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Smart Job Portal Companion for Off Campus Placements

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ABSTRACT: The recent recession and subsequent tech layoffs have created a challenging landscape for freshers in their quest to secure entry-level jobs. In such a highly competitive environment, job-seekers are faced with the daunting task of applying to countless companies across numerous job portals and websites. This overwhelming process makes it increasingly difficult to identify the companies that are actively hiring freshers. However, the Smart Job Portal Companion App is here to provide a solution. By utilizing the technique of web scraping, the app efficiently extracts job data from popular job search websites, filtering and displaying only those opportunities that align with the candidate's specific skills and qualifications. This personalized approach streamlines the job search process and saves applicants precious time and effort. Additionally, the app goes beyond job recommendations by incorporating an Application Tracker feature. This powerful tool allows users to track each of their applications and monitor their progress and status, providing invaluable insights into their job-seeking journey. With the Smart Job Portal Companion App, freshers can navigate the current job market with confidence, ensuring they are well-informed about relevant opportunities and equipped to make the best career choices.

KEYWORDS: Recession, Job portal, Web Scraping, Application Tracker, career

I. INTRODUCTION

The job market can be tough, especially during a recession, and finding the right job can be a daunting task. Smart job portal companions can help ease the process by providing personalized assistance to job seekers and connecting them with relevant job opportunities. These companions can also assist with off-campus placements, which can be a valuable option for those seeking employment outside of traditional recruitment channels. With the help of smart job portal companions, job seekers can increase their chances of finding the right job and navigating the challenging job market during a recession.

Off-Campus job placements are often difficult for job seekers to navigate due to a lack of information and resources. Traditional recruitment channels may not always provide job seekers with the best opportunities for their skill set and experience. Job seekers may struggle to find personalized assistance in their job search, leading to frustration and discouragement. The job market can be especially challenging during a recession, making it even more crucial for job seekers to have access to helpful resources and support.

The app will use web scraping techniques to extract job listings from various job search websites. This will help users narrow down their search and focus on the most suitable opportunities. The app can also assist users in keeping track of the jobs they have applied to.

This saves job-seekers significant time and effort by eliminating the need to manually search and browse through numerous job portals and websites. Freshers, who often face challenges in finding entry-level positions, can benefit greatly from this tailored recommendation system. The Smart Job Portal Companion App helps freshers gain visibility by matching their skills with entry-level job requirements.

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II. RELATED WORK

In [1] the review begins by introducing web scraping as a process of extracting data from websites using automated tools or scripts. It highlights the importance of web scraping in collecting data from multiple sources and aggregating it for further analysis and use. The authors then delve into the applications of web scraping in different areas. They discuss its role in data aggregation, where it is used to gather and consolidate information from various websites into a centralized database. In [2] The objective is to understand the effectiveness and efficiency of various web scraping techniques in extracting data from modern web pages. The project begins with an introduction to web scraping and its significance in extracting data from websites. It highlights the challenges posed by modern websites, which often employ advanced technologies such as dynamic content loading, AJAX, JavaScript. These technologies make data extraction more complex and require specialized approaches to handle them. The research methodology involves selecting and implementing different web scraping approaches. This may include traditional techniques like HTML parsing and regular expressions, as well as more advanced approaches like using headless browsers or specialized libraries/frameworks such as Selenium.

III. PROPOSED SOLUTION

A. *Selenium Web Scraper*

Selenium can be used to automate the browsing and navigation of job portals, allowing for the extraction of job listings without experience requirements. By leveraging Selenium's web automation capabilities, job listings targeted towards freshers with no prior experience can be scraped efficiently and effectively.By automating the process of extracting job listings without experience requirements, Selenium streamlines the job search for freshers, saving them time and effort in manually browsing multiple job portals. This allows individuals without prior experience to quickly identify and apply for relevant entry-level positions.Selenium's capability to emulate a real browser session allows it to bypass anti-bot mechanisms implemented by job portals, ensuring a smooth and uninterrupted scraping process. By leveraging XPath, Selenium can precisely locate and extract data from specific tags, enabling efficient extraction of job listings without experience requirements.

B. *User Authentication*

Flask can be integrated with PostgreSQL to provide a secure and reliable database backend for user authentication, storing user credentials and other related information. By utilizing Flask's seamless integration with PostgreSQL, developers can implement robust user authentication mechanisms, ensuring secure access to web applications and protecting sensitive user data. In addition to user authentication, Flask's integration with PostgreSQL allows developers to efficiently manage user profiles, storing additional information such as user preferences and settings. The reliability of PostgreSQL ensures data integrity, minimizing the risk of data loss or corruption. Flask's compatibility with PostgreSQL also enables developers to leverage advanced querying capabilities, facilitating complex data retrieval and analysis for user-related tasks. This integration provides a scalable solution, accommodating growing user bases and allowing for seamless expansion and optimization of web applications.

C. *Web Dashboard*

Flask, in combination with Jinja templating, allows for the dynamic rendering and display of scraped job postings with no experience requirements, providing a user-friendly interface for job seekers. By leveraging Flask's integration with Jinja, developers can easily generate HTML templates that dynamically present the scraped job postings, enabling an intuitive and customized viewing experience for users. Moreover, the combination of Flask and Jinja templating enables developers to incorporate additional features such as filtering and sorting options, enhancing the usability of the job portal. With Flask's routing capabilities, developers can create user-friendly URLs for each job listing, allowing for easy sharing and bookmarking of specific opportunities. The seamless integration between Flask and Jinja ensures efficient handling of data passed from the scraping process to the template rendering, resulting in fast and responsive web pages. Additionally, Flask's support for session management enables job seekers to save and track their favorite job postings, enhancing the overall user experience.

D. *Application Tracker*

Flask can be employed to build a tracking system that allows users to log and monitor the companies they have applied to, along with the corresponding application status (visited, applied, rejected, ghosted, accepted). By leveraging Flask's capabilities, developers can create a user-centric application tracking feature that enables users to organize and track their job applications, providing valuable insights into the status and progress of each application.

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Additionally, Flask's integration with a database, such as PostgreSQL, allows for persistent storage of application tracking data, ensuring that users can access their application history across multiple sessions. Developers can implement intuitive user interfaces using Flask's form handling and validation features, enabling users to easily input and update application information. With Flask's routing capabilities, developers can create dedicated endpoints for handling application status updates, facilitating seamless interaction between users and the tracking system. Furthermore, Flask's support for authentication and authorization mechanisms ensures that only authorized users can access and manage their application tracking data, maintaining the privacy and security of sensitive information.

IV. RESULTS

The selenium web scraper successfully obtains the HTML of naukri.com and extracts the data using the corresponding xpaths from the DOM model in Fig 1. The extracted data is stored in a csv file in Fig 2. The Web Dashboard written in Flask loads all the extracted data and displays it in a web dashboard by dynamically rendering the data into HTML using Jinja2 Templating Engine in Fig 3. In Fig 4, the application tracker organises all the applications of the user and displays each of the statuses in an easy-to-read manner.

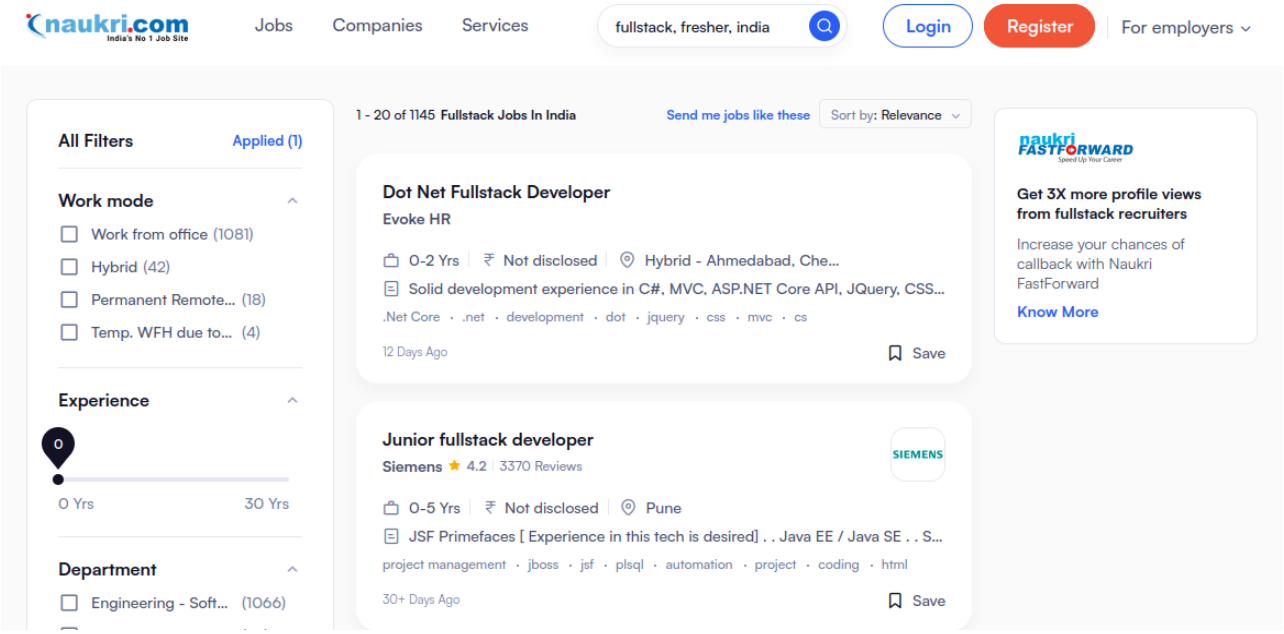
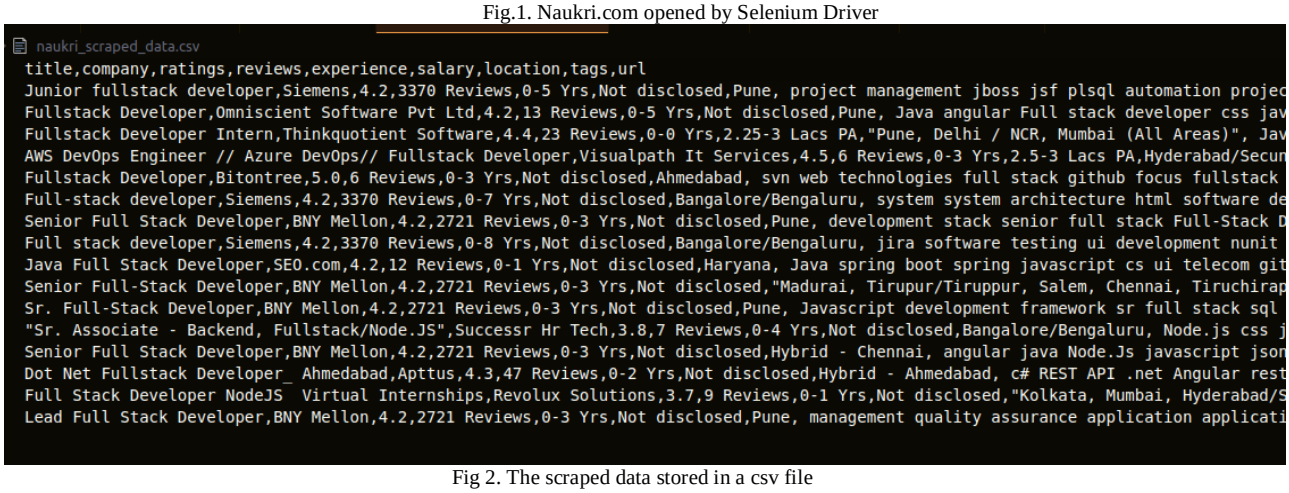


Fig.1. Naukri.com opened by Selenium Driver



naukri_scraped_data.csv

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title,company,ratings,reviews,experience,salary,location,tags,url
Junior fullstack developer,Siemens,4.2,3370 Reviews,0-5 Yrs,Not disclosed,Pune, project management jboss jsf plsql automation projec
Fullstack Developer,Omniscient Software Pvt Ltd,4.2,13 Reviews,0-5 Yrs,Not disclosed,Pune, Java angular Full stack developer css jav
Fullstack Developer Intern,Thinkquotient Software,4.4,23 Reviews,0-0 Yrs,2.25-3 Lacs PA,"Pune, Delhi / NCR, Mumbai (All Areas)", Jav
AWS DevOps Engineer // Azure DevOps// Fullstack Developer,Visualpath It Services,4.5,6 Reviews,0-3 Yrs,2.5-3 Lacs PA,Hyderabad/Secun
Fullstack Developer,Bitontree,5.0,6 Reviews,0-3 Yrs,Not disclosed,Ahmedabad, svn web technologies full stack github focus fullstack
Full-stack developer,Siemens,4.2,3370 Reviews,0-7 Yrs,Not disclosed,Bangalore/Bengaluru, system system architecture html software de
Senior Full Stack Developer,BNY Mellon,4.2,2721 Reviews,0-3 Yrs,Not disclosed,Pune, development stack senior full stack Full-Stack D
Full stack developer,Siemens,4.2,3370 Reviews,0-8 Yrs,Not disclosed,Bangalore/Bengaluru, jira software testing ui development nunit
Java Full Stack Developer,SEO.com,4.2,12 Reviews,0-1 Yrs,Not disclosed,Haryana, Java spring boot spring javascript cs ui telecom git
Senior Full-Stack Developer,BNY Mellon,4.2,2721 Reviews,0-3 Yrs,Not disclosed,"Madurai, Tirupur/Tiruppur, Salem, Chennai, Tiruchirap
Sr. Full-Stack Developer,BNY Mellon,4.2,2721 Reviews,0-3 Yrs,Not disclosed,Pune, Javascript development framework sr full stack sql
"Sr. Associate - Backend, Fullstack/Node.JS",Successr Hr Tech,3.8,7 Reviews,0-4 Yrs,Not disclosed,Bangalore/Bengaluru, Node.js css j
Senior Full Stack Developer,BNY Mellon,4.2,2721 Reviews,0-3 Yrs,Not disclosed,Hybrid - Chennai, angular java Node.Js javascript json
Dot Net Fullstack Developer_ Ahmedabad,Apttus,4.3,47 Reviews,0-2 Yrs,Not disclosed,Hybrid - Ahmedabad, c# REST API .net Angular rest
Full Stack Developer NodeJS  Virtual Internships,Revolux Solutions,3.7,9 Reviews,0-1 Yrs,Not disclosed,"Kolkata, Mumbai, Hyderabad/S
Lead Full Stack Developer,BNY Mellon,4.2,2721 Reviews,0-3 Yrs,Not disclosed,Pune, management quality assurance application applicati
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Fig 2. The scraped data stored in a csv file

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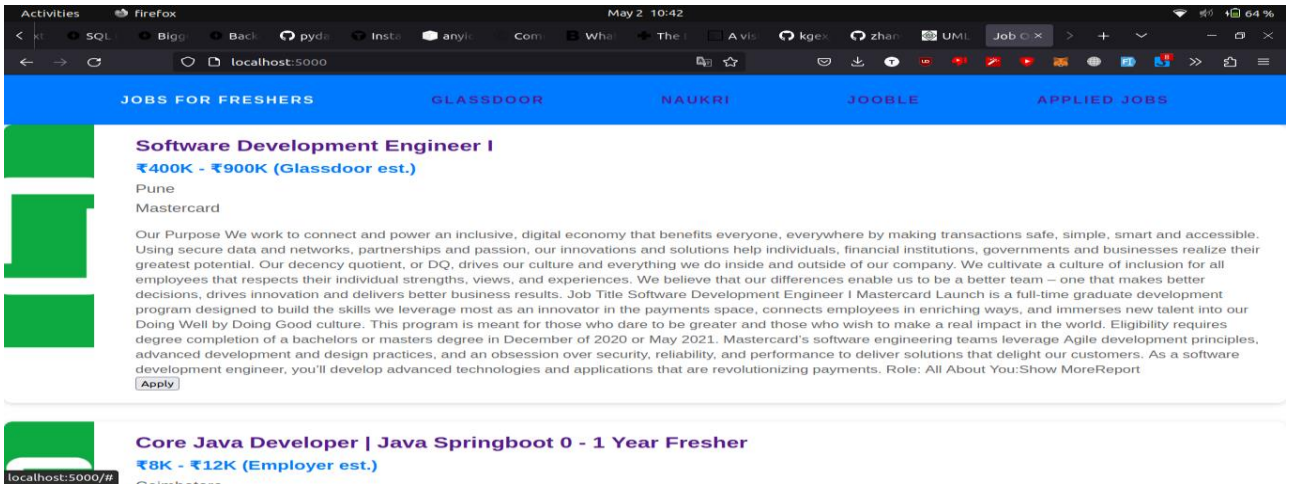

Fig 3. The extracted job data being displayed in a web dashboard

Fig 4. The application tracker displaying all the jobs the user has interacted with.

V. CONCLUSION AND FUTURE WORK

Thus, the objective of this project is to aggregate job listings from multiple websites, filter out those with experience requirements, and present a curated list of opportunities beneficial for freshers during a challenging job market.For future enhancements, several avenues can be explored to further improve this project. Incorporating advanced machine learning techniques such as natural language processing (NLP) can enhance the job filtering process by understanding the job requirements and matching them with user profiles more accurately. Implementing personalized job recommendation systems based on user preferences, location, and industry trends can provide a tailored experience for each user.

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