Literature Review

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

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Course Title	:	Final Year Design Project - I	**Section :**	C
Course Teacher :		Prof. Dr. Hasan Sarwar	**Date :**	17-11-24

Publications	Gap Analysis
1. Automating Job Recommendations Using Web Scraping and Machine Learning	Difficulty handling dynamically loaded content (JavaScript-heavy sites) and overcoming anti-bot mechanisms. Need for efficient tools and methods to ensure real-time data collection and updates.
2. Efficiently Extracting Job Data with NLP: A Case Study on Web Platforms	Noise in data due to varied formats across platforms and missing data in scraped datasets. Limited availability of pre-labeled data for effective training of ML models.
3. Detecting Trends in Job Markets Through Web Scraping and AI	Lack of scalable solutions for handling and processing large volumes of job data in real time. Challenges in integrating scraped data into trend analysis pipelines for meaningful insights.
4. A Comparative Analysis of Algorithms for Web Scraping Job Listings	Ethical concerns, including violations of terms of service and user privacy, remain insufficiently addressed. Limited studies on hybrid ML-rule-based systems for context-aware job recommendations.
5. Leveraging Machine Learning for Automated Resume Matching in Recruitment Systems	Difficulty in matching resumes to job descriptions due to differences in vocabulary and phrasing. Limited research on bias mitigation in ML models to ensure fair and inclusive hiring processes. Insufficient integration of real-world recruitment datasets for robust training and testing.

6. Enhancing Job Recommendation Systems Using Deep Learning Architectures	High computational cost and lack of scalability of deep learning models for real-time recommendations. Limited interpretability of deep models, restricting their adoption in sensitive decision-making processes. Inadequate datasets capturing the evolving nature of job requirements and candidate skills.
7. Cross-Language Job Market Analysis Using Web Scraping and NLP	Challenges in handling multilingual data with contextually rich yet nuanced linguistic differences. Limited tools for seamless integration of translation and analysis pipelines for non-English job postings. Lack of focus on cross-cultural job trend insights that align with global recruitment needs.

	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	▓	▓	▓	▓						