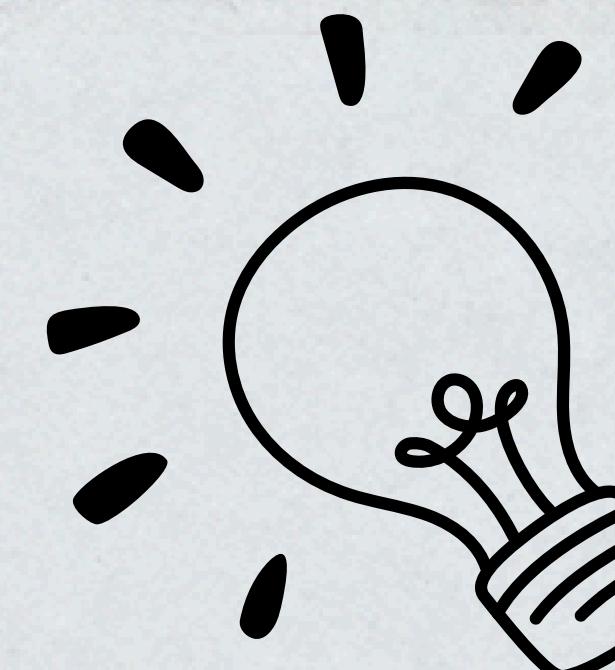


SMART MATCH JOB RECOMMENDATION SYSTEM

Presented By: Group 7



MEET THE GROUP



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PROJECT OVERVIEW

- PROBLEM STATEMENT
- DATA UNDERSTANDING
- OBJECTIVES
- PROJECT FLOW
- DATA UNDERSTANDING
- EXPLORATORY ANALYSIS
- MODELLING

INTRODUCTION

This project builds on existing research in the field of job recommendations to match jobs to job seekers

STAKEHOLDERS



Job Seekers

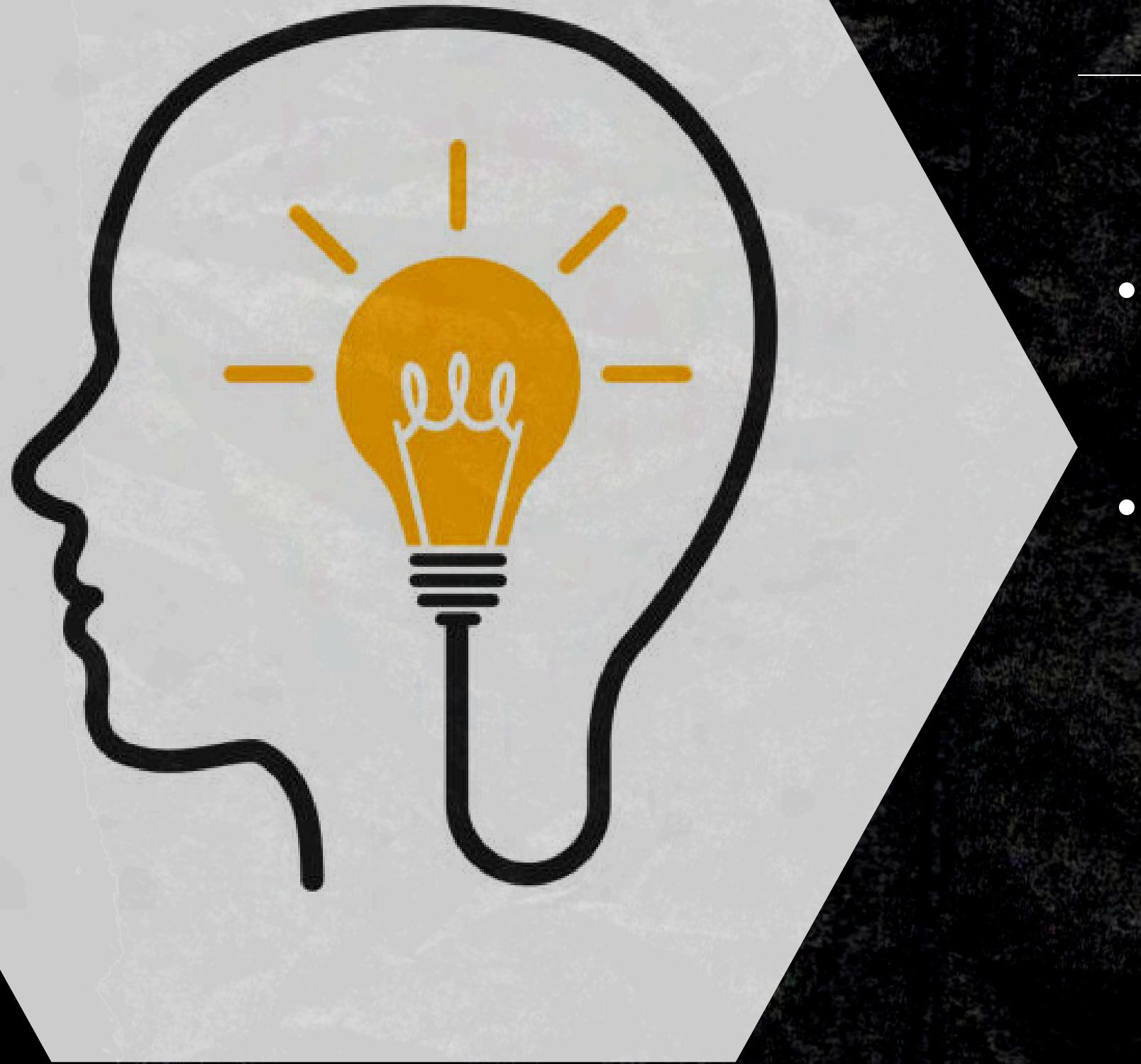


Employers/recruiters



Career
Counselors/Advisors

PROBLEM STATEMENT



- The traditional job searching process is frequently tedious
- Therefore, there is a need for a streamlined solution that can intelligently match job seekers to relevant job listings while making it easier for recruiters as well.

DATA UNDERSTANDING

The datasets were sourced from Kaggle and include:

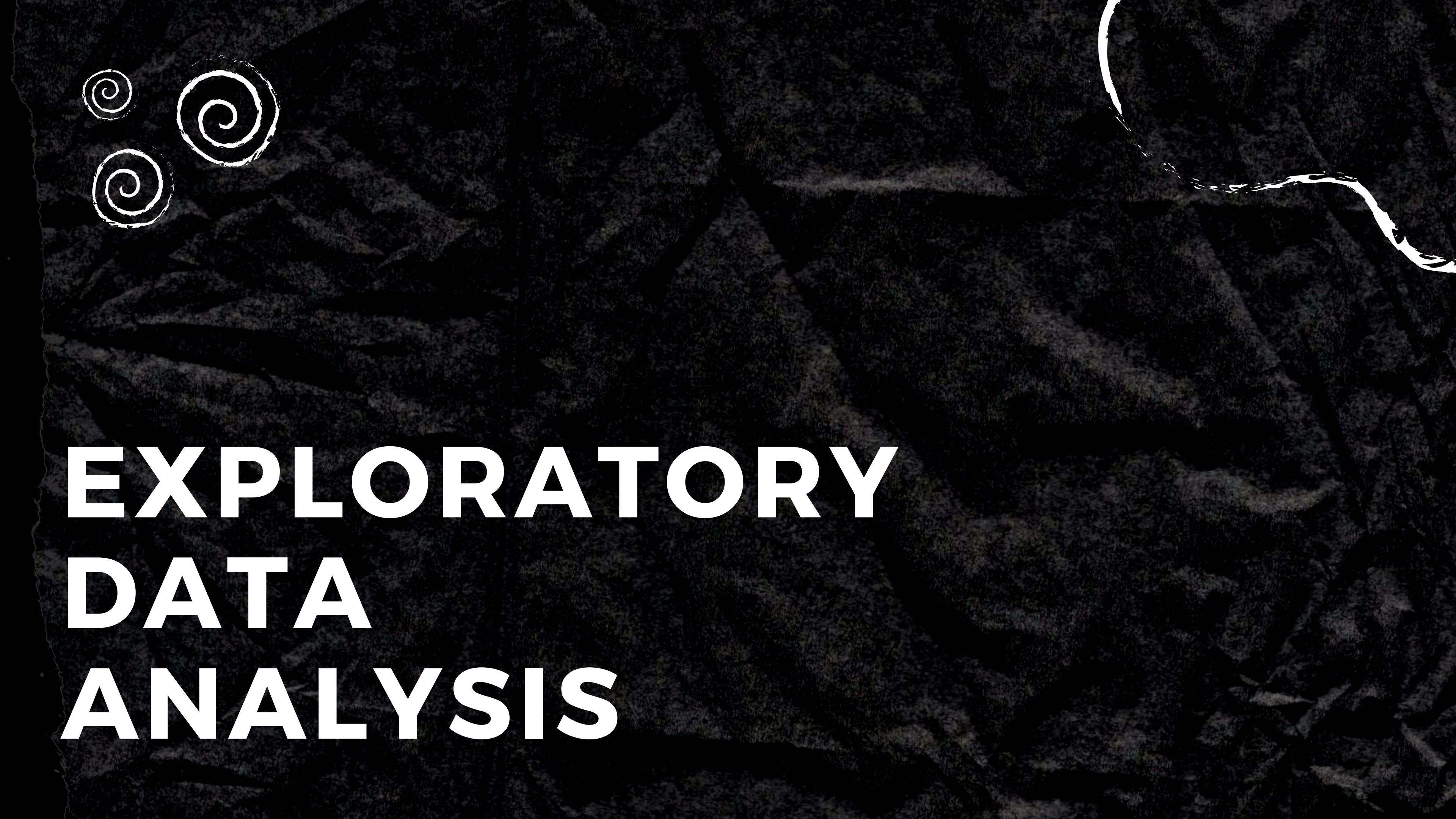
- Combined_Jobs_Final.csv: Details about job openings
- Experience.csv: Information on job seekers' previous roles.
- Job_views.csv: Data on the time spent by job seekers viewing job openings.
- Positions_Of_Interest.csv: Records of positions job seekers are interested in.
- job_data.csv: Additional descriptions of job openings.

MAIN OBJECTIVE

- The main objective of this job recommender system is to match job seekers with relevant job opportunities and recruiters to job seekers

SPECIFIC OBJECTIVES

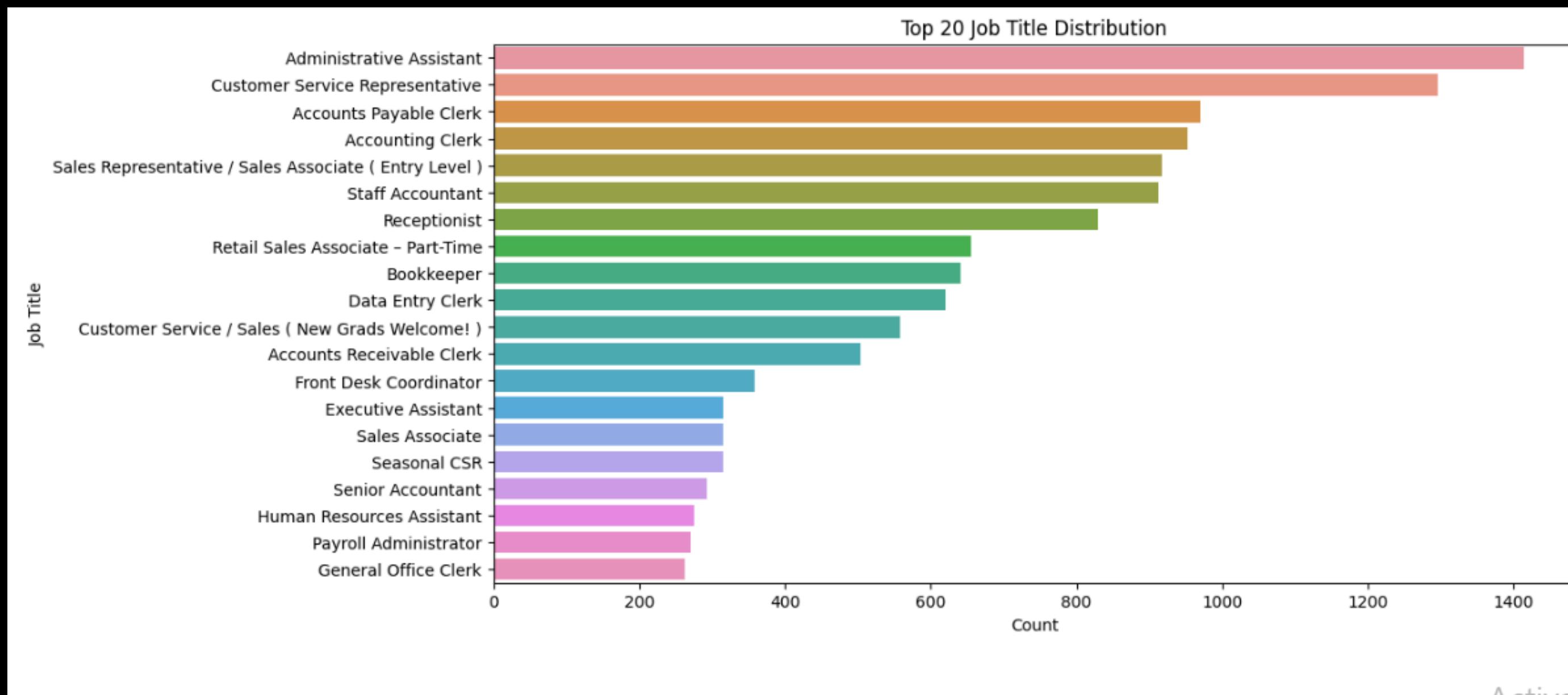
1. Develop an intelligent matching algorithm
2. Enhance recruiter experience
3. Develop a user-friendly web application
4. Deployment and maintenance



EXPLORATORY DATA ANALYSIS

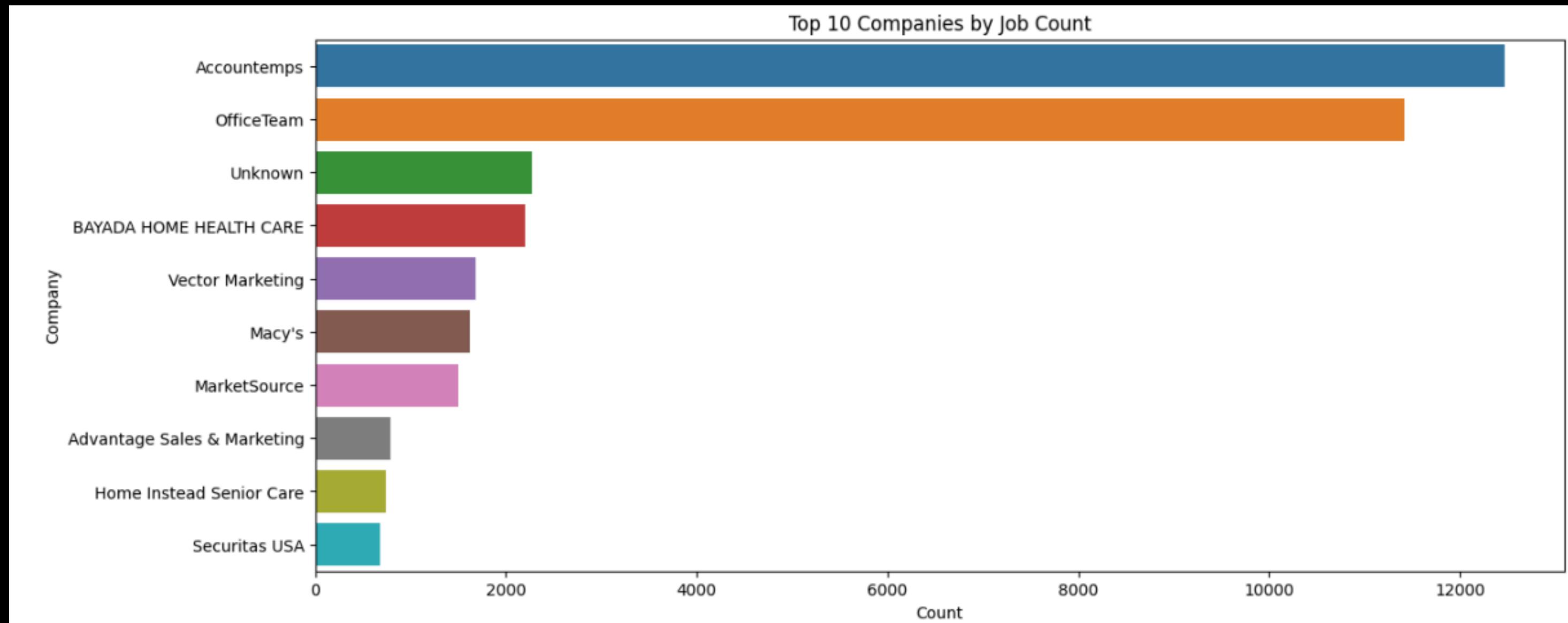
UNIVARIATE ANALYSIS

Most sought After Jobs

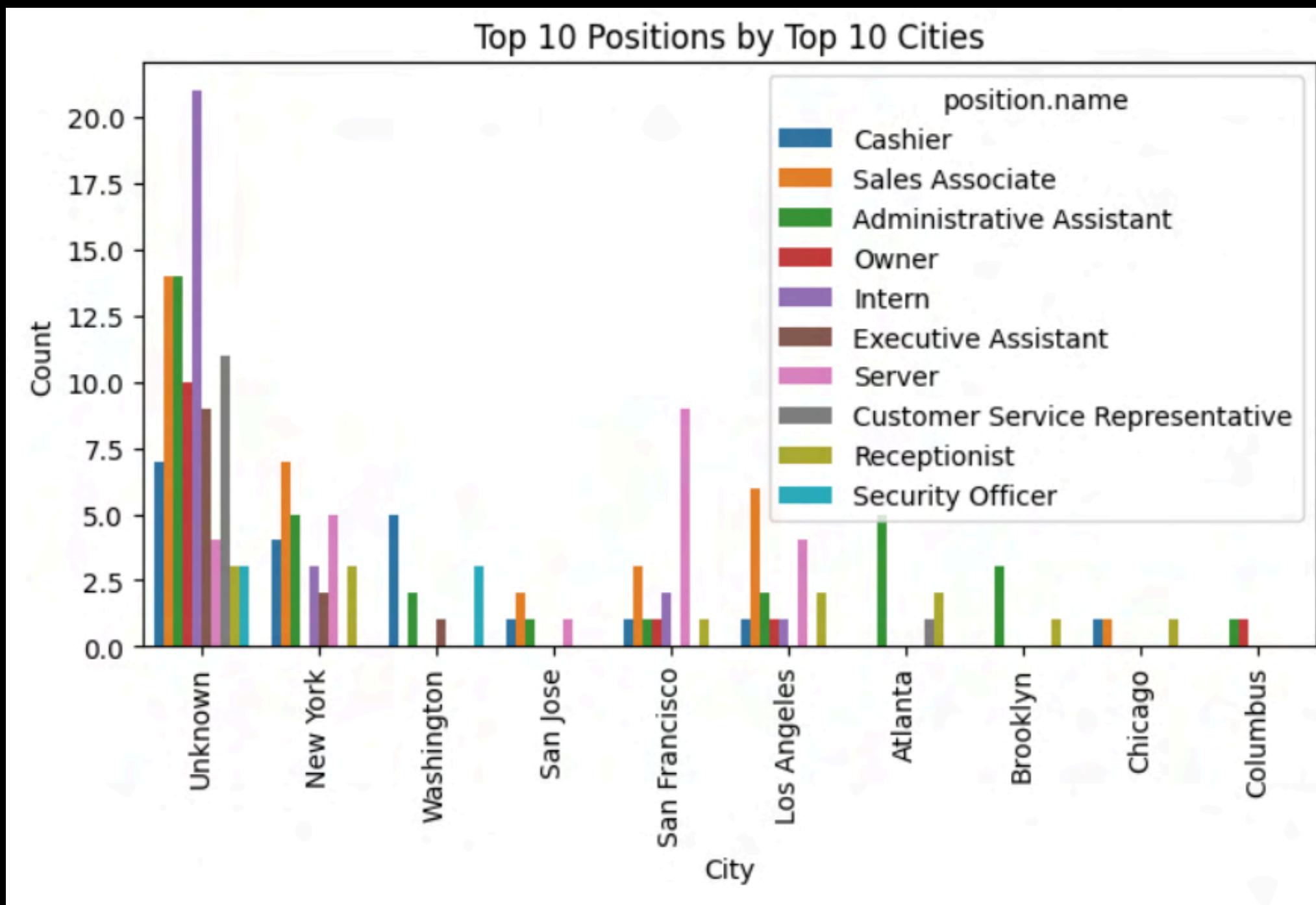


BIVARIATE ANALYSIS

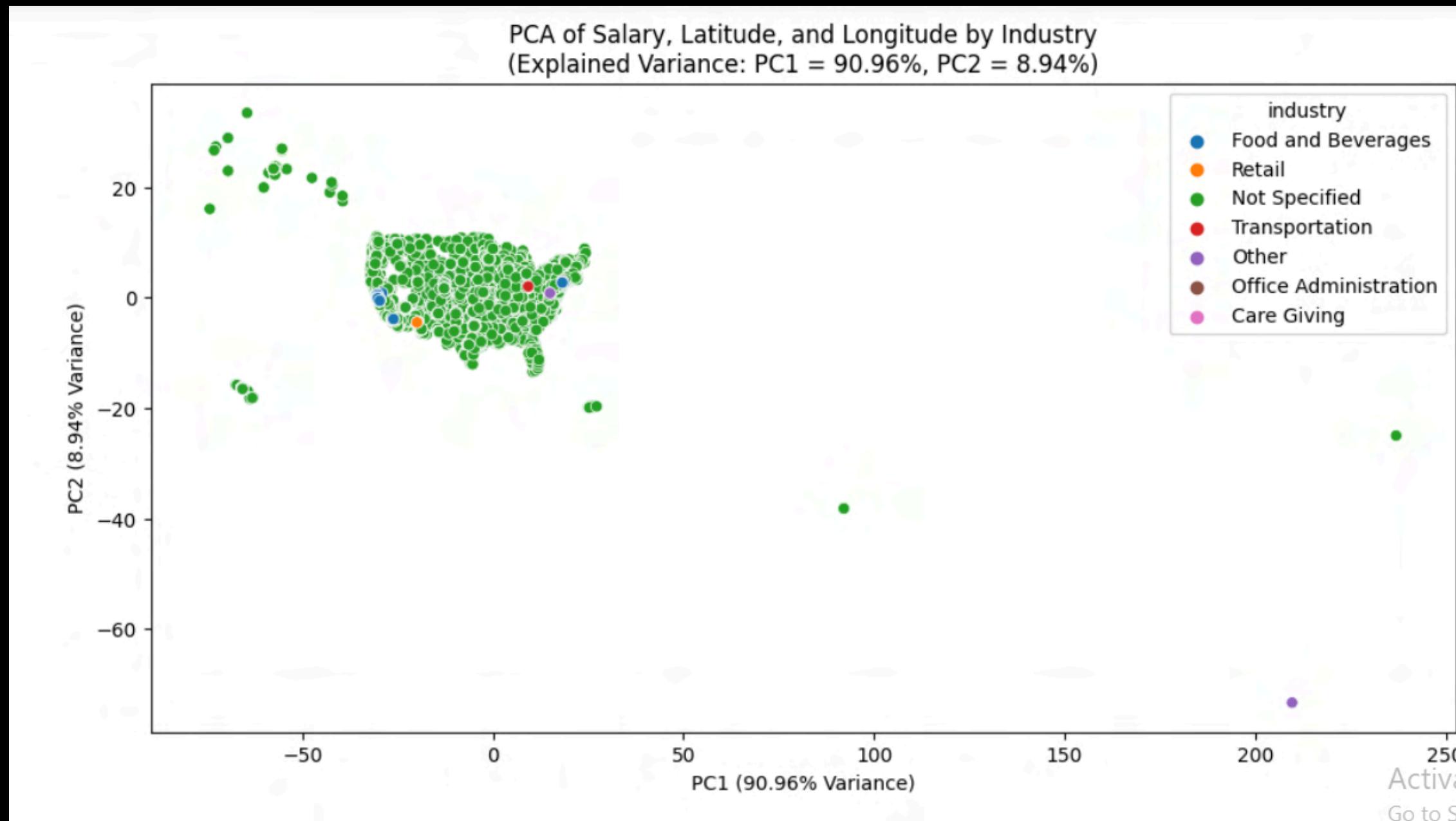
Top 10 companies by job count



Top 10 Positions by top 10 cities



MULTIVARIATE ANALYSIS



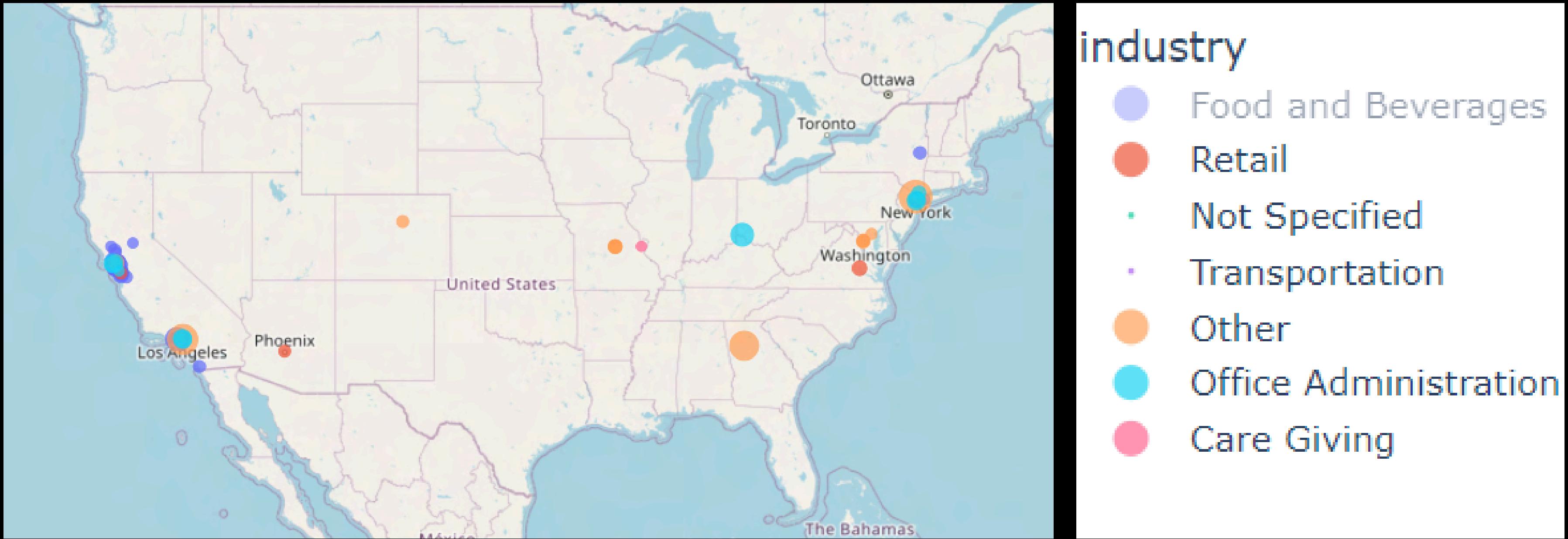
PRINCIPAL COMPONENT ANALYSIS

PC1 (90.96% Variance):

- Captures the majority of the variance, likely driven by key features such as salary, latitude, and longitude.
- Represents the dominant trends in job listings.

PC2 (8.945% Variance):

- Accounts for a smaller proportion of the variance.
- Highlights secondary patterns in the data.



PLOTLY

Industry Distribution:

- The map shows how various industries are geographically distributed, highlighting regions with high concentrations of specific industries.



MODELLING

Model Success Metrics

Precision: High relevance in job recommendations.

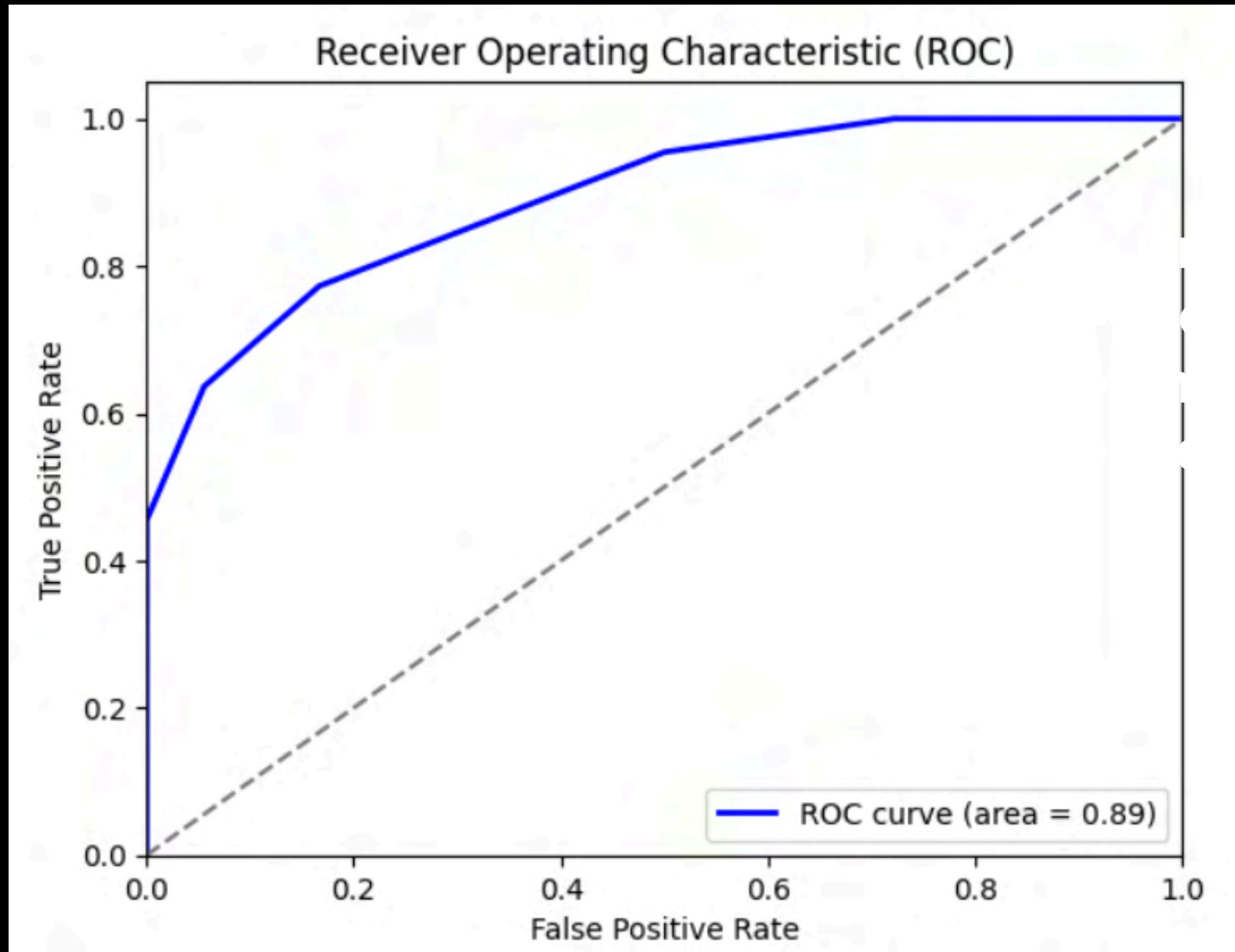
Recall: Comprehensive coverage of relevant opportunities.

Normalized Discounted Cumulative Gain (NDCG)
Comprehensive coverage of relevant opportunities.

F1 Score: Balance between precision and recall.

Mean Reciprocal Rank (MRR):

Model Evaluation

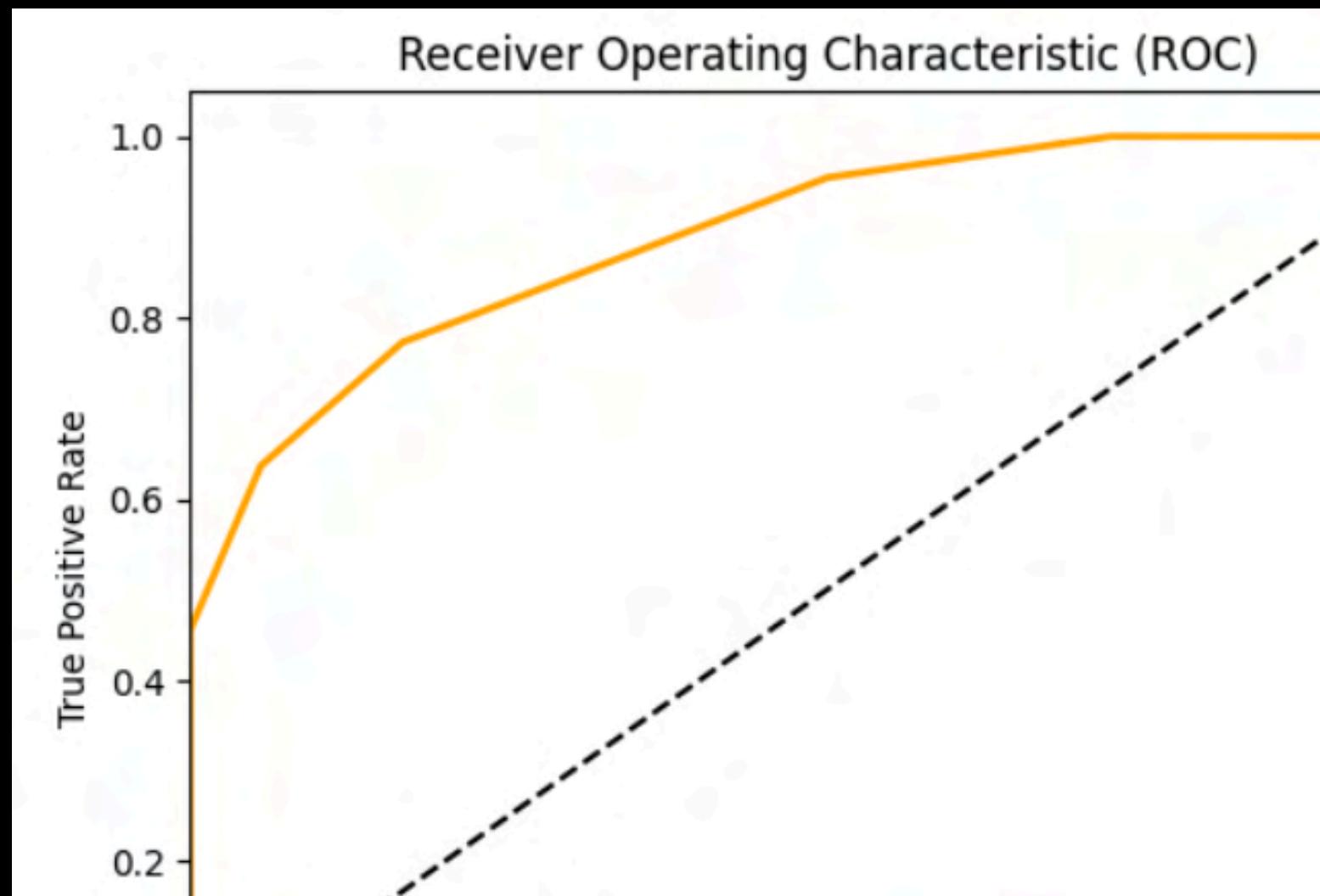


precision: 0.9333333333333332
f1 score: 0.35
recall: 1.0
MRR value: 1.0
avg@10: 0.5137088609996164

**The model excels at making highly accurate top recommendations
(high precision and perfect MRR)**

Model Evaluation

K-Nearest Neighbors (KNN) and Singular Value Decomposition (SVD)



Both had a similar score below.

- **Precision:** 0.6
- **Recall:** 1.0
- **mrr_value:** 1.0
- **ndcg:** 1.0

Conclusion on modelling

Model 1:

Conclusion:

Highly precise with perfect top ranking, but low recall limits the range of relevant jobs shown.

Insight:

Ideal for focused, top-quality recommendations; needs better recall and ranking beyond top jobs.

Model 2:

Conclusion:

Perfect coverage and ranking, but moderate precision includes some less relevant jobs.

Insight:

Best for comprehensive job listings with perfect ranking; can improve by increasing precision.



DEPLOYMENT

Web Application:

Link-<https://appapp-mnfqtl6q4zqgfkwf6zth7n.streamlit.app/>

Deployed on Streamlit, offering a user-friendly interface for job seekers and recruiters.

Continuous Integration: Regular updates and monitoring to maintain accuracy and performance.

CONCLUSION

- The SmartMatch project successfully addressed the inefficiencies of traditional job search processes by applying machine learning techniques to create an intelligent job recommendation system.
- By enhancing the experiences of both job seekers and recruiters, SmartMatch provides a more personalized, efficient, and user-friendly approach to job matching, paving the way for a more streamlined and equitable hiring process.

RECOMMENDATIONS

- Enhance algorithm accuracy- refine matching criteria to increase relevant job suggestions
- Improve user experience- simplify interface and ensure intuitive navigation.
- Incorporate personalized suggestions- use user data to tailor job recommendations uniquely.



THANK YOU
ANY QUESTIONS?