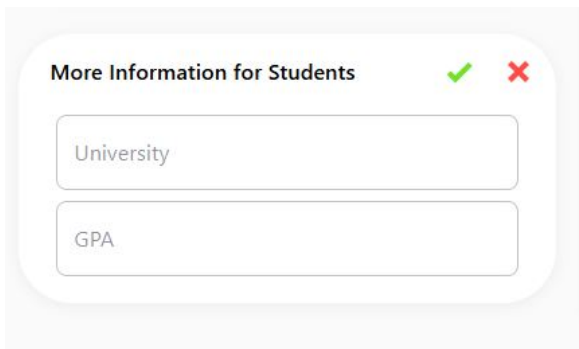


Figure 4.45: More Info

Mobile:

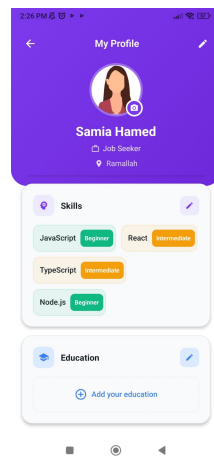
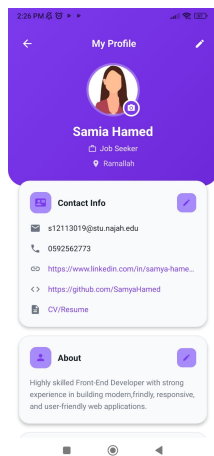


Figure 4.46: JobSeeker Profile on Mobile

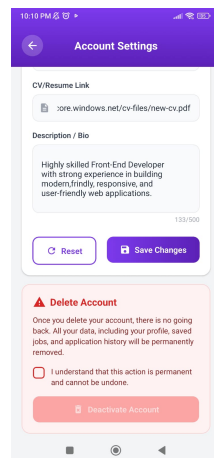
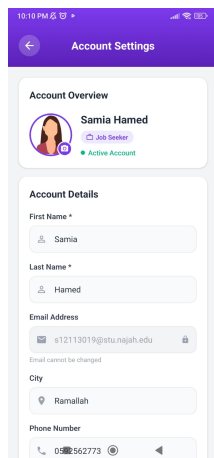


Figure 4.47: JobSeeker Profile Settings on Mobile

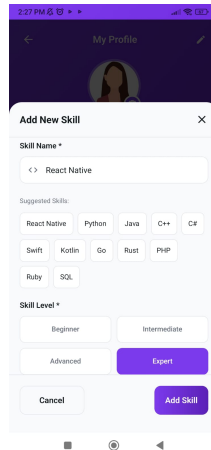


Figure 4.48: JobSeeker Profile- Add or Delete Skills

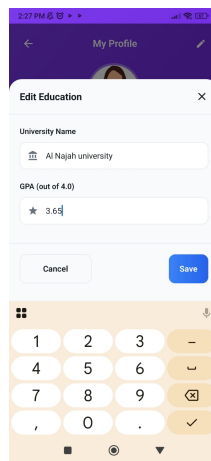


Figure 4.49: JobSeeker Profile- Add or Delete Education

4.4 Employer Screens

The employer pages provide companies with a smooth and efficient way to view and manage applications submitted for specific job or training opportunities. These pages allow employers to review applicants and track all received applications in a centralized and organized manner.

Artificial intelligence is integrated into the employer pages to support the classification of applications and to calculate the matching percentage between each applicant's profile and the requirements of the published job or training post. This enables companies to quickly assess how well each applicant aligns with the role requirements.

Through these pages, employers can also select a group of applications and allow the system to schedule interview dates and times accordingly. Additionally, companies can create job or training posts directly on the platform, ensuring that job posts, applications, and interview schedules are all managed within the same system. This unified approach enhances efficiency and provides a seamless recruitment experience for companies.

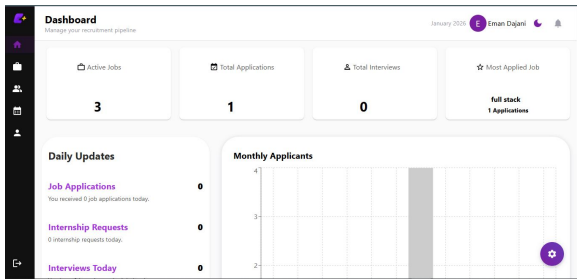
4.4.1 Dashboard

The employer dashboard displays a set of informative cards that present essential statistics, providing companies and HR personnel with a general overview of their recruitment status and the job or training opportunities published on the platform. These statistics offer quick insights into overall performance and activity levels.

The dashboard also includes a daily updates section that highlights recent activities, such as new job and training applications, scheduled interviews for the current day, and job or training posts published within the last seven days. This feature helps employers stay informed about ongoing recruitment processes.

In addition, the dashboard presents a graphical chart that illustrates the number of applications received per month throughout the year, serving as a visual representation of recruitment trends. A table displaying the most recent applications is also included, allowing employers to quickly review incoming requests. By selecting the “More” option, employers can navigate directly to the candidates page to view and manage all submitted applications.

Website:



(a) Cards



(b) Daily Updates and Monthly Applicants

The "Recent Application" table lists the following data:

CANDIDATE	POSITION	STATUS	APPLIED DATE	MATCH	EXPERIENCE
Samya Hamed ramallah	full stack Part-time	Pending	2026-01-14	13%	—

(c) Applications List

Figure 4.50: Dashboard Screens

Mobile:

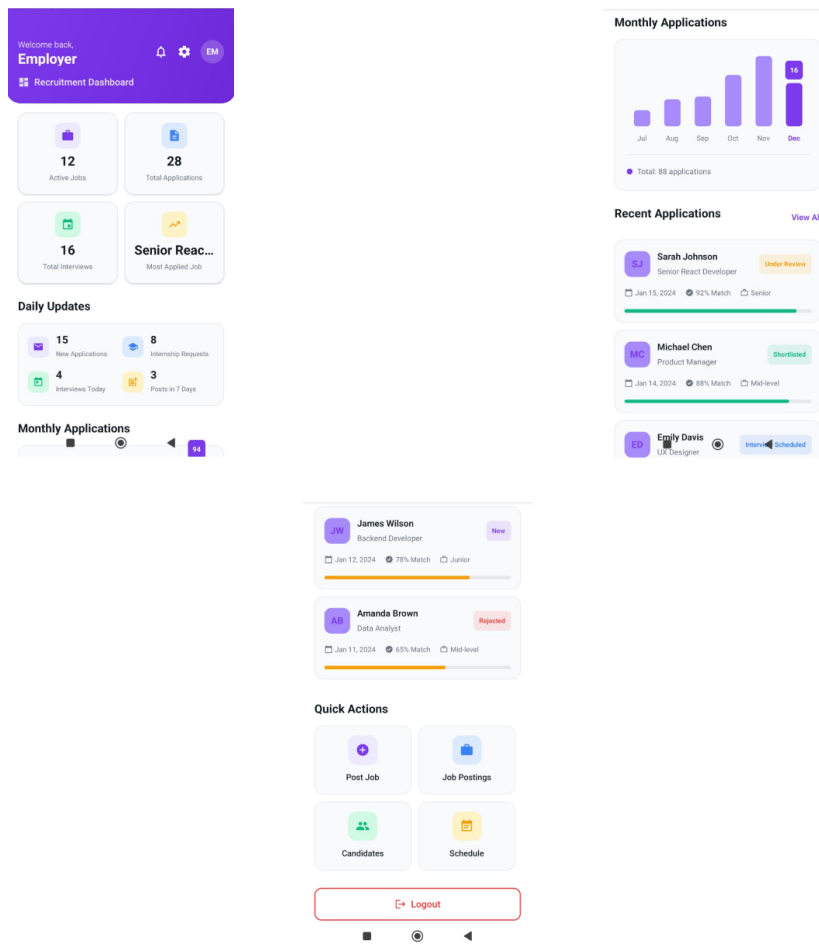


Figure 4.51: Employer Dashboard on Mobile

4.4.2 Notifications

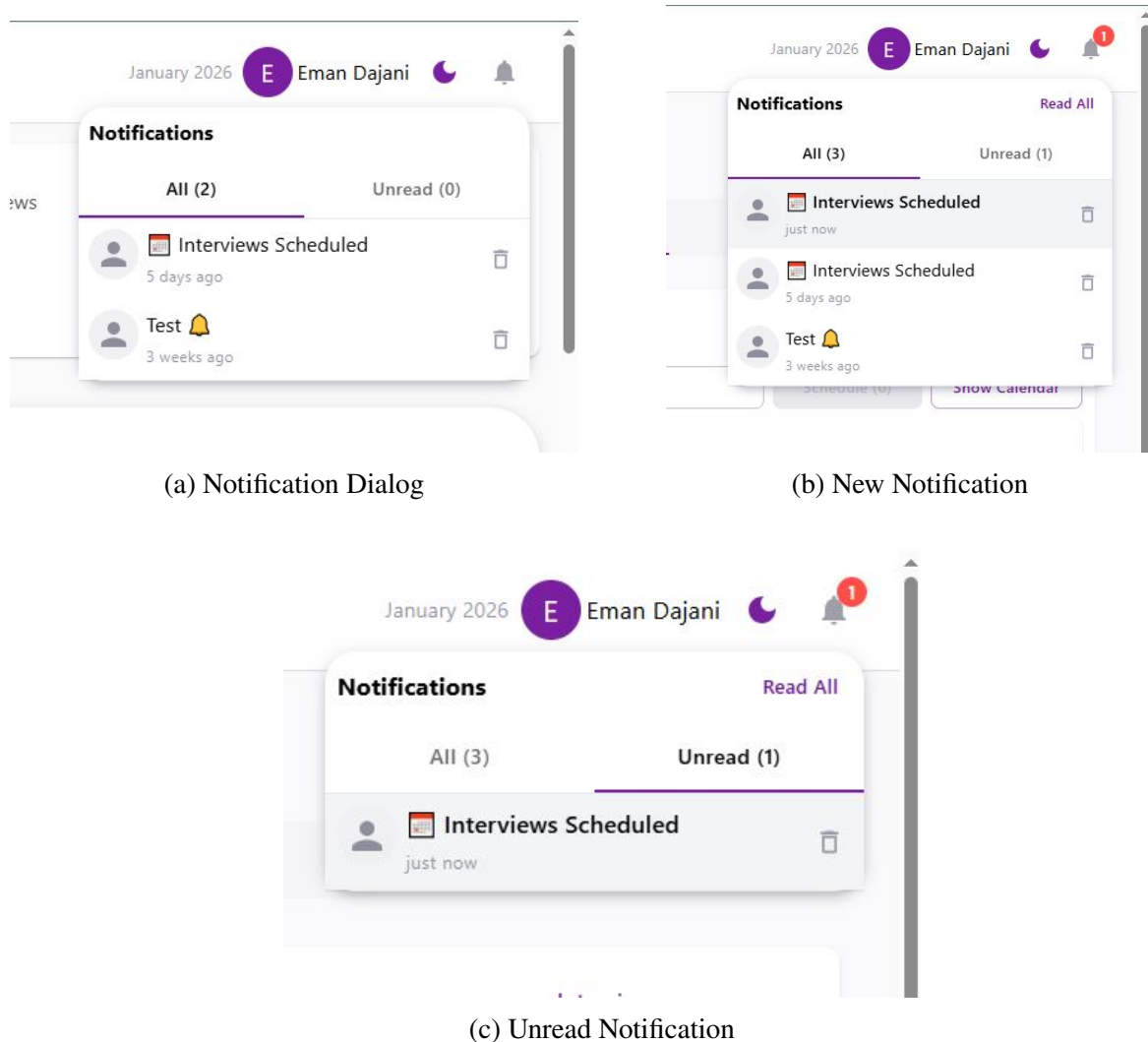


Figure 4.52: Notifications

4.4.3 Manage Posts Screens

The Manage page is used to control and manage job and training posts, allowing employers to add, edit, and delete posts through a centralized interface. All published posts are displayed on this page, and employers can search for a specific post to quickly locate it.

When selecting the edit option, a dialog window appears that allows employers to modify post details. However, the post type and publishing date are restricted and cannot be edited to preserve data consistency. Selecting the view option displays detailed information about the job or training opportunity in a more comprehensive format.

The top section of the page includes informational cards that present statistics such as the total number of published jobs and the number of active jobs. The status of a job post automatically changes from active to inactive when its expiration date is reached or when a

candidate has been accepted and all remaining applicants have been rejected.

Additionally, the page includes a dedicated button for adding new posts. During both the post creation and editing processes, AI-based enhancement features are available to assist in improving the quality and clarity of the job or training descriptions.

Website:

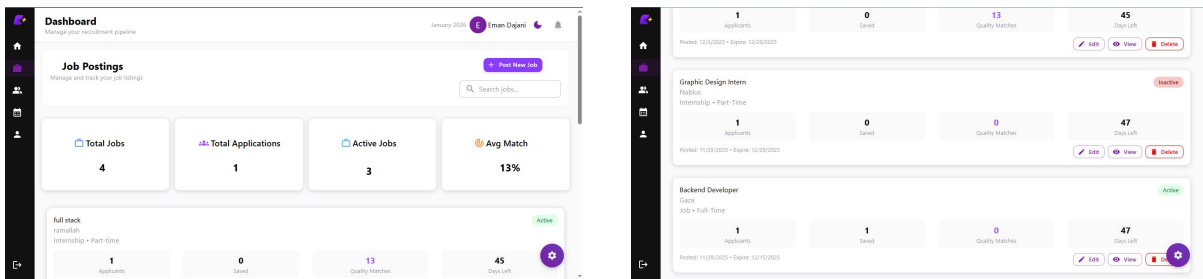


Figure 4.53: Manage Posts Screen

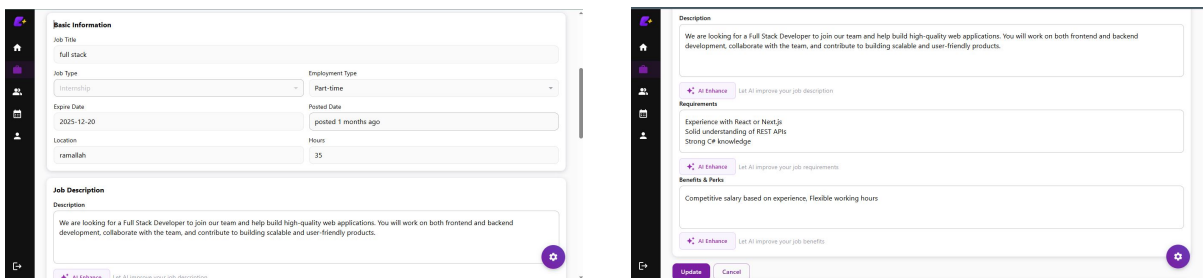


Figure 4.54: Edit Post

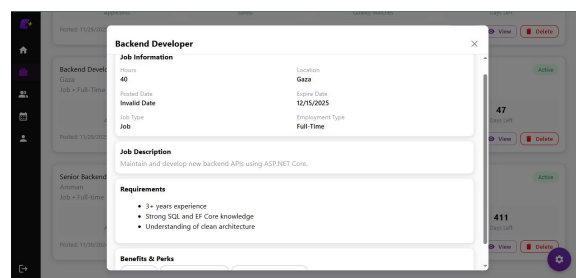


Figure 4.55: View Post

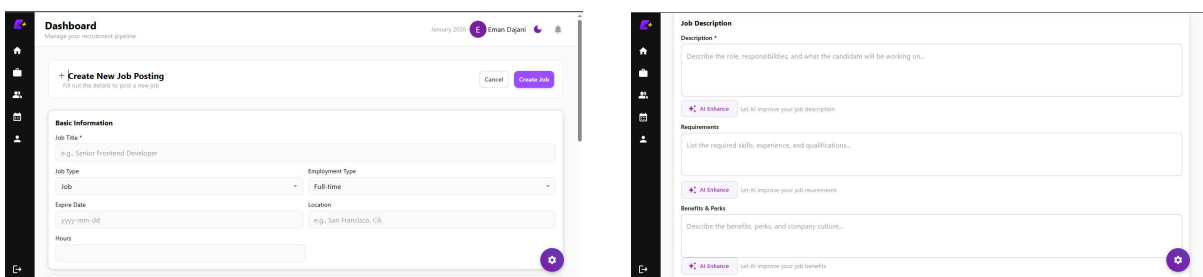


Figure 4.56: Create Post Screen

Mobile:

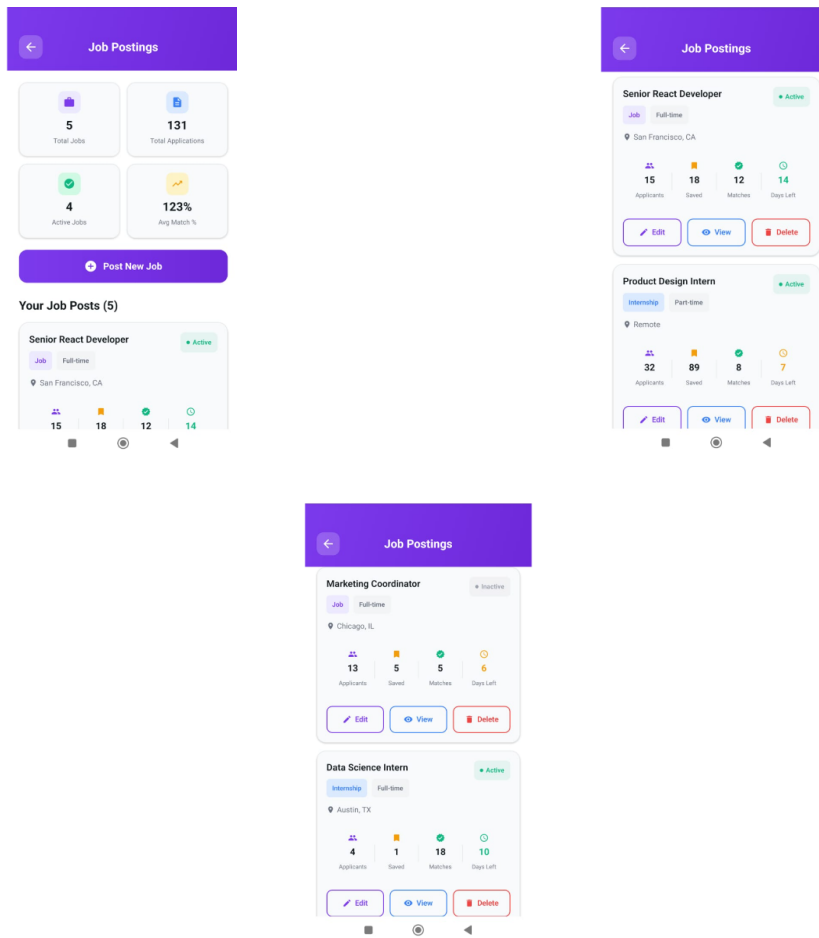
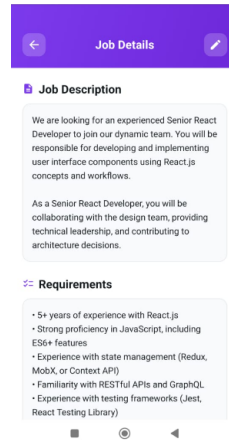
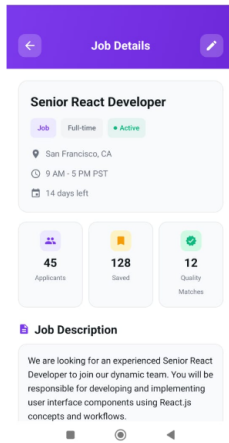


Figure 4.57: Manage Posts Screen on Mobile



Requirements

- 5+ years of experience with React.js
- Strong proficiency in JavaScript, including ES6+ features
- Experience with state management (Redux, MobX, or Context API)
- Familiarity with RESTful APIs and GraphQL
- Experience with testing frameworks (Jest, React Testing Library)
- Experience with testing frameworks (Jest, React Testing Library)

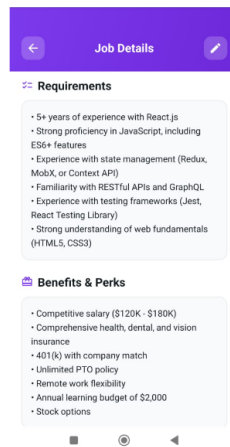


Figure 4.58: View Post on Mobile

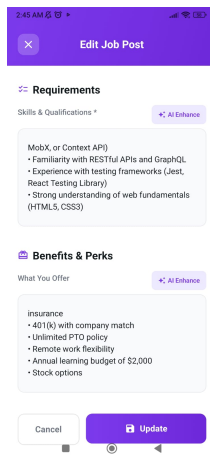
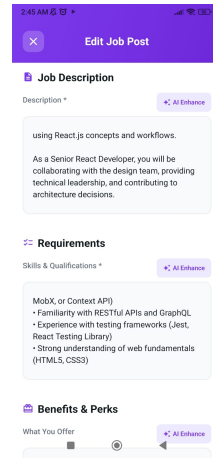
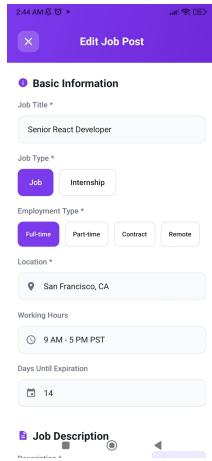


Figure 4.59: Edit Post on Mobile

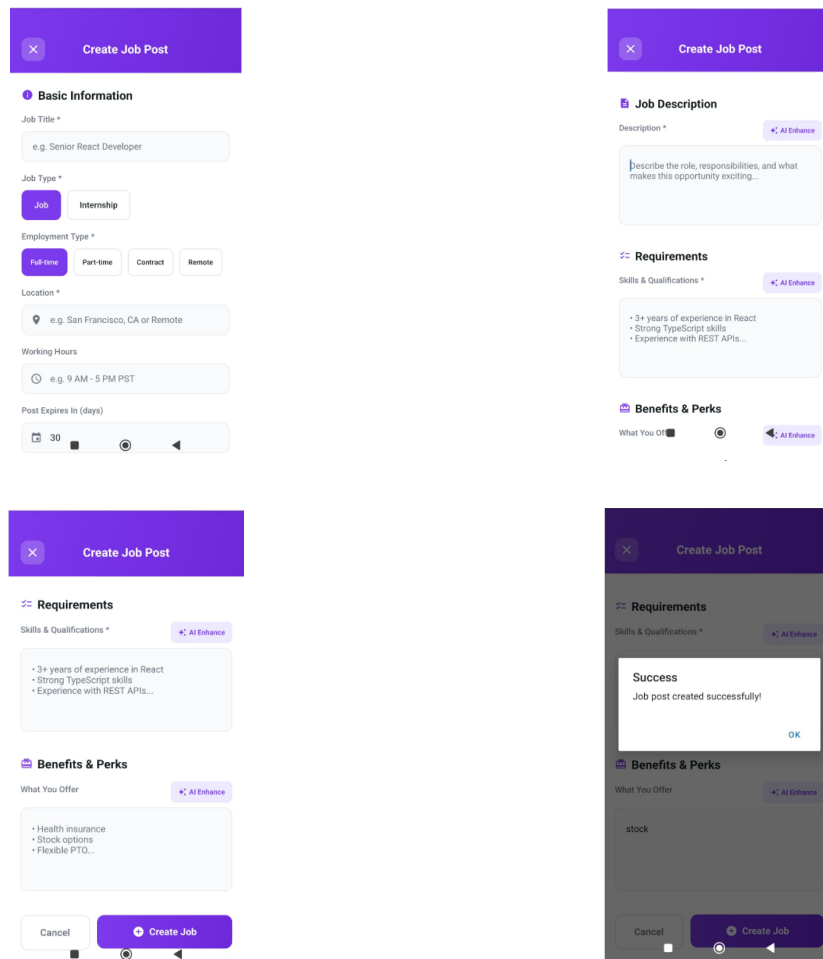


Figure 4.60: Create Post on Mobile

4.4.4 Candidate Screens

The Candidates page is divided into two main tabs: one for internships and another for job positions. On the left side of the interface, a list of position titles is displayed. When a specific position is selected, all applicants for that position are shown, sorted alphabetically. Employers can search through the applicants list and also have the option to reject all applicants at once using a dedicated reject button.

The second tab, Screening, presents applicants ranked based on the matching percentage between their CVs and the requirements of the selected post. A search feature is also available to help filter applicants efficiently. By clicking on the three-dot menu, employers can view a detailed screening breakdown for each applicant, showing how the matching score was calculated across different criteria.

The screening criteria differ between job and internship applications. For job positions, the evaluation focuses on years of experience and skills, while for internships, the university GPA is considered. The matching process also includes additional factors such as location and other relevant details.

The third tab, Interview, displays applicants sorted by their matching percentage. Em-

employers can select multiple candidates and schedule interviews simultaneously. After selecting candidates and clicking the schedule option, a dialog appears where employers can specify the interview date range, available time slots, interview duration, and add notes. Notes can be written manually or generated using AI assistance.

Once the scheduling process is completed, notifications are automatically sent to both the employer and the job seeker through the platform, as well as via email. Employers can also navigate to the calendar view to see more detailed information about scheduled interviews.

Website:

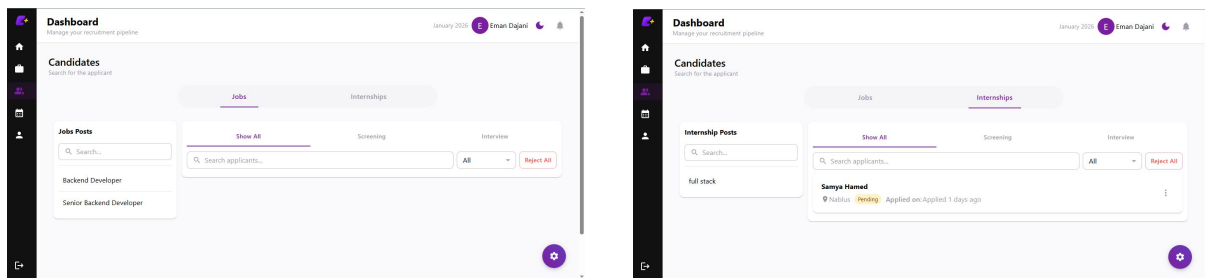
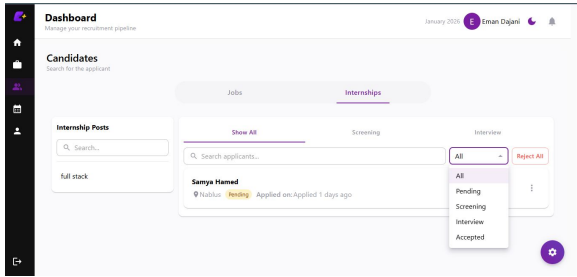
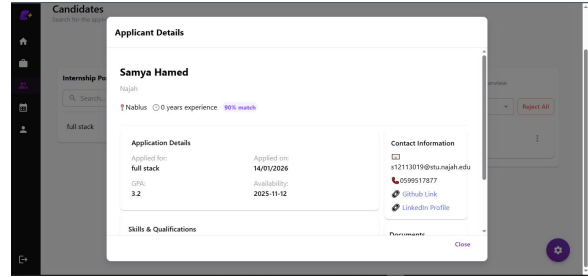


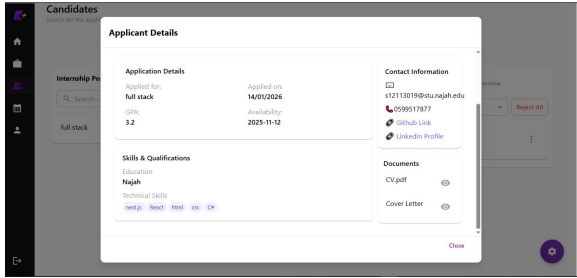
Figure 4.61: Candidate Screen



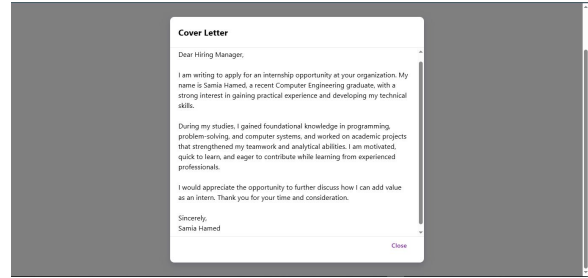
(1) Filter by status



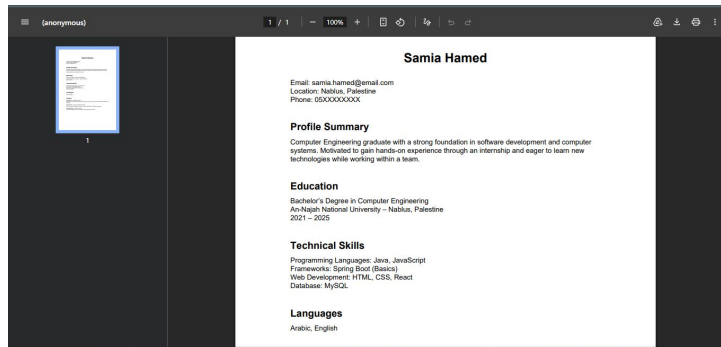
(2) Applicant Details



(3) Applicant Details

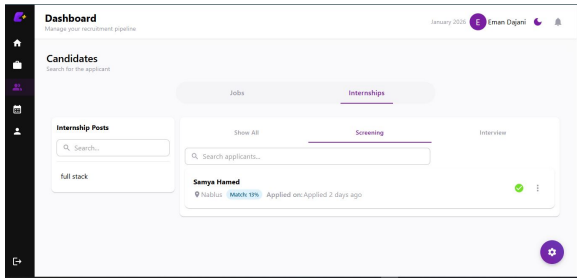


(4) Cover Letter

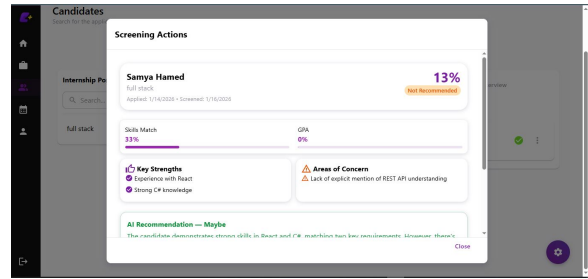


(5) CV

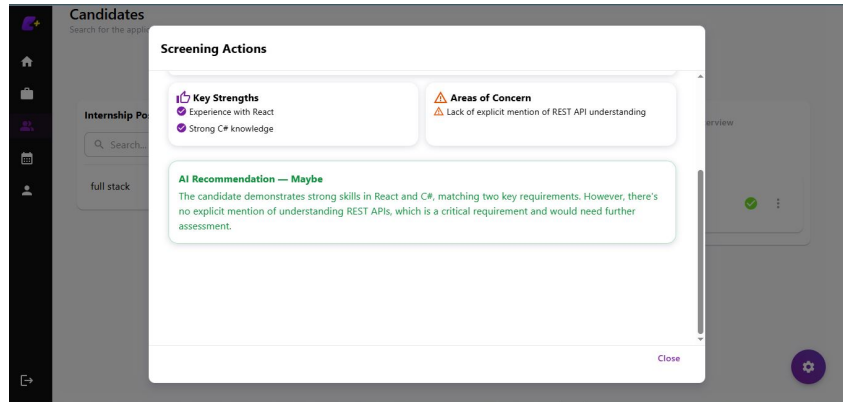
Figure 4.62: Show All Tab



(a) Sorted Applicants by match

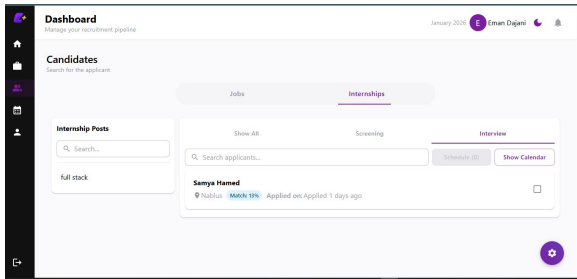


(b) Applicant screening(1)

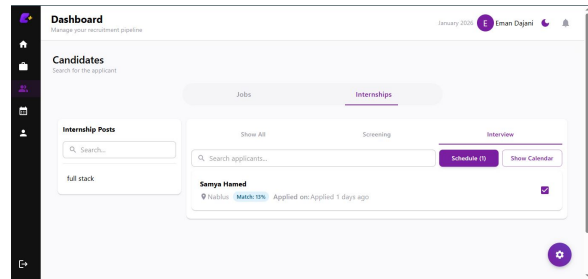


(c) Applicant screening(2)

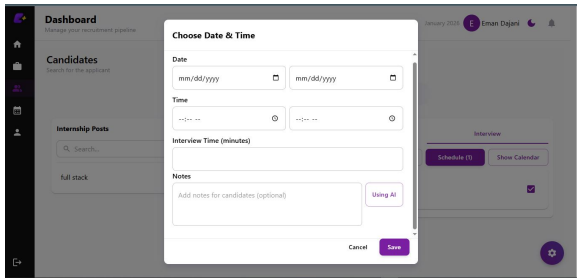
Figure 4.63: Screening Tab



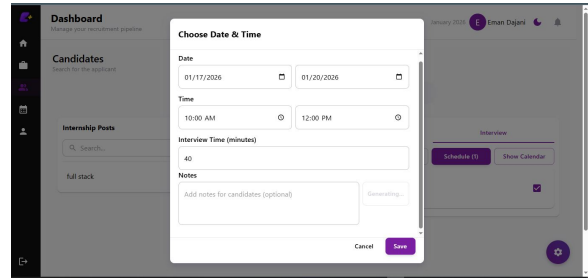
(1) Sort applicants by match



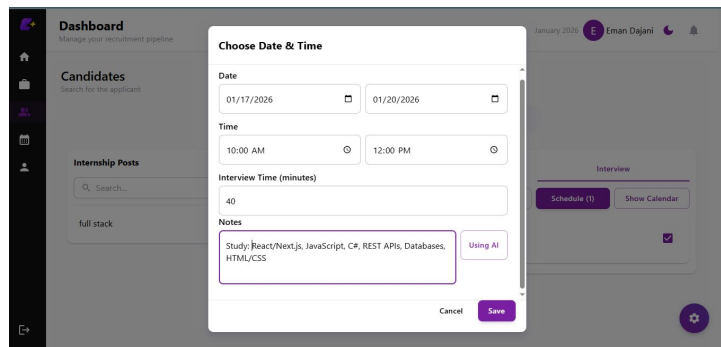
(2) Select applicants



(3) Choose Date and Time for schedule



(4) Fill data



(5) Using AI to generate note

Figure 4.64: Schedule Tab

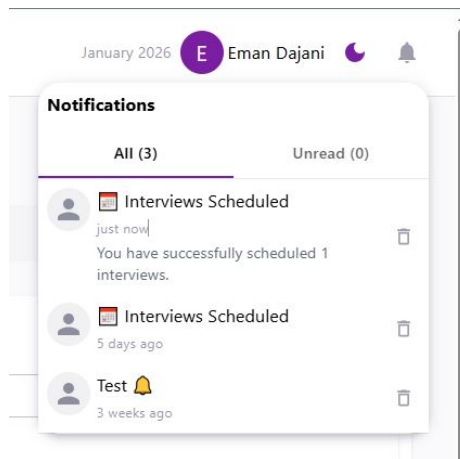
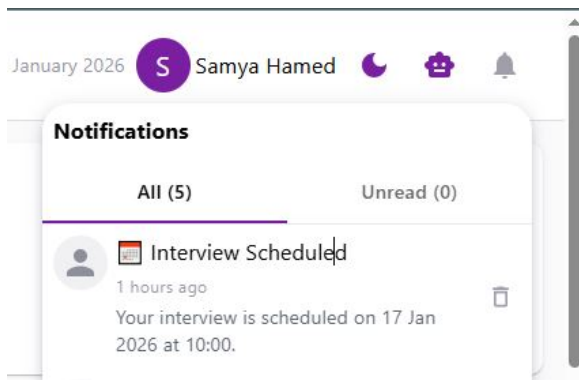
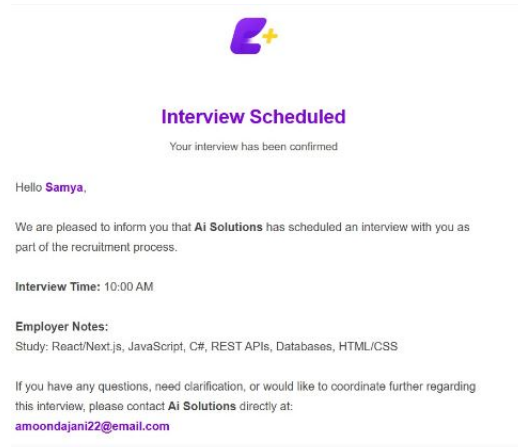


Figure 4.65: Employer notification



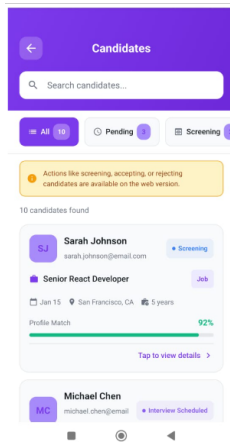
(1) notification at profile



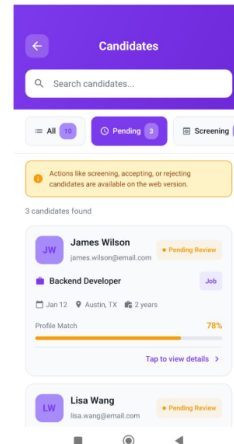
(2) Send to email

Figure 4.66: Job-Seeker notification

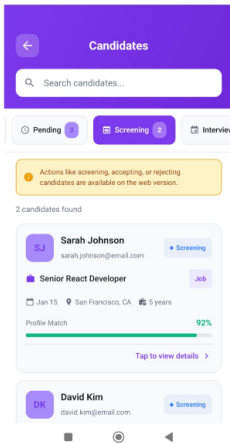
Mobile:



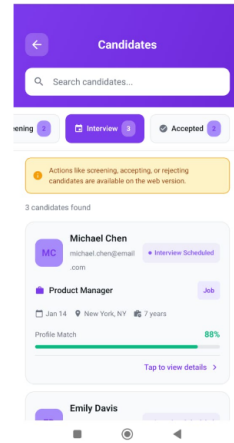
(a) All Candidates



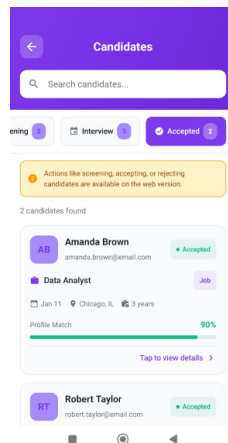
(b) Pending Candidates



(c) Screening Candidates



(d) Interview Candidates



(e) Accepted Candidates

Figure 4.67: Candidate Screens on Mobile

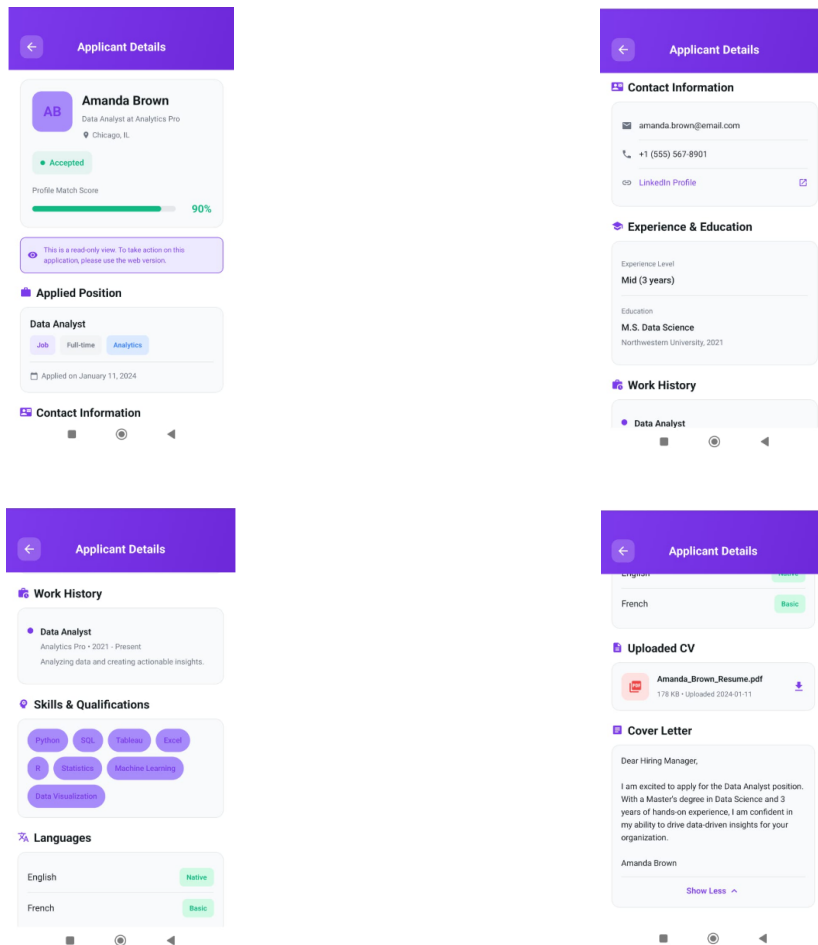


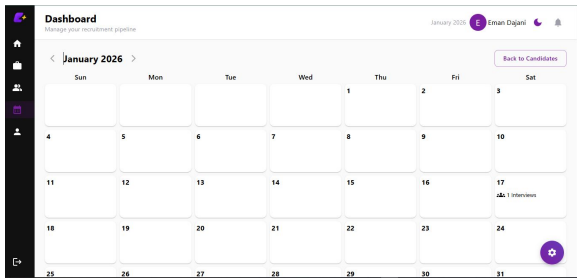
Figure 4.68: Application Details on Mobile

4.4.5 Calender Screen

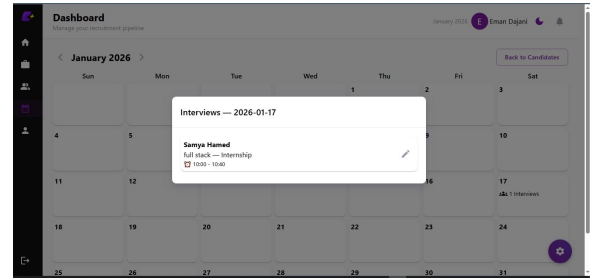
This page includes a calendar-based interface that provides a clear overview of scheduled interviews. The calendar displays the current day, date, and month, along with the number of candidates scheduled for interviews on each day. When an employer clicks on a specific date, a detailed list of the candidates scheduled for that day is shown, including their basic information.

The interface also allows employers to modify interview details through a dedicated edit icon, enabling easy rescheduling or updating of interview times when needed. This calendar view helps companies manage interviews efficiently and stay organized throughout the recruitment process.

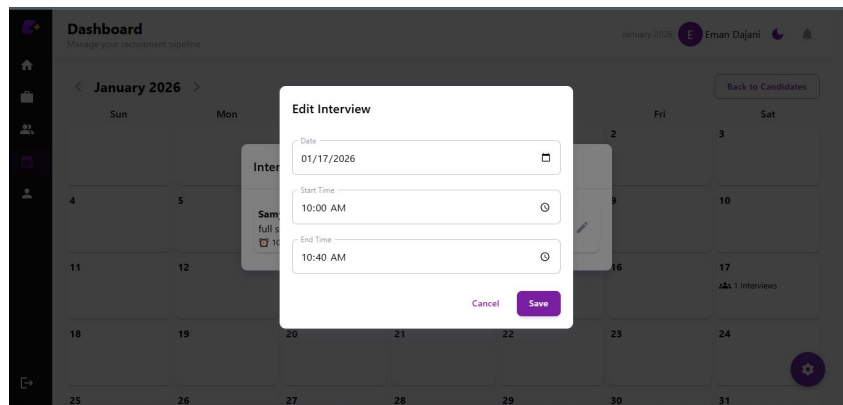
Website:



(a) Calendar View



(b) Show interviews



(c) Edit schedule

Figure 4.69: Calendar Screen

Mobile:

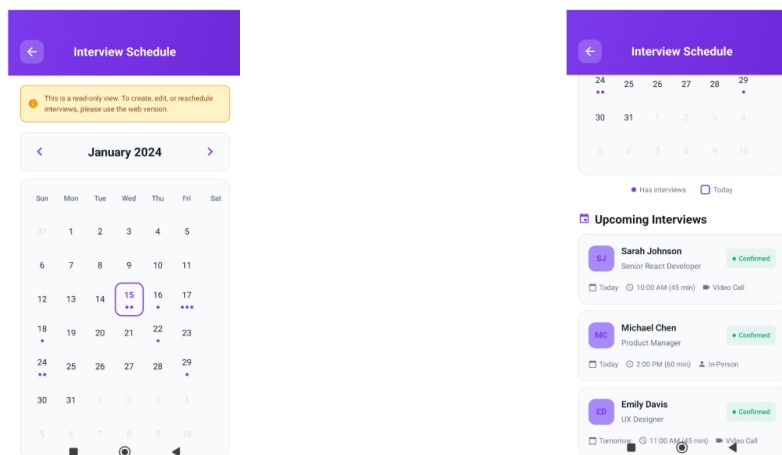


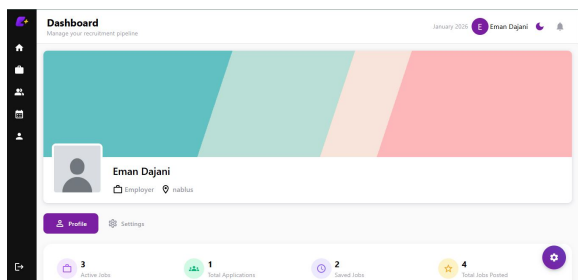
Figure 4.70: Calendar on Mobile

4.4.6 Profile Screens

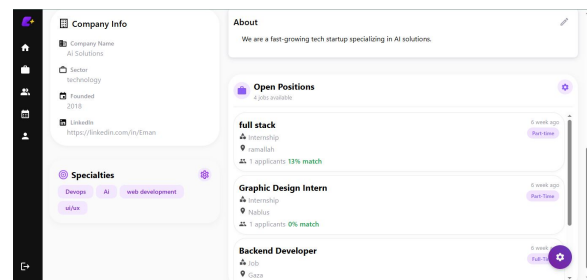
The employer profile page is divided into two main tabs: **Profile** and **Settings**.

The **Profile** tab displays comprehensive information about the company, including published job and internship posts, highlighted company features, general company details, and an “About” section. This tab also includes a set of informational cards that provide key insights about the company. Employers have full control over all displayed content, allowing them to add, edit, or delete job posts, update company features, and modify or manage the “About” section as needed.

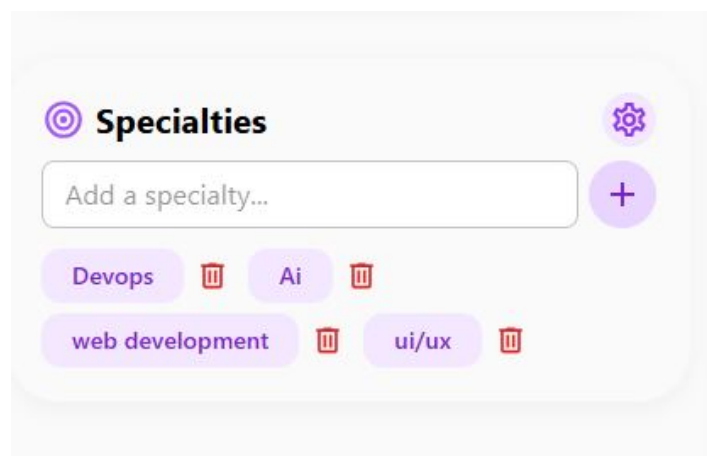
Website:



(a) Cards and photo



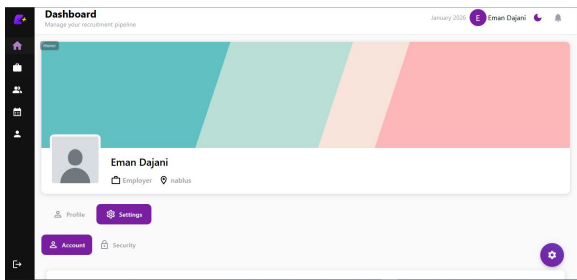
(b) Profile details



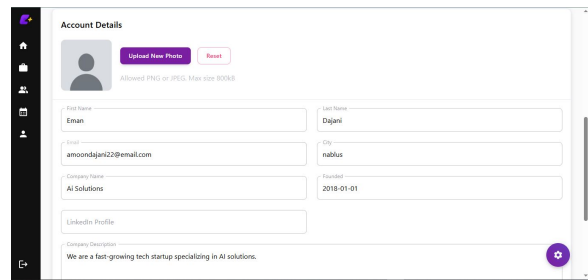
(c) Specialties control

Figure 4.71: Profile Tab

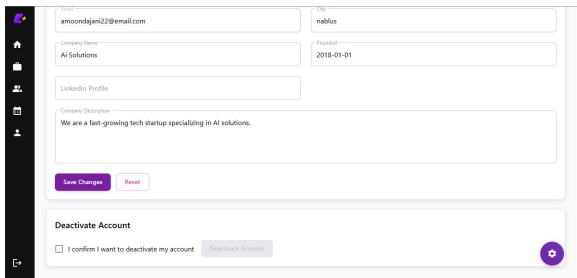
The **Settings** tab is divided into **Account** and **Security** sections. In the **Account** section, employers can view and update their company information, manage which details are visible on the public profile, add or modify company details, and upload or change the company profile image. This section also provides the option to deactivate the company account.



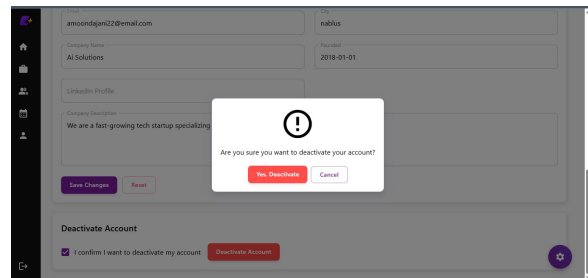
(a) Photo and Name



(b) Account Details(1)



(c) Account Details(2)



(d) Account Deactivate

Figure 4.72: Setting Account Tab

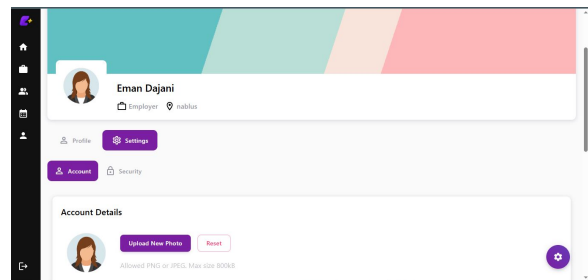
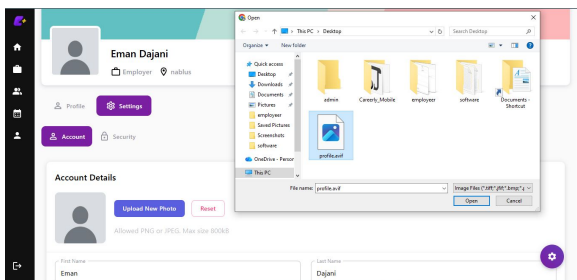


Figure 4.73: Change photo

The **Security** section allows employers to change their account password or recover it if forgotten, following the same secure steps implemented for the job seeker profile.

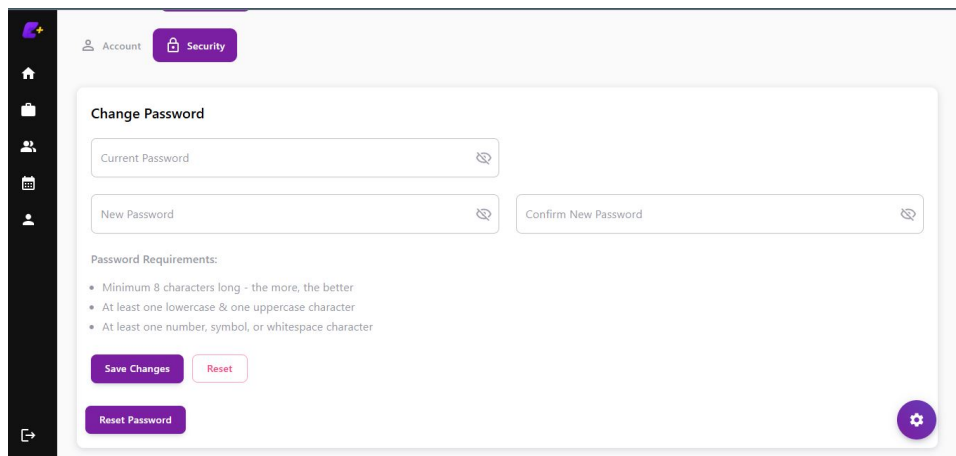


Figure 4.74: Security Tab

Mobile:

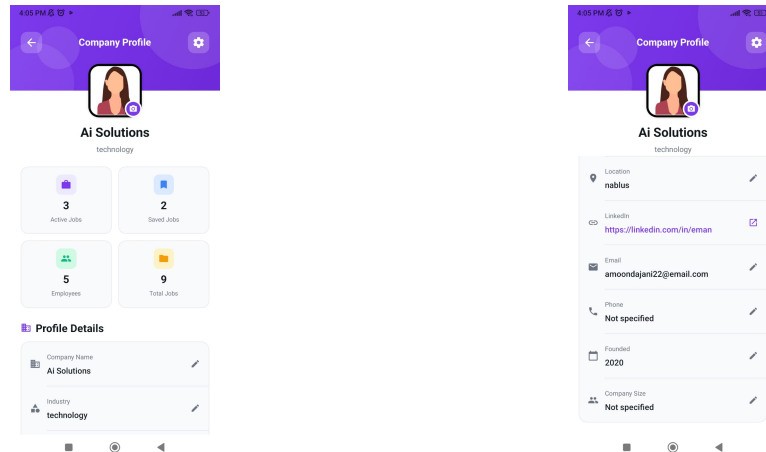


Figure 4.75: Employer Profile on Mobile

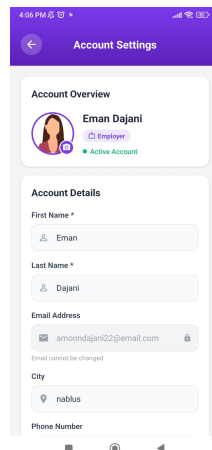


Figure 4.76: Employer Profile- Settings on Mobile

4.5 Admin Screens

4.5.1 Dashboard

The Admin Dashboard is designed to provide a comprehensive overview of the entire platform through a set of general statistics and visual insights. It contains a collection of cards that display essential information such as the total number of users, job seekers, employers, job and internship posts, and submitted applications. These statistics help the admin quickly understand the overall status and activity level of the platform.

In addition, the dashboard includes graphical representations that illustrate the distribution ratios between job seekers and employers, as well as the number of newly created accounts per month. These charts support better monitoring of growth trends and user engagement over time.

The dashboard also features a table displaying the most recent users registered on the platform, enabling the admin to track new activity easily.

Overall, the main purpose of the admin dashboard is to provide high-level, centralized insights into the platform's performance and usage, allowing the admin to monitor the system efficiently and make informed administrative decisions.

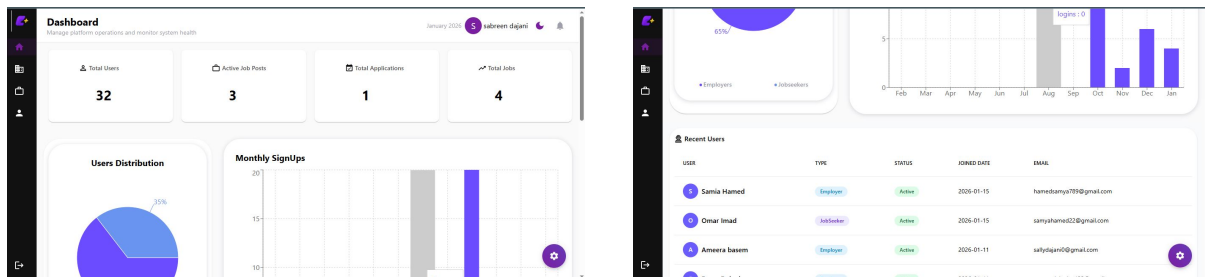


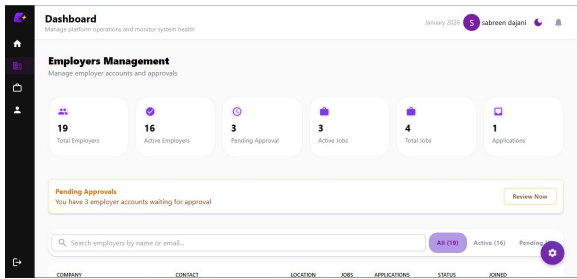
Figure 4.77: Admin Dashboard

4.5.2 Employer Management

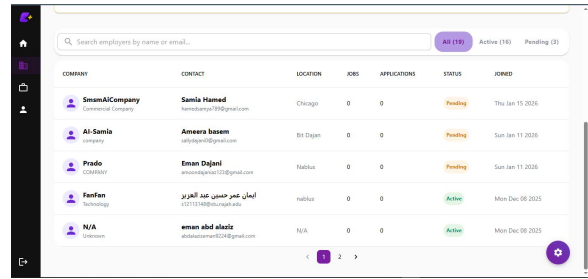
The Employer Management page is designed to help the admin efficiently monitor and manage employer accounts. This page includes a set of statistic cards that provide insights related specifically to employers, such as the total number of employer accounts and their current statuses.

Additionally, the page features a table organized into three tabs with an integrated search functionality:

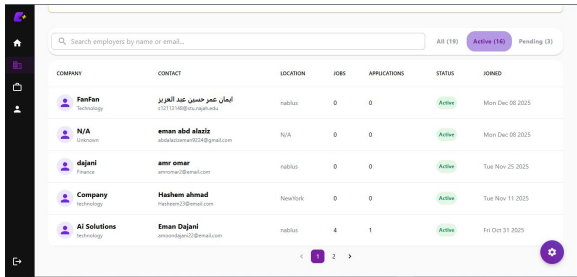
- **All Employers**, which displays all registered employer accounts.
- **Active Employers**, which shows only approved and active accounts.
- **Pending Employers**, which lists employer accounts awaiting review and approval.



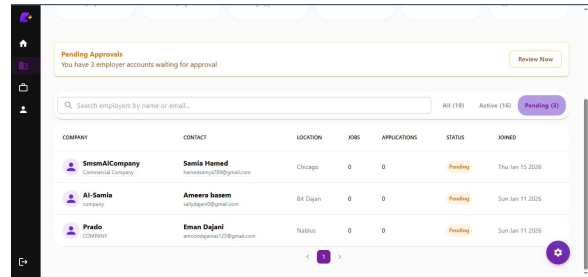
(a) Cards



(b) All Employers



(c) Active Employers

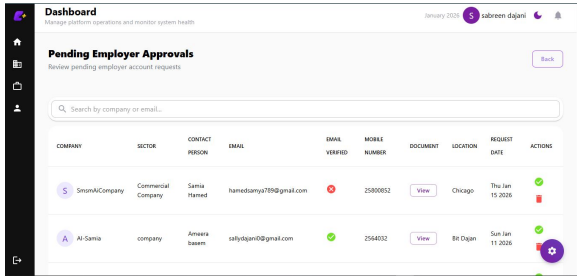


(d) Pending Employers

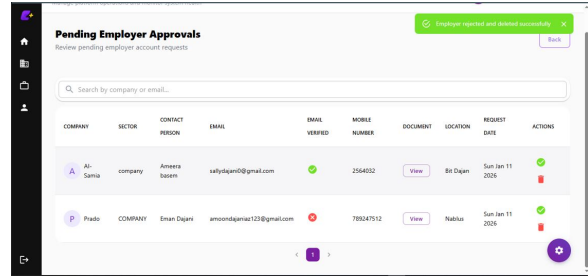
Figure 4.78: Employer Management

A **Review Now** button is available to allow the admin to quickly access pending employer accounts. Upon selecting this option, the admin is redirected to a detailed review page where full employer account information and uploaded verification documents are displayed. Based on this review, the admin can either approve or reject the employer account.

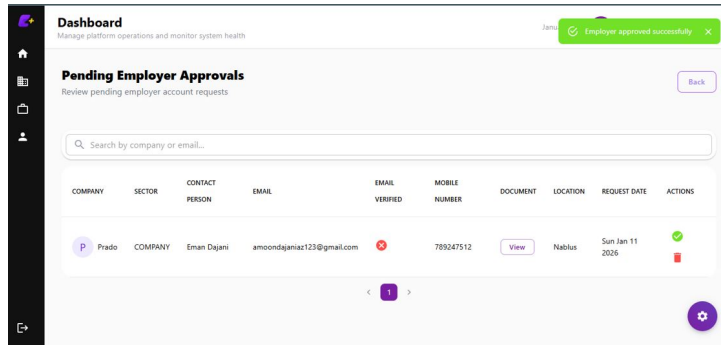
Once a decision is made, an automated email notification is sent to the employer to inform them of the approval or rejection status. This process ensures platform credibility, transparency, and trustworthiness by verifying employer accounts before activation.



(1) Pending Employer Approval Page

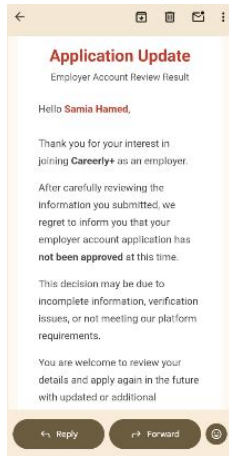


(2) Reject and Delete Employer

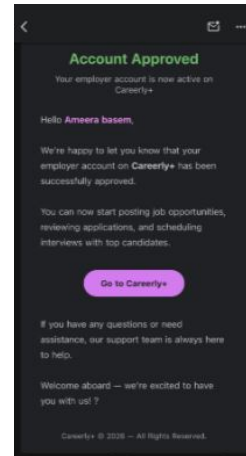


(3) Approve Employer

Figure 4.79: Pending Employers



Rejected Email



Approve Email

Figure 4.80: Emails Approve or Reject Employer

4.5.3 Job-seeker Management

The Job Seeker Management page allows the admin to view and manage information related to job seekers on the platform. This page includes a set of statistic cards that provide an overview of job seeker activity, such as the total number of job seekers, the number of submitted applications, and the number of saved jobs across the platform.

In addition, the page features a table that displays all registered job seekers along with their basic information. This table enables the admin to easily monitor job seeker accounts and track overall user activity within the system.

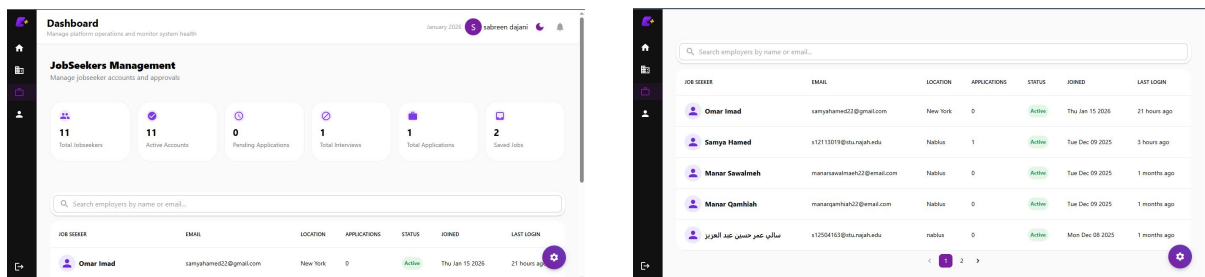


Figure 4.81: Job-Seeker Management

4.5.4 Profile

The Admin Profile page is designed to be simple and restricted, as it is not accessible to regular users and contains sensitive information. Only authorized admin users can access this page and view its content.

Through the profile page, the admin can securely change their account password and monitor accounts that have been deactivated on the platform. This design ensures privacy, security, and controlled access to critical administrative functionalities.

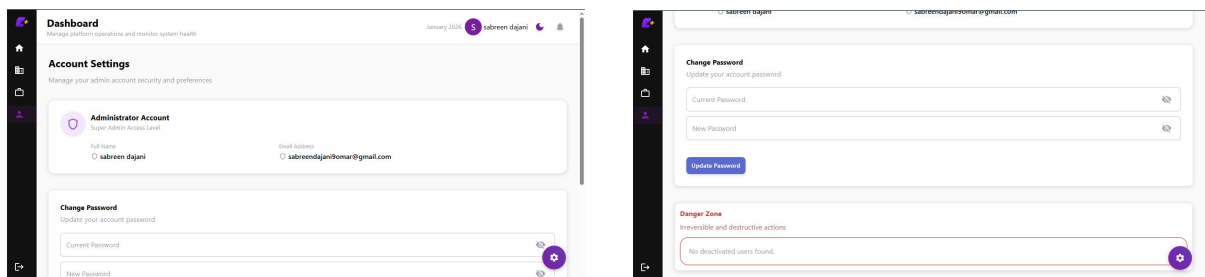


Figure 4.82: Admin Profile

Chapter 5: Results and Discussion

Careerly Plus was developed to provide a centralized and intelligent platform that connects job seekers and employers, simplifying the processes of job searching, training applications, and recruitment management. Prototype testing and simulated data scenarios showed that the platform effectively streamlines the job application process by enabling job seekers to create and manage their CVs, search and filter job and internship opportunities, and apply directly through the system. The AI-based matching mechanism demonstrated its ability to rank opportunities according to skill compatibility, location proximity, and, in the case of internships, academic performance, which helped job seekers focus on the most relevant opportunities.

From the employer perspective, testing results indicated that the platform significantly improves recruitment efficiency. Employers were able to manage job and internship posts, review applications, and monitor candidate match percentages generated through AI-based screening. The interview scheduling feature proved effective in organizing interview timelines, as automated notifications and email alerts ensured timely communication with job seekers. The integration of dashboards with statistical insights also helped employers gain a clearer understanding of application trends and recruitment activity.

The AI-powered assessment and practice features provided job seekers with personalized skill evaluations. Practice sessions generated by AI varied dynamically based on selected skills and levels, and the feedback highlighted strengths and weaknesses while suggesting areas for improvement. These features encouraged continuous skill development and better preparation for interviews. Additionally, real-time notifications within the platform and via email enhanced user engagement by keeping both job seekers and employers informed about application status changes, interview schedules, and account-related updates.

Although Careerly Plus has not yet been deployed in a live production environment, the initial testing results indicate strong potential to enhance transparency, efficiency, and fairness in the recruitment process. However, several challenges remain before full deployment, including validating system performance under real-world user loads, ensuring data security and privacy, and continuously monitoring AI-based matching to reduce bias. Addressing these challenges will be essential to maintaining user trust and platform reliability. Future enhancements may focus on improving AI-driven recommendations, expanding analytics capabilities for employers and admins, and refining the user experience to support long-term scalability and platform growth.

Chapter 6: Conclusion

Careerly Plus highlights how well-designed digital platforms can play a significant role in improving the recruitment and job search experience. By focusing on simplifying core processes such as job and internship discovery, application management, CV creation, and interview scheduling, the project addresses the real needs of both job seekers and employers. One key takeaway from this work is that while advanced technical features—such as AI-based matching and skill assessment—are essential, the true success of the platform depends on how effectively it supports users in real-world recruitment scenarios. Listening to user feedback, ensuring clarity of workflows, and continuously adapting the system to evolving employment market needs are crucial for long-term impact.

6.1 Recommendations:

To maximize its effectiveness, Careerly Plus should be tested in collaboration with real companies and job seekers to evaluate its performance in practical hiring environments. This would help identify usability improvements and validate the reliability of AI-driven features. Ensuring compliance with data privacy and employment regulations will be important as the platform scales. Finally, ongoing efforts to enhance usability, accessibility, and system performance will help ensure that Careerly Plus remains inclusive, trustworthy, and capable of supporting a wide range of users with different backgrounds and skill levels.

GitHub

- <https://github.com/Eman-abd-alaziz>
- <https://github.com/SamyaHamed>

References

- [1] “Role of artificial intelligence in employee recruitment: systematic review and future research directions,” *Discover Global Society**, vol. 3, Art. 99, 2025, doi:10.1007/s44282-025-00246-w. :contentReference[oaicite:0]index=0
- [2] A. Bhattacharya and K. Verbert, “Let’s Get You Hired: A Job Seeker’s Perspective on Multi-Agent Recruitment Systems for Explaining Hiring Decisions,” *arXiv**, May 2025. :contentReference[oaicite:1]index=1
- [3] “AI-driven semantic similarity-based job matching framework for recruitment systems,” *Information Sciences**, vol. 724, 2026. :contentReference[oaicite:2]index=2
- [4] X. Liang and L. Yu, “A Study of Artificial Intelligence on Recruiting Fairness: A Job Seeker Perception Perspective,” in *Proceedings of the 5th Int’l Conf. on Management Science and Software Engineering (ICMSSE 2025)**, 2025. :contentReference[oaicite:3]index=3