# Project Report: Job Market Analysis

**Introduction**

This project analyses trends in the U.S. job market, focusing on data science roles. The dataset contains 742 job listings with 42 details such as job titles, salary estimates, company information, and required skills. The goal is to provide insights that will help job seekers and employers by highlighting key trends in skills, salaries, industries, and job titles.

**Data Overview**

The dataset includes the following information:

Job Titles: Examples include Data Scientist, Junior Data Scientist, and Machine Learning Engineer.

Salaries: Salary estimates in U.S. dollars, with lower, upper, and average ranges.

Company Information: Data like company ratings, headquarters, size, and industry.

Skills: Technical skills such as Python, SQL, Spark, AWS, and Excel.

Other Information: Seniority level, job location, company type (e.g., public or private), and education requirements (Master's or PhD).

**Key Insights**

1. States with the Most Jobs

California, Texas, and New York have the most data science job listings, showing that tech jobs are concentrated in these states.

2. Salary Distribution by State

California has the highest salaries, with average salaries ranging from $120K to $150K per year.

Texas and New York also offer high salaries, ranging from $100K to $130K.

3. Top 5 Industries with the Most Data Science Jobs

Technology leads in data science job openings, followed by Healthcare, Finance, E-commerce, and Consulting.

This shows that data science skills are needed in many different fields.

4. Most Common Job Titles

The most frequent job titles are Data Scientist, Machine Learning Engineer, and Data Analyst.

Most openings are for mid-level roles, with some junior positions as well.

5. Skills Needed for Job Titles

The most common skills required are Python, SQL, and Machine Learning.

Cloud Computing skills, such as AWS and Azure, are also in high demand for jobs dealing with large amounts of data.

6. Salaries and Education

Higher education (Master’s or PhD) is linked to higher salaries. Jobs requiring advanced degrees offer salaries over $130K, while those with just a bachelor’s degree average around $90K to $110K.

7. Companies with the Most Job Listings

Big companies like Amazon, Google, and Microsoft have the most job openings for data scientists.

These companies offer competitive salaries and require advanced technical skills, such as cloud computing and artificial intelligence.

**Visualization Insights**

Salary Distribution: Power BI line charts show how salaries differ across states, making it easy to see where the best-paying jobs are.

Job Title Distribution: A bar chart displays the dominance of Data Scientist roles, showing its importance in the market.

**Conclusion and Recommendations**

The demand for data science roles is growing rapidly, especially in states like California, Texas, and New York, and in industries like Technology and Healthcare. Skills like Python, SQL, and Machine Learning are essential, and having an advanced degree can significantly boost salary prospects. Job seekers should focus on building these technical skills and consider learning cloud computing and AI to stay competitive.

Employers should offer attractive salaries and focus on training their employees in advanced technical skills to keep up with market demands.

**Unique Approach**

This analysis combined numbers and qualitative insights, giving a clear view of the job market. Visualizations helped explain key trends, and the report emphasized the increasing need for data science skills across various industries.