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Job Recommender System For Freelancers

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Abstract: This research paper introduces a Job Recommender System designed to optimize workforce placement and enhance organizational efficiency. By harnessing advanced algorithmic methods, this system offers a comprehensive platform for matching candidates with suitable job roles based on their skills, experience, and preferences. The system integrates various features , including personalized job recommendations tailored to individual profiles, interactive skill assessments to gauge candidate proficiency, and real-time job market analysis to identify emerging opportunities. Through the implementation of these features, the system aims to provide job seekers with a highly effective tool for navigating the employment landscape and maximizing their career potential. The primary objective of this research is to streamline the job search process and empower both candidates and employers with data-driven insights. By leveraging cutting-edge technology, the system seeks to revolutionize traditional hiring practices and promote a more efficient allocation of human capital. The outcomes of this research have significant implications for workforce management and talent acquisition strategies, demonstrating the potential of algorithmic approaches to optimize job matching and enhance organizational performance.

Keywords*:* Job Recommender System, Freelancers, Skill matching, Freelancer, Job, Business.

I. INTRODUCTION

The project aims to utilize the principles and methodologies applied in job recommender systems to develop a platform tailore d for freelancers. The primary goal is to establish an efficient ecosystem where freelancers can enhance their skills and readiness for various job opportunities. The project will emphasize the following key features:

- **Skill Matching:** The platform will integrate algorithms to match freelancers with suitable projects based on their skillsets and expertise, ensuring optimal utilization of their abilities.

- **Project Matching:** An interactive interface will be designed to facilitate project discovery, enabling freelancers to explore diverse job opportunities aligned with their interests and capabilities.

- **Client Communication:** The system will incorporate tools for seamless communication between freelancers and clients, fostering collaboration and ensuring project requirements are met effectively.

- **Portfolio Management:** A portfolio management system will be implemented to enable freelancers to showcase their previous work and demonstrate their proficiency in specific domains.

By focusing on these key features, the project aims to provide freelancers with a robust platform to enhance their profession al skills and expand their opportunities in the freelance market.

II. TECHNOLOGY (USED AND REQUIRED)

System Requirement

- **Processor**: Minimum 4th Generation Intel Core i5 or equivalent, or faster.
- **Graphic Card**: Nvidia GeForce GTX 1050 or AMD Radeon RX 560, or higher.
- **Memory**: Minimum 8 GB RAM, recommended 16 GB RAM or higher.
- **Operating System**: Compatible with Windows 10 64-bit, MacOS High Sierra or later, or Linux Ubuntu 18.04 or newer.

Technology Stack

- **LAMP**: Here, Linux works as the operating system, Apache is the HTTP server, MYSQL is the database and finally PHP which is the server-side programming. (Horiachko, 2021).
- **Python-Django** – This stack is based on python programming language, for back-enddevelopment Django framework is used. Apache is the HTTP server and MYSQL is fordatabase. (Horiachko, 2021).

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- **Visual Studio**: Integrated development environment (IDE) for coding.
- **MERN** – Very efficient stack in developing single page applications, MongoDB as database, *ReactJs* for designing the front-end components, Express and NodeJS for server-side programming. (Horiachko, 2021)
- **MEAN** – MongoDB as database, Angular as front end, Node and *ExpressJs* for server- side programming. (Horiachko, 2021)

III. LITERATURE REVIEW

Job Recommender System for Freelancers" is a web application designed to connect businesses with freelance professionals. Catering to the needs of small businesses seeking website development, companies in need of developers with specific technology expertise, and students looking for real-world project opportunities, this platform streamlines the freelancer hiring process. By leveraging advanced algorithms, the application matches businesses with freelancers based on project requirements, skill sets, and availability. Whether it's creating websites, developing software, or collaborating on student projects, the application facilitates seamless connections between businesses and freelancers, fostering efficient project completion and professional growth.

IV. METHODOLOGY

There are several software development methodologies which can be used based on the project size and requirement. Some of the software development methodologies include. (Majewski, 2019)

- **Waterfall**
- **Feature Driven Development**
- **Agile**
- **Scrum**
- **Extreme programming and**
- **Lean**

The author, after understanding how each methodology works, found out that the scrum development approach is best suited for the development of applications with intermediatecomplexity. (Majewski, 2019)

What is Scrum Methodology?
Scrum is known as an alternative approach to agile methodology. In agile the progress is updatedby making frequent client interactions. In Scrum, frequent interactions take place but within the team members. (Majewski, 2019)

To follow scrum approach, we must break down goals into sub goals and work towards each sub goal at a time. In Scrum approach the important part is to organize meetings, in our project scenariothe scrum master is the author's project supervisor. The meetings are organized weekly, and the requirements are segregated into parts. When the meeting commences the author explains how he has achieved the requirements and receives feedback from the supervisor and makes changes based on the supervisor's feedback. (Majewski, 2019)

By following Scrum approach, the author was able to implement the features in time and has implemented the changes suggested in each phase of the software development. (Majewski, 2019)

V. DESCRIPTION OF PROJECT WORKING AND SCREENSHOTS

The Job Recommender System for Freelancers is a forward-thinking platform engineered to empower freelancers with personalized job opportunities and skill development resources. Employing cutting-edge algorithms, the system links freelancers with projects aligned with their expertise and preferences, streamlining project engagement and career progression.

Drawing upon advancements in job recommendation technology, the platform provides a comprehensive suite of features aimed at boosting freelancer readiness in their professional pursuits.

Landing Page:
Landing.js component defines the user interface of the application's landing page. The landing pagecomponents consist of other components such as <*NavBar* /> which defines the navigation bar interface of the application.

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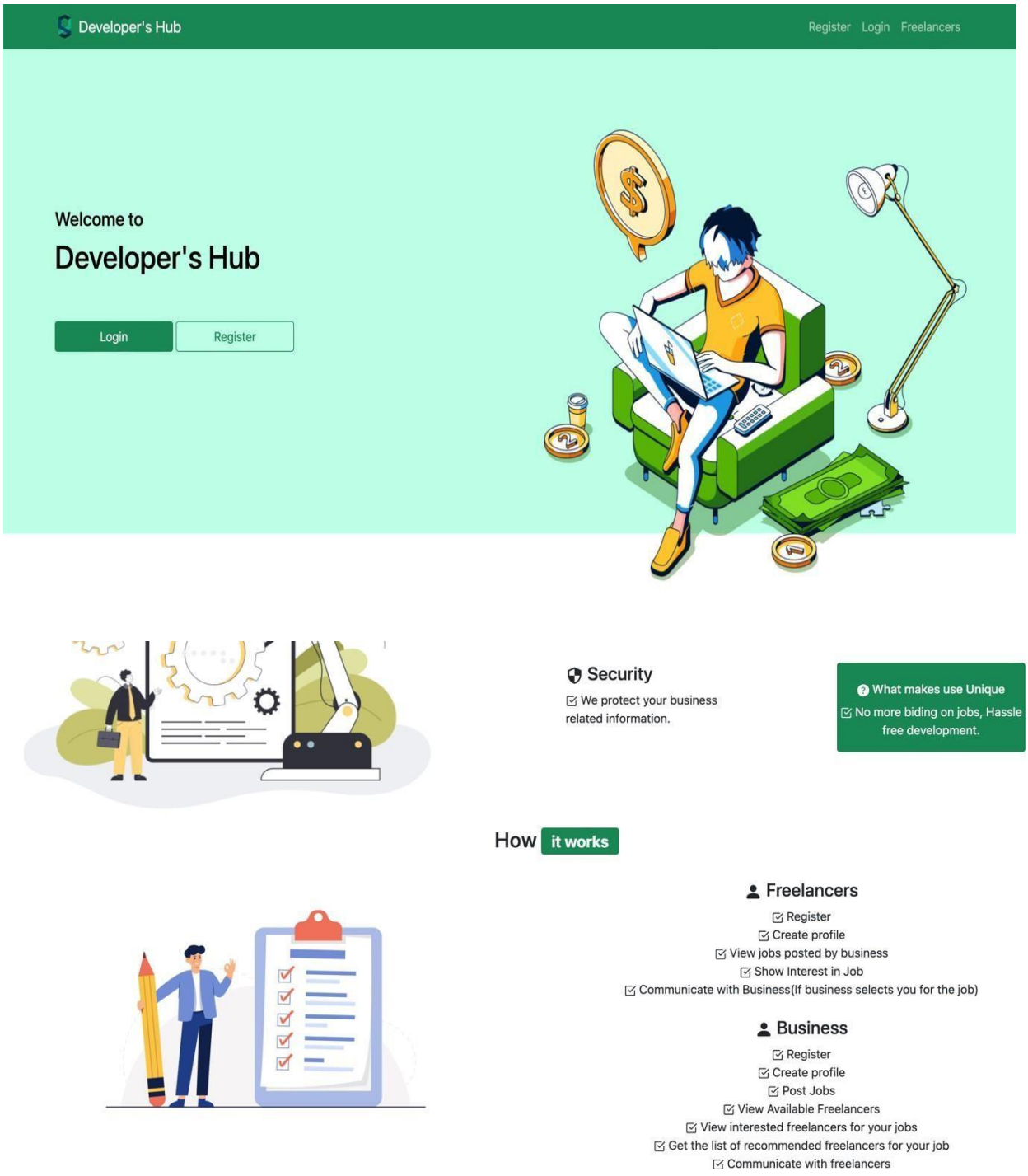

Fig.1 Landing Page

Login Page:

This Login.js component defines the user interface of the application's login page.

The author uses *useState()* which is a react hook that updates the state based on the user input. *OnSbumit ()* the author calls *loginfreelancer()* action which performs the HTTP request to authenticate the user. The login page appears based on the user types:

- Freelancer
- Business

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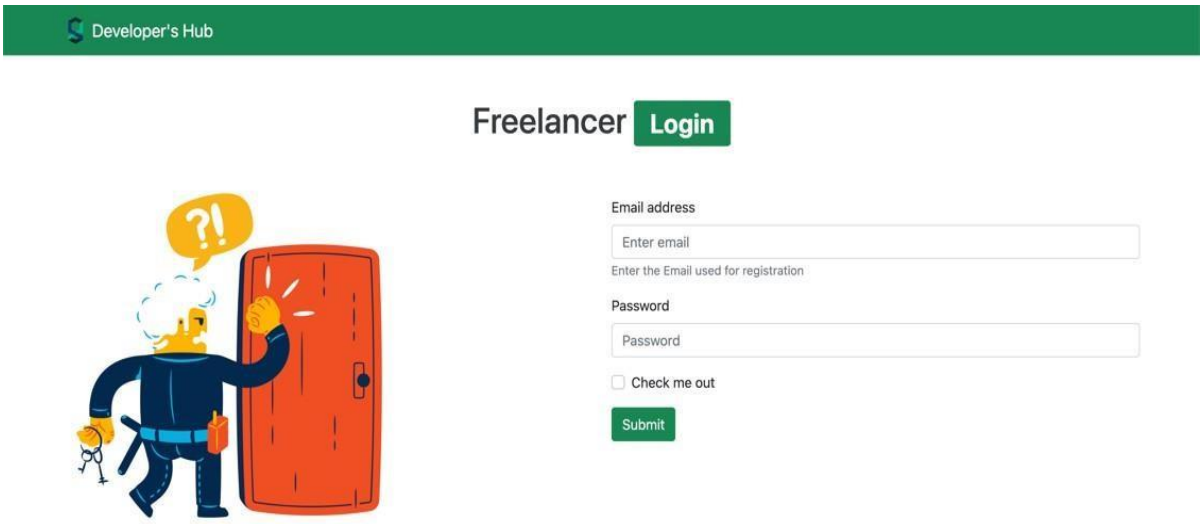

Fig. 2 Login Page

Signup Page:

This signup.js component defines the user interface of the application's sign-up page. The author uses *useState ()* which is a react hook that updates the state based on the user input. *OnSbumit ()* the author calls *businesssignup()* action which performs the HTTP request to register the user. The signup page appears based on the user types:

- **Freelancer**
- **Business**

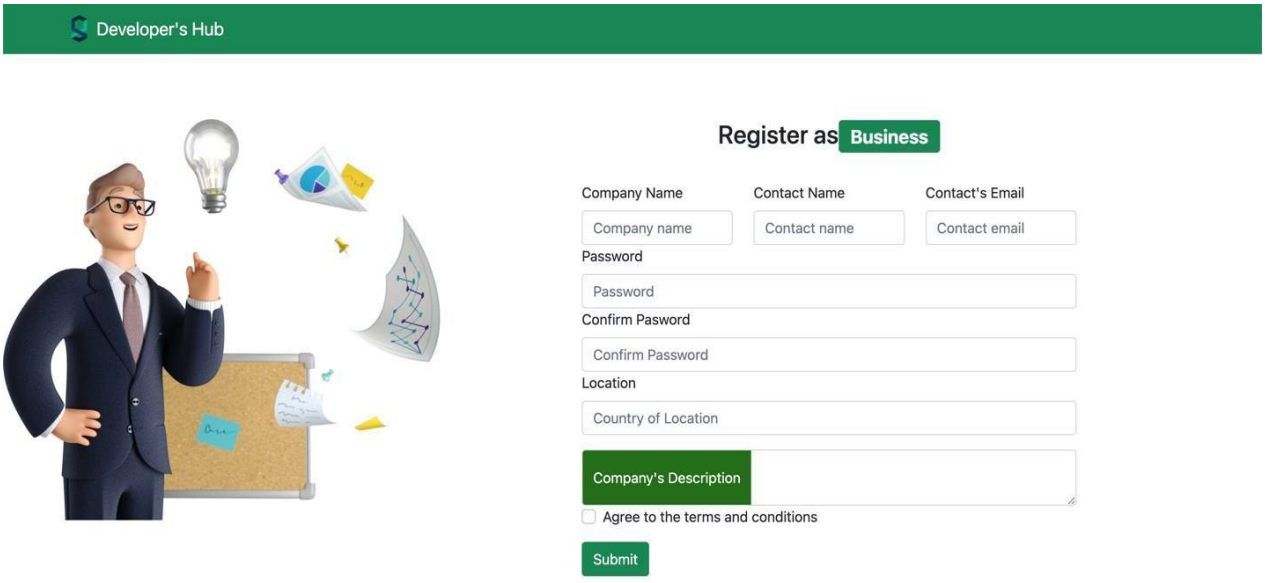

Fig. 3 Signup Page

Create Profile Page:

This createprofile.js component defines the user interface of the application's profile creation page. The input fields on this page change based on the user type. The author uses *useState()* which is a react hook that updates the state based on the user input.

OnSbumit () the author calls *createfreelancerprofile()* action which performs the HTTP request to create profile for the user.

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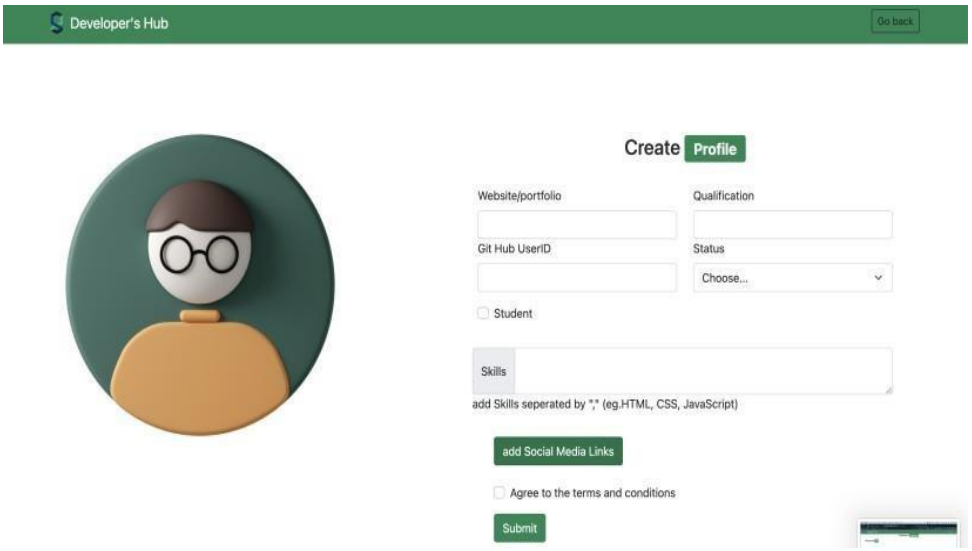

Fig. 4 Create Profile Page

Freelancer Dashboard:

Freelancerdashboard.js component defines the user interface of the freelancer's dashboard. This component involves functionalities such as

- Edit Profile
- Add Education/Experience
- View Jobs
- View other freelancers

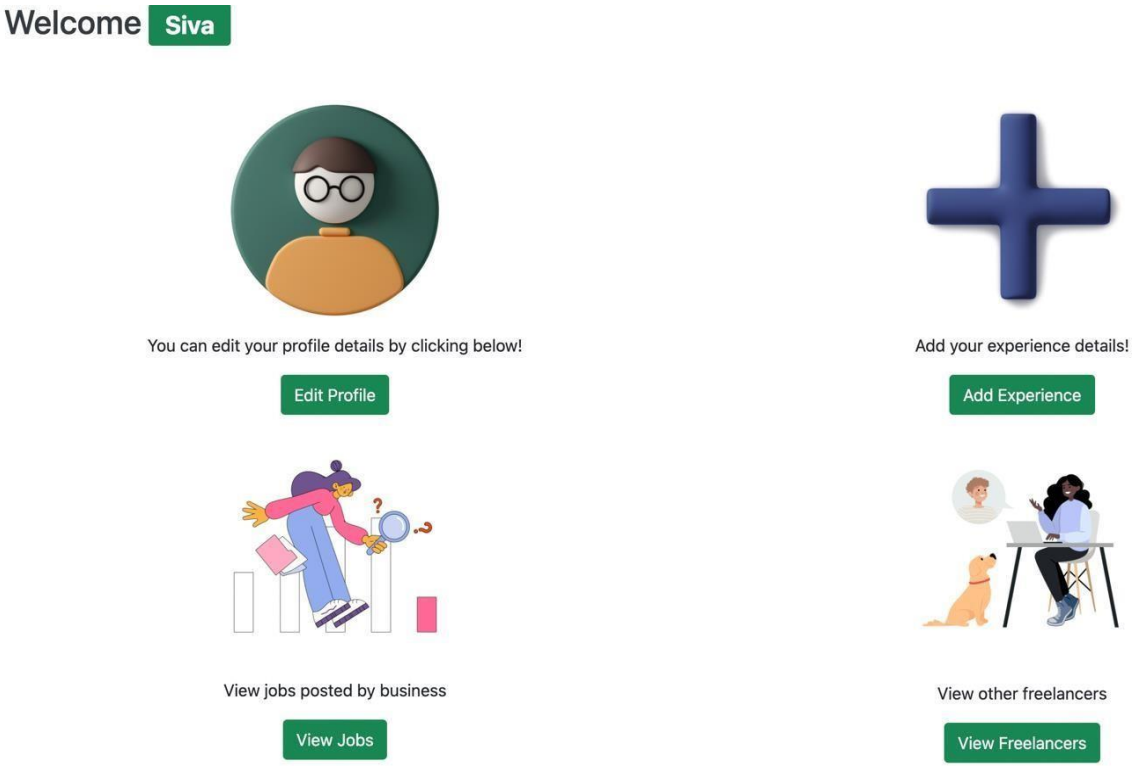

Fig. 5 Freelancer Dashboard

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Business Dashboard:

BusinessDashboard.js component defines the user interface of the Business dashboard. Thiscomponent involves functionalities such as

- Edit Profile
- View Freelancers
- Post Jobs
- My Jobs

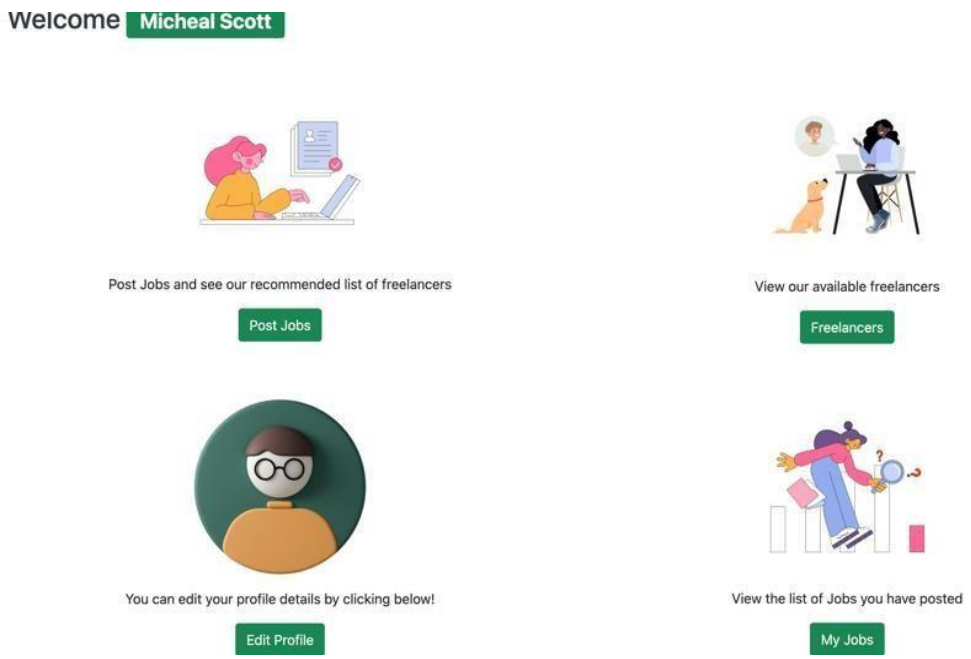

Fig. 6 Business Dashboard

Post Jobs

This PostJobs.js component defines the user interface for the business to post new jobs. The author uses *useState()* which is a react hook that updates the state based on the user input. *OnSbumit ()* theauthor calls *addJob()* action which performs the HTTP request to register the user.

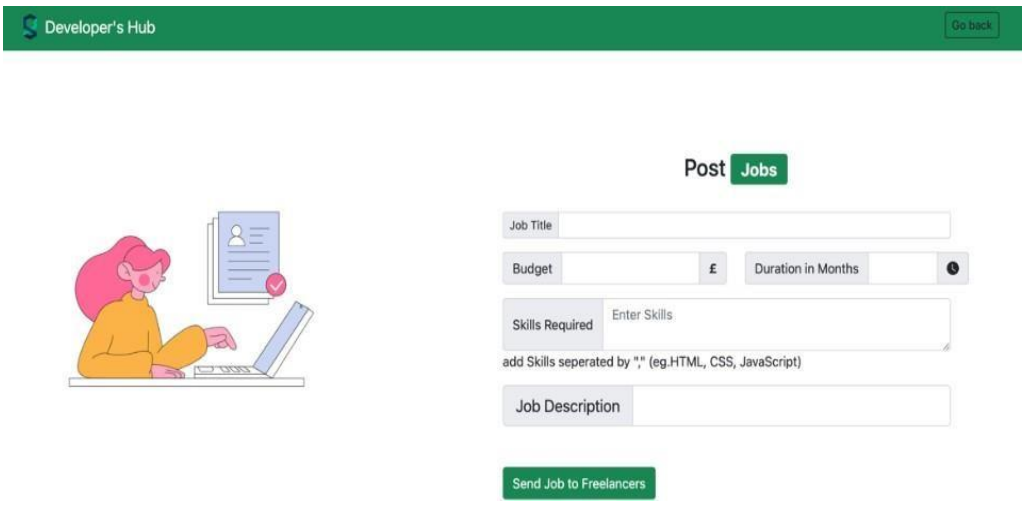

Fig. 7 Post Jobs

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View my Jobs

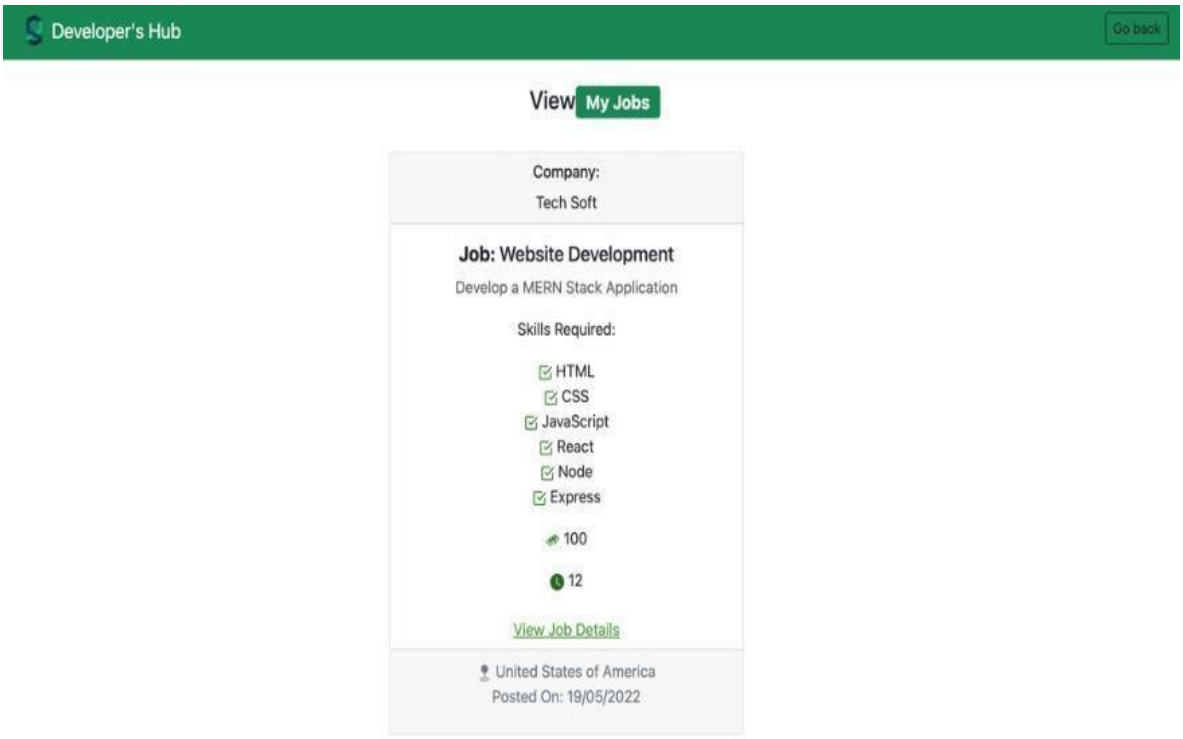

Fig. 8 View My Jobs

By integrating these features, the system endeavors to elevate freelancers' expertise, decision-making, and overall preparedness for navigating the demands of their professional landscape. Through continuous research, innovation, and fine-tuning, the system evolves to address the shifting dynamics and demands within the freelance industry, ensuring that freelancers remain equipped to excel in their chosen fields.

VI. CONCLUSION

The aim of this project is to develop a web application that connects businesses with freelancers using modern web development technologies. The author took the time to study each modern technology and learned the implementation process. The stack used for development is the MERNstack, all the concepts and implementation details used in each technology have been explained indetail in this paper. This documentation consists of all the essential information needed for implementing a MERN stack application.

The implementation of the requirements has been accomplished in the process of development. A completely functional website has been developed end to end. The application features the implementation of collaborating businesses and freelancers. When the business posts its requirements for development, they get a list of recommended freelancers who perfectly match its requirements.

There are other features implemented such as interested freelancers, communication through email, freelancer profiles, ratings for freelancers based on their skills, and adashboard for users. This application has unique features implemented that divide it from other similar applications.

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