${\sf JobReady_Etienne\ Ghanem_Hasan\ Jawish_Marilyn\ Haber}$

JobReady

Fina Report

Section: French

Etienne Ghanem – 58787 Hasan Jawish – 57644 Marilyn Haber – 58171

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1- Introduction

"JobReady" is a professional networking and job search platform designed to assist university students in launching their careers, while also providing companies with the chance to expand their talent pool and streamline the hiring process. It is an innovative app that is built on .NET technologies as part of our final year project.

"JobReady" allows students to create comprehensive profiles that highlight their educational background, work experience, skills, and interests. It lets them connect with other students, professors, and professionals, along with sharing their profiles with companies when applying to job posts. The app allows users to track the number of job applications they have submitted, providing recruiters with comprehensive information to evaluate candidates effectively. One of the app's most novel features is that it shows the matching percentage between students and job posts based on their skills and qualifications. It analyses the skills of the students and compares them with the job requirements, providing students with valuable insights into their career path.

There is also a helpful feature in "JobReady" that allows students to request recommendations from their instructors, which then appear on their profiles. This provides a way for instructors to endorse their students and for potential employers to see their skills and abilities. The feature aims to enhance the student's profile, increasing their chances of being matched with suitable job postings.

"JobReady" is a valuable recruitment tool for businesses, enabling them to access a diverse talent pool and streamline the hiring process. Companies can post job and internship opportunities, and the app will help them reach a large pool of motivated and qualified candidates. It allows businesses to build relationships, expand their networks, and raise awareness about their organization among the student community.

In a nutshell, JobReady is a great way for our users to learn about different opportunities and gain valuable insights.

The rest of the report is organized as follows. As part of the second chapter, some elements on what already exists in this field are presented. This includes an overview of existing research, tools, and platforms that are related to JobReady. The next chapter discusses the analysis of the app's technical aspects, including business rules, use cases, class diagram, and activity diagram. Chapter 4 provides an overview of the app's development, including the technical environment used, website or application menu structure, and screens. Finally, concluding the report by summarizing the key findings and highlighting potential areas for future enhancements.

2- Bibliography

In the realm of job search and professional networking apps, there are several notable platforms that offer valuable resources and services to users.

With **LinkedIn**, individuals can effectively showcase their skills, work experience, and achievements, making it an invaluable platform for networking and job-hunting endeavors. The app goes beyond basic functionality, offering users the ability to follow companies, join industry-specific groups, and receive personalized recommendations tailored to their career interests. This level of customization enhances their career prospects by presenting them with relevant opportunities and facilitating meaningful connections within their professional fields.

Another noteworthy app in this space is **Handshake**, which distinguishes itself by catering specifically to students. It leverages their major, interests, and skills to provide them with a curated list of job opportunities that align with their academic pursuits. By focusing on connecting students with relevant positions, Handshake streamlines the job search process and enhances the chances of finding meaningful employment within their chosen field.

For tech professionals, **Pathrise** offers a unique value proposition by providing personalized mentorship and training. This tailored approach equips individuals with the skills and guidance necessary to thrive in the tech industry. By offering industry-specific support, Pathrise bridges the gap between theoretical knowledge and practical application, increasing the chances of success in a competitive field.

Tallo serves as a social networking site that facilitates connections between students and recent graduates with recruiters. By providing a dedicated platform for this interaction, Tallo simplifies the process of talent acquisition for companies and offers students an avenue to showcase their abilities directly to potential employers.

Parker Dewey focuses on the emerging trend of micro-internships, offering users the opportunity to apply for short-term projects that align with their specific skills and interests. This unique approach allows individuals to gain practical experience and expand their professional network while catering to their availability and preferences.

Each of these apps offers distinctive features and benefits, catering to the specific needs and preferences of job seekers and professionals in various industries. Inspired by these existing platforms, "JobReady" seeks to combine the best elements while introducing its own unique features. By providing comprehensive profiles, advanced matching capabilities, instructor endorsements, and seamless networking opportunities, "JobReady" aims to revolutionize the professional networking and job search landscape, ensuring a valuable and tailored experience for its users.

3- Analysis

3-1- Business rules

User Registration

- There are 4 types of users: Student, Instructor, Company and Admin.
- Students and Instructors can create their accounts using a valid email address.
- Profiles that accurately represent the user's qualifications can apply for a verification badge from the admin.
- Company accounts are created by the admin upon verification to protect students from scam companies.
- Users can create comprehensive profiles highlighting their education, work experience, skills, and interests.
- Users can upload a professional profile picture.

Users Engagements

- Users can send connection requests to establish professional relationships.
- Users can create and share posts that include text and images on the platform.
- Other users can like, comment on, and share posts created by users.
- Users can engage with posts by expressing their interest or providing relevant comments.
- Users can track the engagement metrics of their shared posts, such as the number of likes, shares and comments received.
- The platform includes moderation features to ensure the appropriateness and adherence to community guidelines for shared posts.
- Users can report inappropriate or offensive shared posts.

Job Post Applications

- Companies can post job and internship opportunities.
- Job posts include detailed information such as requirements, responsibilities, and application deadlines.
- Companies can shortlist, and select candidates.
- Selected candidates receive as notification their acceptance or rejection.

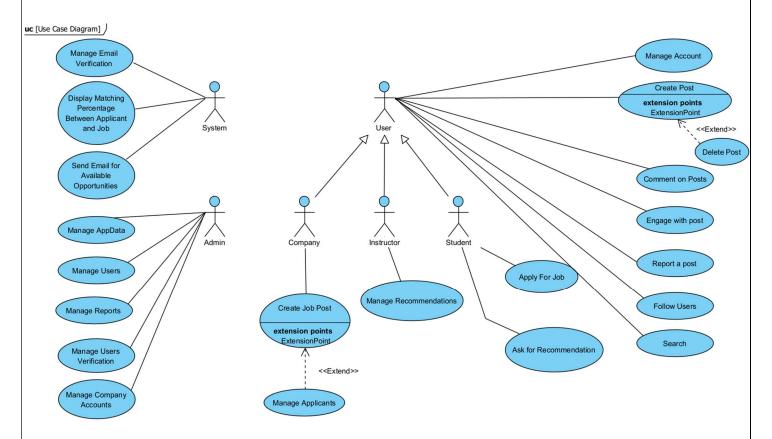
Job Search and Application

- Users can search for job and internship opportunities based on criteria such as location, industry, and job title or keywords.
- Users can apply for opportunities by submitting their profile and other required materials.

Matching Algorithm

- The platform includes a matching feature that analyzes user skills and qualifications against job posts as a start.
- The more data will be collected, the more the matching percentage becomes accurate.
- Users can view the matching percentage for each job opportunity.

3-2- Use case



ANY USER

Manage Account

- 1. Create an Account
 - User clicks on the Register button.
 - User selects the desired account type (Student or Instructor).
 - User submits the registration form.
 - The system validates the provided information.
 - If the information is valid, the account is created, and the user is redirected to their profile page.
 - If the information is invalid or incomplete, the user is prompted to correct the errors and resubmit.

2. Edit Account Details

- User clicks on the Edit button in their profile.
- User makes the desired changes to their account details.
- User saves the changes.
- The system validates the updated information.
- If the information is valid, the account details are updated, and the changes are saved.
- If the information is invalid or incomplete, the user is prompted to correct the errors and save again.

Manage Post

1. Create a Post

- User navigates to the "Create Post" section.
- User enters the post content, such as text and/or images.
- User clicks on the "Post" button.
- The system validates the post content.
- If the validation is successful, the post is created and displayed on the profile of the user and the news feed of their followers.
- If the validation fails, the user is prompted to correct any errors or missing information.

2. Delete a Post

- User navigates to their profile or their own post that they want to delete.
- User clicks on the "Delete" button/icon associated with the post.
- The system prompts the user to confirm the deletion.
- If the user confirms, the post is deleted from their profile and the news feed
- If the user cancels the deletion, the post remains unchanged.

Comment on Post

1. Comment on a Post

- User navigates to the post on which they want to comment.
- User enters their comment in the designated comment section.
- User clicks on the "Post Comment" button.
- The system validates the comment content.
- If the validation is successful, the comment is added to the post and displayed.
- If the validation fails, the user is prompted to correct any errors or missing information.

Engage with Post

1. Like a Post

- User navigates to the post they want to like.
- User clicks on the "Like" button/icon associated with the post.
- The system registers the like and updates the like count for the post.

2. Share a Post

- User navigates to the post they want to share.
- User clicks on the "Share" button/icon associated with the post.
- User confirms the sharing action.
- The system shares the post on external apps as a link.

Report a Post

- 1. Report an Inappropriate Post
 - User navigates to the post they want to report.
 - User clicks on the "Report" button/icon associated with the post.
 - The system prompts the user to provide a reason for the report.
 - User enters the reason for the report.
 - User confirms the report.
 - The system receives the report and flags the reported post for review by the admin.

Following User

- 1. Follow a User
 - User A navigates to the profile of user B that A wants to follow.
 - User A clicks on the "Follow" button/icon associated with B's profile.
 - The system registers A as a follower of Band updates the follower count of B

2. Unfollow a User

- User A navigates to the profile of user B that A wants to unfollow.
- User A clicks on the "Followed" button/icon associated with the profile of B.
- The system shows a message to confirm the action.
- The system removes the user A from the followers of B.

Search Feature

- 1. Search Bar
 - User select a filter:
 - Search by User

User enters specific search criteria such as name, education, or skills in the search bar.

- o Jobs or Companies
 - User enters specific search criteria such as location, industry, or job title/keywords in the search bar.
- The system retrieves and displays relevant job opportunities or user profiles based on the provided search criteria

STUDENT

Apply For Job

- 1. Apply for a Job
 - Student navigates to the job posting they are interested in.
 - Student reviews the job requirements and responsibilities.
 - Student clicks on the "Apply" button associated with the job posting.
 - The system prompts the student to submit their profile as a generated CV and other required materials.
 - Student submits their profile and required materials.
 - The system validates the submission.
 - If the submission is successful, the student's application is sent to the company.
 - If the submission fails, the student is prompted to correct any errors or missing information.

Ask For Recommendation

1. Request Recommendation

- Student navigates to the profile of the instructor or other professional they want to request a recommendation from.
- Student clicks on the "Request Recommendation" button/icon associated with the profile.
- The system prompts the student to provide details about the recommendation request, such as the purpose and required skills.
- The system notifies the instructor about the recommendation request

INSTRUCTOR

Manage Recommendation (Accept/Reject)

- 1. Review and Accept/Reject Recommendation Request
 - Instructor receives a notification about a recommendation request.
 - Instructor decides to accept or reject the recommendation request.
 - If the instructor accepts the request, the system prompts them to provide the recommendation.
 - The system sends the recommendation to the requesting professional company.
 - If the instructor rejects the request, the system notifies the requesting student.

COMPANY

Create Job Post

1. Create a Job Post

- Company navigates to the "Create Job Post" section.
- Company enters the job details, including requirements, responsibilities, skills.
- Company clicks on the "Post" button.
- The system validates the job post details.
- If the validation is successful, the job post is created and displayed on the platform.
- If the validation fails, the company is prompted to correct any errors or missing information.

Manage Applicants

1. Review and Select Applicants

- Company navigates to the job posting for which they received applications.
- Company reviews the profiles, qualifications, and submitted materials of the applicants.
- Company shortlists the candidates they are interested in.
- Company makes the selection and sends acceptance emails to the selected candidates.

ADMIN

Manage App Data (Add industry/skills....)

- 1. Add App Data
- Admin selects the option to add a new industry.
- Admin enters the details of the new industry, such as the industry name and description.
- Admin saves the new industry.
- The system validates the information.
- If the validation is successful, the new industry is added to the app data.
- If the validation fails, the admin is prompted to correct any errors or missing information.

Manage Users

1. Suspend User Account

- Admin navigates to the user's profile or the "Manage Users" section.
- Admin reviews the reported user's activities and behavior.
- Admin selects the option to suspend the user's account.
- The system prompts the admin to confirm the suspension.
- Admin confirms the suspension, and the user's account is temporarily suspended.

2. Activate User Account

- Admin navigates to the user's profile or the "Manage Users" section.
- Admin selects the option to activate the user's account.
- The system prompts the admin to confirm the activation.

3. Verify Student's Profile

- Admin confirms the activation, and the user's account is activated.
- Admin receives a verification request from a student regarding their profile.
- Admin navigates to the student's profile or the "Manage Users" section.
- Admin reviews the student's profile and the verification request.
- Admin verifies the student's profile by granting them the verification badge.
- The system updates the student's profile with the verification badge.

4. Verify Company Account

- Admin receives a request from a company to create an account by call, email, etc.
- Admin gathers the required paperwork and information from the company.
- Admin verifies the provided information and ensures it complies with the app's guidelines.
- Admin creates the company account and provides the company with the necessary credentials.
- The system marks the company account as verified.

Manage Reports

- 1. Review and Take Action on Reported Post
 - Admin receives a report regarding an inappropriate or offensive post.
 - Admin navigates to the reported post or the "Manage Reports" section.
 - Admin reviews the reported post and the details of the report.
 - Admin decides to take action based on the severity of the report, such as removing the post or ignoring the report message.
 - The system applies the chosen action, and the reported post is either removed and an email concerning the delete action is sent or the report message is ignored.

SYSTEM

Manage Email Verification

- 1. Verify User's Email
 - The system sends an email to the user's registered email address with a verification link.
 - The system validates the verification link and marks the user's email as verified.

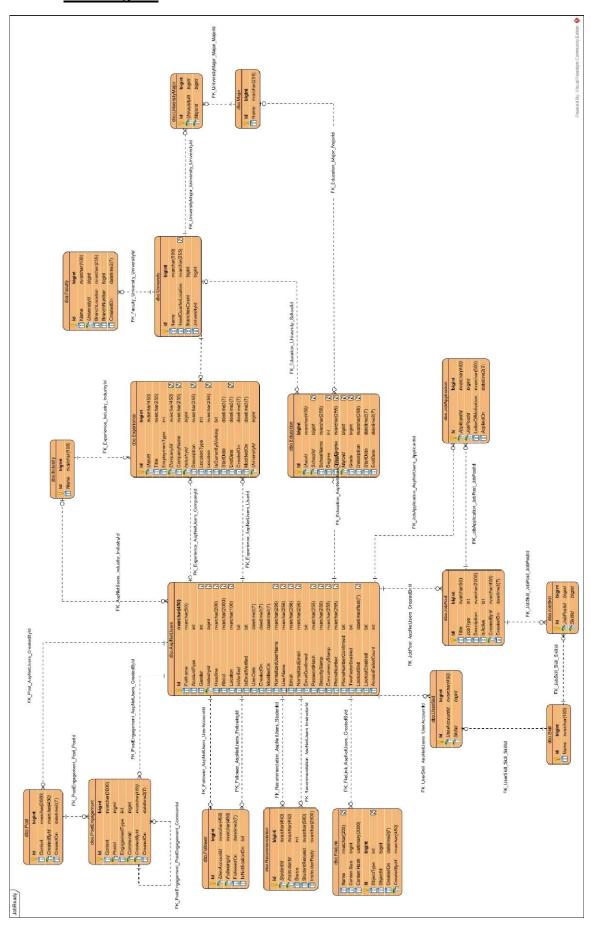
Matching Percentage

- 1. Calculate Matching Percentage for Job Opportunity
- System receives a request to calculate the matching percentage for a specific job opportunity and a user's profile.
- System compares the user's skills and qualifications with the requirements of the job opportunity.
- System calculates the matching percentage based on the compatibility between the user's profile and the job requirements.
- The system provides the matching percentage as output.

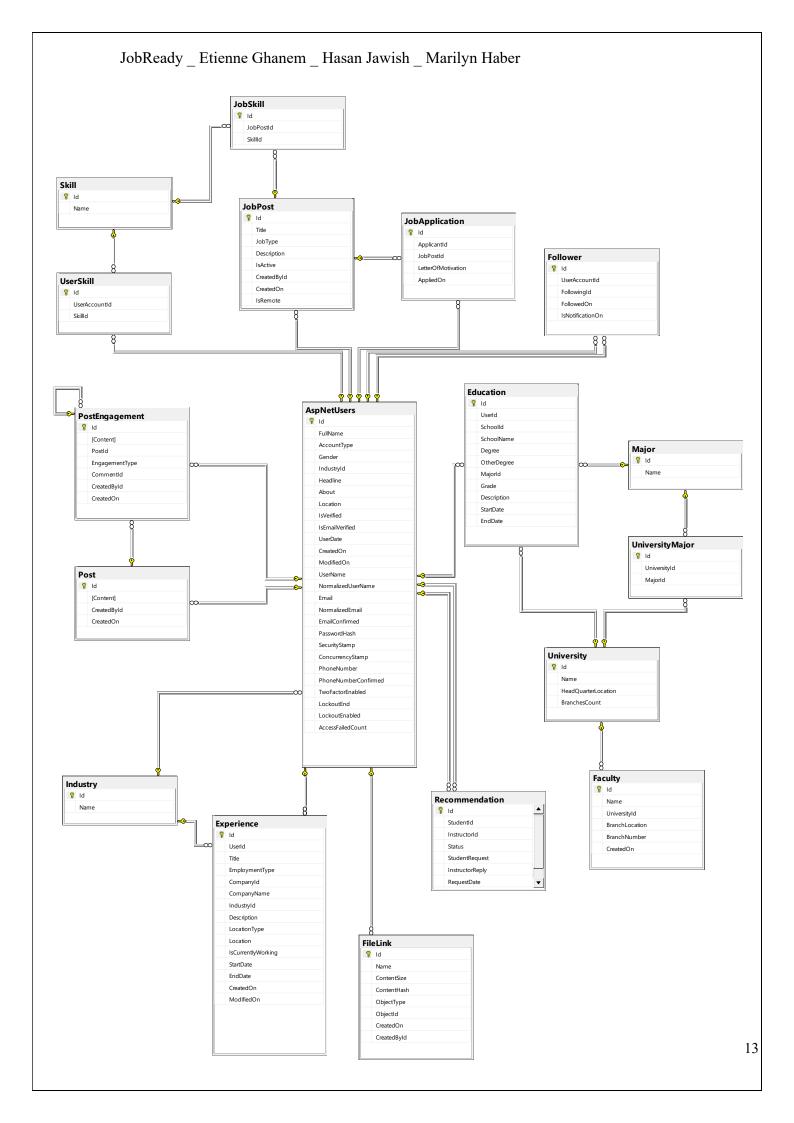
Send Email Report of Weekly Available Opportunities

- 1. Generate and Send Weekly Opportunities Report
- System schedules a weekly task to generate a report of available job and internship opportunities.
- System compiles the relevant opportunities based on various criteria such as location, industry, and job type.
- System generates a comprehensive report listing the opportunities with details.
- System sends an email containing the weekly report

3-3- Class diagram



 $24/06/23 _ https://github.com/MarilynHb/JobReady-Asp.netCore$



Explanation of some relationships

The AspNetusers table is the main table that stores user account information. It has a one-to-many relationship with other tables:

- education records stored in the Education table One user can have multiple (one-to-many relationship with UserId).
- One user can have multiple experience records stored in the Experience table (one-to-many relationship with UserId).
- One user can follow multiple other users, and this relationship is stored in the Follower table (one-to-many relationship with both UserAccountId and FollowingId).

The **Education** table stores educational information. It has relationships with other tables:

- Each education record belongs to a specific user in the AspNetUsers table (many-to-one relationship with UserId).
- Each education record can have a major specified in the Major table (many-to-one relationship with MajorId).

The **Experience** table stores work experience information. It has relationships with other tables:

- Each experience record belongs to a specific user in the AspNetUsers table (many-to-one relationship with UserId).
- Each experience record can have an industry specified in the Industry table (many-to-one relationship with IndustryId).

The JobPost table represents job postings. It has relationships with other tables:

- Each job post is created by a user in the AspNetUsers table (many-to-one relationship with CreatedById).
- Each job post can have multiple skills required, which are stored in the JobSkill table (one-to-many relationship with JobPostId).

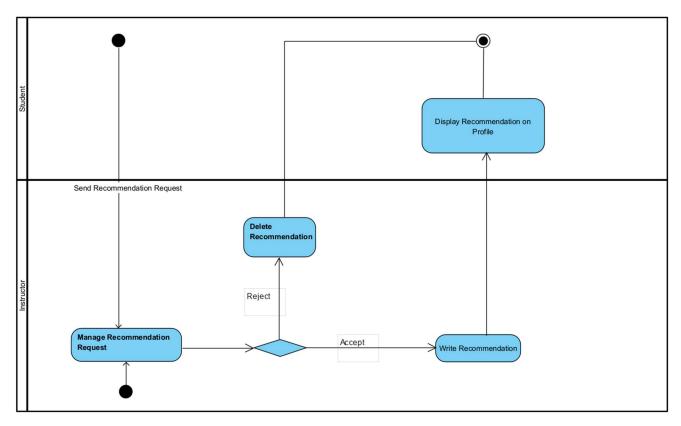
The Post table stores user-generated posts. It has a relationship with the AspNetUsers table:

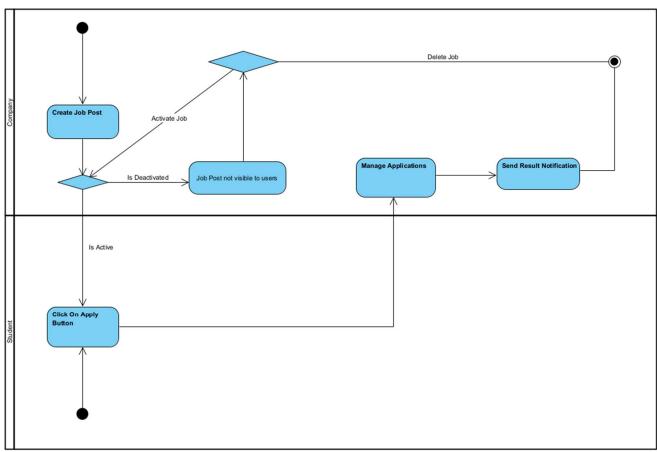
• Each post is created by a user in the AspNetUsers table (many-to-one relationship with CreatedById).

The Recommendation table represents recommendations requested by students and sent to instructors. It has relationships with the AspNetUsers table:

• Each recommendation involves a student and an instructor, both of whom are users in the AspNetUsers table (many-to-one relationship with StudentId and InstructorId).

3-4- Activity Diagram





4- Development

4-1- Technical environment used

We chose to utilize **ASP.NET Core** as the framework for building our app due to its numerous advantages and features that align well with our project requirements. ASP.NET Core is a robust and versatile framework that enables us to develop high-performance, scalable, and cross-platform web applications.

One of the primary reasons for selecting ASP.NET Core is its seamless integration with **Azure services** for deployment. Azure provides a reliable and scalable cloud computing platform that simplifies the deployment and management of our application. With Azure, we can leverage services such as Azure App Service and Azure SQL Database, ensuring a smooth and efficient deployment process while maintaining high availability and scalability.

For front-end development, we utilized **JavaScript (JS)**, **AJAX**, **TagCloud.js**, and **jQuery** libraries. JavaScript is a fundamental programming language for web development, enabling us to create interactive and dynamic user interfaces. AJAX (Asynchronous JavaScript and XML) allows us to retrieve data from the server asynchronously, enhancing the responsiveness and performance of our app. The TagCloud.js library adds visual appeal and functionality to our tag-based features, allowing users to navigate and interact with tags in an intuitive manner. jQuery, a popular JavaScript library, simplifies DOM manipulation and event handling, streamlining our front-end development process.

To handle user authentication and authorization, we implemented the **Identity library** provided by ASP.NET Core. This library offers a comprehensive set of features for managing user accounts, roles, and permissions. By utilizing Identity, we can ensure secure access control and user management, providing a seamless and safe experience for our users.

For database management, we opted for **Microsoft SQL Server (MSSQL)** as our database platform. MSSQL is a reliable and powerful database management system that offers robust data storage and retrieval capabilities. It integrates seamlessly with ASP.NET Core and provides efficient data handling for our application.

In terms of package management, we relied on **NuGet**, a package manager for the .NET ecosystem. NuGet simplifies the process of integrating third-party libraries and dependencies into our application. With NuGet, we can easily manage and update the necessary packages, ensuring that our app remains up-to-date and secure.

By utilizing ASP.NET Core, the Identity library, JavaScript, AJAX, tagcloud.js, jQuery, Azure services, and MSSQL, we have created a well-rounded application that effectively handles both the client and server-side components. These technologies and libraries provide us with the necessary tools and resources to build a feature-rich, secure, and scalable app while ensuring efficient deployment and seamless user experience.

4-2- Website or Application Menus structure

We have tailored the navigation options to cater to the specific requirements of different user types: students, instructors, companies, and administrators.

The common navigation view includes the following options:

- **Home:** A feed providing recent posts and activities
- **Search:** Enables users to search for job opportunities, companies, or users.
- Notifications: Keeps users informed about new engagements, follows...
- **New Post:** Allows users to create and share posts related to career development, questions, or general discussions.
- **Settings:** Allows users to customize their app preferences, privacy settings, and notification preferences.
- **Profile:** Enables students to view and edit their profiles, including education, work experience, skills, and interests.
- **Sign Out:** Logs the users out of their account, ensuring secure access to their information.

For students, an additional tab is available:

- **Job Opportunities:** Provides access to a curated list of job and internship opportunities
- In the **Notification** tab, a dashboard is available for the students to track the response on their job applications and their recommendations sent.

Instructors have a similar set of navigation options, with the exclusion of the "Job Opportunities" feature. This is because instructors primarily focus on guiding and supporting students rather than actively seeking job opportunities.

Also, in the notification tab, a partial view is available for the instructor to manage the requested recommendations from students.

Companies, on the other hand, have additional features within the navigation view to cater to their specific needs:

- Announce: Provides options to create new posts or new job postings, allowing companies to share updates, events, and available positions.
- In the **Notification** tab, a partial view is available for managing the job applications.

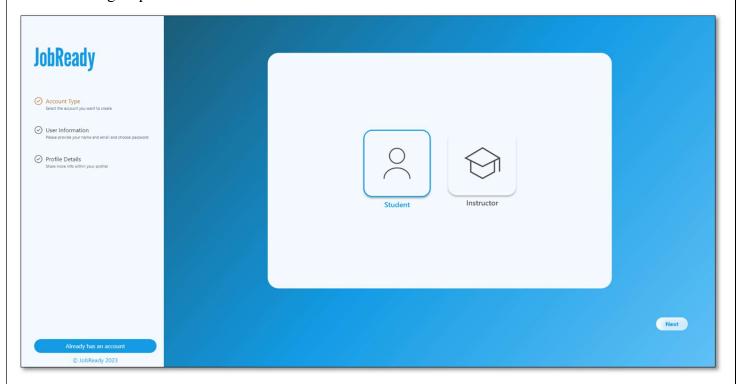
Administrators have a distinct set of navigation options that revolve around managing and overseeing the platform:

- **Manage Industries**: Allows administrators to add, edit, or remove industry categories to ensure accurate categorization of job opportunities.
- **Manage Universities**: Provides the ability to manage and update information related to affiliated universities and institutions.
- **Create Company**: Enables administrators to create new company profiles on behalf of organizations joining the platform.
- **Manage Post's Reports**: Gives administrators the capability to review and address reports or issues related to user posts.
- **Manage Users**: Provides tools and functionalities to manage user accounts, including user roles, permissions, and account information.

JobReady _ Etienne Ghanem _ Hasan Jawish _ Marilyn Haber By offering role-specific navigation options, we ensure that each user type can easily navigate through the app and access the features that are most relevant to their needs, maximizing their overall experience and productivity within the platform.

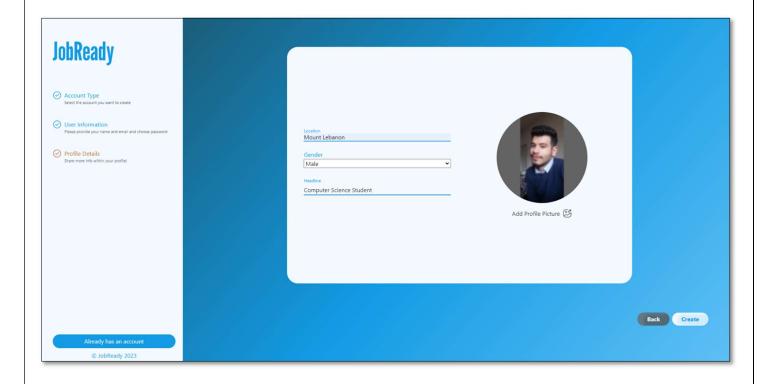
4-3- Application or Websites Screens

Sign Up Screens





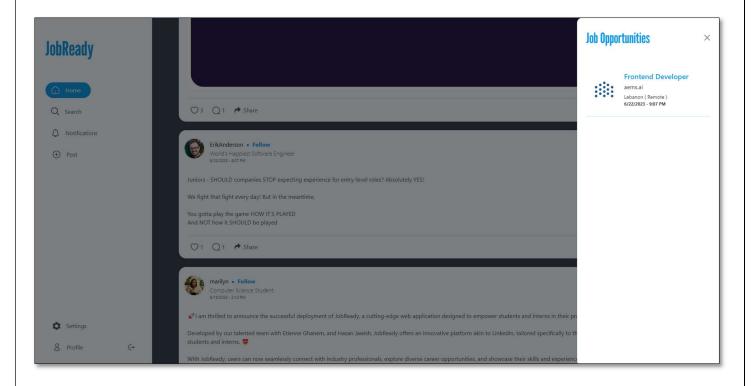
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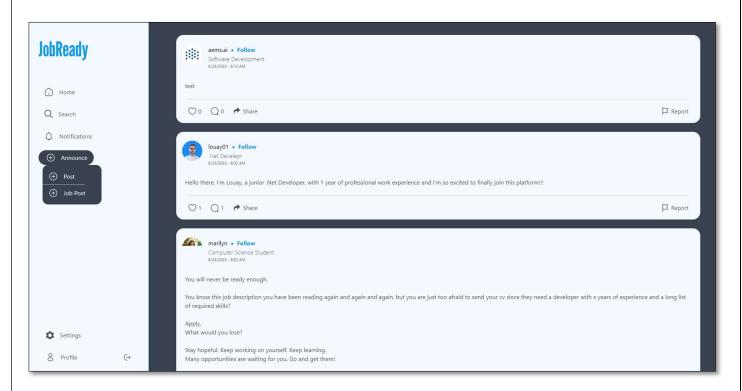
Login Screen

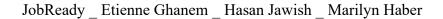


Student's View (+Job Opportunities)



Company's View (+ New Job Opportunity)





Admin's Dashboard

Dashboard Manage Users Create Company Manage Industries Manage Skills Manage Universities

Manage Industries

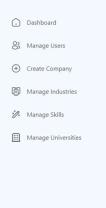
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Name	
IT Services and IT Consulting	Edit Details
Software Development	Edit Details
Education	Edit Details
Fitness	Edit Details

JobReady

Settings

Admin Name

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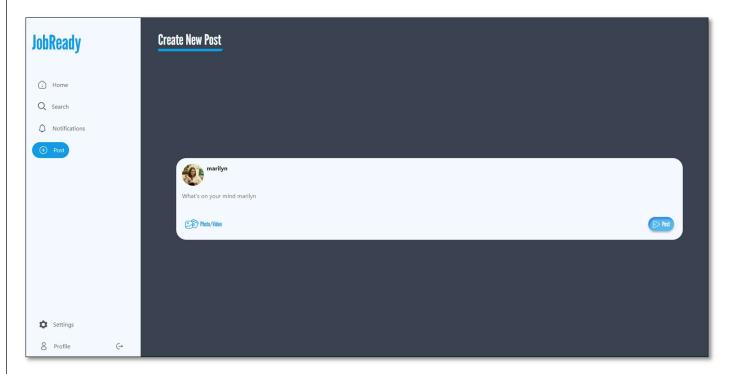
Settings

Admin Name

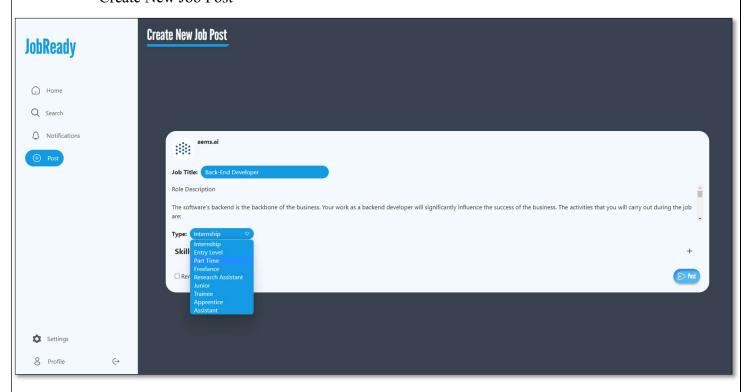
Manage Universities

Name	HeadQuarterLocation	BranchesCount	
Lebanese University - Faculty Of Sciences	Hadath	3	Edit Details

Create New Post



Create New Job Post

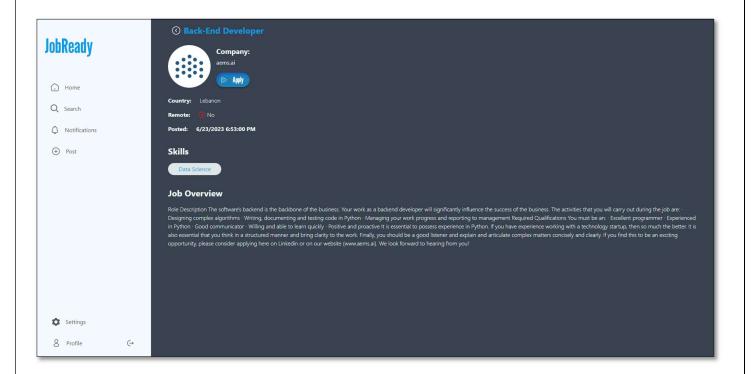


Add Skills

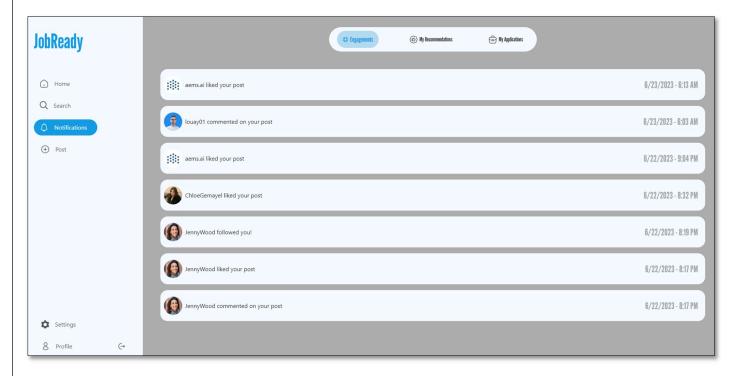


Job Application View

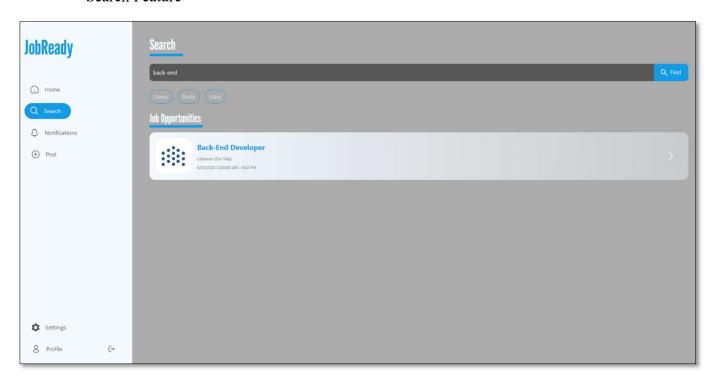




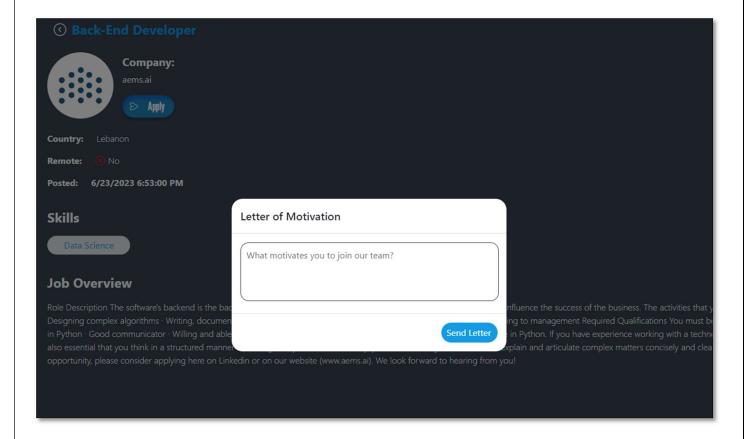
Notifications View (Engagement)



Search Feature



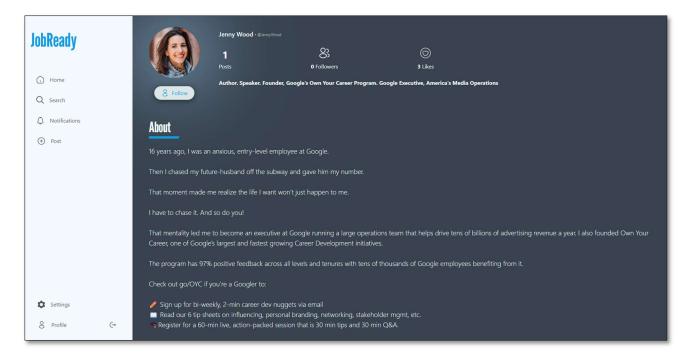
Apply For Job



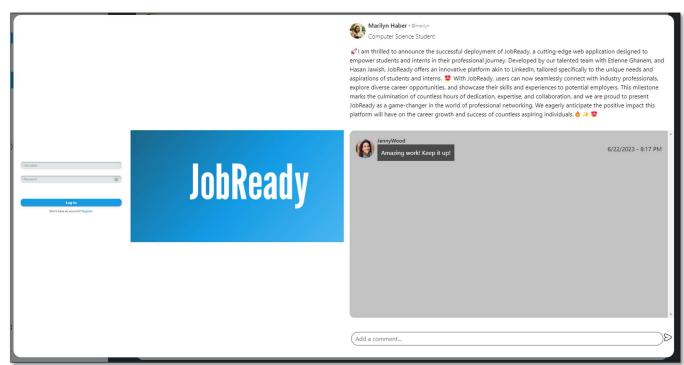
Company Profile View



User's Profile Vieew



Post Details View + Comment



5- Conclusion

What is done:

(Front-End)

Our team is utilizing .NET technologies with JavaScript, Bootstrap, jQuery, HTML, and CSS to develop the frontend of our app.

- Login View
- Sign Up Views
- Navigation Bar is a partial view which can be used in most of our screens
- Home Feed View
- Create New Post View
- Create New Job Post
- Profile View based on account type
- Job Opportunities Side Bar View
- Search Profile/Post/Opportunities View
- Notification View (Engagement Partial)
- Job Application View
- Edit Profile Form
- Add Experience View
- Admin Dashboard
- Sync Post Engagement with Backend (Jquery/Ajax)

(Back-End)

Leveraging .NET technologies for the backend ensures robust and scalable server-side solutions for our application

- Using .Net Core 7
- Working with the EF Code-First Approach
- Applying the MVC pattern
- Models have been created and the database generated
- Using MSSQL Server for the database
- Created a workflow to seamlessly deploy our app with Azure Services Check this link: https://jobready.azurewebsites.net
- Implemented Customized Identity class with Login and Sign-Up functionalities
- Set Up Authorization and Authentication for security
- Set Up the Admin Dashboard for AppData CRUD operations
- Add Controller for Posts Creation
- Add Controller for Like and Comment on posts
- Add Endpoint for following other users
- Add Endpoint for editing profile about and experience
- Add Endpoint for Search Feature by User/Post/Opportunity
- Adding Profile Image + Pictures to Posts
- Admin Dashboard
 - Manage Industries

What is remaining:

- Link Education Partial View to Back-end
- Add Manage Applications in Notification for Companies
- Add Manage Recommendations in Notification for Instructor
- Add Manage Applications and Recommendations Sent for Student
- Add Share Post by URL
- Add Report Post Feature
- Add Implementation to Delete Post
- Add Implementation to Deactivate Job Post
- Add Filter to Search by User or Posts or Jobs
- Implement Back End with Settings View
- Admin Dashboard:
 - Manage Users
 - Manage Post Block Reports
 - Create Companies Profiles
- Mail System Integration:
 - o For Email Verification upon registration
 - For Weekly Notifications on opportunities
 - o For Password Reset
- We would like to implement a chat system between the users

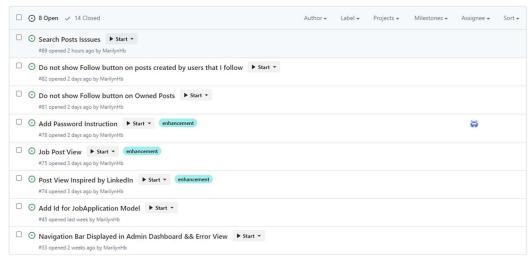
Tasks Management Between the team

We first started to brainstorm what best approach to follow regarding our asp.net core app. Is it a database-first approach, or code-first approach?

After those brainstorming sessions, we finally opted for the second choice. Our business logic and features were discussed in details.

We had sessions to prepare the Figma prototype of our app, until finally Etienne took the lead with the Front-End of our app. Hasan and Etienne set up the registration and login screen, while Marilyn was building the models and setting up the .net core project. Once the screens were ready, we started looking for ways to implement the encryption of the user's password and ensure a security for accessing sensitive data on our app. So, we implemented the Identity library. The modules were not assigned to one team member alone. Every feature, was discussed and build during daily meetings we had. All the branches created explains clearly what feature was added, and how the pull/push request flow was happening between the team.

Here are some issues that we need to continue to work on:



JobReady _ Etienne Ghanem _ Hasan Jawish _ Marilyn Haber	
24/06/23 _ https://github.com/MarilynHb/JobReady-Asp.netCore	30