



Data Science Jobs and Salaries Analysis

Using Python

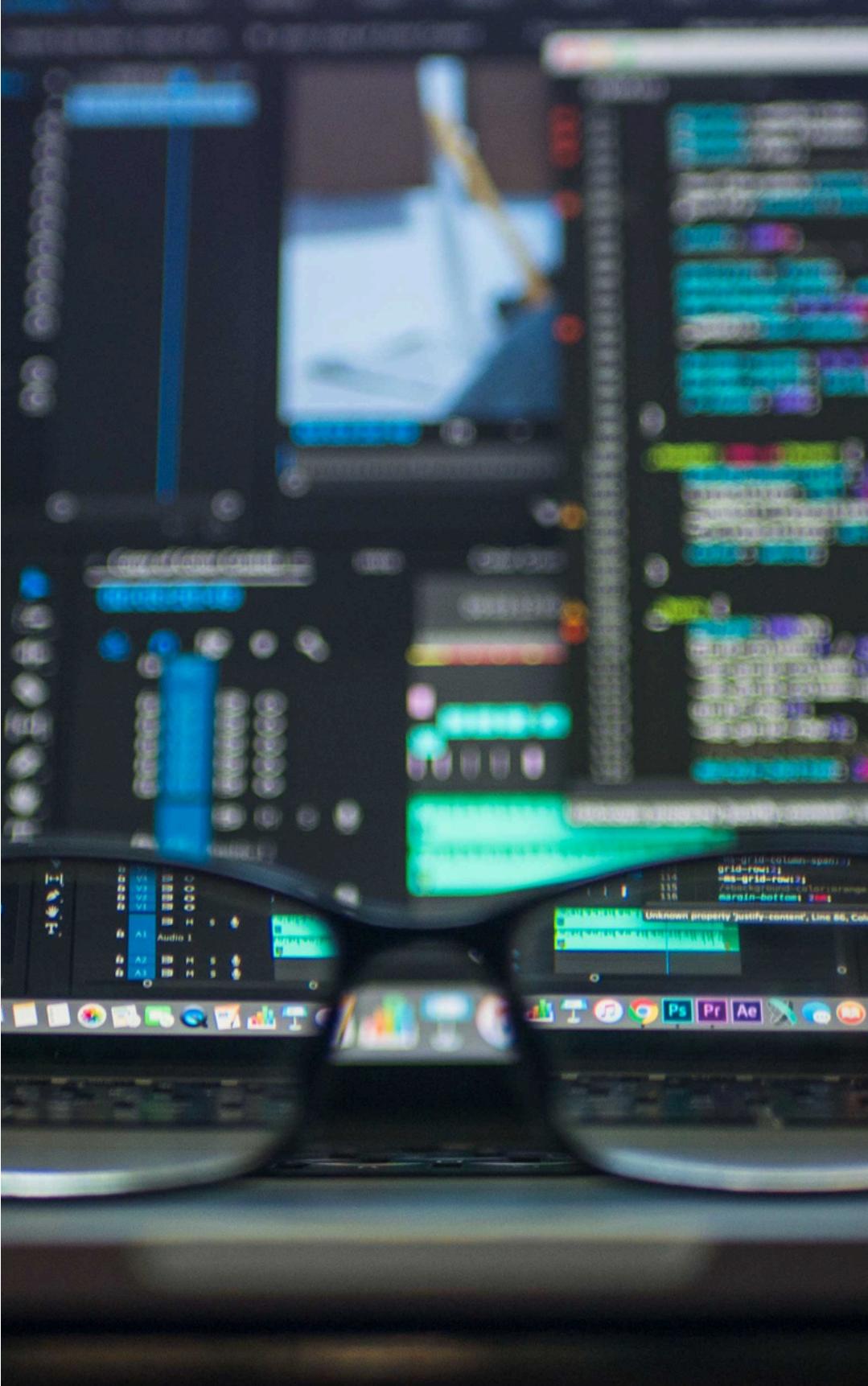
Presented By
Sady García



Agenda



- 3 **Project Overview**
- 4 **Approach**
- 5 **Data Outlook**
- 6 **Salary Trends**
- 22 **Insights**
- 23 **Conclusions**
- 24 **Contact Information**



Project Overview

- As data scientist intern at Oeson, the goal is to gain valuable insights about salary trends using data from a well-known job website to explore global data job postings to understand the specific requirements of data-related roles.
- The scope is to examine salary trends across different dimensions, including experience level, company location, employment type, or work setting, among others.
- To analyze the data a combination of exploratory data analysis, statistical analysis, and data visualization techniques using Python was utilized.

Approach

Data Understanding

Focusing on relevant columns and knowing the values inside the dataset.

Data Preprocessing

Identifying missing values to ensure an accurate analysis

Exploratory Data Analysis

Utilizing univariate, bivariate, and multivariate analysis techniques is a comprehensive approach to gaining insights into various aspects of the dataset

Data Visualization

Using the proper plots and charts to communicate effectively, the insights, as well as to draw conclusions.



A brief Data Outlook

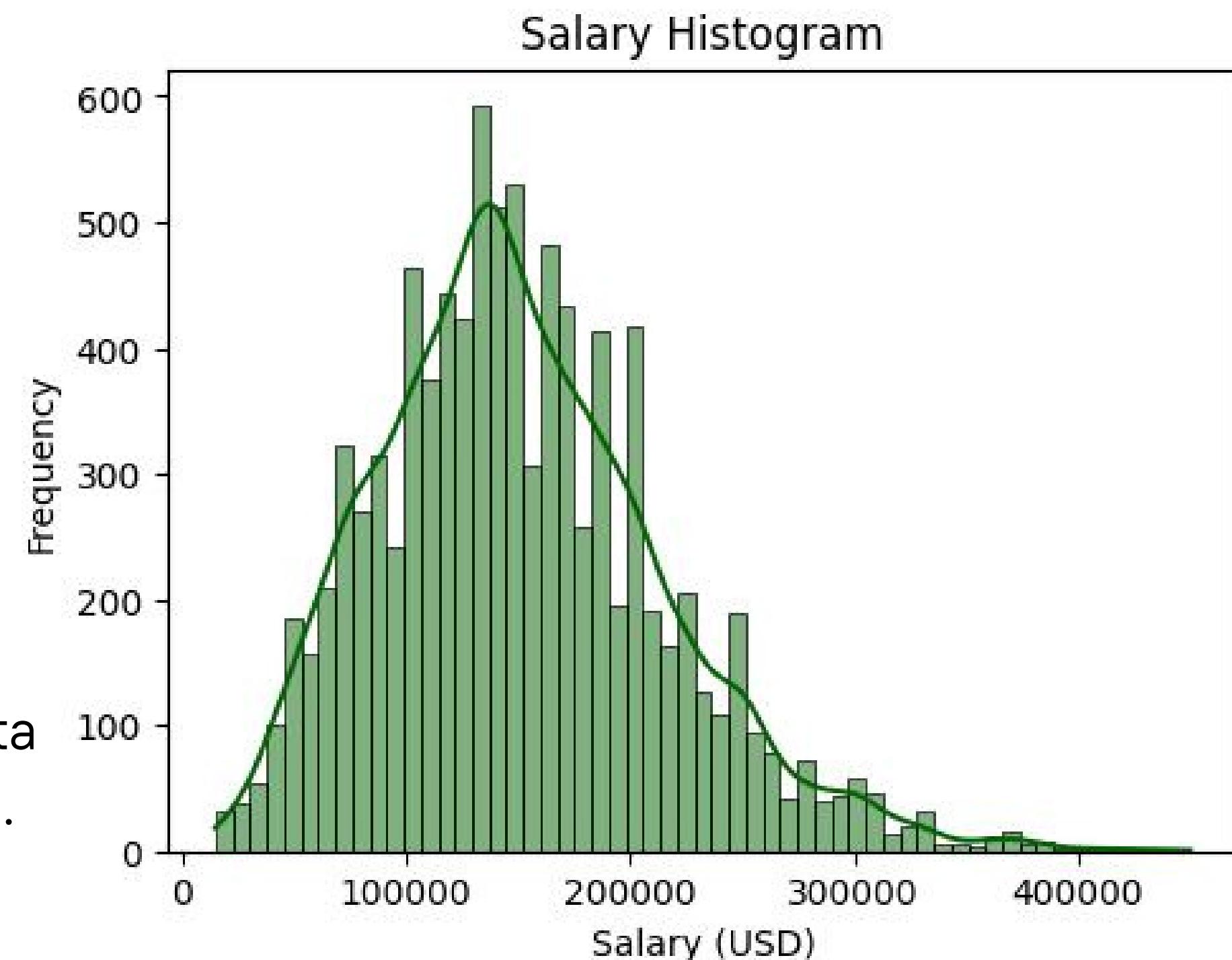
BACK TO AGENDA

The dataset contains over 9000 values per column, with dimensions related to :

- Compensation
 - Location
 - Job-related attributes

These dimensions were analyzed to infer trends in data science jobs within the timeframe from 2020 to 2023.

Within this dataset, the Salary Histogram shows that Data Science jobs are well-compensated but exhibit a wide range of **salaries**, from **\$15,000 to \$450,000 USD annually gross**



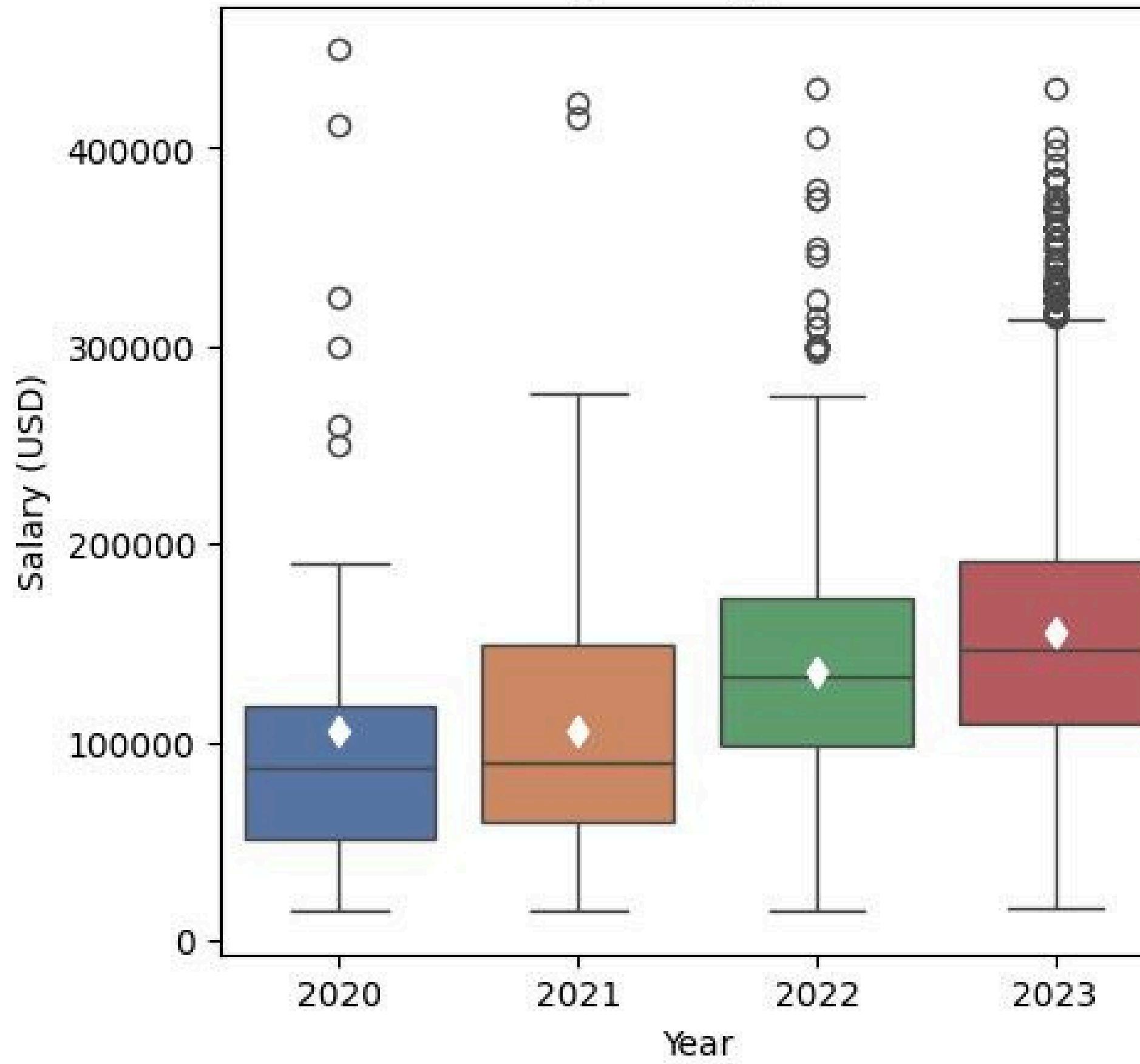
Mean Salary : 150 299 USD

STD : 63177 USD

Salary Trends Across Dimensions

- | | |
|-----------------------------|---|
| 7 <u>Year</u> | 14 <u>Highest Revenue per Job Title</u> |
| 8 <u>Job Category</u> | 15 <u>Lowest Revenue per Job Title</u> |
| 10 <u>Experience Level</u> | 16 <u>Location</u> |
| 11 <u>Company Size</u> | 20 <u>Multivariate analysis</u> |
| 11 <u>Employment Type</u> | |
| 12 <u>Top 10 Job Titles</u> | |

Average Salary per Year

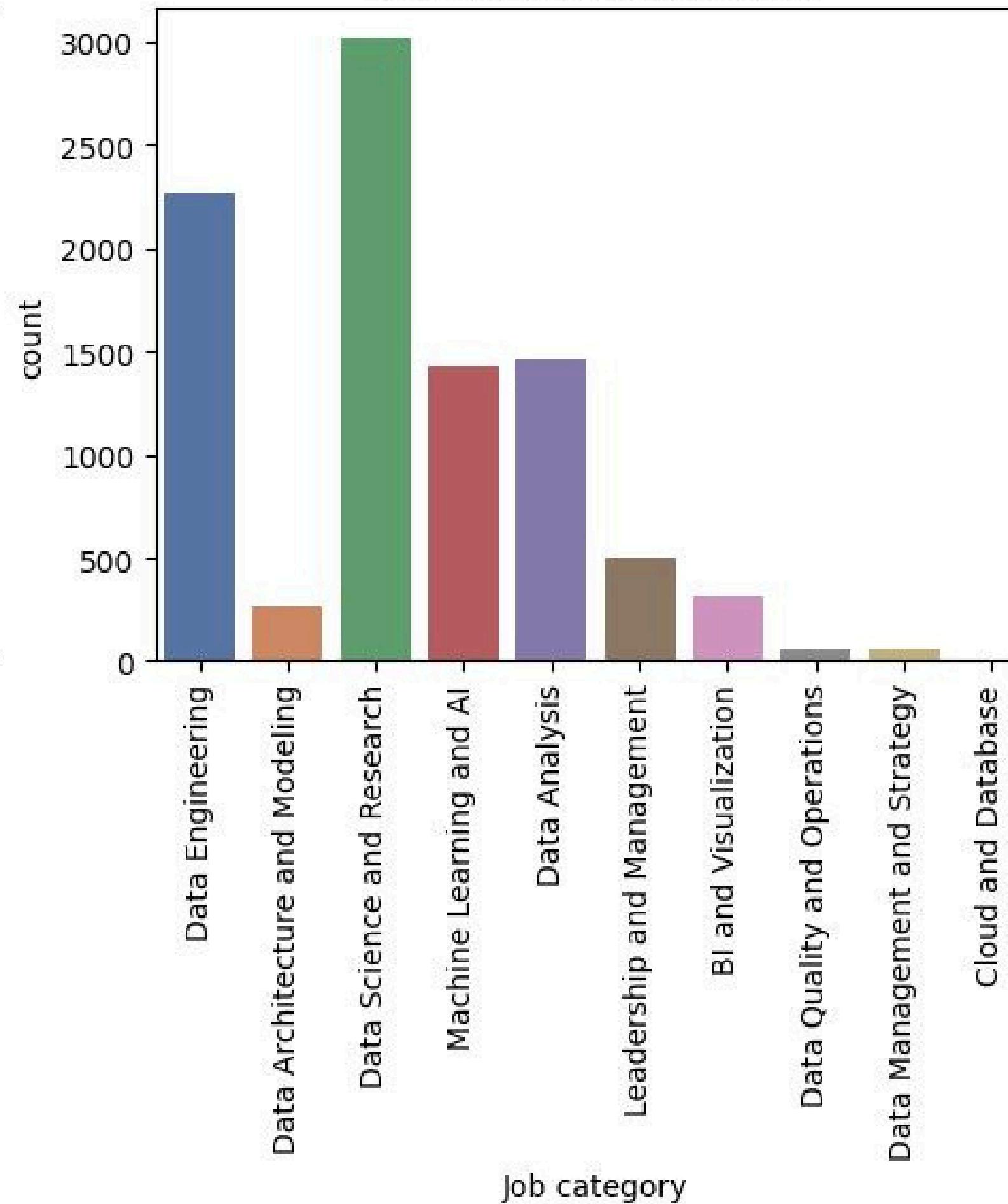


Average Salaries per Year

- The average salary has been increasing each year, rising from **\$105 878 USD in 2020 to \$155 132 USD in 2023.**
- The year with the **widest range** of salaries was **2020**, indicating that as the years progress, salaries **tend to stabilize**
- On the other hand, the minimum values per year are consistent, remaining in the same order of magnitude, around **\$15 000 USD**

Job Category Distribution

[BACK TO SALARY TRENDS](#)



Distribution of Job Categories

Within the dataset, there are 10 categories of jobs. The most common ones are:

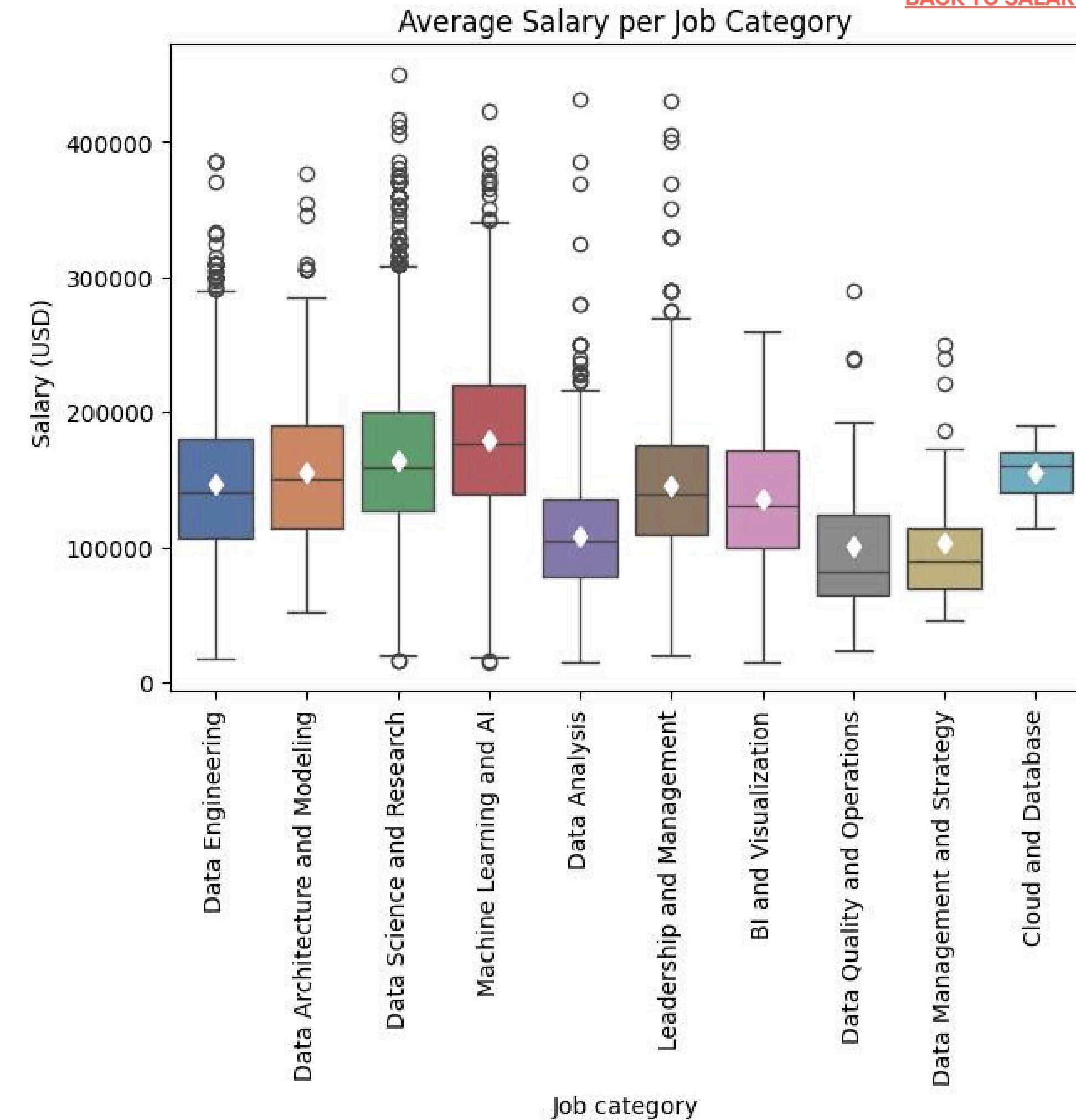
- Data Science and Research, with a frequency of 3014
- Data Engineering, with a frequency of 2260
- Data Analysis, with a frequency of 1457
- Machine Learning and AI, with a frequency of 1428

In contrast, the role with the lowest frequency is Cloud and Database, with a count of 5.

It is notable that more than **80% of the roles** fall into these **four categories**

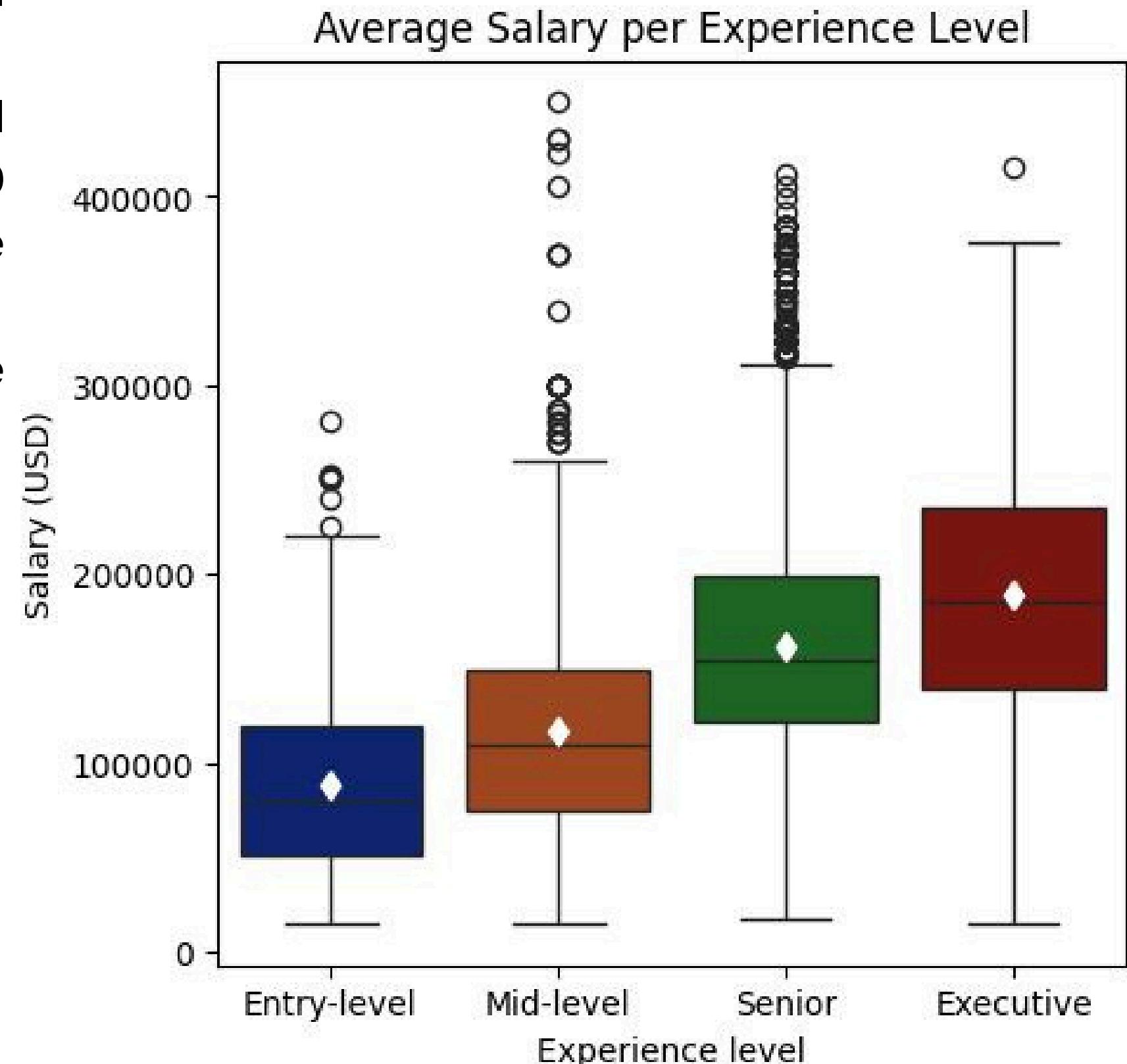
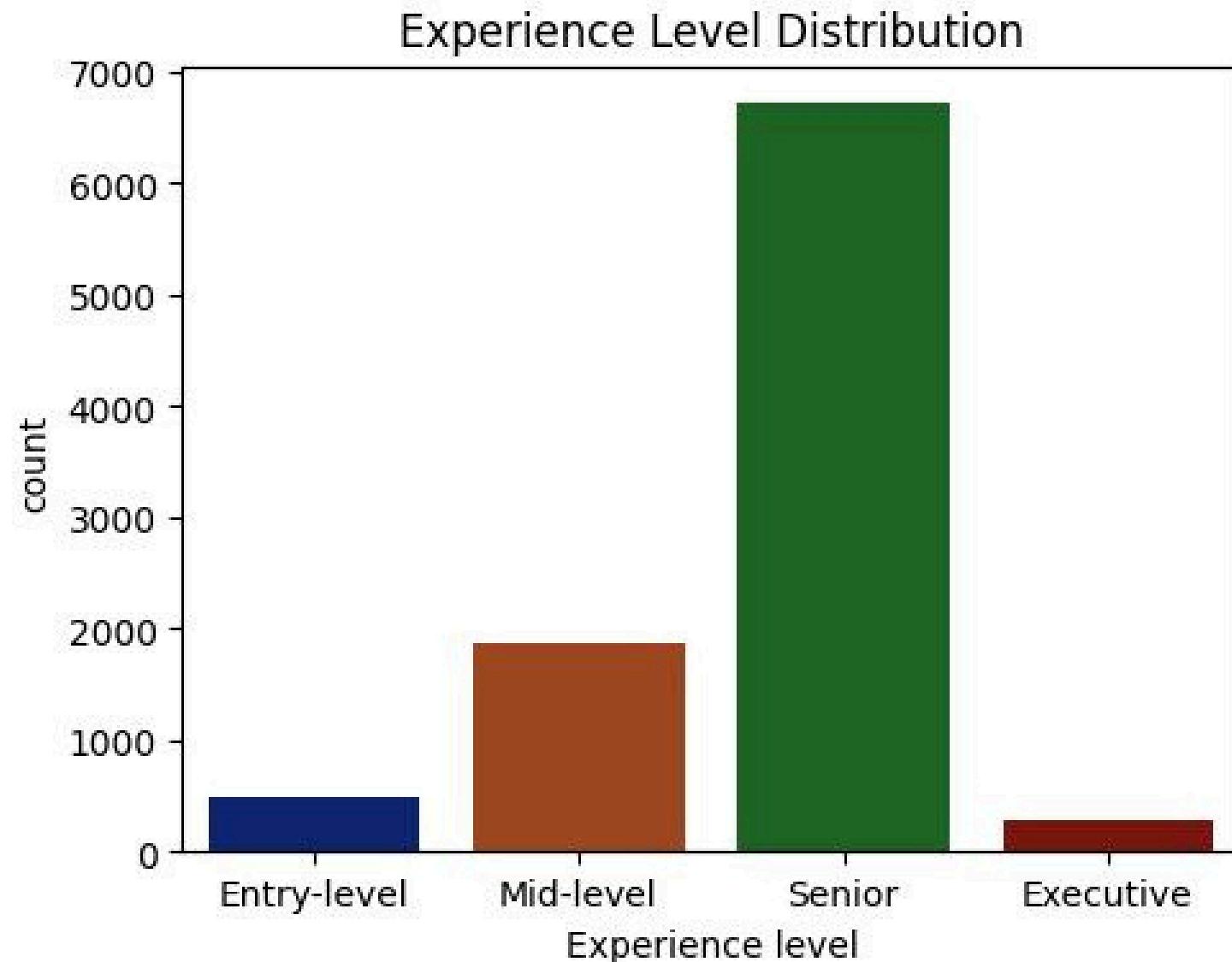
Average Salaries by Job Category

- The **highest** average salary per category is in **Machine Learning and AI**, earning a profit of **\$178 925 USD**.
- The **lowest** average salary per category is in **Data Quality and Operations**, earning an average of **\$100 879 USD**.
- The **widest range** of salaries is observed in **Data Science and Research**, where individuals could earn anywhere from \$16,000 USD to \$450 000 USD.
- Cloud and Database** has shown **stable behavior** in terms of salary.



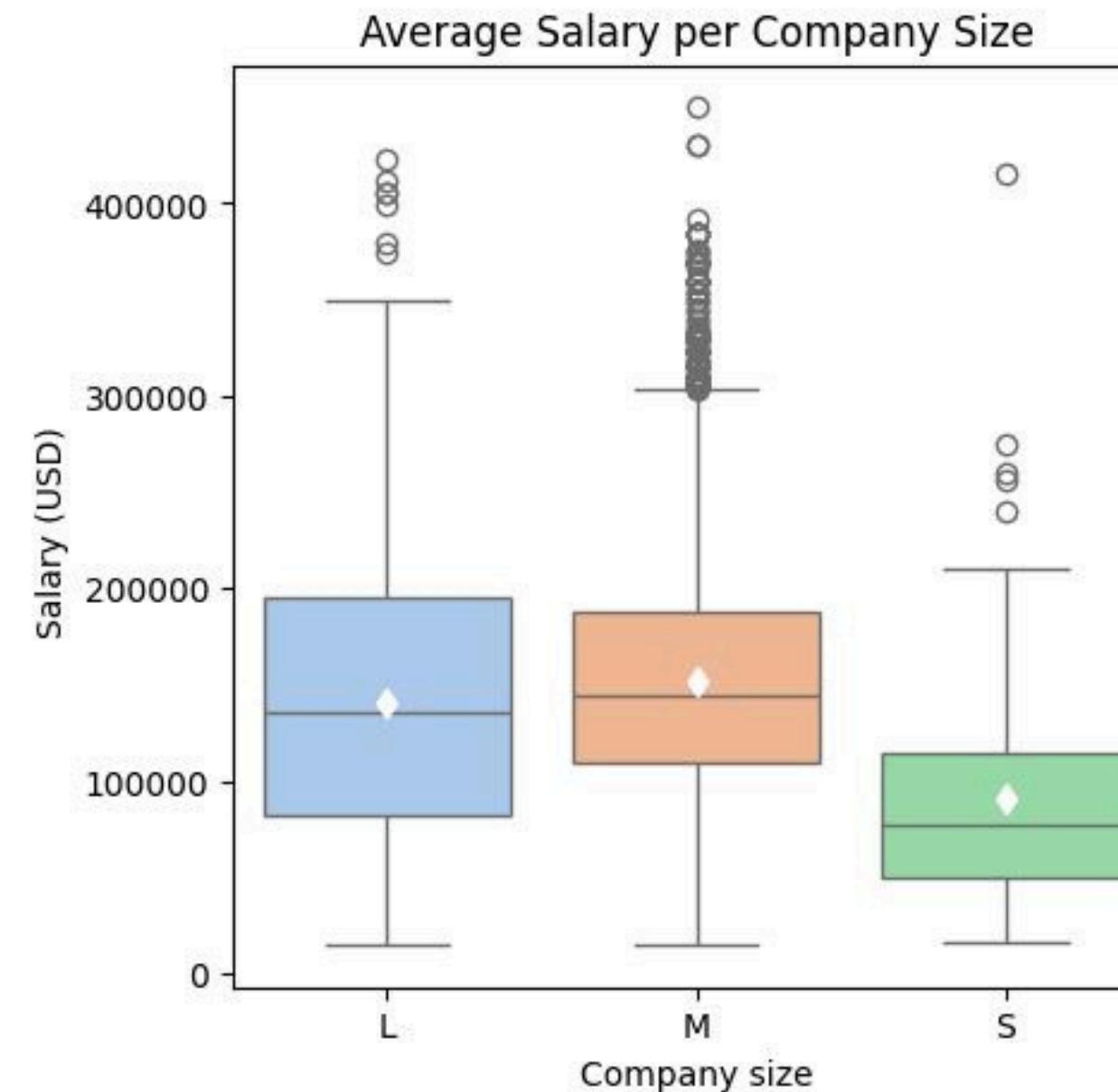
Based on Experience Level

- More than **70%** of employees belong to the **Senior Level Experience**.
- The highest range of salary corresponds to **Mid-Level Experience**, ranging from **\$15 000 USD to \$450 000 USD**. Additionally, this level of experience exhibits the highest salary.
- The highest average salary corresponds to the **Executive level**, with a value of **\$189 462 USD**.



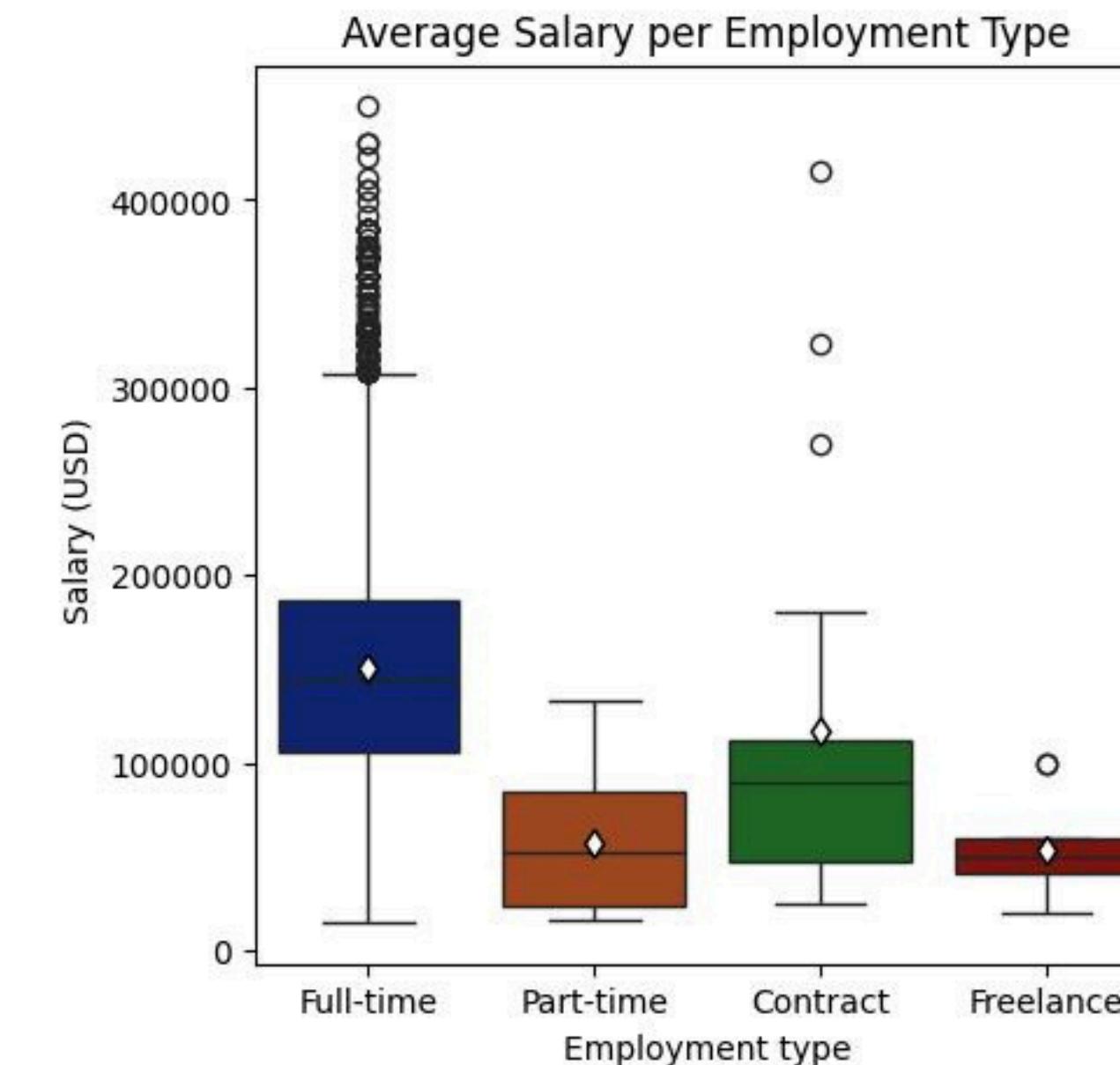
Based on Company Size

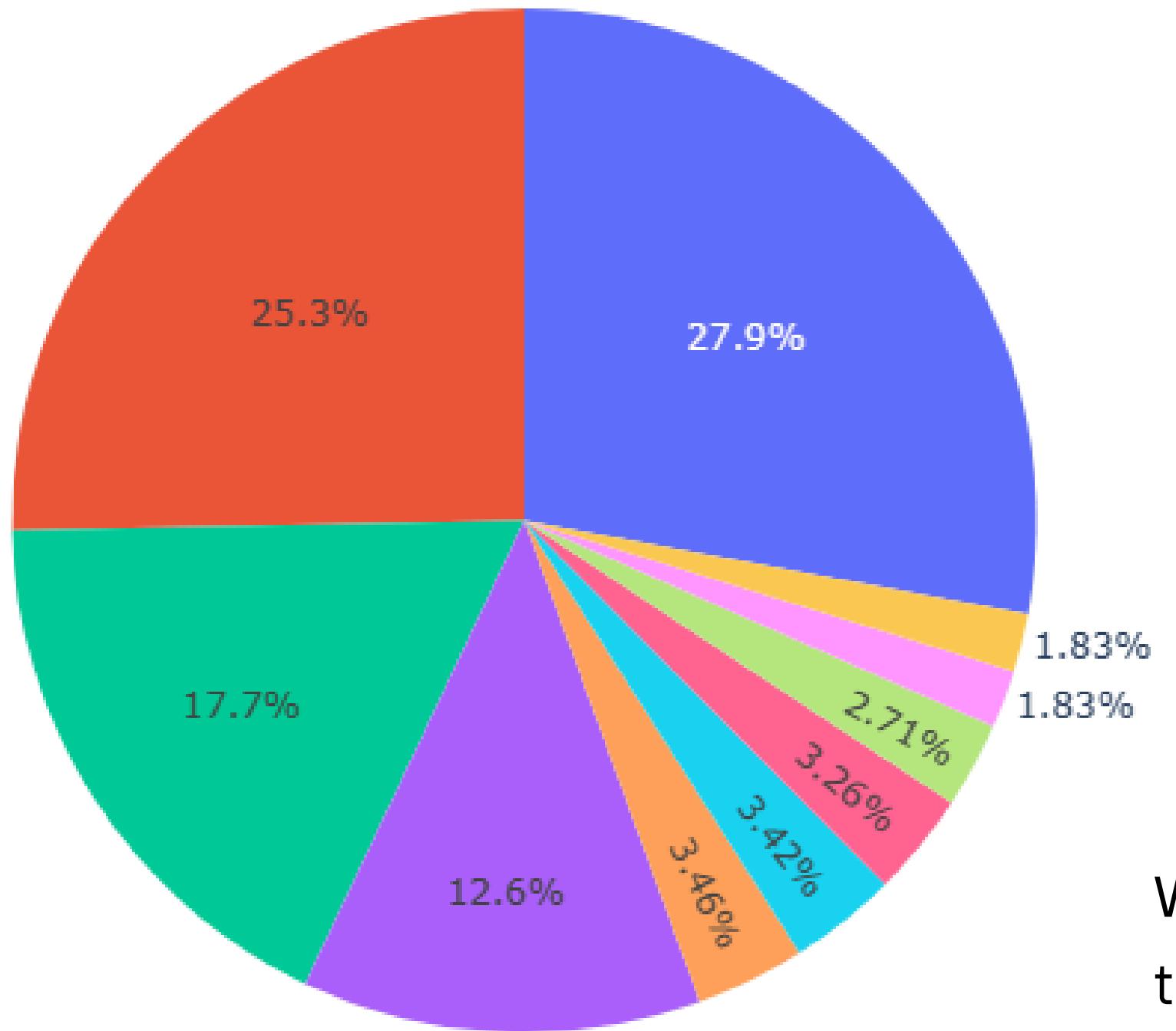
- Almost **90%** of the employees work in a **Medium-sized** company. In this category, the range of salaries is wider, and the average salary is higher, with revenue of **\$152 237 USD**.



Based on Employment Type

- Almost the majority hold a **Full-time position**, with only 45 workers belonging to other categories.
- The average salary for a Full-time position is **\$155 524 USD**





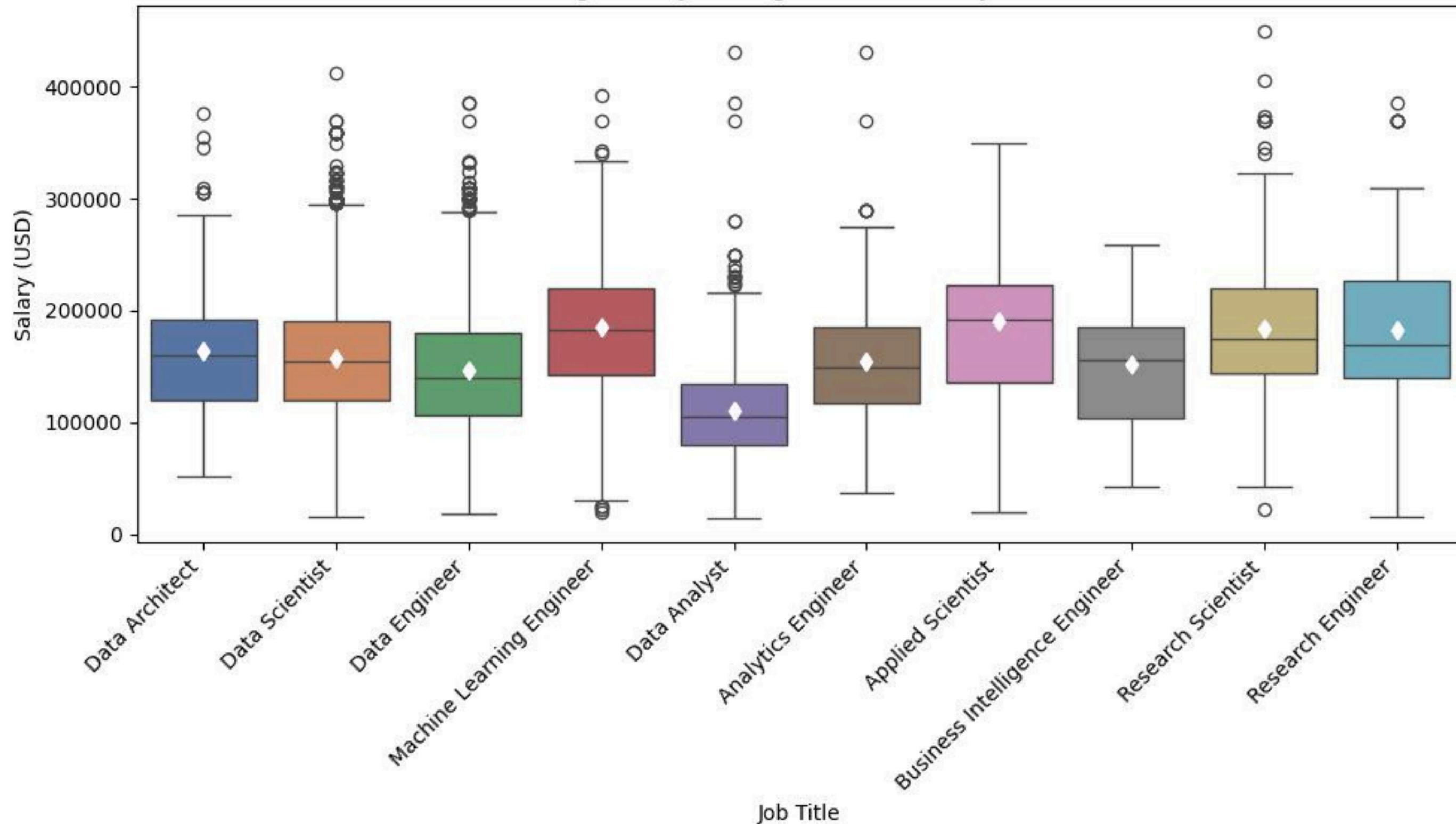
- Data Engineer
- Data Scientist
- Data Analyst
- Machine Learning Engineer
- Applied Scientist
- Research Scientist
- Analytics Engineer
- Data Architect
- Business Intelligence Engineer
- Research Engineer

Top 10 Job Titles

Within the dataset, there are **125** categories for job titles.

Despite this large number, more than **80%** of the jobs within the timeframe are condensed into **4** categories.

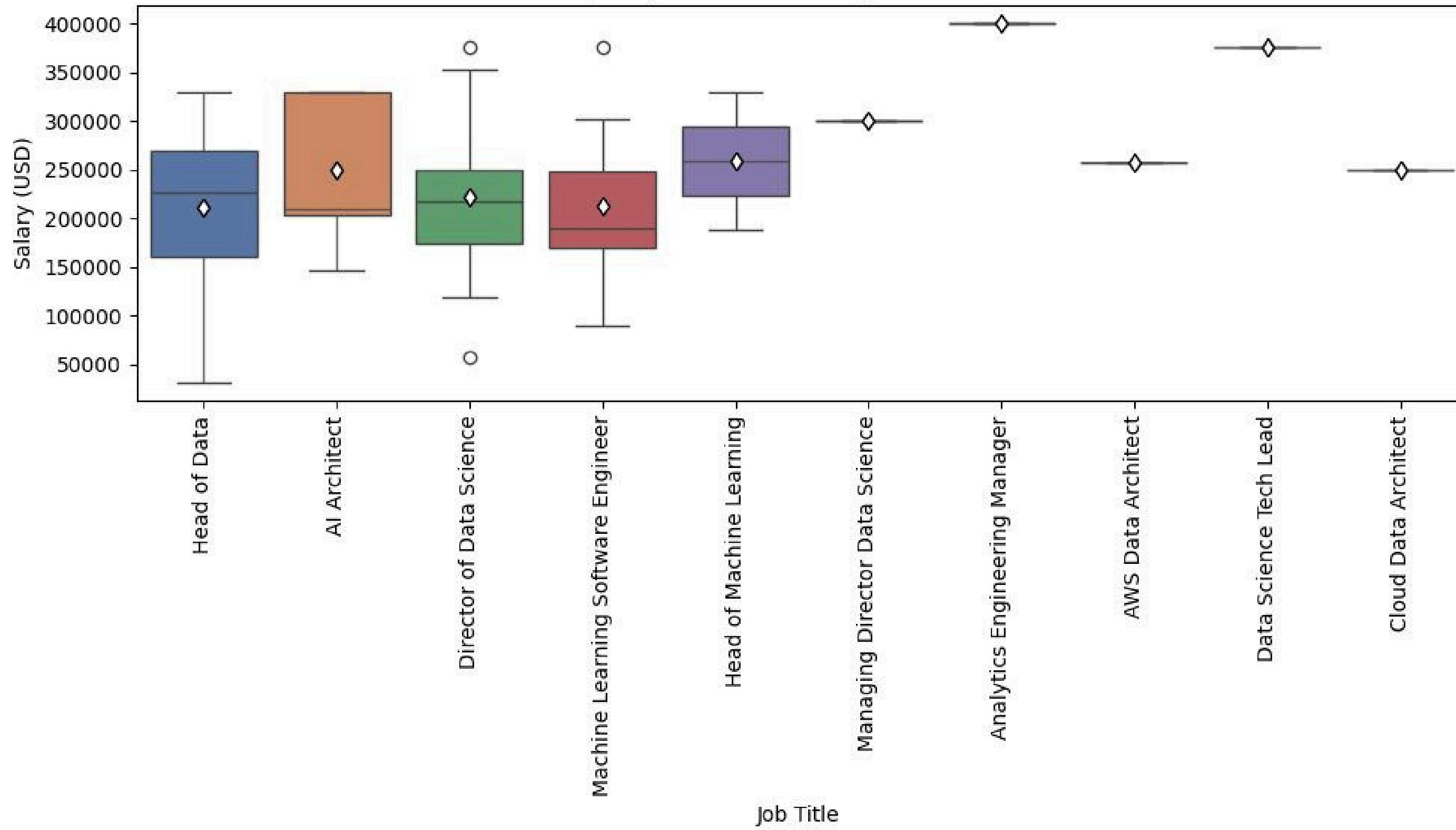
Average Salary Among Most Common Job Titles



Average Salary for the Most Common Job Titles

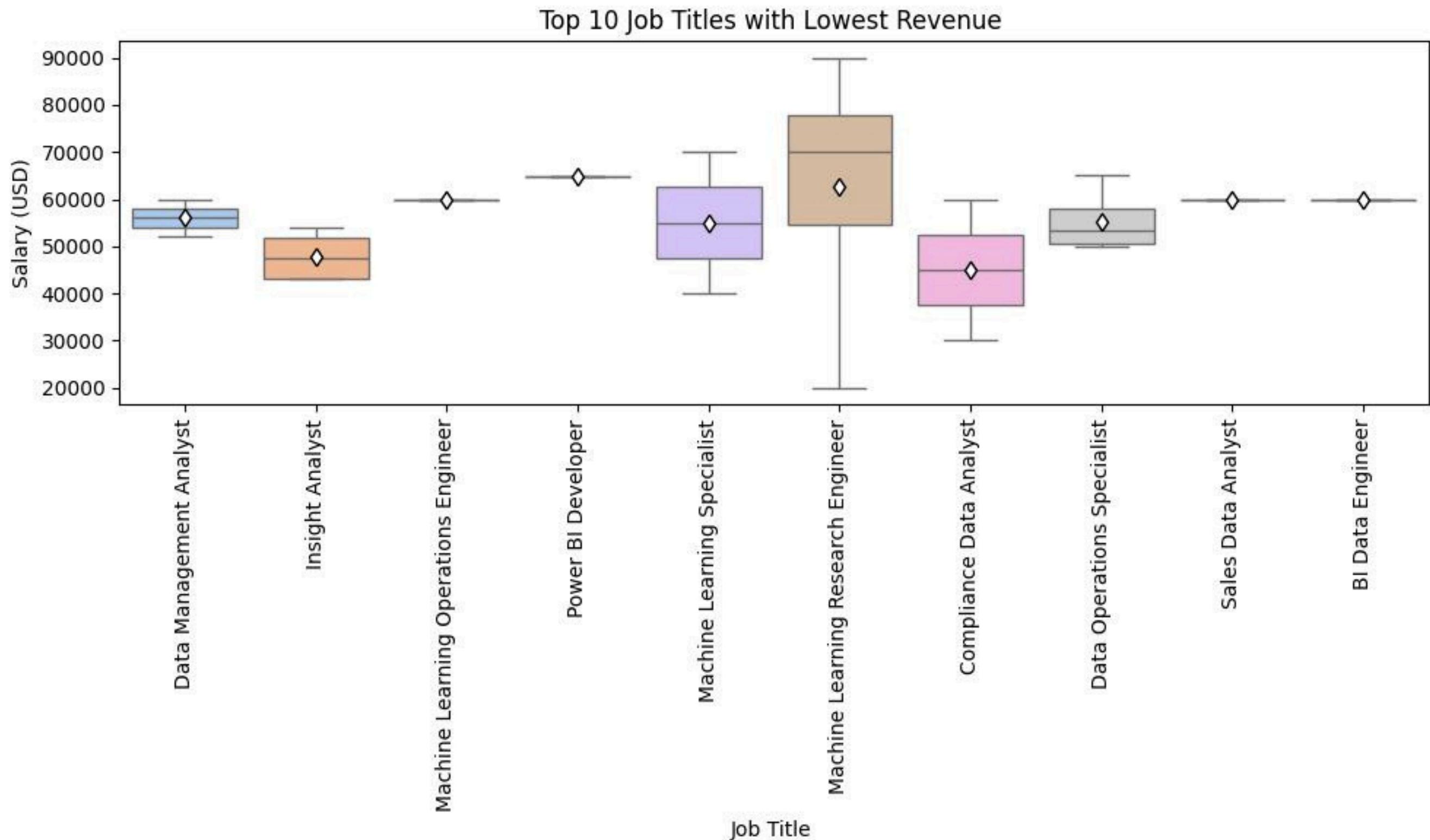
- Among the most common job titles, the average salary remains **constant** within a range between **\$100 000 USD to \$200 000 USD**.
- The **Data Analyst** position presents the widest range but the lowest average salary.

Top 10 Job Titles with Highest Revenue



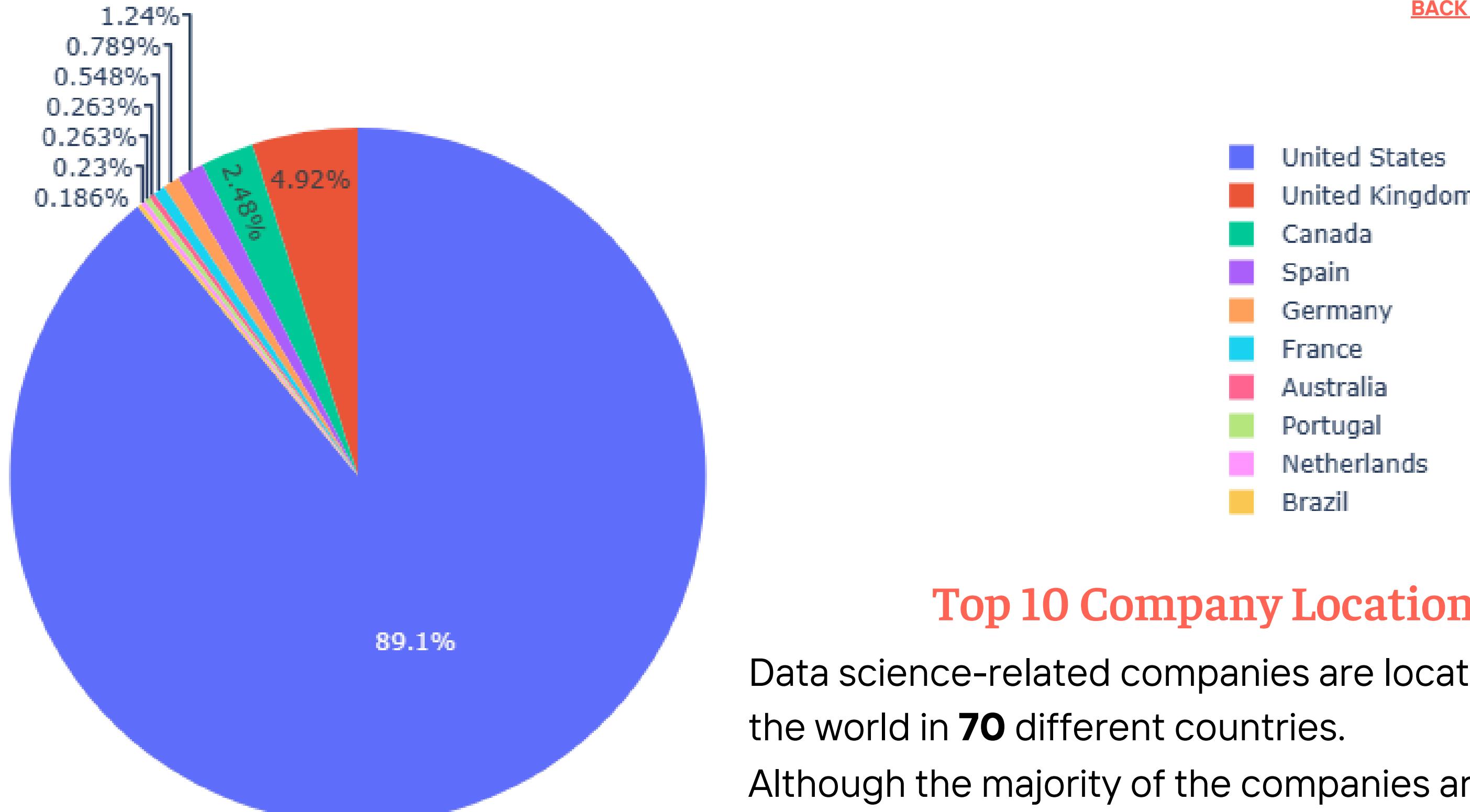
Job Titles with Highest Revenue

- The job titles with the highest revenue differ from the frequent job titles. To achieve **higher revenue**, the positions are typically related to **specialized high-level roles** such as manager or director.
- The highest revenue is for **Analytics Engineering Manager**, with a compensation of **\$399 880 USD**.
- The lowest is for Head of Data, with **\$211 186 USD**



Job Titles with Lowest Revenue

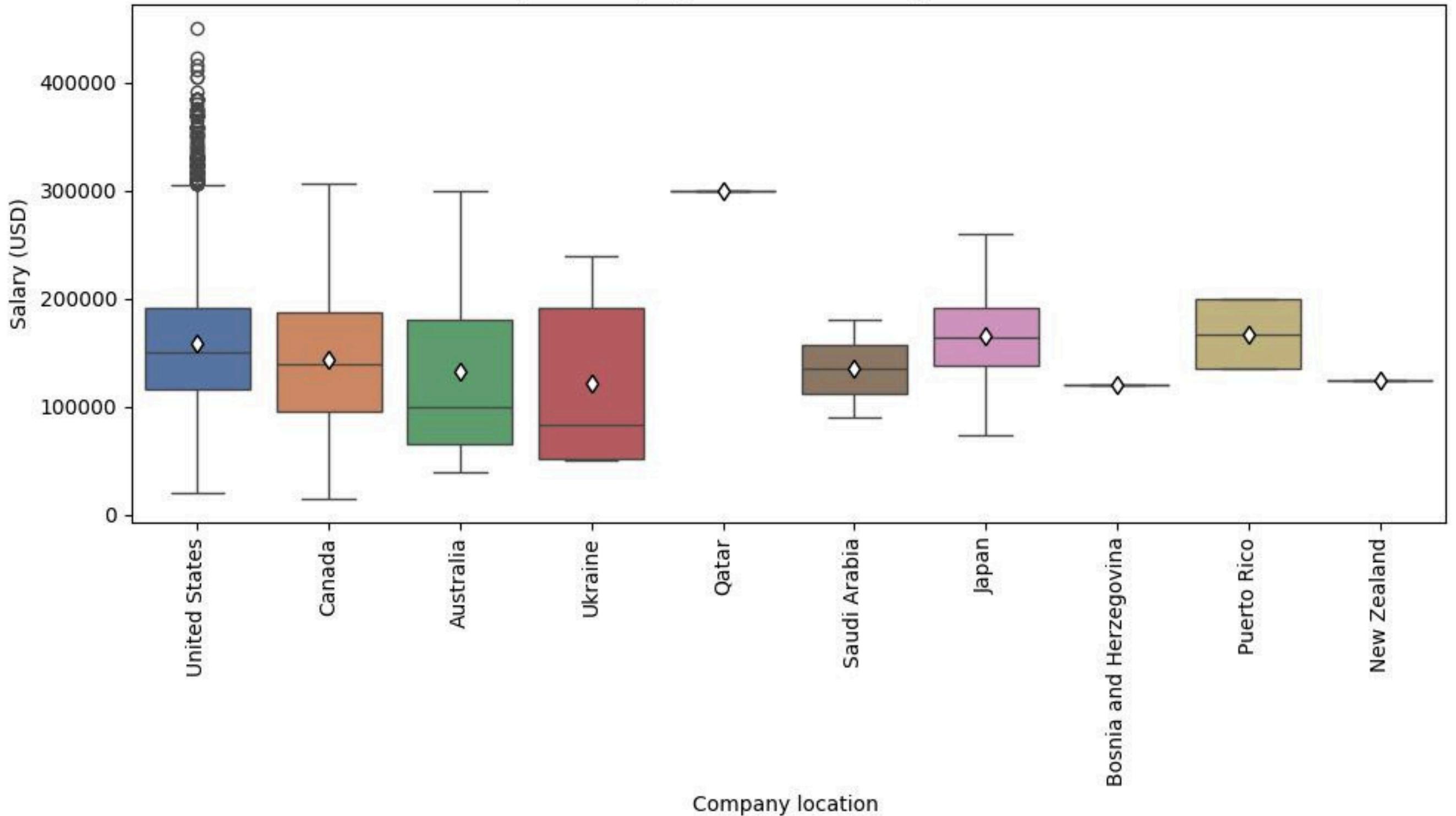
- The average salary range for the job titles with the lowest revenue is between **\$45 000 USD to \$64 000 USD**.
- The **lowest** corresponds to **Compliance Data Analyst**.
- The **difference** between the highest revenue, **Analytics Engineering Manager** and the lowest, **Compliance Data Analyst** is almost **9x**



Top 10 Company Locations

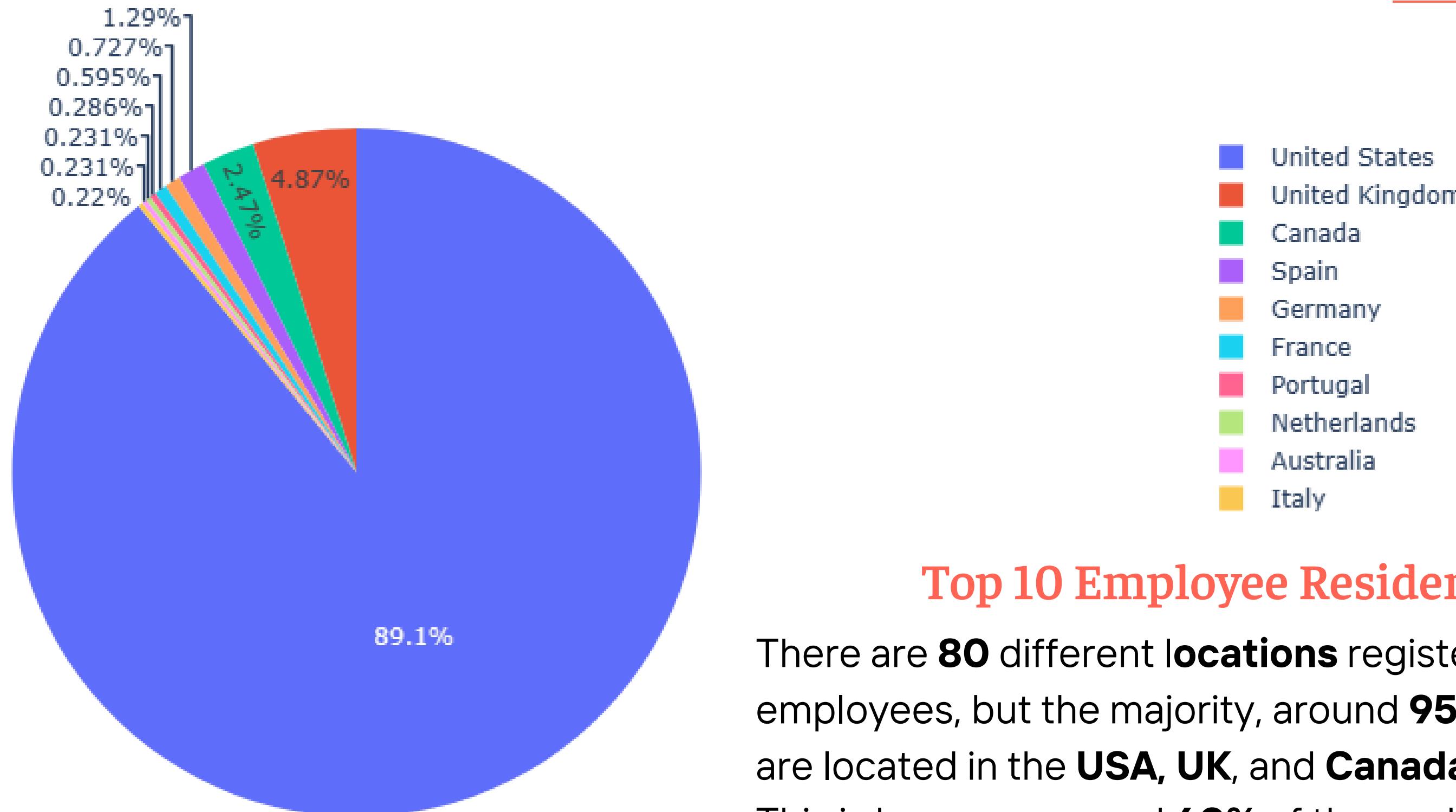
Data science-related companies are located across the world in **70** different countries. Although the majority of the companies are located in the **USA**, followed by the **UK** and **Canada**, which corresponds to **95%** of the total companies.

Top 10 Company Locations with Highest Revenue



Company Locations with Highest Revenue

- The best place to work in data science companies, in terms of revenue, is **Qatar**, with an average salary of **\$300 000 USD**, almost twice as large as the second-place location with the highest revenue, which is **Puerto Rico**, with **\$167 000 USD**.
- Additionally, Qatar's revenue is **2.5** times larger than that of the last place in the top 10 company locations, which is **Bosnia**, with earnings of **\$120 000 USD**.



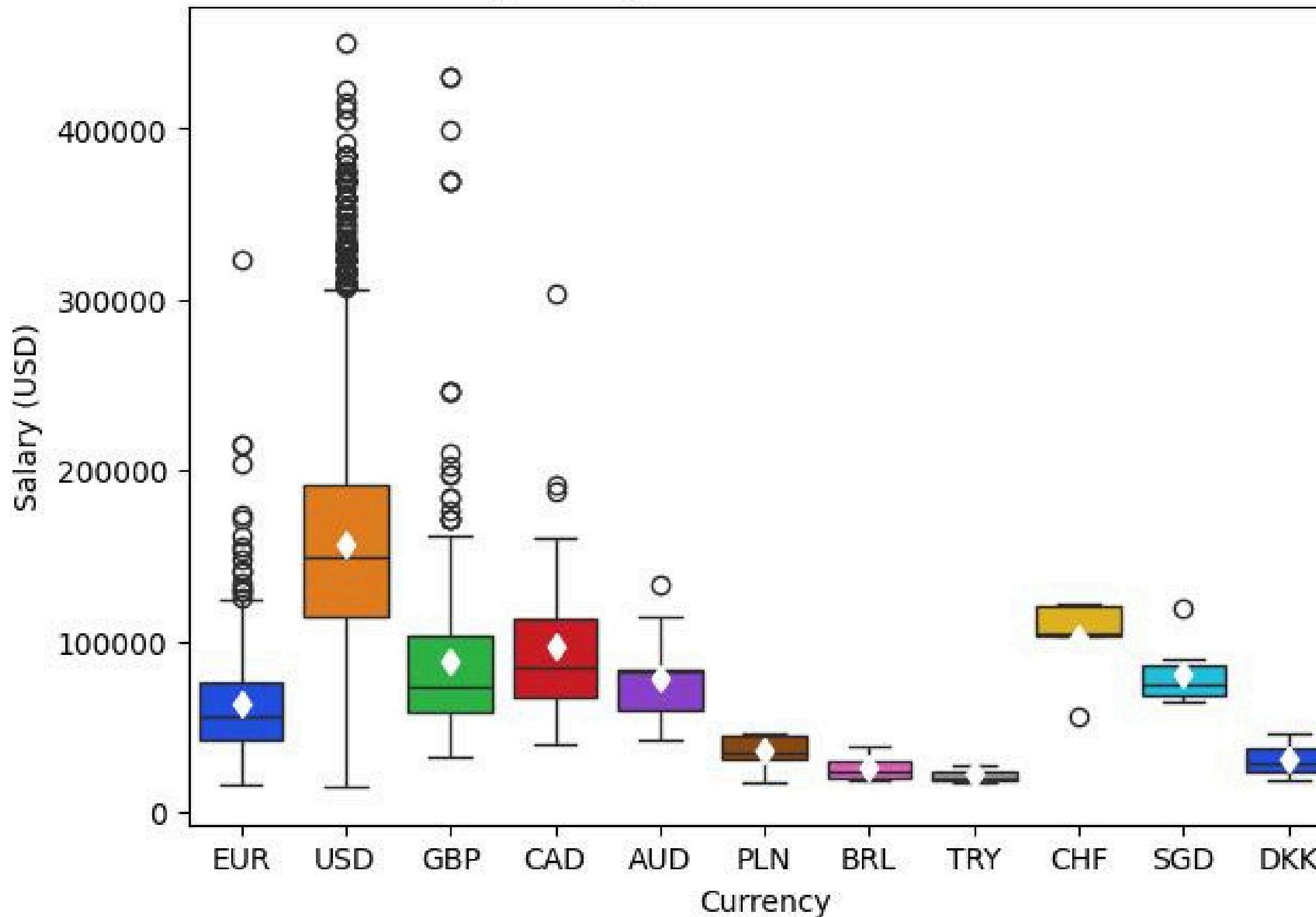
Top 10 Employee Residence

There are **80** different **locations** registered for the employees, but the majority, around **95%**, of them are located in the **USA, UK, and Canada**.

This is because around **60%** of the workers have a work setting that is **in-person**.

Average Salary Across Different Currencies

[BACK TO SALARY TRENDS](#)



Average Salary Based on Currency

- The graph illustrates the diversity of currencies in which data science roles are compensated, reflecting the global nature of the field.
- The highest average salary is in USD, followed by GBP, and finally CAD. This aligns with the locations of most companies, which are in the **USA, UK, and Canada**.

Treemap Plot of Salary by Company Location and Employee Residence

[BACK TO SALARY TRENDS](#)



Based on Employee residence and company location

With **60%** of the employees having an **in-person** work setting, it's understandable that the majority of companies have their employees located in the **same country**.

Treemap Plot of Salary by Company Size, Work Setting, and Employment Type

[BACK TO SALARY TRENDS](#)



Based on Employment type, Work Setting and Company Size

90% of the companies have a **medium size**, around 60% work in person and **99% works full-time**.

In larger and small companies the Hibrid modality is still persistent.

While Freelance as employment type is categorized as **small company**.

Insights

- **Global Distribution:** Data science-related jobs are dispersed across the world, reflecting the importance of the field.
- **Work Setting Preferences:** The majority of employees prefer in-person work settings, indicating a preference for traditional work environments.
- **Company Size Impact:** Larger companies may have more resources to support hybrid work arrangements, while smaller companies may lean towards freelance employment options.
- **Strategic Location:** The concentration of companies in specific countries such as the USA, UK, and Canada suggests strategic advantages in these regions, even though those countries are not in the top 3 with the highest average salary.
- **Diversity in Employment Types:** The data presents a diverse range of employment types, including full-time, freelance, and hybrid arrangements, extending across diverse categories and a wide range of salaries across them

Conclusions

- Average salaries vary significantly based on factors such as job category, experience level, and company location. Understanding these trends can help businesses remain competitive in attracting and retaining top talent.
- Roles in Machine Learning and AI tend to command higher salaries, while positions such as Data Analyst may offer a wider range but lower average salaries.
- Additionally, locations such as Qatar offer higher revenue, but the number of companies is limited. On the other hand, locations such as the USA, UK, and Canada remain better options because they not only offer a good compensation range but also provide multiple possibilities in terms of companies and work settings.



Further details

GitHub

<https://github.com/SadyGarcia/Data-Science-Jobs-Analysis-using-Python.git>

LinkedIn

www.linkedin.com/in/sadymonserrat-garcía-delgadillo

