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Prompt

- Extract meaningful insight from a dataset through data analysis and chart creation
- The dataset is a listing of jobs from a job portal with various job designations and related salaries from across the world
- Provide greater understanding of the job requirements in term of salaries across different levels of work experience and other categorical measures

Dataset Parameters

- There are 9355 jobs within the dataset
- Jobs are listed with the following categorical and numerical measures:
 - Work Year - the year in which the data was recorded
 - Job Title - The specific title of the job role
 - Job Category - A classification of the job role into a broader category
 - Salary Currency - The currency in which the salary is paid
 - Salary - The annual gross salary of the role in the local currency
 - Salary in USD - the annual gross salary converted to United States Dollars (USD)
 - Employee Residence - The country of residence of the employee
 - Experience Level - Classifies the professional experience of the employee
 - Employment Type - The type of employment (such as full-time, part-time)
 - Work Setting - The work setting (such as remote, in-person)
 - Company Location - The country where the company is located
 - Company Size - The size of the employer company

Dataset Parameters (continued)

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9355 entries, 0 to 9354
Data columns (total 12 columns):
#   Column                Non-Null Count  Dtype
---  -
0   work_year              9355 non-null   int64
1   job_title              9355 non-null   object
2   job_category           9355 non-null   object
3   salary_currency        9355 non-null   object
4   salary                 9355 non-null   int64
5   salary_in_usd          9355 non-null   int64
6   employee_residence     9355 non-null   object
7   experience_level       9355 non-null   object
8   employment_type        9355 non-null   object
9   work_setting           9355 non-null   object
10  company_location       9355 non-null   object
11  company_size           9355 non-null   object
dtypes: int64(3), object(9)
memory usage: 877.2+ KB
```

The images here show some basic inferences about the dataset derived using the Python programming tool

The left shows the total amount of information listed in each column category.

The right shows a quantity of each job based on “Job Title” (top) and “Job Category” (bottom)

```
df["job_title"].value_counts()
```

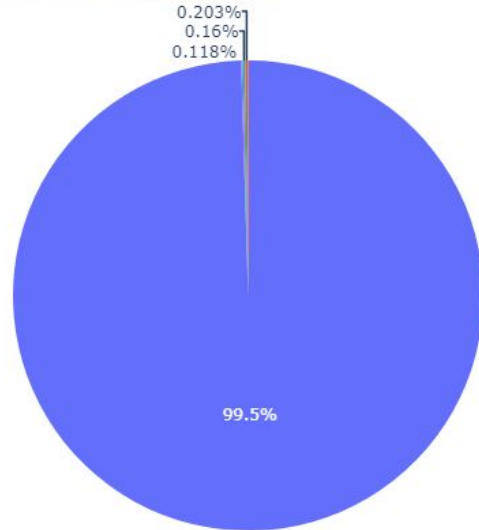
```
job_title
Data Engineer                2195
Data Scientist               1989
Data Analyst                 1388
Machine Learning Engineer    991
Applied Scientist            272
...
Consultant Data Engineer      1
Sales Data Analyst            1
Managing Director Data Science 1
AWS Data Architect            1
Deep Learning Researcher      1
Name: count, Length: 125, dtype: int64
```

```
df["job_category"].value_counts()
```

```
job_category
Data Science and Research    3014
Data Engineering             2260
Data Analysis                1457
Machine Learning and AI      1428
Leadership and Management    503
BI and Visualization         313
Data Architecture and Modeling 259
Data Management and Strategy  61
Data Quality and Operations   55
Cloud and Database            5
Name: count, dtype: int64
```

Employment Type Pie Chart

Percentage of Jobs Available by Employment Type

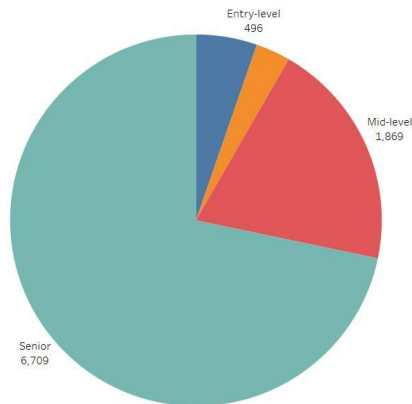


- Full-time
- Contract
- Part-time
- Freelance

This chart shows the quantity of jobs in the list based on Employment Type. One can gather that nearly all of the jobs are “Full-Time”, which has an effect on the salary structure of that job

Experience Level Pie Chart

Number of Jobs Available, Categorized by Experience Level [Pie Chart]

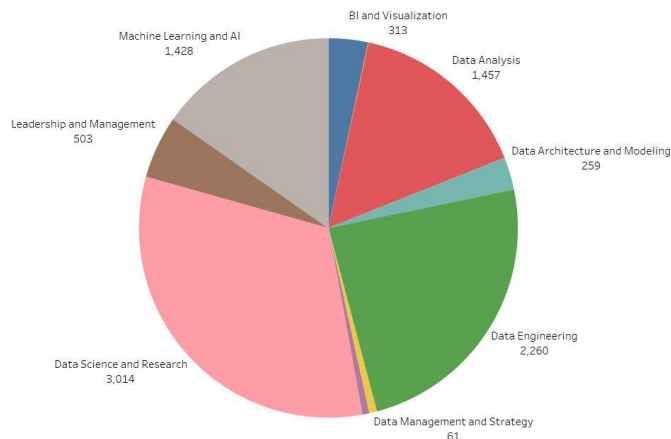


9,355
Experience Level
Entry-level
Executive
Mid-level
Senior

This chart shows the quantity of jobs based on Experience Level. About $\frac{3}{4}$ of the jobs are of “Senior” experience, indicating a certain level of expertise seen within the field

Job Category Pie Chart

Number of Jobs Available in each Job Category [Pie Chart]



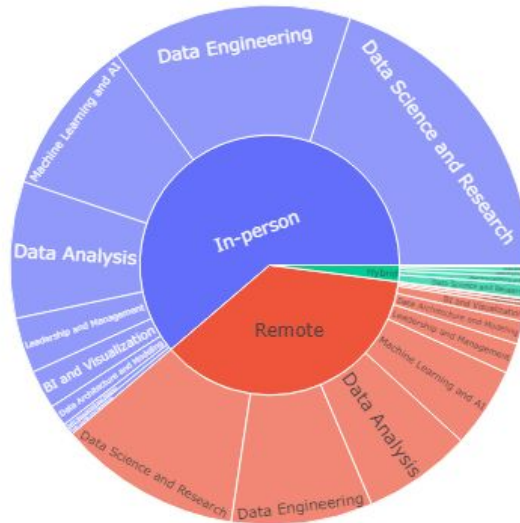
Job Category

- BI and Visualization
- Cloud and Database
- Data Analysis
- Data Architecture and Modeling
- Data Engineering
- Data Management and Strategy
- Data Quality and Operations
- Data Science and Research
- Leadership and Management
- Machine Learning and AI

This chart shows the quantity of jobs by Job Category, showing the occurrence of positions in each branch of work

Job Category by Work Setting Pie Chart

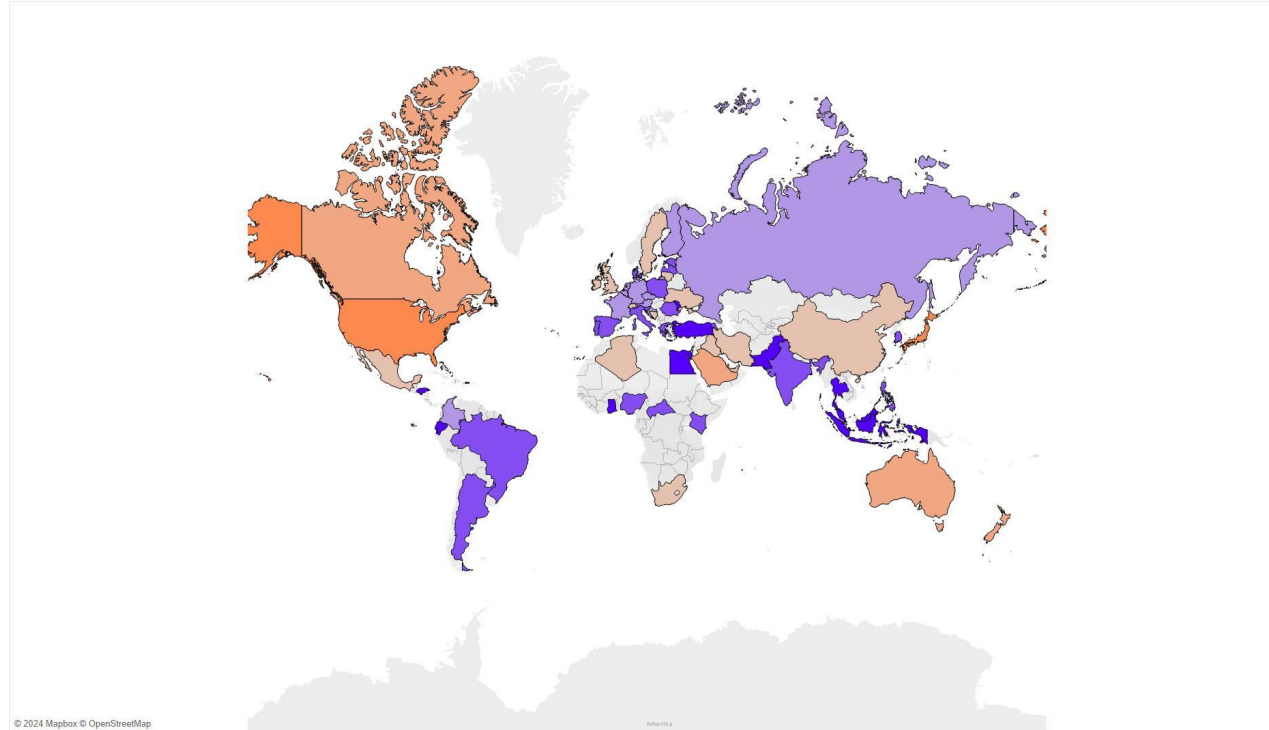
Occurrence of Jobs by Category According to Work Setting



This chart shows the quantity of jobs in each Job Category based on the hierarchical status of Work Setting. One can gather that more of the jobs are “In-Person” and “Remote”, and that categories such as “Data Science and Research”, and “Data Engineering” occur more frequently

Average Salary [USD] by Company Location Map

Geographic Distribution of Jobs by Company Location, Highlighted by Average Salary [USD] [Map]

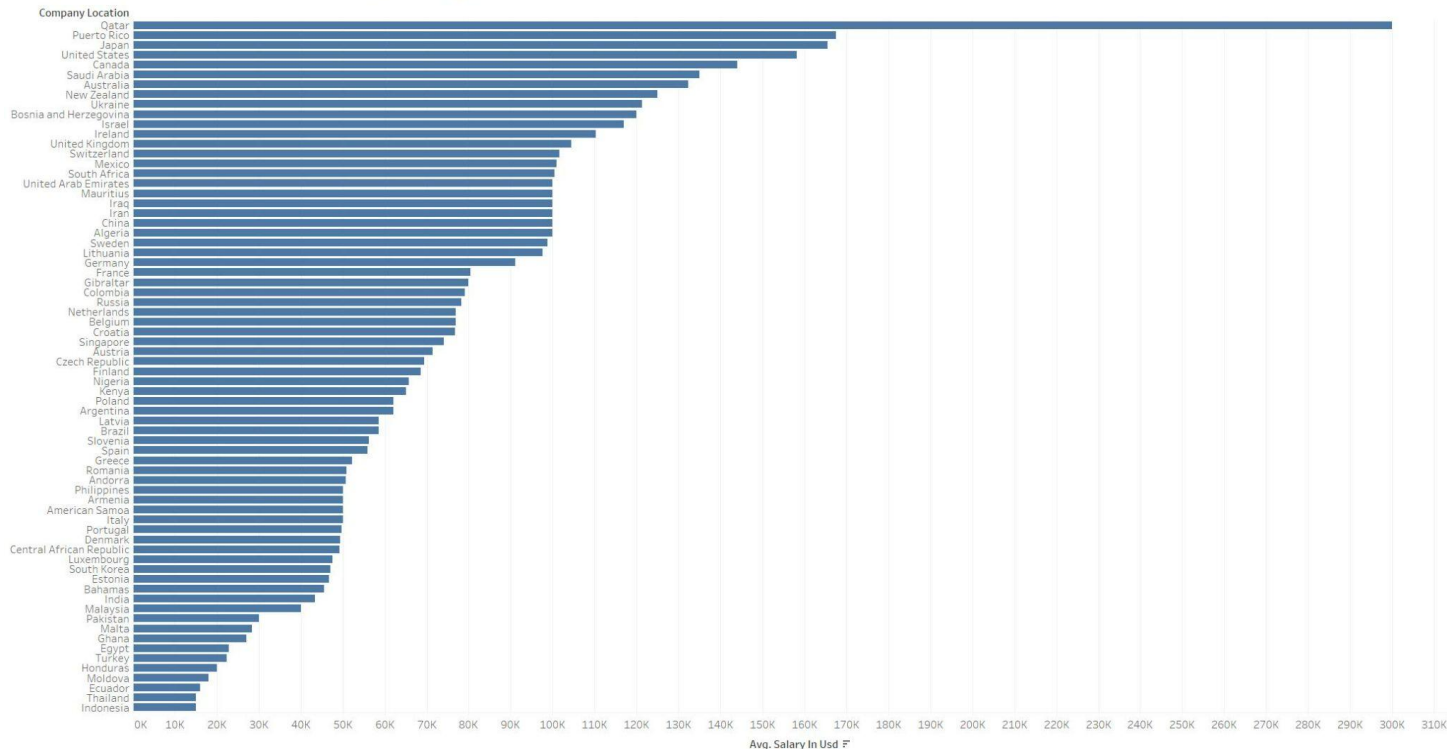


Avg. Salary In Usd
15,000 175,000

This map shows the Average Salary [USD] of jobs based on Company Location. Visualized is the salary range across the world, from greatest (orange) to least (purple)

Average Salary [USD] by Company Location Bar Chart

Jobs per Company Location, ordered by Average Salary [USD] [Bar Chart]



Average of Salary In Usd for each Company Location.

This graph shows an alternative visualization of the highest to lowest Average Salary [USD] of each job by Company Location

Average Salary [USD] of Job Categories by Experience Level Treemap

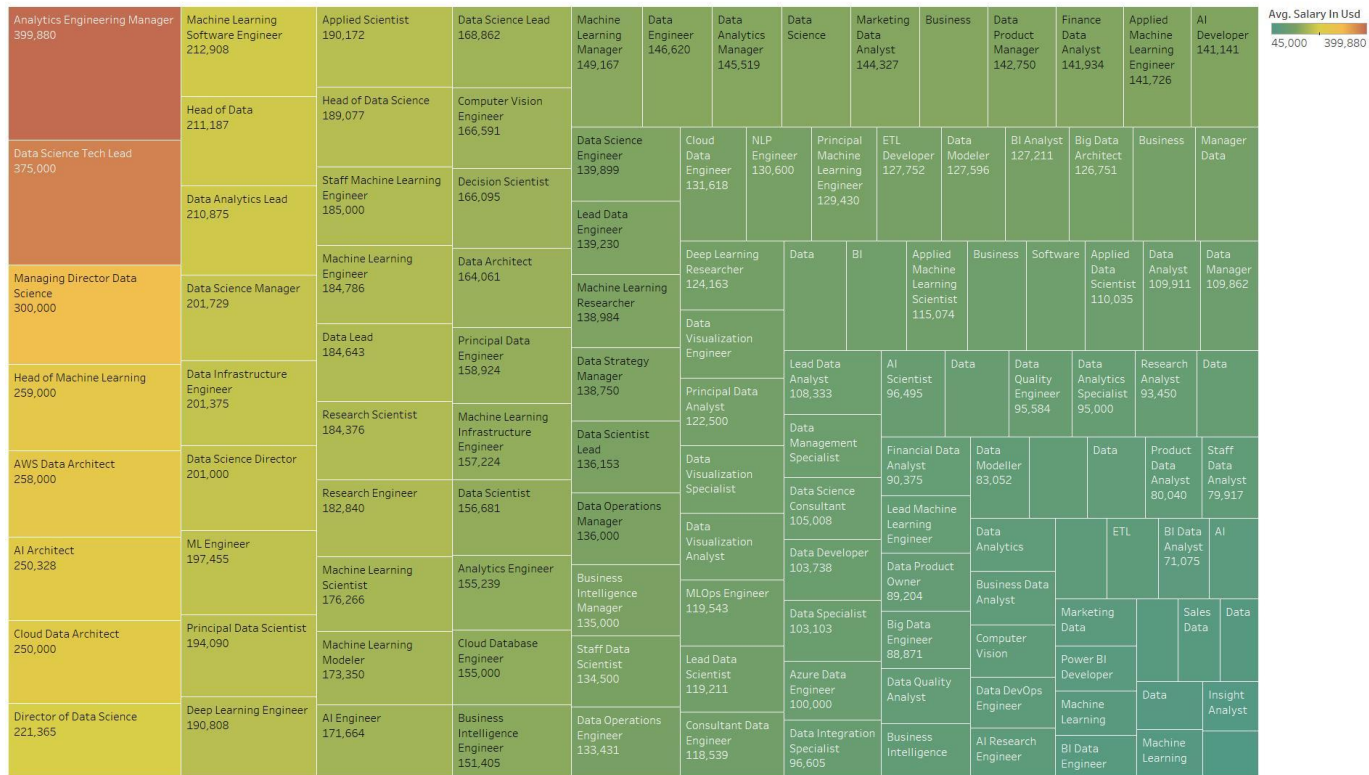
Average Salary [USD] for each Job Category by Level of Experience



This map represents the Average Salary [USD] of each Job Category, broken down by Experience Level. The size of each box indicated the relative size of the salary, with larger boxes equating to a higher salary. It is useful to visualize the average salary size of each category, and which experience level indicates a higher or lower salary value

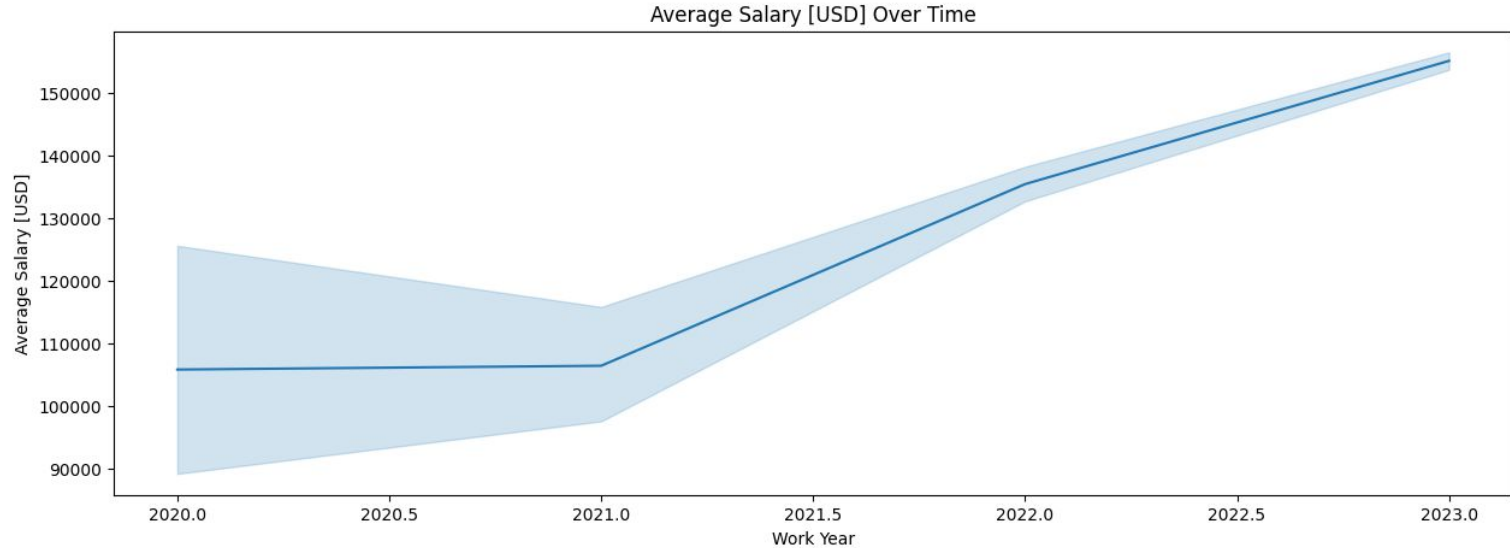
Average Salary [USD] of each Job Title Treemap

Hierachy of Average Salary [USD] of each Job Title [Treemap]



This map shows the the hierarchy of Average Salary [USD] of each Job Title. The larger the box is indicative of a greater salary. One can gather the salary distribution across various specialized roles

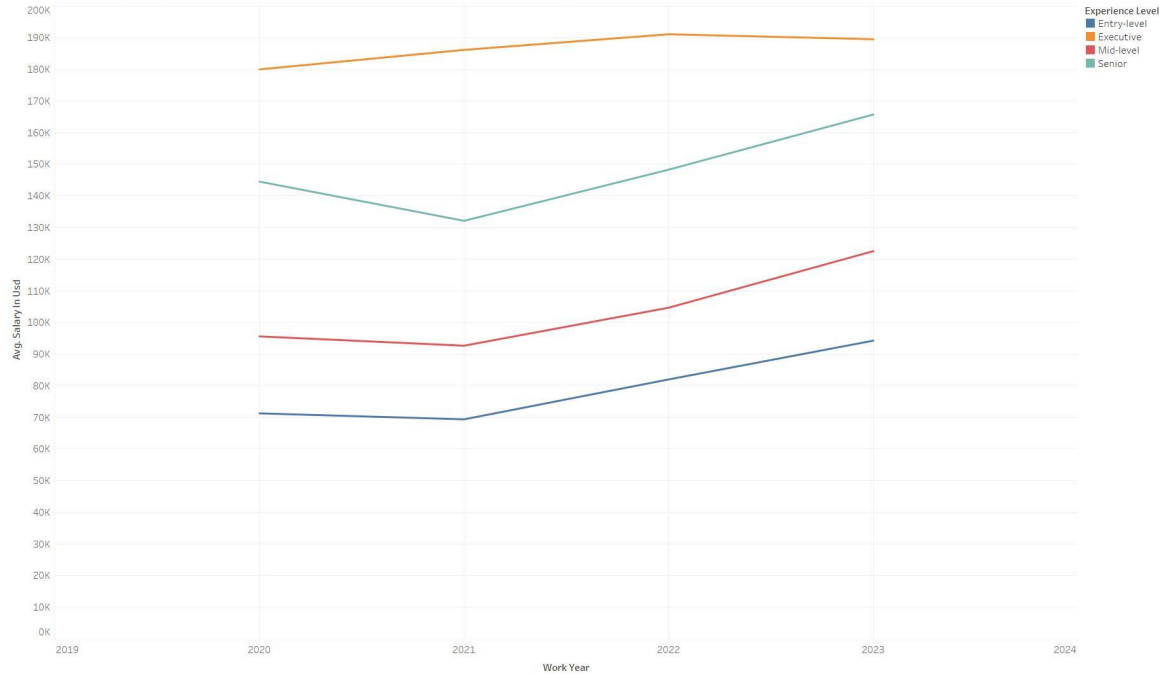
Average Salary [USD] by Work Year Line Plot



This plot shows the Average Salary [USD] of the jobs over each year the data was collected. One can visualize the salary trends over time

Average Salary [USD] of Experience Level by Work Year Line Plot

Average Salary [USD] of each Job based on Experience Level, by Work Year [Line Plot]

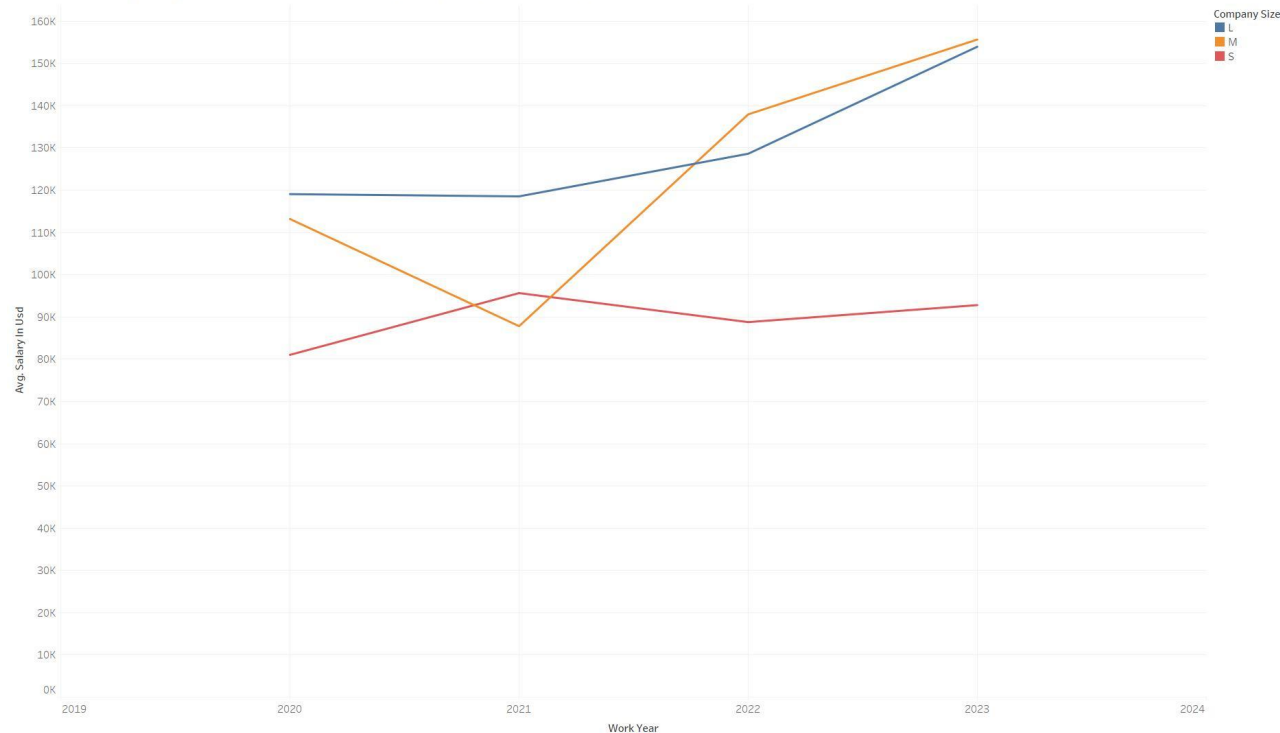


The trend of average of Salary In Usd for Work Year. Color shows details about Experience Level.

This plot shows the Average Salary [USD] of each job based on Experience Level, over each year the data was collected. One can see the difference in salary value for each experience level, as well as their trend over time

Average Salary [USD] of Company Size by Work Year Line Plot

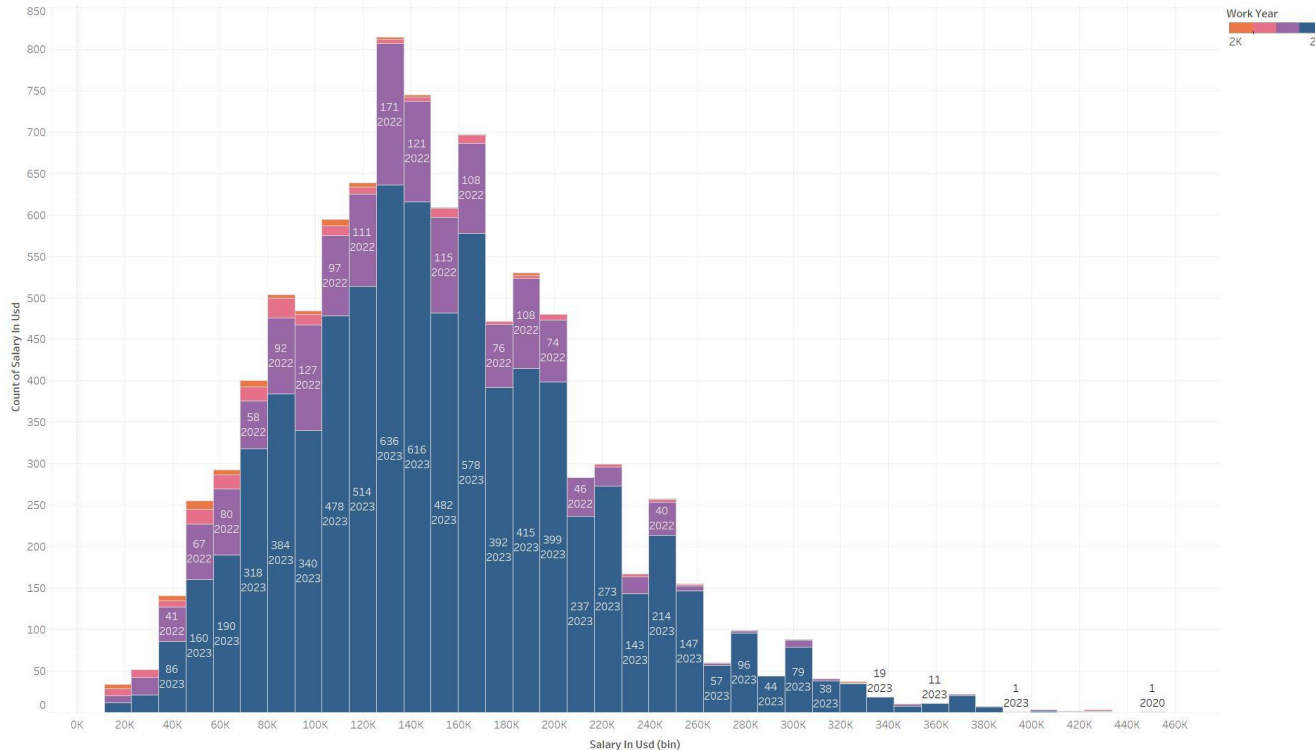
Average Salary [USD] of each Job based on Company Size, by Work Year [Line Plot]



This plot shows the Average Salary [USD] of each job based on Company Size, over each year the data was collected. One can see the difference in salary value based on company size, as well as the trend over time

Distribution of Jobs by Average Salary [USD] Stacked Bar Chart

Distribution of Jobs by Average Salary [USD], Highlighted by Work Year [Stacked Bar Chart]

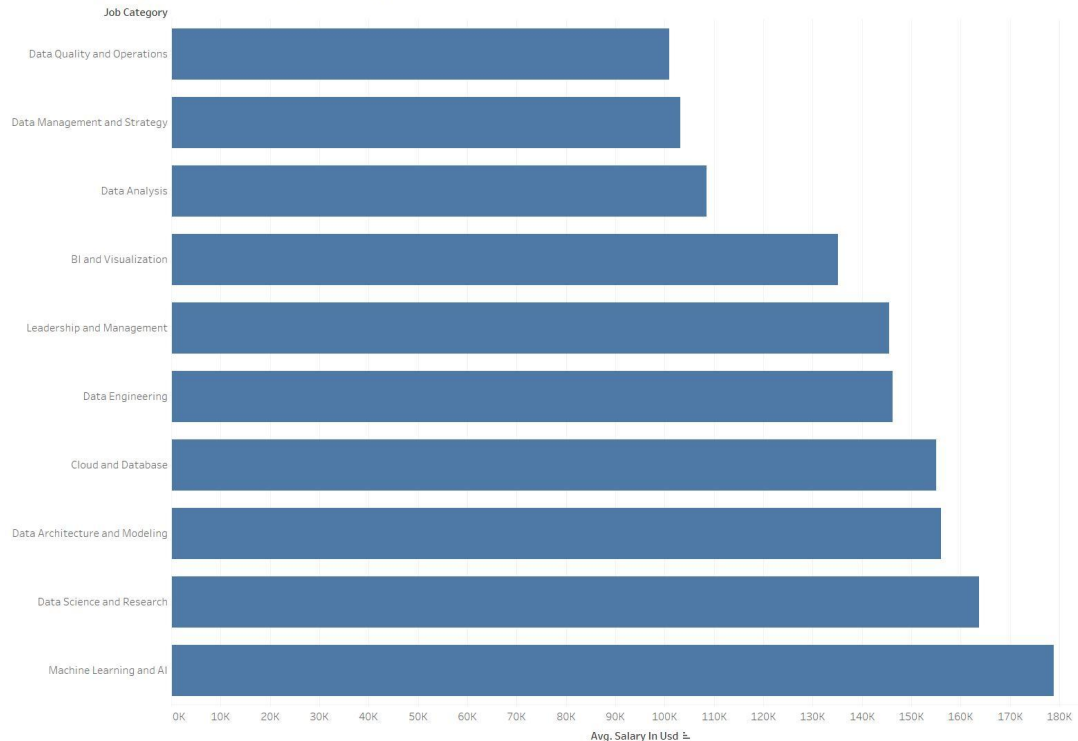


The trend of count of Salary In Usd for Salary In Usd (bin). Color shows details about Work Year. The marks are labeled by count of Salary In Usd and Work Year. The view is filtered on Work Year, which includes everything.

The chart shows the distribution of jobs by Average Salary [USD], with each work year highlighted by color. It shows more of the jobs occur in 2022 and 2023, and is useful to assess what salary values tend to occur most frequently in the field

Average Salary [USD] by Job Category Bar Chart

Average Salary [USD] per Job Category [Bar Chart]

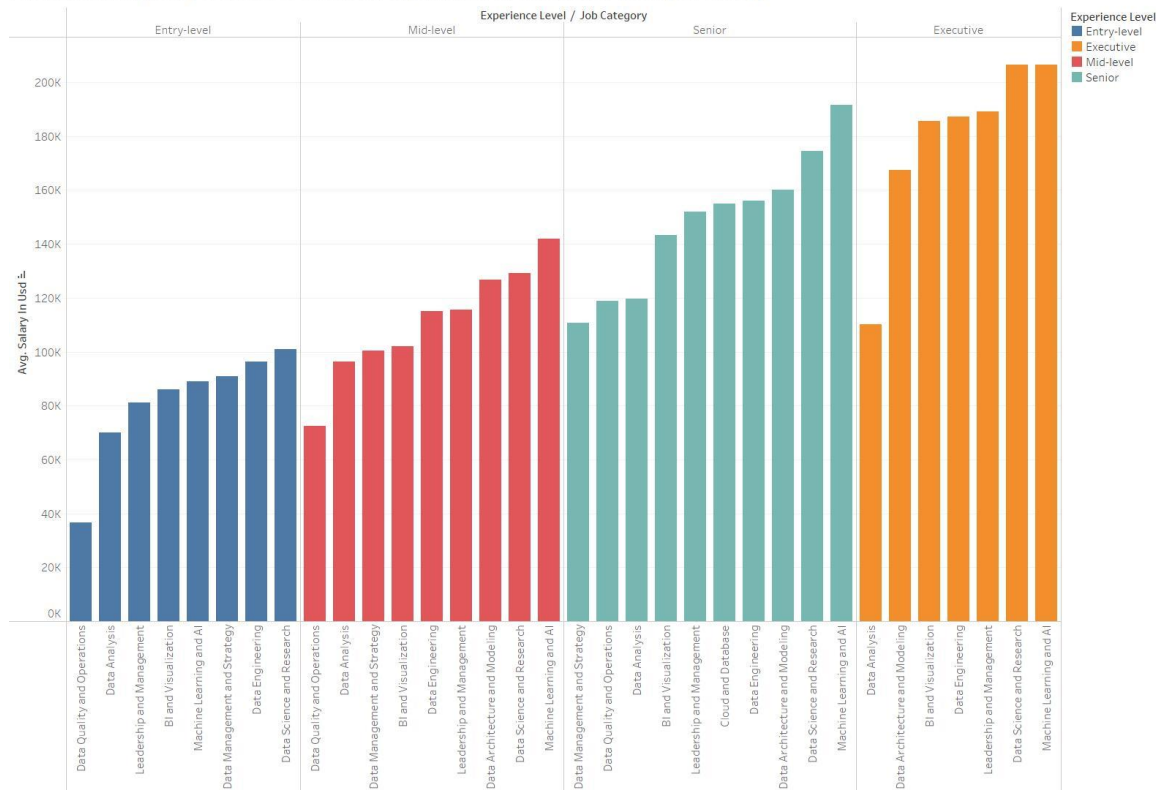


Average of Salary In Usd for each Job Category.

This chart shows the Average Salary [USD] of jobs based on each Job Category. It is useful to understand which field indicates a higher or lower salary value, with “Machine Learning and AI” as the highest, and “Data Quality and Operations” as the lowest

Average Salary [USD] by Job Category and Experience Level Bar Chart

Average Salary [USD] of each Job Category, Highlighted by Experience Level [Bar Chart]



The chart shows the Average Salary [USD] of each Job Category, with Experience Level highlighted. It is useful to visualize which level of experience corresponds to a higher or lower salary in each category, as well as which categories may or may not have job positions due to the level of experience

Average Salary [USD] by Work Setting, Employment Type, and Experience Level Bar Chart

Average Salary [USD] of Jobs based on Work Setting and Employment Type, Highlighted by Experience Level [Bar Chart]

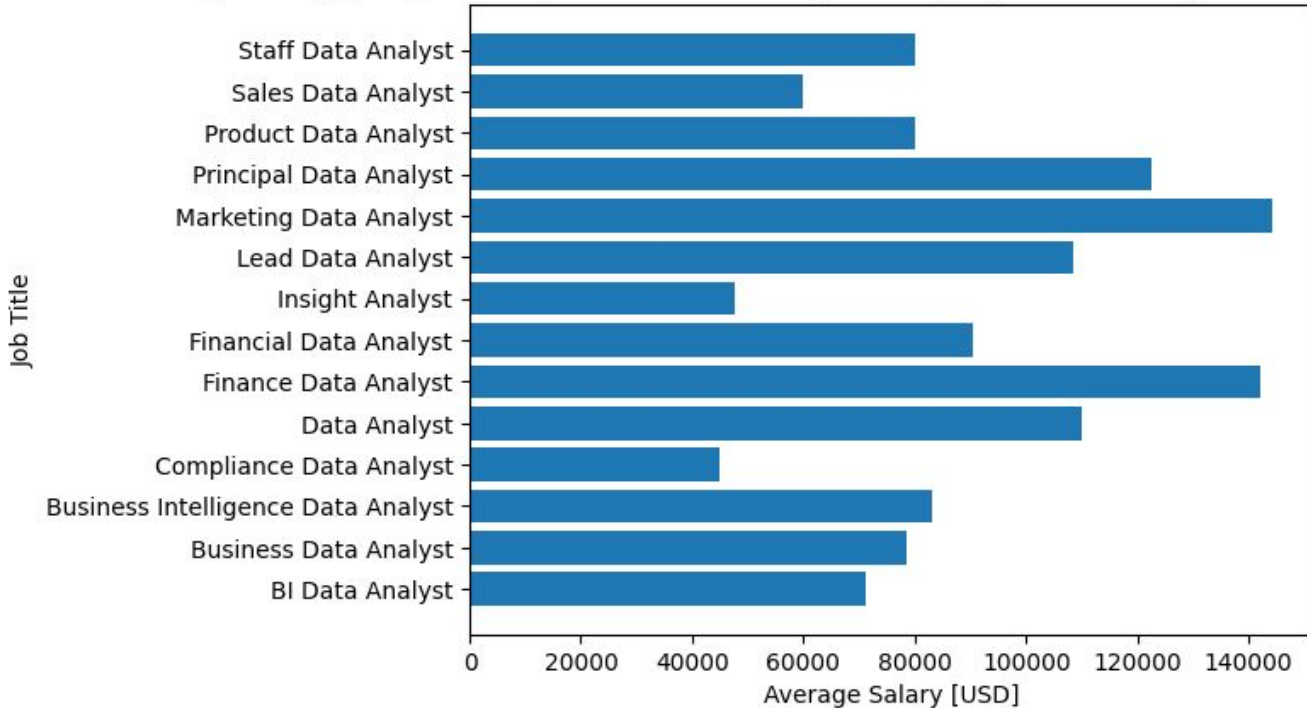


Average of Salary In Use for each Experience Level broken down by Employment Type vs. Work Setting. Color shows details about Experience Level. The marks are labeled by average of Salary In Use.

This chart shows the Average Salary [USD] of jobs based on Work Setting, Employment Type, and Experience Level. It visualizes which experience levels generate higher or lower salary based on the setting of work and employment type. Also shown is that there may or may not be job positions for every experience level, indicated in areas such as that shown in Hybrid-Contract work, where there is only Entry-level experience observed

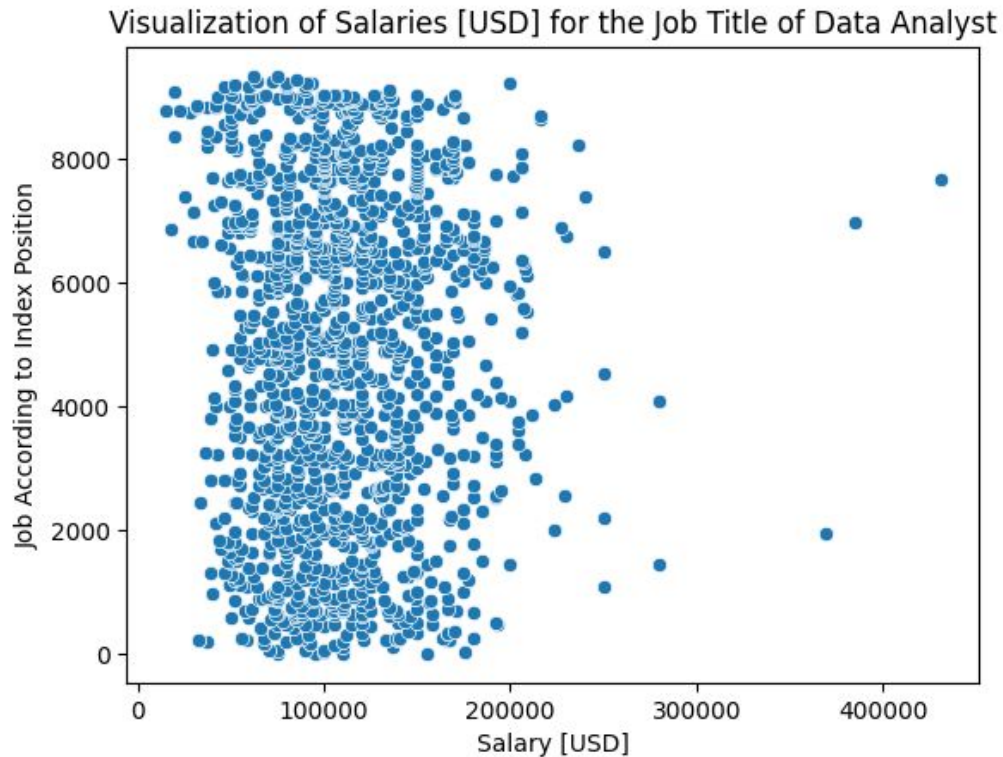
Average Salary [USD] of Job Titles in Data Analysis Job Category Bar Chart

Average Salary [USD] of each Job Title Within the Job Category of Data Analysis



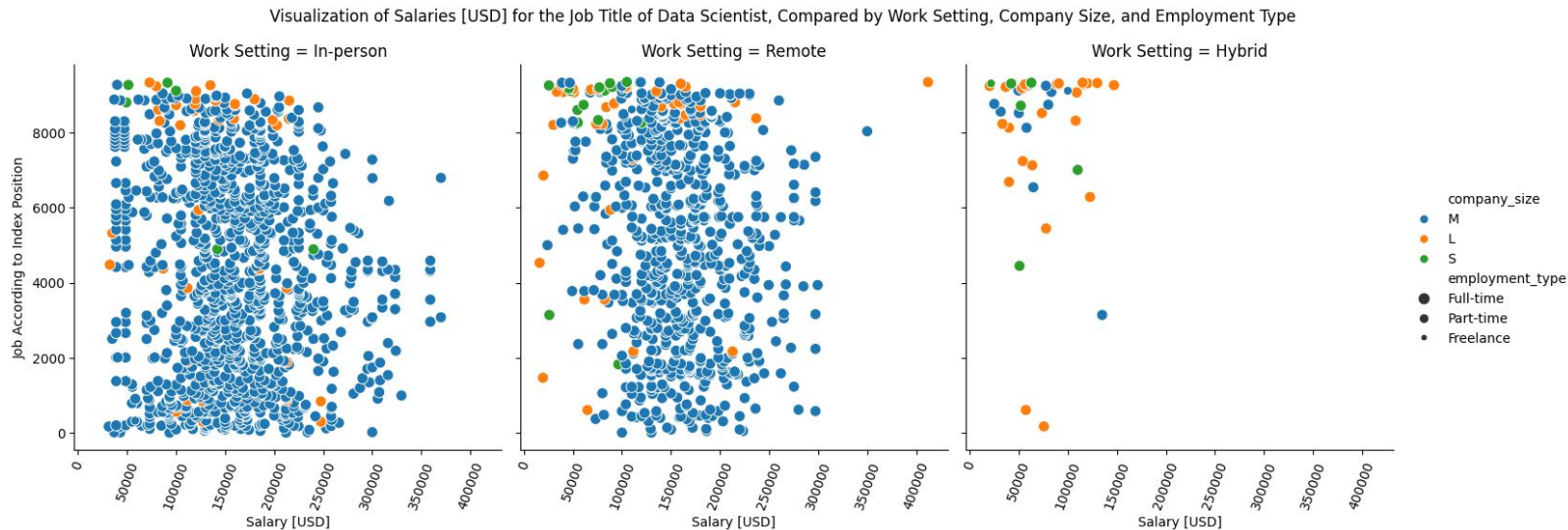
This chart visualizes the Average Salary [USD] of Job Titles within the Job Category of Data Analysis. It is useful to understand the salary distribution across these specialized roles

Salaries [USD] for the Job Title of Data Analyst Plot



The plot shows each the Salary [USD] of each job position observed for the Job Title of Data Analyst, visualizing where most of salary values fall, and where there may be instances of positions with much greater or lower salaries. It is useful to visualize the distribution of salaries among this title

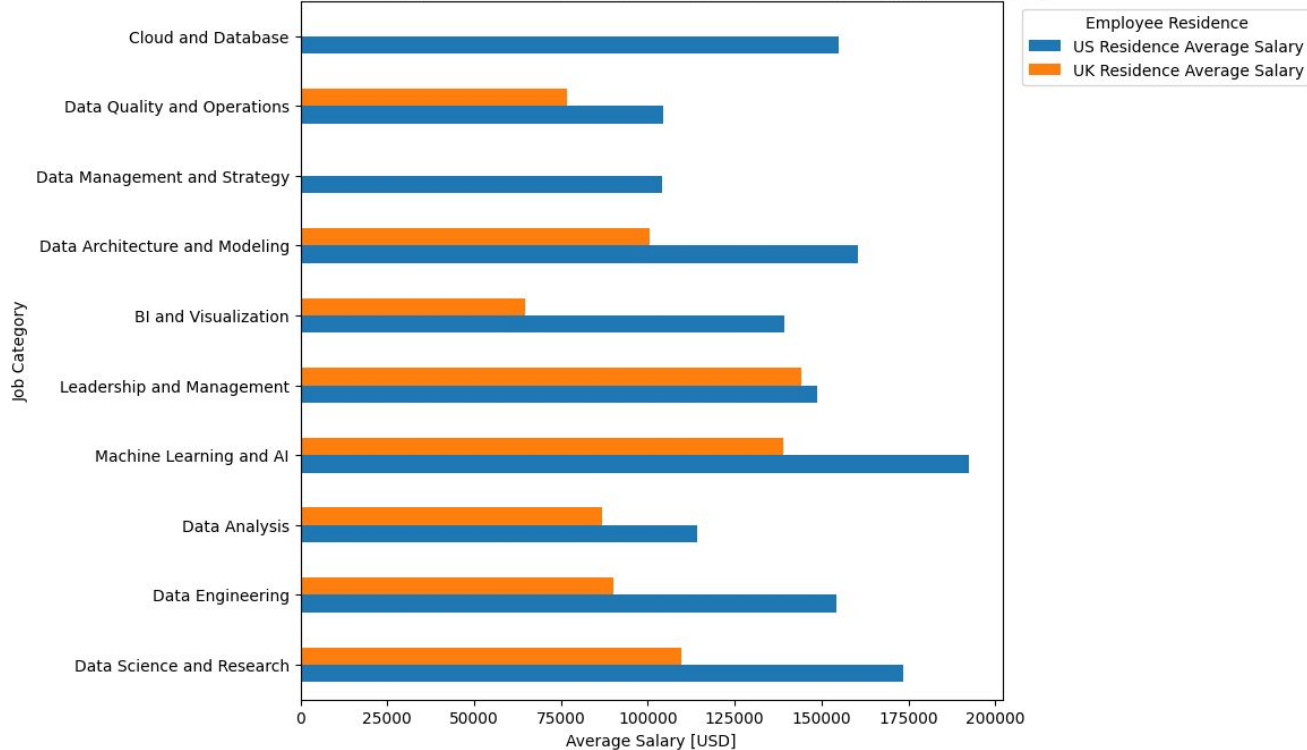
Salaries [USD] for the Job Title of Data Scientist, by Work Setting, Company Size, and Employment Type Plot



This plot shows the visualization of each Salary [USD] in the Job Title of Data Scientist, based on Work Setting, and highlighted by Company Size and Employment Type. It is helpful to visualize how many positions occur within each work setting, and the general distribution of salary values. One can also observe that most of the positions appear to be for full-time work at medium-size companies

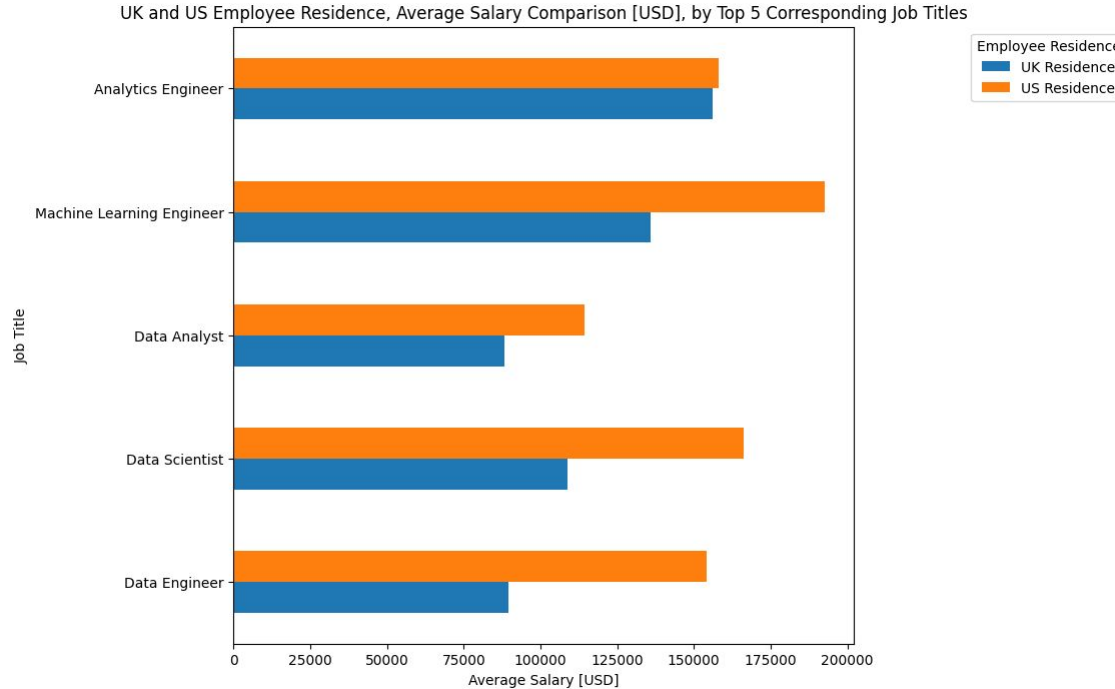
Average Salary [USD] of Job Categories by US and UK Residence Bar Chart

US and UK Employee Residence, Average Salary Comparison [USD], by Job Category



This chart compares the Average Salary [USD] of each Job Category within Employee Residence in the United States and in the United Kingdom. This is useful to comparing geographical salary differences

Average Salary [USD] of Job Titles by US and UK Residence Bar Chart



This graph shows the Average Salaries [USD] of the top 5 Job Titles related to Employee Residence in the United States and United Kingdom. This highlights another geographical distinction among salaries

Link to GitHub