LinkedIn Job Trend Analysis

Introduction

Understanding the need for particular work abilities across various positions and regions has become essential due to the increased competition in the labor market. In order to find skill trends, pinpoint cities with the highest demand for particular abilities, and provide location-based job role recommendations, this project will examine LinkedIn job postings. The results can help institutions, job seekers, and students make well-informed decisions about their training and careers.

Abstract

In order to gather information about the demand for different technical talents across various cities and job roles, the project entails evaluating a dataset of LinkedIn job ads. The analysis includes trend heatmaps, skill and role extraction, data cleaning, and the development of a skill-based recommendation system using Python, Excel, and data visualization tools. The finished product highlights the demand for top talents like Python, SQL, and Data Science by region and role through interactive graphics and actionable information.

Tools Used

- Python Libraries: BeautifulSoup, Pandas, Matplotlib, Seaborn
- Excel: For data storage and export
- Google Colab: For code execution and analysis

Steps Involved in Building the Project

Phase 1: Data Cleaning and Preprocessing

- Loaded the raw LinkedIn dataset into a Pandas DataFrame.
- Cleaned text columns to remove newline characters and extra spaces.
- Dropped duplicates and handled missing values in key columns (job_title, location).
- Parsed the location column into separate city, state, and country columns.

Phase 2: Skill Trends by City – Heatmap

- Defined a skill list including Python, SQL, Data Science, etc.
- Extracted skills from job_title using keyword matching.
- Exploded data so each row represented a single skill-city pair.
- Visualized top 10 skills' frequency by city using a heatmap.

Phase 3: Skill vs Role Matrix

- Mapped job titles to roles like Data Analyst, Data Scientist, and ML Engineer.
- Built a matrix showing skill occurrences within each role.
- Generated a heatmap to analyze which skills are most associated with each role.

Phase 4: Job Demand Recommendation System

- Implemented a feature to suggest top cities and roles for a given skill.
- Enabled reverse recommendations: given a role, find the most associated skills.
- The system offers career insights using actual LinkedIn job data.

Conclusion

Important information about the current tech job market is successfully revealed by the LinkedIn Job Trend Analysis. It assists professionals and job seekers in making well - informed selections by visualizing in-demand talents by role and city. By pointing out interesting places and positions that are suited to particular skill sets, the recommendation system offers useful assistance. This project is a great illustration of how to use Python and Excel to make data-driven decisions in the real world.