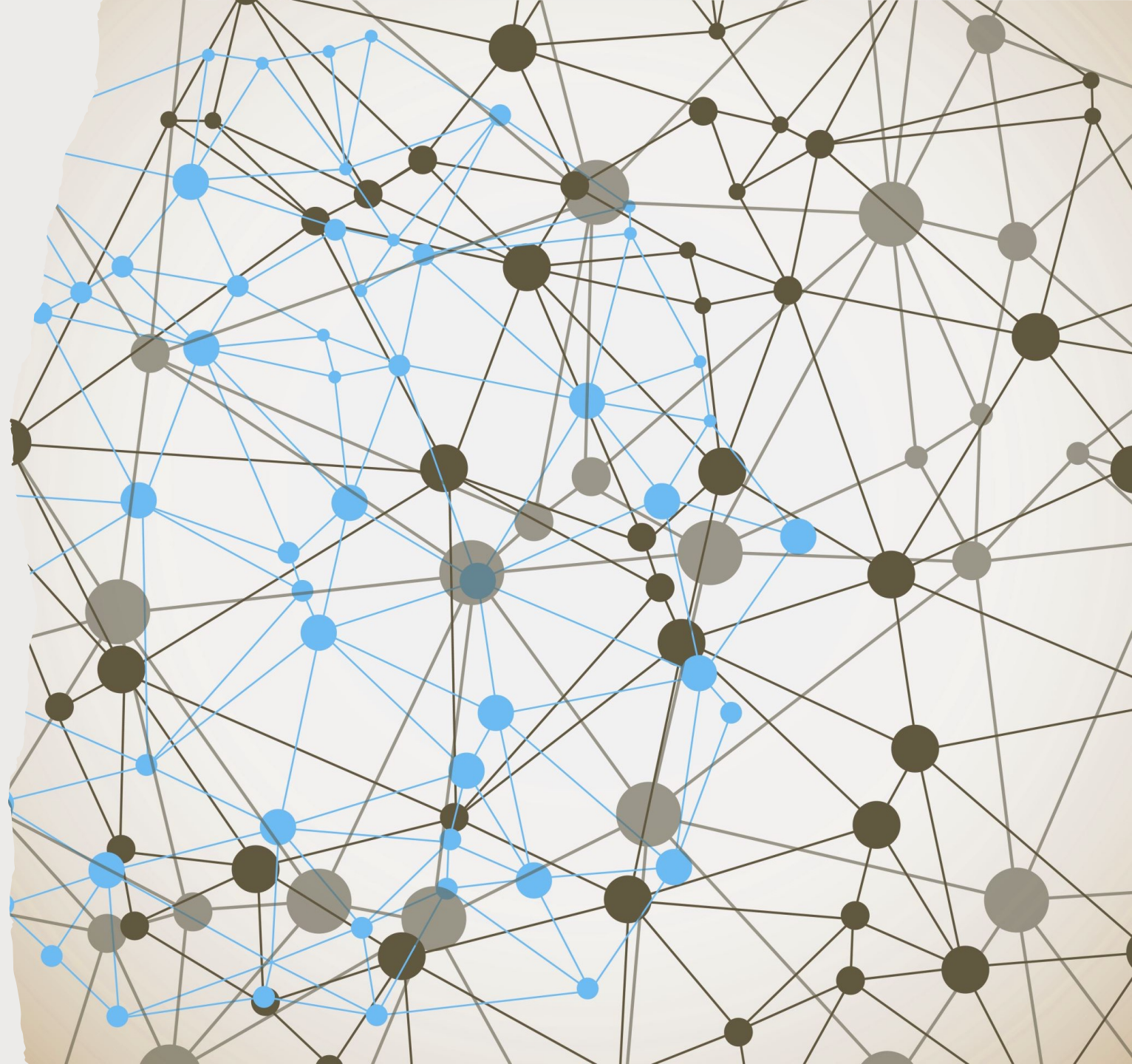# Oeson Project II

- Data Science Jobs and Salary Analysis (2023)

- By

- Amoabeng Yeboah

Agenda

Normality of Salary

Trends over time

Average salary analysis

Median salary analysis

Salary variation analysis

Overview of Data

-Harvard Business Review

"Data Scientist: The Sexiest Job of the 21st Century."

7,450+
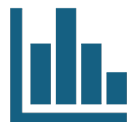
new job postings in the most recent year, which is 2023.

$120k +

Top-paying cities and countries for data science jobs

Focus Areas of the Analysis

Highest salaries, most demand

Top-paying data science jobs

Industries and jobs analyzed

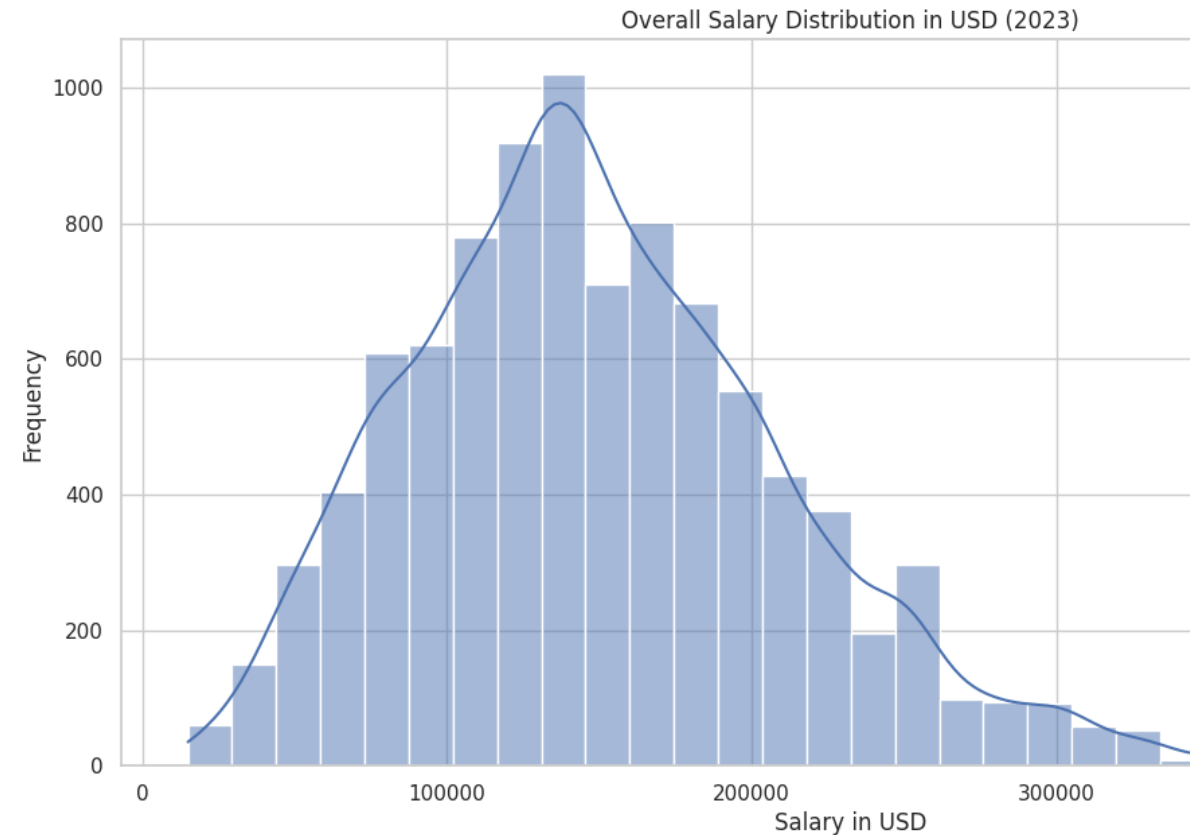Employment levels in data science

Roles with the biggest hiring demand

Most popular data science jobs

Location, experience, education, company
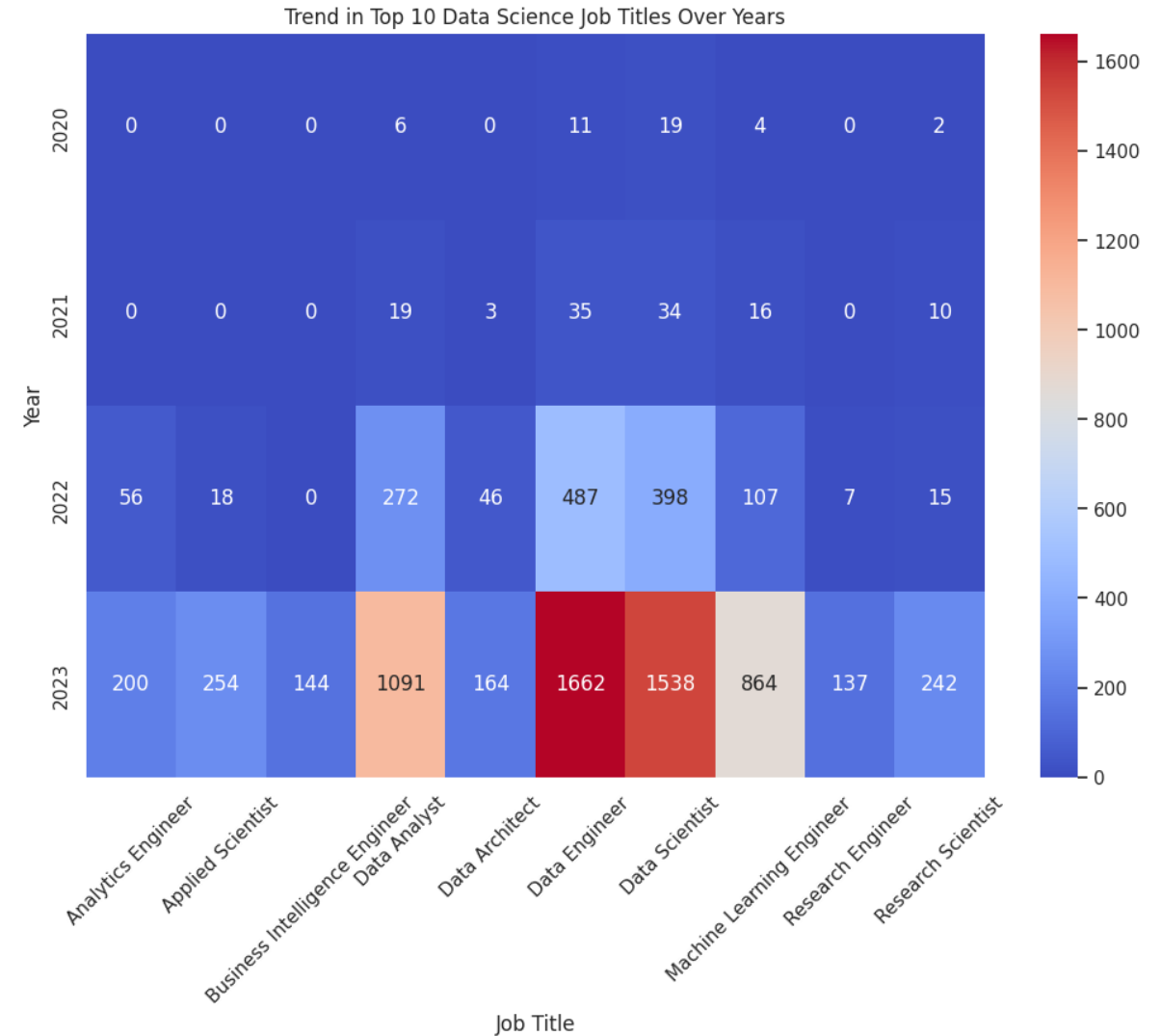
Factors affecting data science pay

Normality of Salary

- The salary distribution is right-skewed, meaning there are a number of high salary outliers.

- Most of the salaries are clustered around the lower to mid-range, indicating that a large number of jobs offer salaries within this bracket.

- There are a few jobs with very high salaries, which could be senior positions or roles in high-cost-of-living areas, or highly specialized jobs.
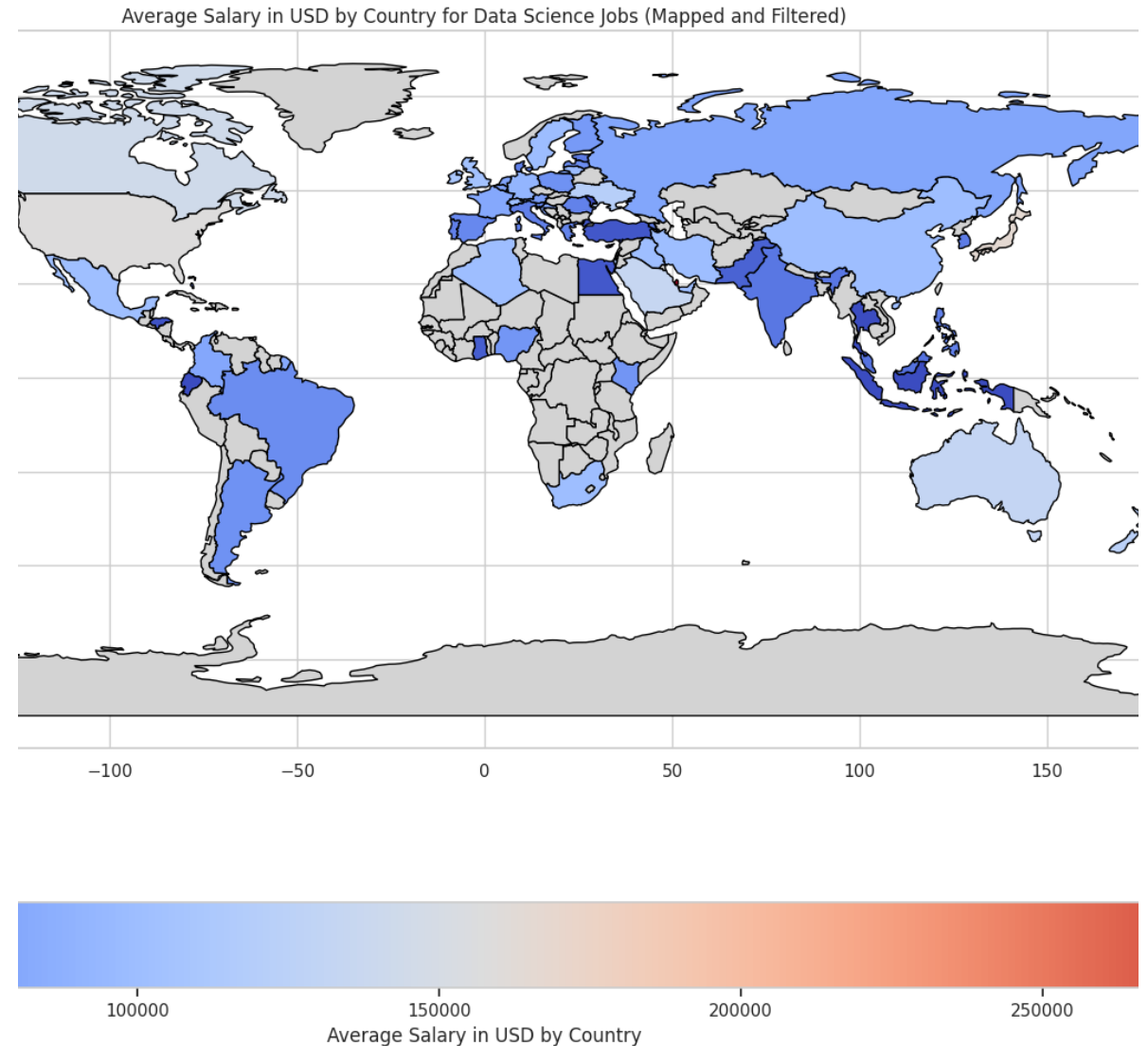

Overall Salary Distribution in USD (2023)

Trends Over Time (Top 10 Job Titles)

- There is a noticeable increase in job positions for 'Data Engineers', 'Data Scientists, and 'Machine Learning Engineers from 2020 to 2023.

- In 2023, 'Data Architect', 'Data Engineer', and 'Data Scientist' roles show the highest frequencies among the top 10 job titles.

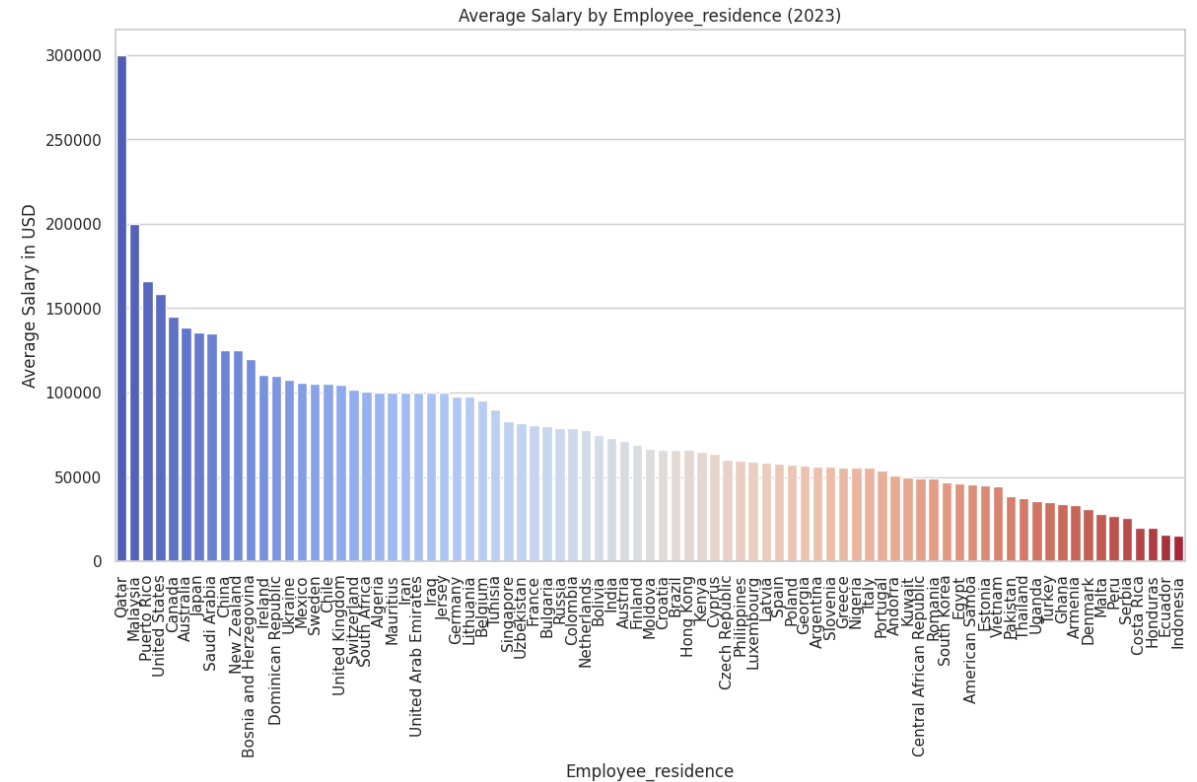Trend in Top 10 Data Science Job Titles Over Years

Average salary in USD by country

Data Gaps: A significant number of countries, especially in Africa, parts of Asia, and some regions in South America, are colored light grey, indicating a lack of data. This could be due to fewer respondents from these regions in the dataset or a lower presence of data science jobs.

Average Salary in USD by Country for Data Science Jobs (Mapped and Filtered)
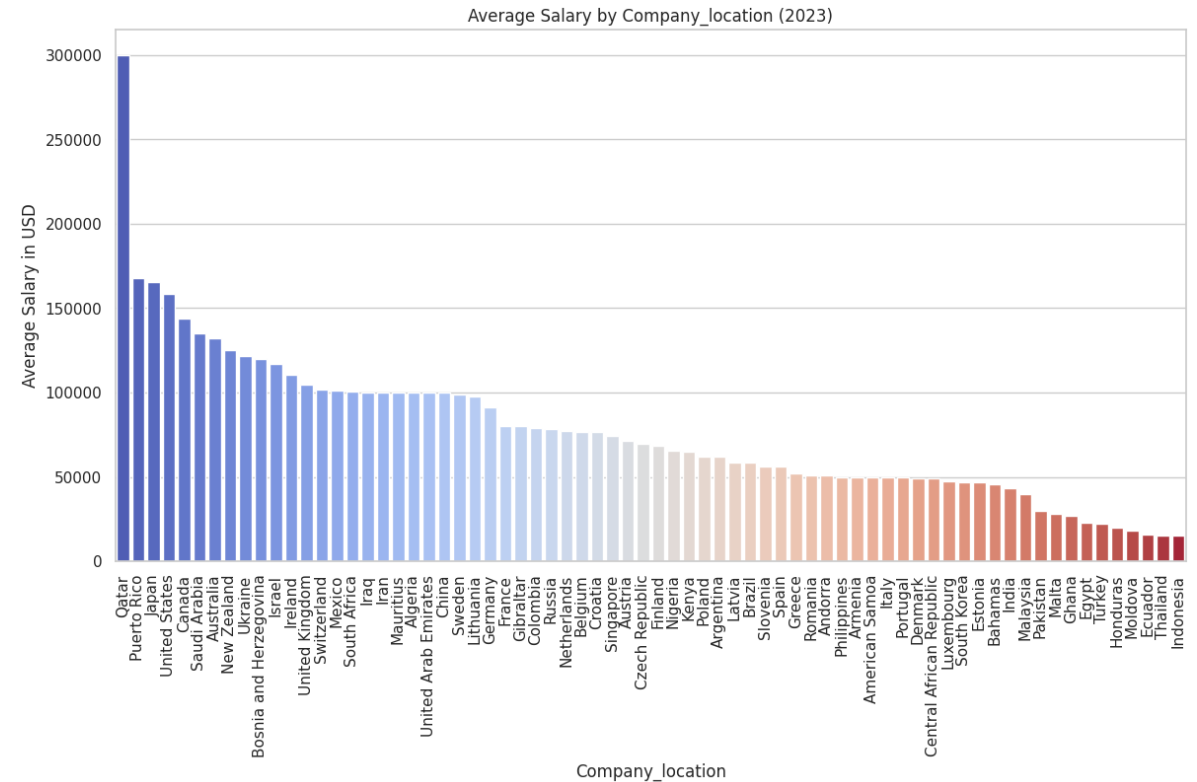
Average Salary in USD by Country

Average salary by employee residence

- Qatar and Malaysia have residents with the highest average salaries.

- Ecuador and Indonesia recorded the lowest average salaries based on employee residence.

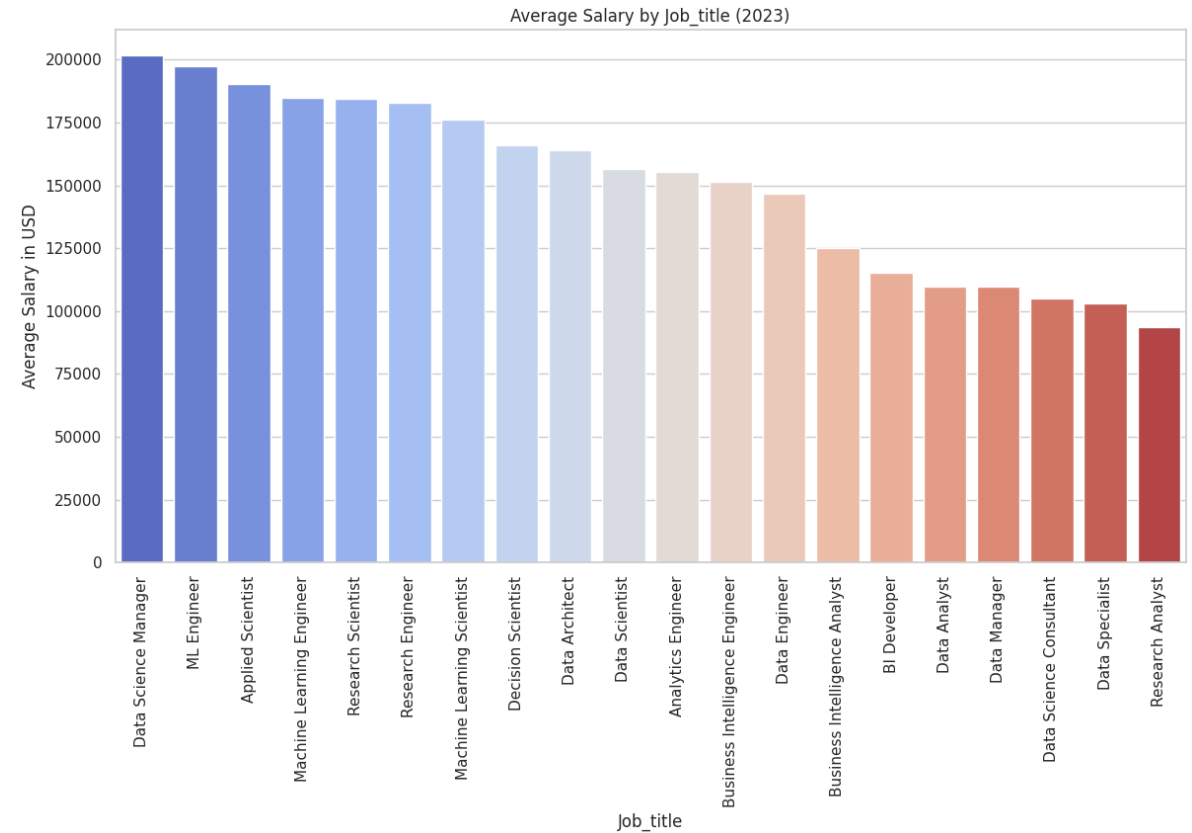Average Salary by Employee_residence (2023)

Average salary by company location

- Qatar and Puerto Rico have the highest average salaries according to company location.

- Thailand and Indonesia are averaging the lowest salaries based on company location.

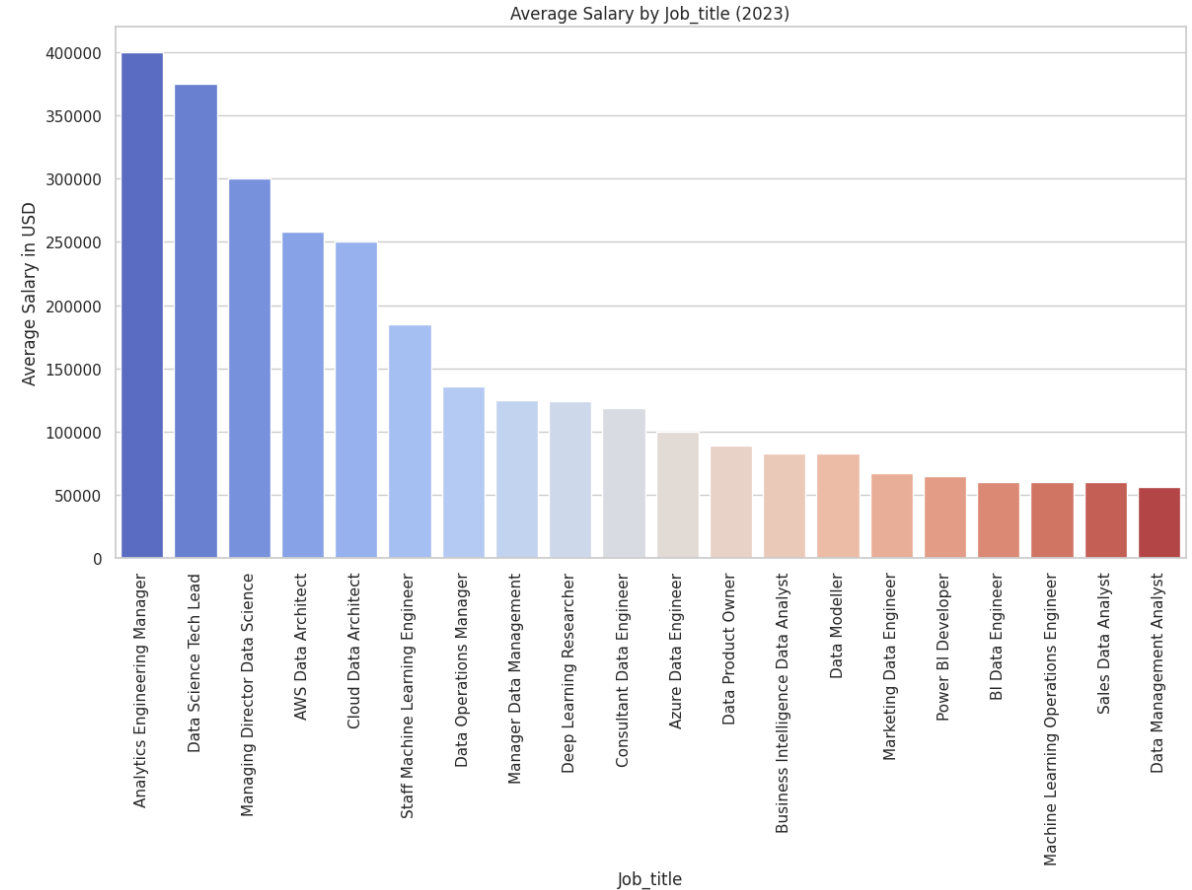Average Salary by Company_location (2023)

Average Salary (Top 20 paying jobs)

- Data Science Manager, ML Engineer, and Applied Scientist roles are among the highest paying on average.

- Machine Learning Engineer, Research Scientist, and Machine Learning Scientist also rank high in average salaries.

- Roles like Data Engineer, BI Developer, and Data Analyst tend to have lower average salaries compared to the aforementioned positions.

Average Salary by Job_title (2023)

Average Salary (lowest 20 paying jobs)

- Data Management Analyst, Sales Data Analyst, and ML Operations Engineer roles are among the lowest paying on average.

- Average salaries drop significantly after Consultant Data Engineer.
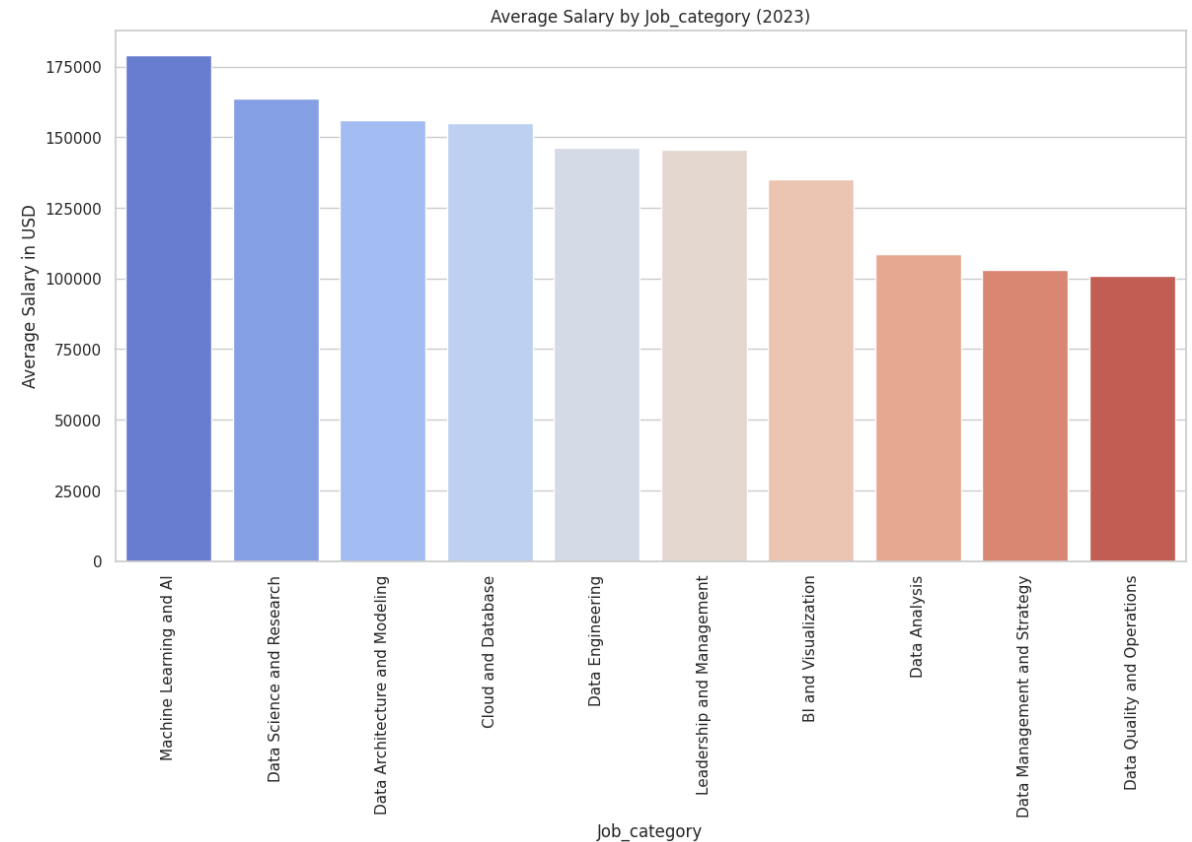

Average Salary by Job_title (2023)

Average salary by experience level

- Executive-level positions have the highest average salary, which is expected as these roles typically involve leadership responsibilities and strategic decision-making.

- Senior-level positions follow, with a notable average salary, reflecting the advanced skills and experience required for these roles.

- Mid-level positions have a lower average salary than senior roles, aligning with the intermediate level of experience and responsibility.

- Entry-level positions have the lowest average salary, which is typical for roles that are designed for individuals who are new to the field or have less experience.

Average Salary by Experience_level (2023)

Average salary by job category

Average Salary by Job_category (2023)

- "Machine Learning and AI" and "Data Science and Research" command the highest average salaries, which reflects the high demand and specialized skill set required in these fields.
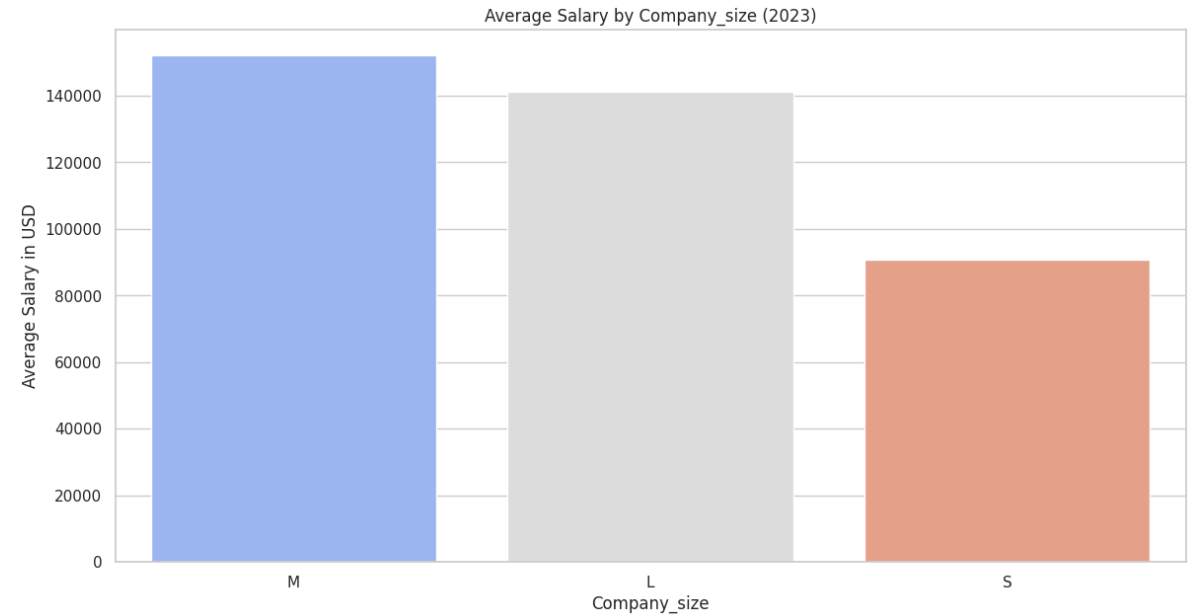
CONT'

- "Data Architecture and Modeling" and "Cloud and Databases" also offer competitive average salaries, likely due to the technical and architectural skills needed in these areas.

- "Leadership and Management", "BI and Visualization", "Data Analysis", "Data Management and Strategy", and "Data Quality and Operations" have lower average salaries compared to the top-paying categories.
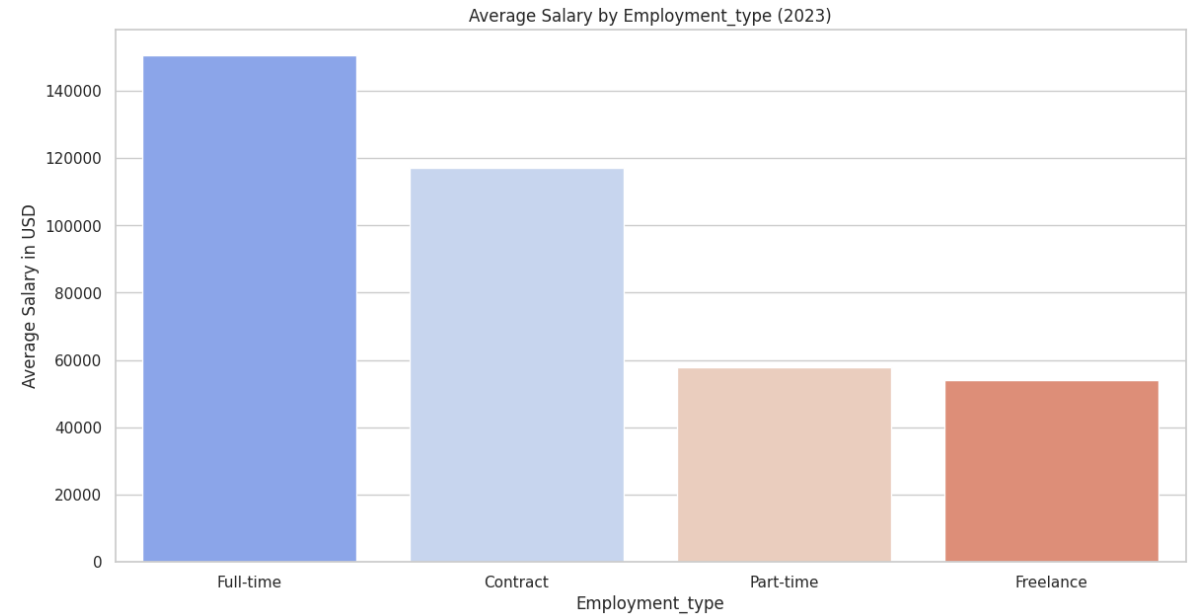
Average salary by company size

- Medium-sized companies (M) appear to offer the highest average salaries.

- Large companies (L) follow closely, with slightly lower average salaries than medium-sized companies.

- Small companies (S) have the lowest average salaries among the three categories.

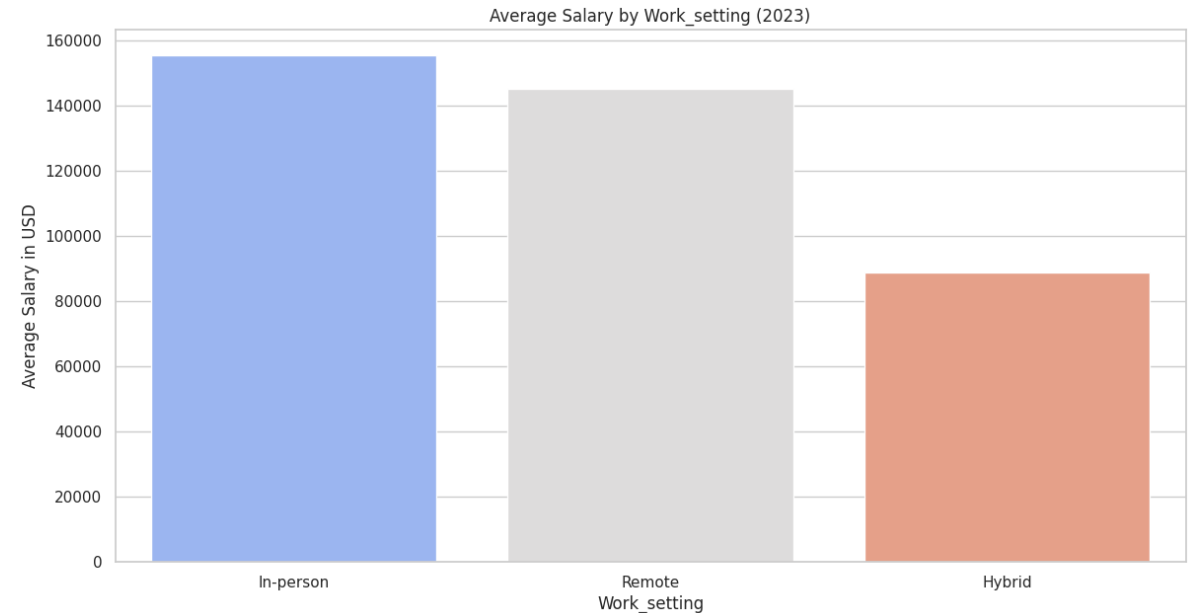Average Salary by Company_size (2023)

Average salary by employment type

- Full-time employees have the highest average salary compared to contract, part-time, and freelance workers in 2023.

- Freelance and part-time workers have the lowest average salaries among the employment types shown.

Average Salary by Employment_type (2023)

Average salary by work setting

- In-person workers earn the most on average, followed by remote workers.

- Hybrid workers, those who split their time between working remotely and in an office, have the lowest average salary among the work settings compared.

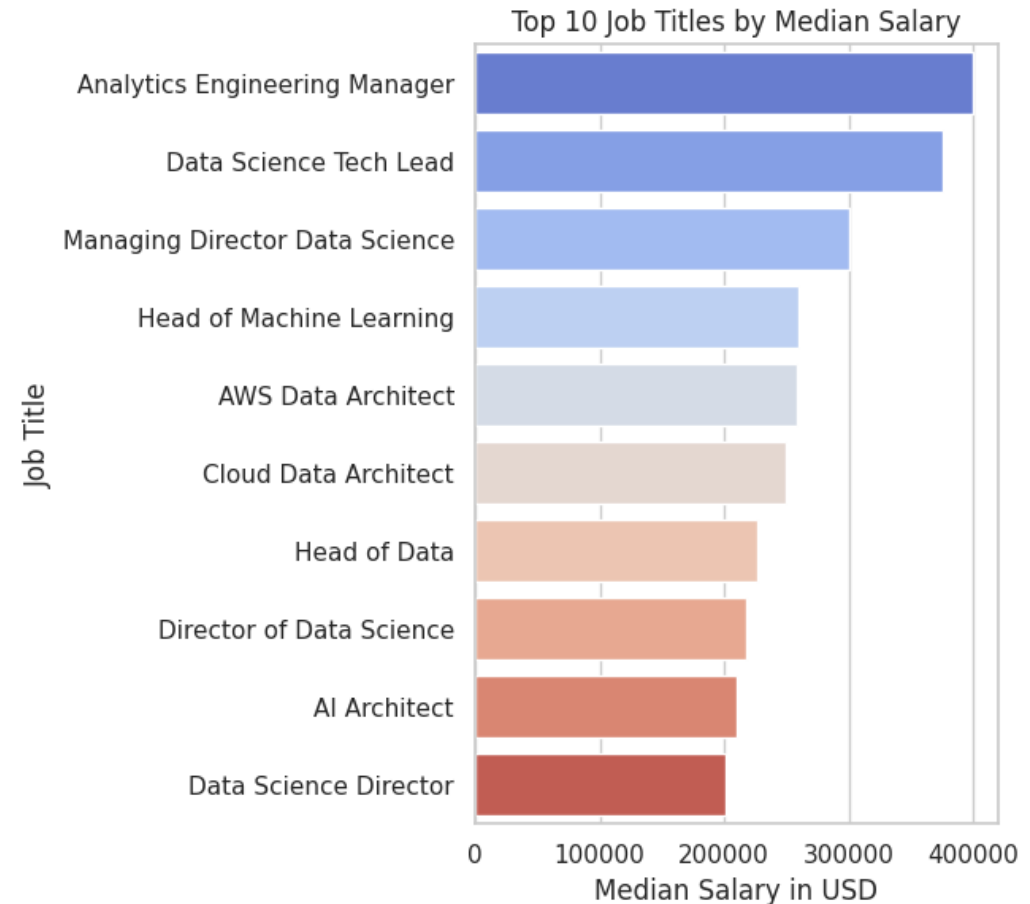Average Salary by Work_setting (2023)

CONT'

- The role of 'Business Intelligence Engineer' appears in 2023 for the first time within the top 10, suggesting a rise in demand for this title.

- There is a significant rise in 'Data Architect' roles from 2022 to 2023, indicating a possible trend or increased emphasis in that area within the data science field.

- Some roles such as 'Machine Learning Engineer' and 'Research Scientist' show consistent presence across the years, hinting at steady demand.
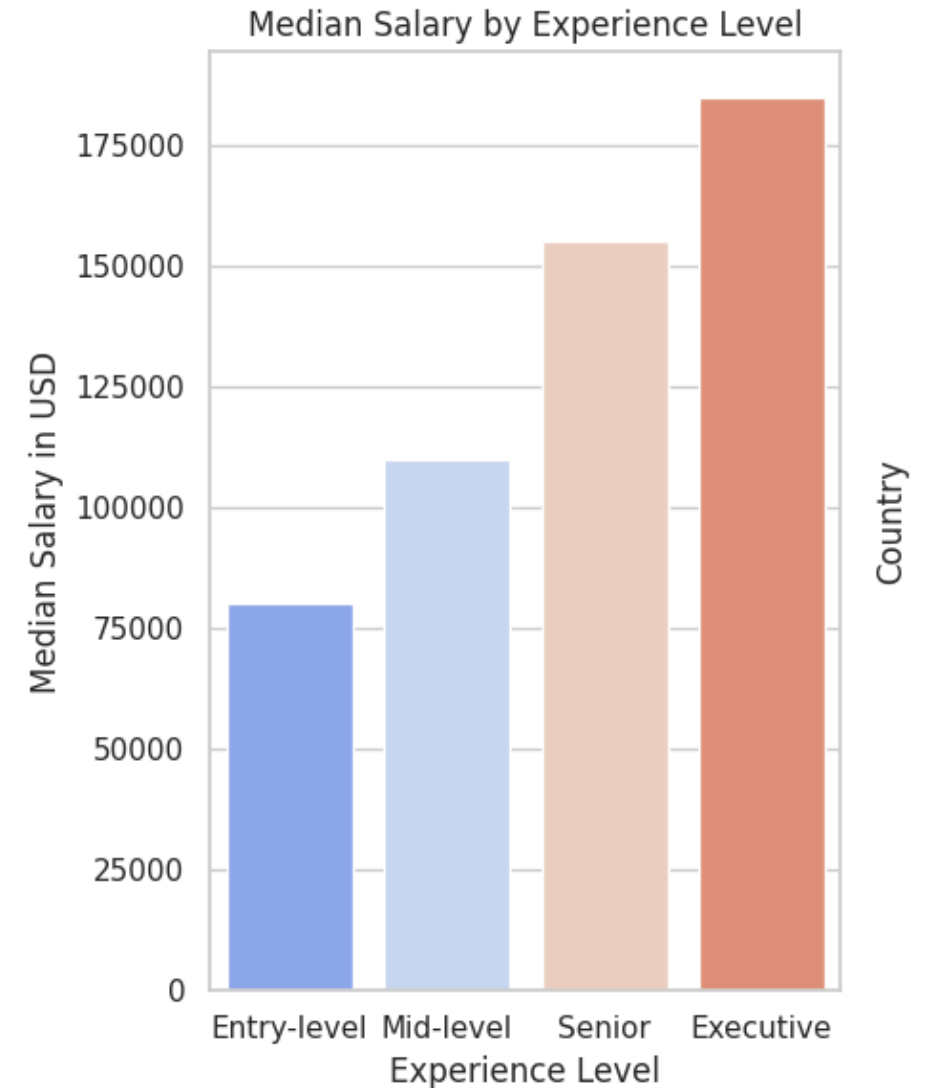
Top 10 Job Titles by Median Salary

- The highest median salaries are seen in roles like 'Analytics Engineering Manager' ($399,880), 'Data Science Tech Lead' ($375,000), and 'Managing Director Data Science' ($300,000).

- These roles represent the upper echelon of remuneration in data science, likely due to their high level of responsibility and expertise required.
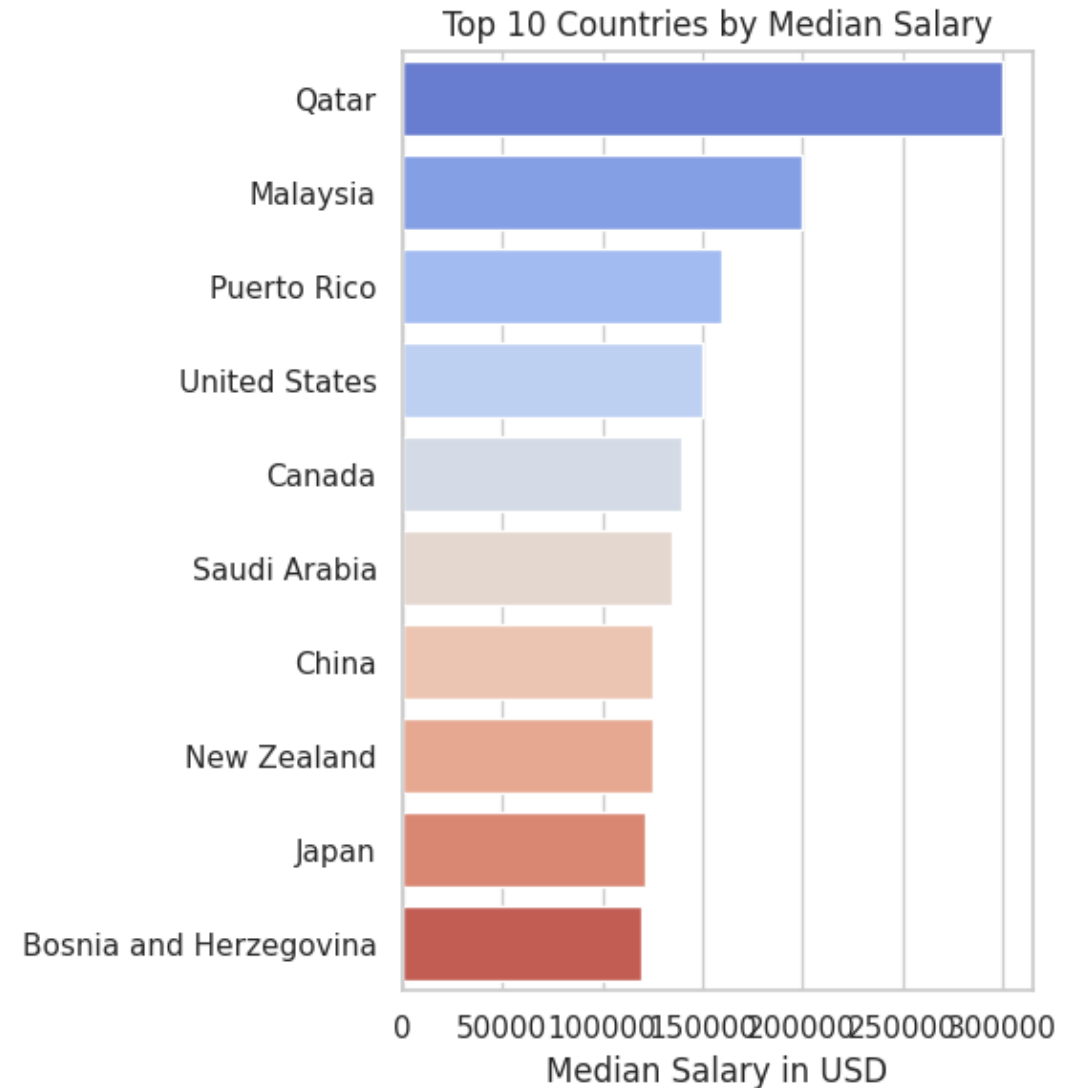

Top 10 Job Titles by Median Salary

Median Salary by Experience Level

- There is a clear progression in salaries with experience levels: 'Entry-level' ($80,000), 'Mid-level' ($110,000), 'Senior' ($155,000), and 'Executive' ($185,000).

- This trend highlights the value of experience in the data science field, with significant salary increases accompanying higher experience levels.

Median Salary by Experience Level

Top 10 Countries by Median Salary

- Qatar leads with the highest median salary ($300,000), followed by Malaysia ($200,000), and Puerto Rico ($160,000).

- The United States, a major hub for data science jobs, has a median salary of $150,000.
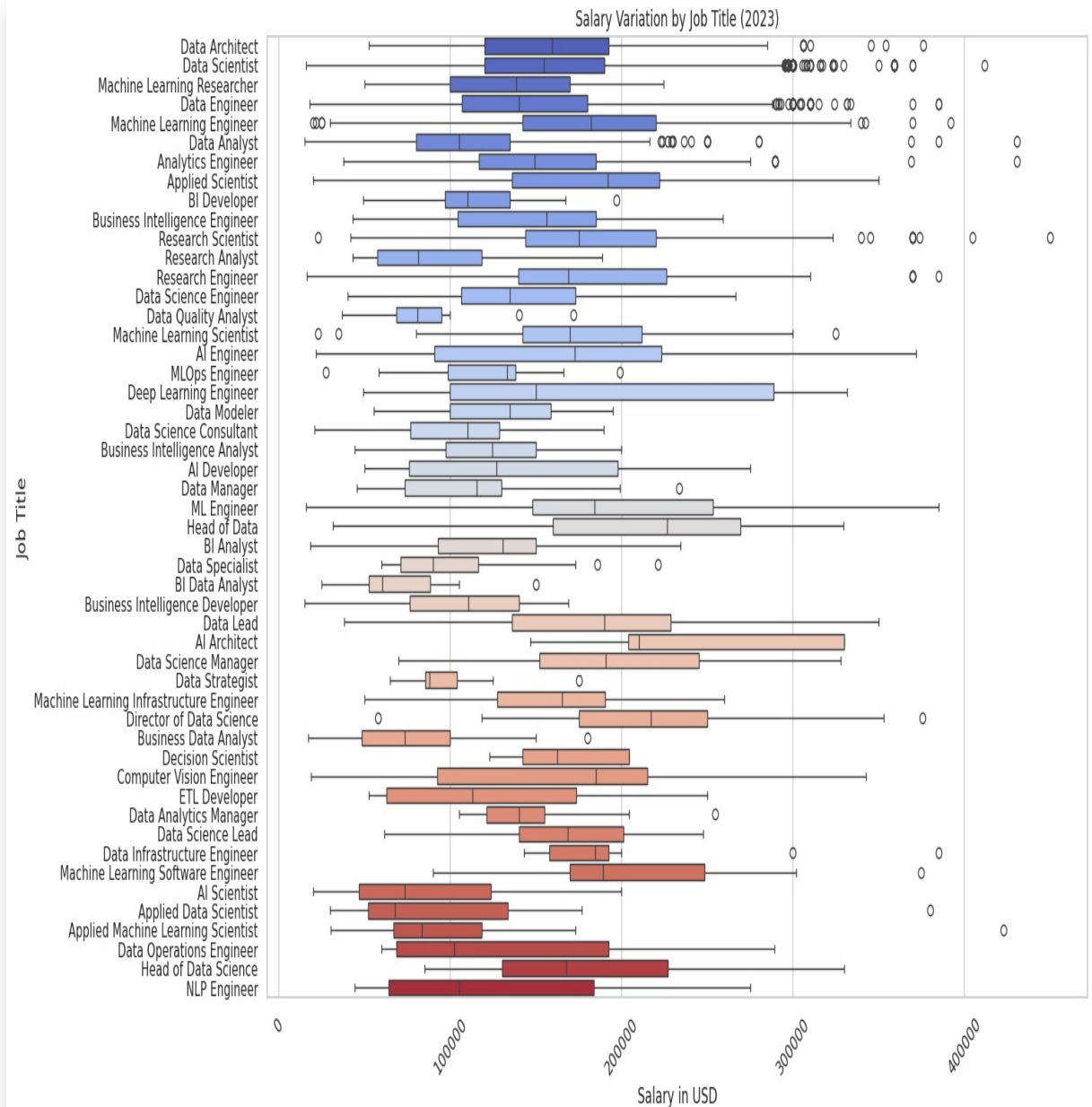

Top 10 Countries by Median Salary

Salary Variation across job titles (Top 10)

- Outliers: Several job titles, such as Data Engineer and Machine Learning Engineer, have outliers that suggest some individuals earn substantially more than their peers.

- Certain roles, such as Data Architect and Data Scientist, not only show higher median salaries but also higher upper quartiles, indicating that the top 25% of earners in these positions tend to have high salaries.
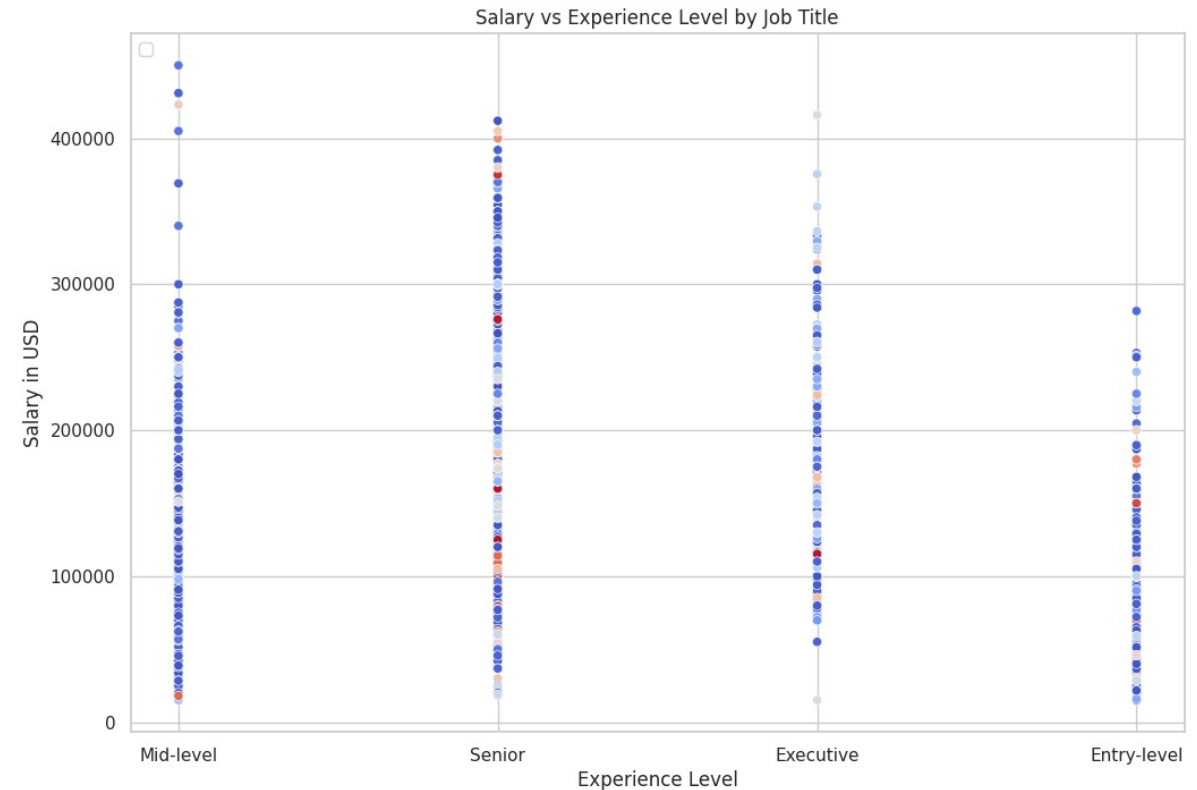

Salary Distribution Across Top 10 Job Titles

Overview across all job titles

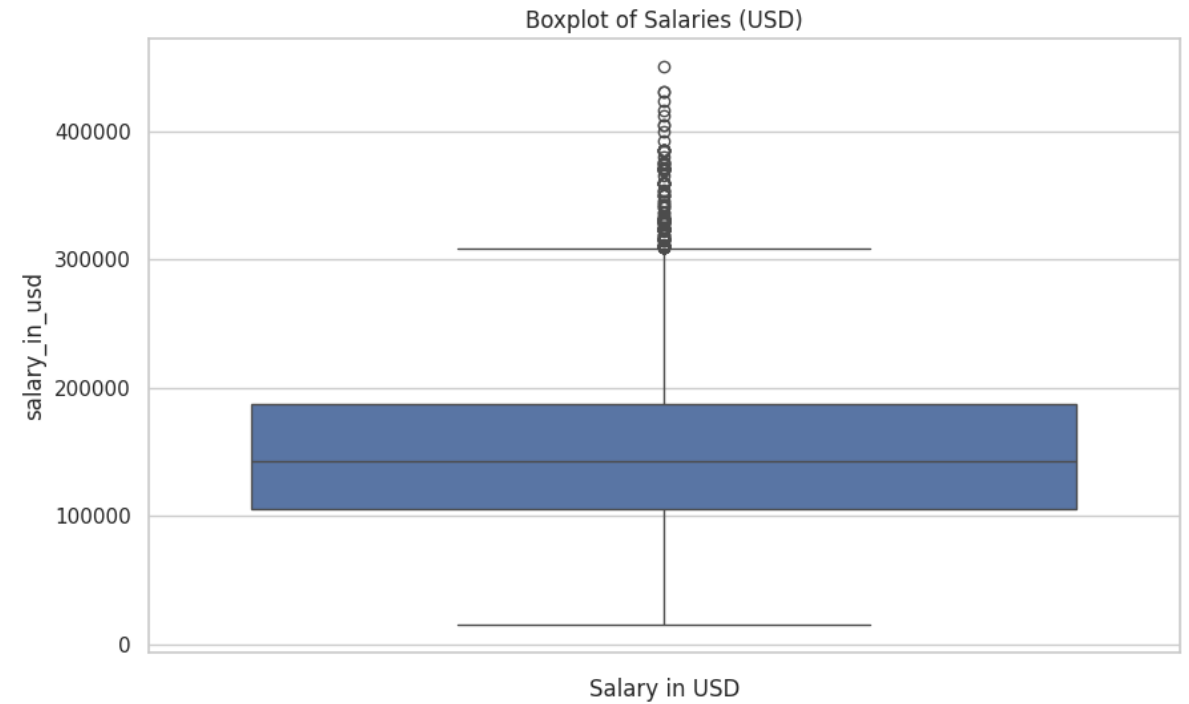
Salary Variation by Job Title (2023)

Salary variation vs experience level

- There are some outliers, especially in the Executive and Senior levels, where individual salaries are significantly higher than the majority. This could be due to high-level executives or specialists with unique skills commanding premium pay.

- Each experience level shows a vertical spread of data points, with Mid-level and Senior categories having a wider spread than Entry-level and Executive, suggesting there is more variance in salaries in the mid-career stages.

Salary vs Experience Level by Job Title

The variation of salaries in USD

- The central box represents the middle 50% of the data (the interquartile range, or IQR).

- The line in the middle of the box represents the median salary.

- The "whiskers" extend from the box to the highest and lowest values within 1.5 times the IQR from the quartiles, excluding outliers.

- The individual points above the upper whisker are outliers, which indicate that there are some significantly high salaries compared to the rest of the data.

Boxplot of Salaries (USD)

Data Insights

Thank you for your attention.