

Expediting the Job Search Process in the Era of Tech layoffs

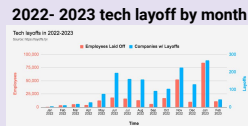
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Background & Business Problem

2022-2023 has been a year of unprecedented tech layoffs, widely affecting both the tech workers and the larger industries. With thousands of laid-off tech workers in the current job market, it is an overwhelming process for job seekers to find and apply for the right kind of jobs. While layoffs present a problem to workers, they present talent acquisition opportunities to employers, particularly, non-tech companies as well as small and medium businesses (SMB).

386,399

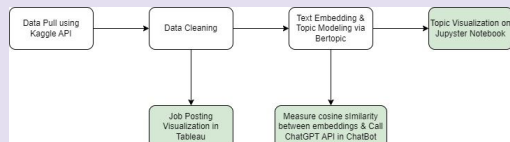
Total employees laid off in 2022 and 2023



Approach

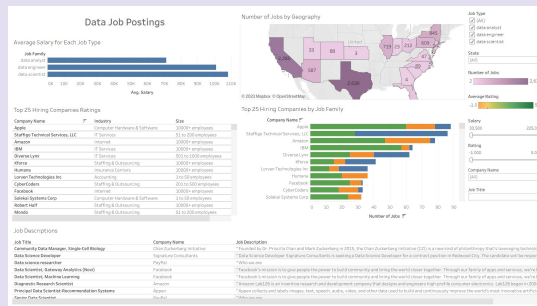
To simplify this recruitment and job search process and to save time for both parties, we will begin by (1) providing high-level statistics and summaries for job postings, followed by (2) presenting a list of best job postings to both parties. Finally, (3) we will provide written recommendations to (3a) recruiters on how to make their job offers more attractive, and to (3b) candidates on how they can become a stronger candidate in the data field overall.

Due to time constraints, we used web-scraped data from 2020-2021, and we only implemented solution for candidates.



Data

Upon collecting and cleaning data, we visualized all job posting data on a **Tableau Dashboard** ([link](#)), highlighting salary of each of the data job types, geography of these jobs, top hiring companies, ratings of hiring companies, as well as the actual job descriptions themselves.

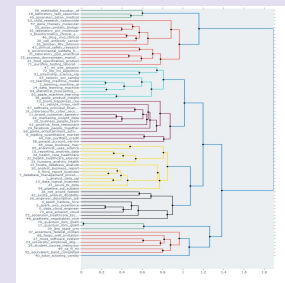


Insights from Data

We performed topic modeling using Bertopic API and found common/different topics across each type of the data jobs. We found that

- **Data Analyst** jobs tend to focus on business insights and data analysis skills.
- **Data Engineer** jobs tend to focus on system designs, experience on different platforms, as well as technical skills such as Python and Spark.
- **Data Scientist** jobs tend to split into research vs business roles. For business roles, we see a wide array of topics including machine learning, product analytics, business management, and cloud technology. Additionally, we see that education requirements emerge as a topic as well.

Hierarchical Clustering on Data Scientist Job Postings



App: Resume Matcher ChatBot

As a proof-of-concept, we built a **chatbot** for the job applicant persona ([GitHub](#)). The chatbot matches the resume to job listings in our database, provides a summary on the recommended job postings, and suggests improvements on resume for specific job postings. A clear walk-through of the app is on the right.



- Offers **Summary** of Job Description
- Offers **Suggestions** on Resume Improvements

- Ask for **Type of Data Job**
- Ask for **Resume** in PDF format
- Provide **Top 5 Job Postings** in database.



Future Work: Optimization & Integration

Optimization - Areas include run-time improvement, hyperparameter tuning, experimentation with different models.
Integration - Areas include build ETL for new data ingestion, build UI for chatbot, or integrate into client's existing system.

