

	Task Description		3-Nov	10-Nov	17-Nov	24-Nov	1-Dec	8-Dec	15-Dec	22-Dec	29-Dec	5-Jan
			W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
1	Define Problem	Plan										
		Actual										
2	Review Literature	Plan										
		Actual										
3	Design System	Plan										
		Actual										
4	Develop Prototype	Plan										
		Actual										
5	Validate Prototype	Plan										
		Actual										
6	Write Report	Plan										
		Actual										

Weekly Report - 01

Problem Definition Report

Project Name: Applying Web Scraping with Machine Learning for Job Searching

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Department of CSE & DEAN

Course Title : Final Year Design Project - I

Section : C

Course Teacher : Prof. Dr. Hasan Sarwar

Date : 10- 11- 2024

Problem Definition

The job market is overwhelmed with scattered and unstructured job data across various online platforms, making it difficult for job seekers to find relevant opportunities, for employers to understand market trends, and for researchers to analyze labor dynamics. This fragmentation creates inefficiencies, limits decision-making, and results in missed opportunities for all stakeholders.

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Motivation

In today's fast-changing world, jobs and skills are constantly evolving. Staying updated about job trends, salary ranges, and in-demand skills is essential for people making career choices, students planning their education, or organizations shaping policies. However, finding this information can be time-consuming and overwhelming.

This project simplifies that process by automatically collecting and analyzing data from job postings across the internet. It helps job seekers find opportunities that match their skills, educators understand what to teach for future jobs, and policymakers get insights into the economy and workforce needs. By turning raw data into clear, easy-to-understand information, the project empowers everyone to make smarter decisions about work and careers, shaping a brighter future for individuals and society as a whole.

Complex Engineering Problem

1. **WK2:** Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information scienceThe project extensively uses numerical and statistical analysis for insights such as job trends, salary comparisons, and skill analysis. Formal concepts from information science are integral to database design, data processing, and search algorithms.

3. **WK6: Knowledge of engineering practice (technology) in practice areas.** The project demonstrates practical application by using technologies like Python, databases (e.g., MySQL, MongoDB), and visualization tools (e.g., Plotly, Tableau). It involves deploying user interfaces using frameworks such as Flask or React, showcasing hands-on engineering and technology application.

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2. **WK4:** Engineering specialist knowledge providing theoretical frameworks for accepted practices. The project relies on established frameworks in data scraping and engineering practices (e.g., Scrapy, BeautifulSoup, Selenium) and incorporates machine learning techniques for advanced trend analysis and job recommendations.

4. **WK7:** Comprehension of the role of engineering in society, including ethics and professional responsibility. Ethical considerations, including compliance with website terms of service, the responsible handling of data, and adherence to privacy laws, are central to the project. These highlight the role of engineering in maintaining professional integrity and addressing societal impacts.