LLM-Powered Skill Prediction and Employee Attrition Analysis

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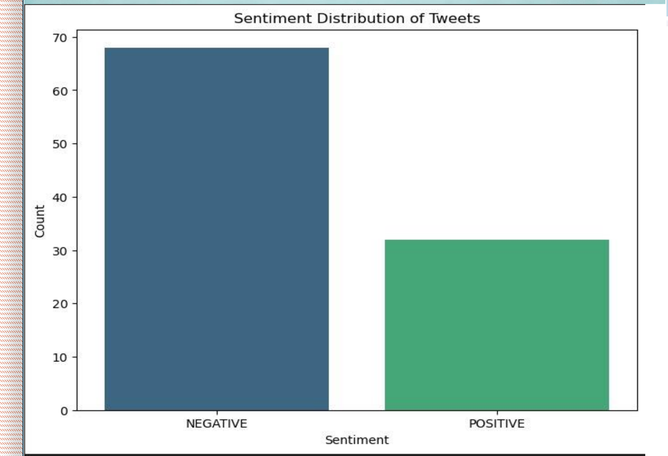
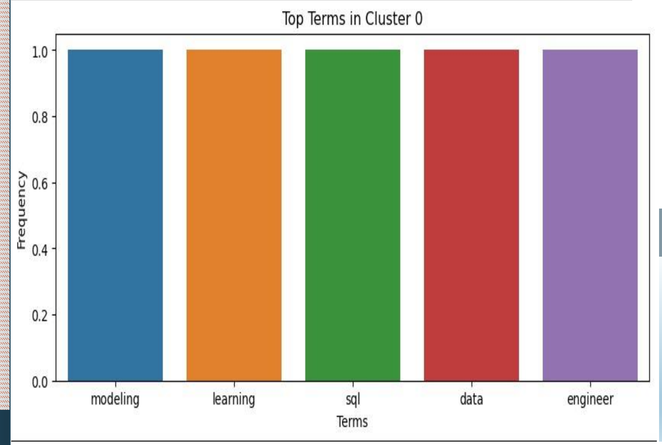
PROBLEM STATEMENT

The Job and Skill Prediction Dashboard addresses the challenge of aligning job seekers' skills with market demands by predicting relevant skills from job descriptions and providing job analysis insights based on specified titles and locations. This tool simplifies job search and skill identification, enhancing decision-making for both job seekers and recruiters.





OBJECTIVES

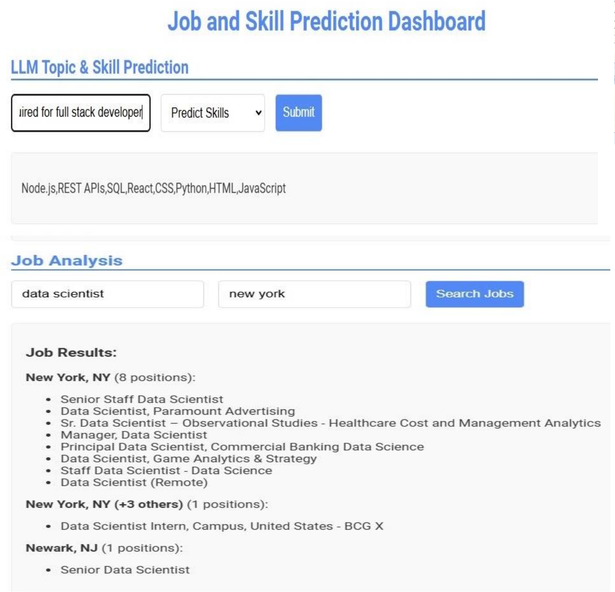
The objective of this project is to build an interactive Job and Skill Prediction Dashboard that uses machine learning to predict relevant skills from job descriptions and provide job insights based on titles and locations. This tool aims to simplify job searches and help align skills with market needs.

RESULTS

Skill Prediction: The tool accurately predicts skills such as Node.js, REST APIs, SQL, React, CSS, Python, and JavaScript for roles like "Full Stack Developer" and others.

Job Analysis: The dashboard displays job listings and visualizes the distribution of job opportunities across different locations, providing insights into job availability in various regions.

User Feedback: Initial user feedback indicates that the tool is effective in helping job seekers identify relevant skills and explore job openings in target locations.



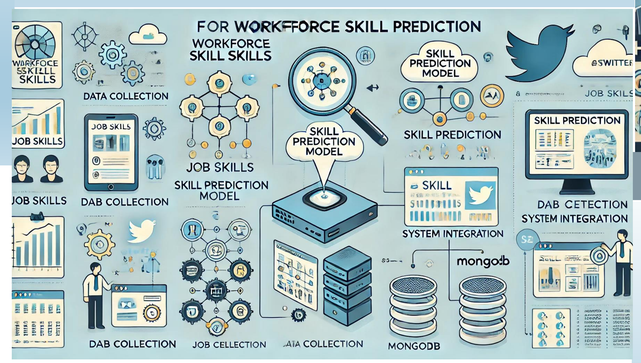
METHODS

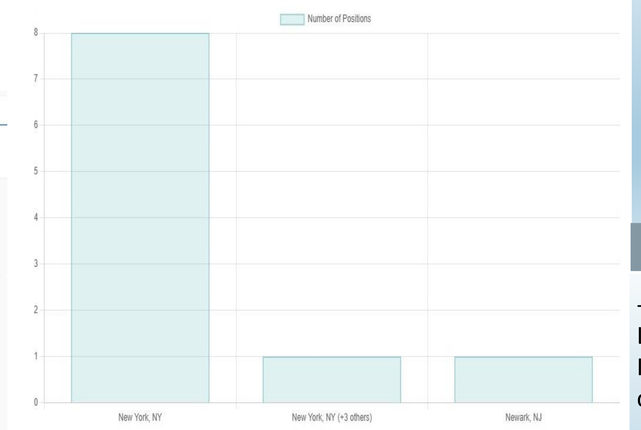
Data Collection: Job descriptions and job titles are gathered from various sources, focusing on popular roles and skills in the current job market.

Skill Prediction Model: An NLP (Natural Language Processing) model processes job descriptions to identify and predict relevant skills for each role.

Job Analysis: Users input job titles and locations to retrieve and display job listings. Job data is visualized through charts, showing the distribution of job opportunities across different locations.

Technology Stack: The project utilizes HTML, CSS, JavaScript, and Python for the front-end and back-end, with Flask as the framework. Chart.js is used for visualizations, and AJAX facilitates dynamic data updates.





DISCUSSIONS

The dashboard successfully combines skill prediction and job analysis in a user-friendly interface. It enables users to input job descriptions and retrieve predicted skills and related job opportunities, helping users understand market trends and necessary skills. However, the accuracy of skill prediction may vary with the specificity of job descriptions, and location limitations reduce the dashboard's effectiveness for broader searches.

CONCLUSIONS AND FUTURE WORK

Conclusions: The Job and Skill Prediction Dashboard is a valuable tool for job seekers and recruiters, offering insights into essential skills and available job opportunities. By bridging the gap between skill requirements and job availability, the dashboard enhances decision-making in job searches and recruitment processes.

Future Work: Enhance skill prediction accuracy with advanced NLP models, expand location-based search, add diverse job fields, and include features like salary insights and real-time market trends.

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GITHUB LINK:

https://github.com/yogithamekala/Assignment_3