



# Data Science Salaries Analysis

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Group 2

# Objective

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As data science students, we wanted to examine the potential career options and associated salaries for data science professionals. Our goal is to use the findings of this data analysis to identify career interests and how they align with potential future earnings.

# Project Analysis



## IDENTIFY DATA SOURCES

Data was derived from job board.

Source: ai-jobs.net



## DATA PREPARATION

Clean data using the following criteria:

- Country = US
- Year = 2023
- Top 5 job titles in the different analysis areas



## ANALYZE FOR TRENDS

Tested hypothesis by performing data analysis to identify trends and limitations



## VISUALIZATION

Use pie and bar charts to understand the data



## REVIEW FINDINGS

Review the outcome of the analysis and summarize findings

## Questions to Answer

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1. What job roles are available for data science professionals?
2. How does level of experience impact salary for data science professionals?
3. What is the difference in salary based on the level of remote work?
4. How does company size impact the type of data professionals they hire?



## Question 1

**What job roles are available for data science professionals?**

# Data Science Jobs

AI Engineer

Analytics  
Engineer

Applied  
Scientist

BI Developer

Business  
Intelligence  
Analyst

Business  
Intelligence  
Engineer

Data Analyst

Data Architect

Data Engineer

Data Manager

Data Science  
Manager

Data Scientist

Data Specialist

Decision  
Scientist

Machine  
Learning  
Engineer

Machine  
Learning  
Scientist

ML Engineer

Research  
Analyst

Research  
Engineer

Research  
Scientist



## Question 2

**How does level of experience impact salary for data science professionals?**

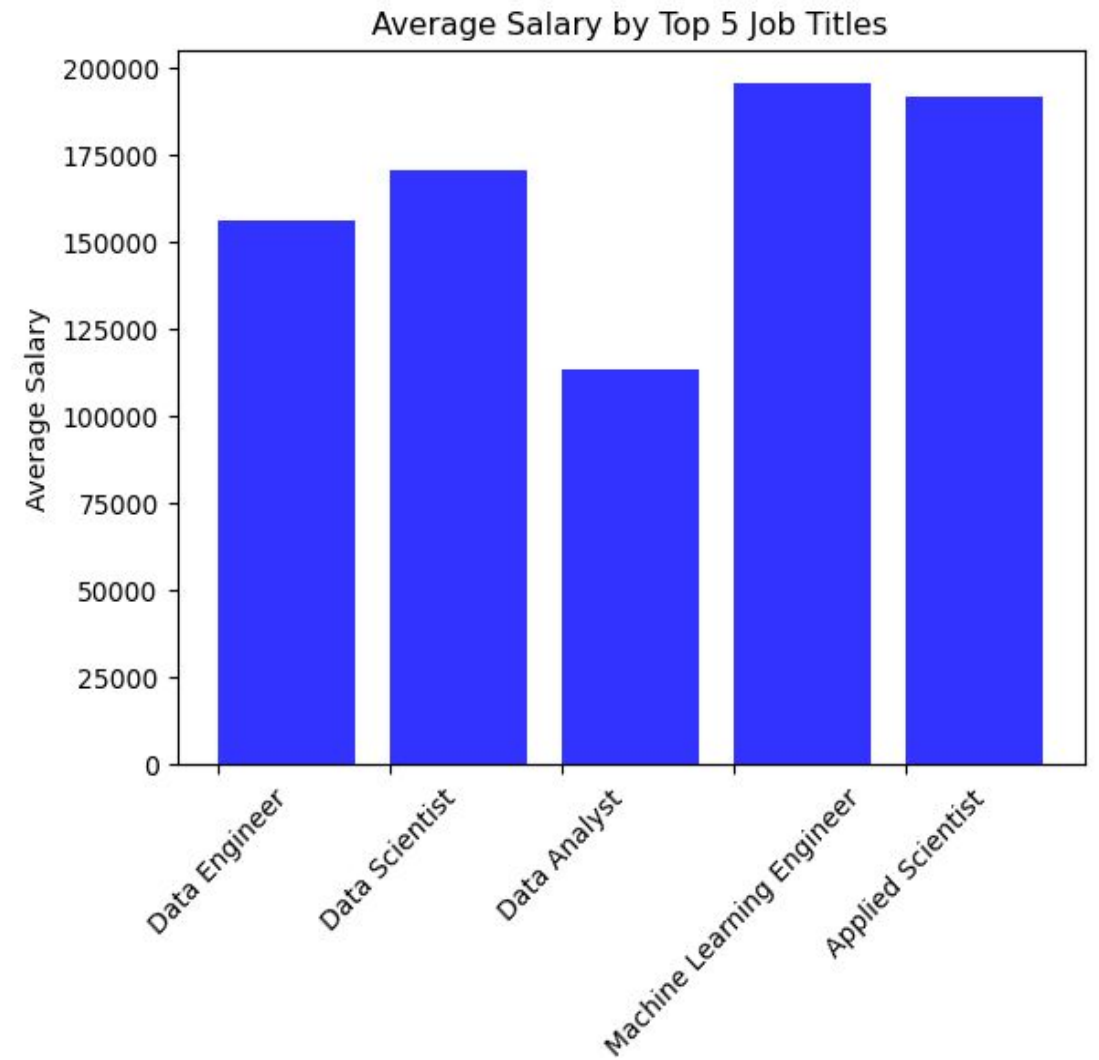
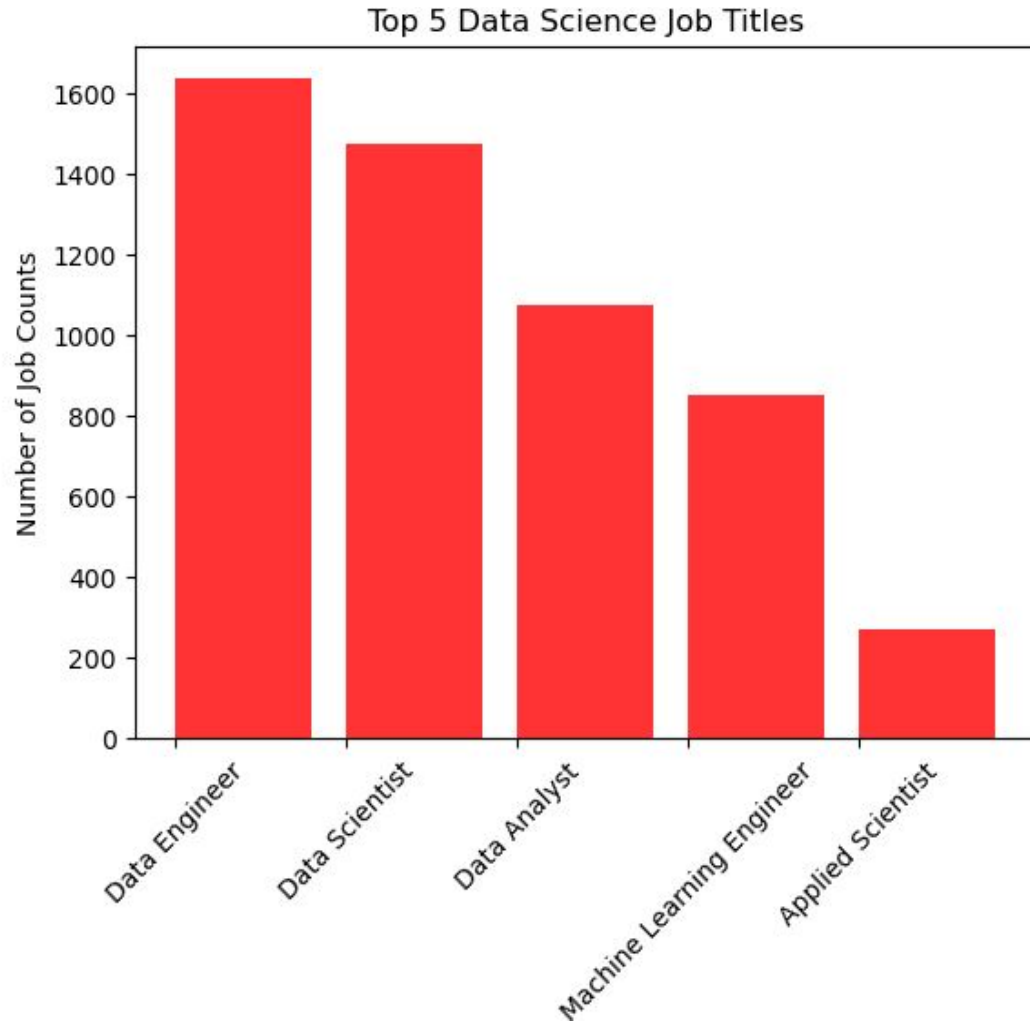
# Experience vs Salary

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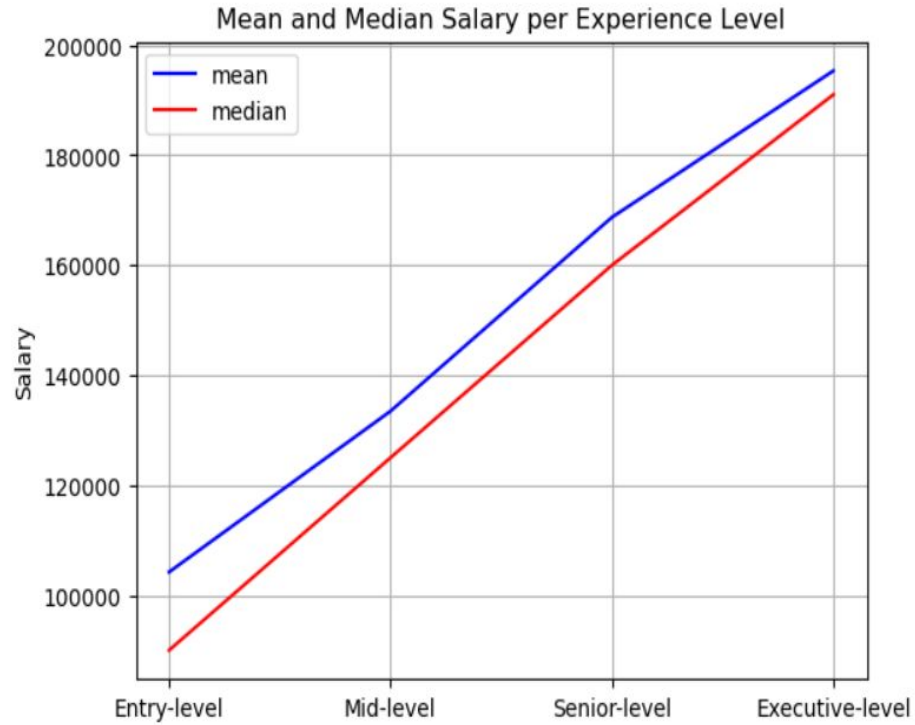
**Hypothesis:** You earn more as your experience increases.



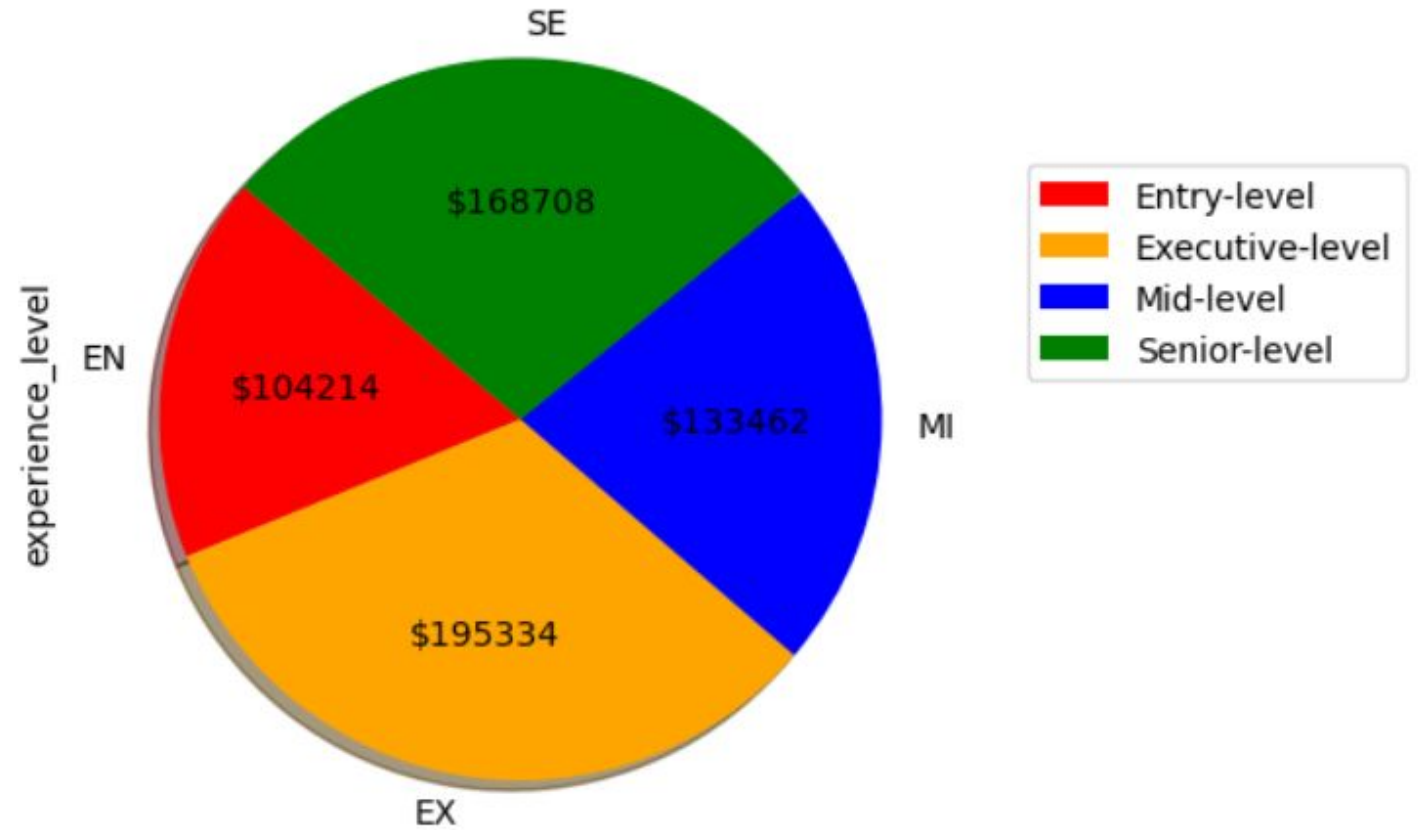
# Top Jobs and Salaries



# Experience vs Salary



Average Salaries per Experience Level

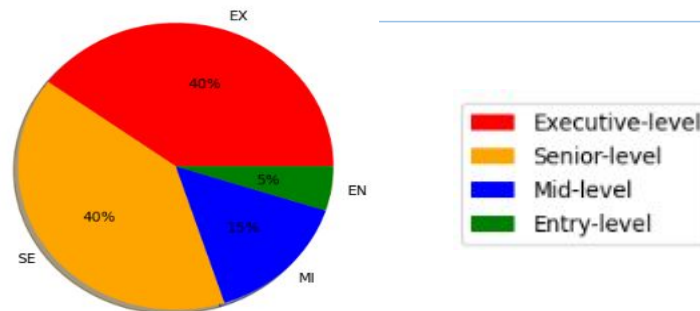


# Experience vs Salary

Top 20 high earning titles

Job Title	Experience Level		Average Salary
Deep Learning Engineer	SE	\$	307,710
Head of Data Science	EX	\$	267,475
Head of Machine Learning	EX	\$	259,000
AWS Data Architect	MI	\$	258,000
Head of Data	EX	\$	255,441
AI Architect	SE	\$	253,454
Director of Data Science	EX	\$	248,846
Machine Learning Scientist	MI	\$	246,250
Head of Data	SE	\$	242,500
ML Engineer	SE	\$	228,412

Job Title	Experience Level		Average Salary
Computer Vision Engineer	SE	\$	226,893
Applied Machine Learning Engineer	EX	\$	225,000
Computer Vision Engineer	EN	\$	220,000
Data Science Manager	SE	\$	216,463
Data Lead	EX	\$	215,333
Data Infrastructure Engineer	SE	\$	211,649
Software Data Engineer	SE	\$	210,000
Business Intelligence Engineer	EX	\$	209,850
Data Science Manager	EX	\$	206,250
Director of Data Science	MI	\$	204,500





### Question 3

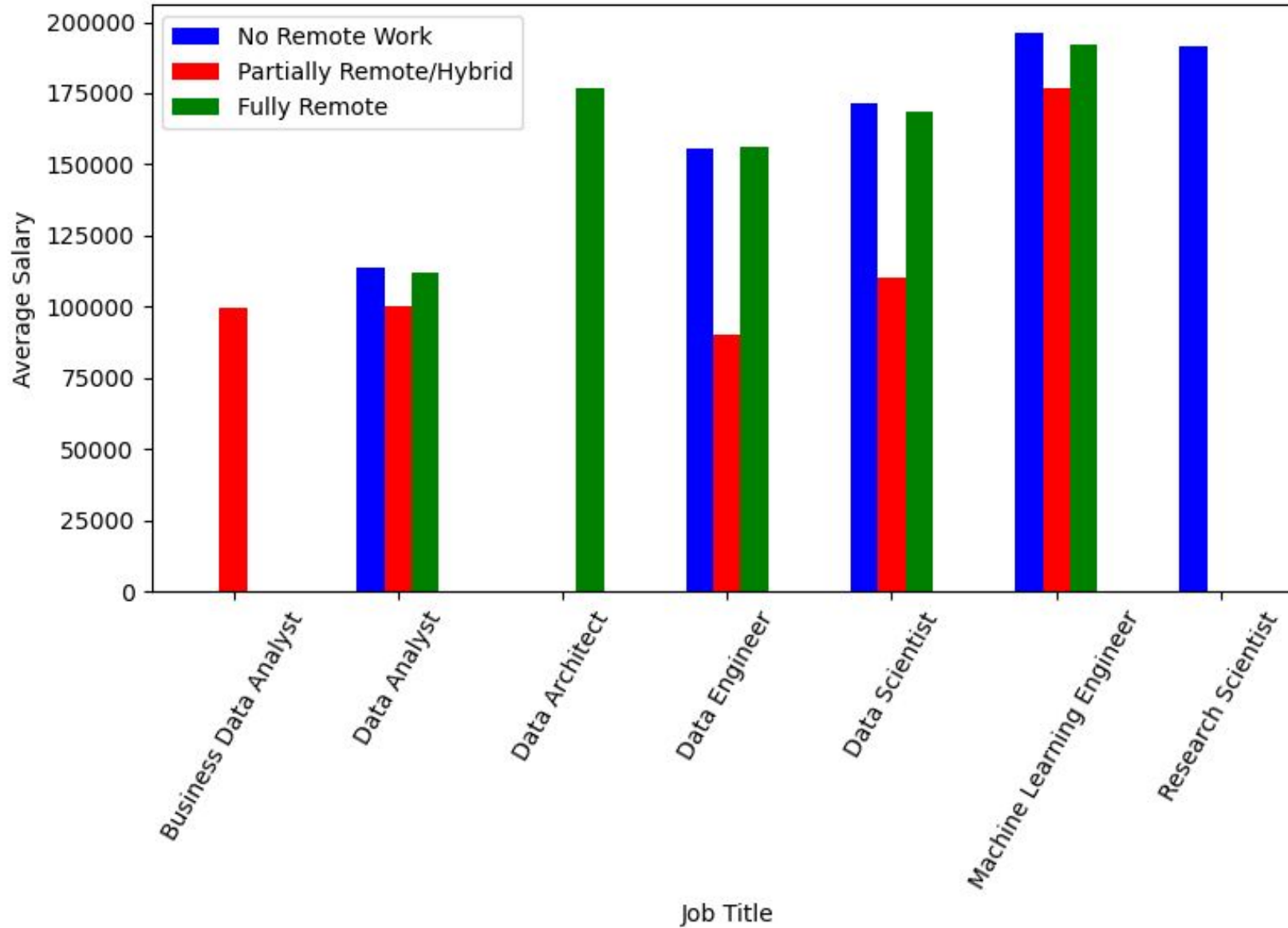
**What is the difference in salary based on the level of remote work?**

## Level of Remote Work

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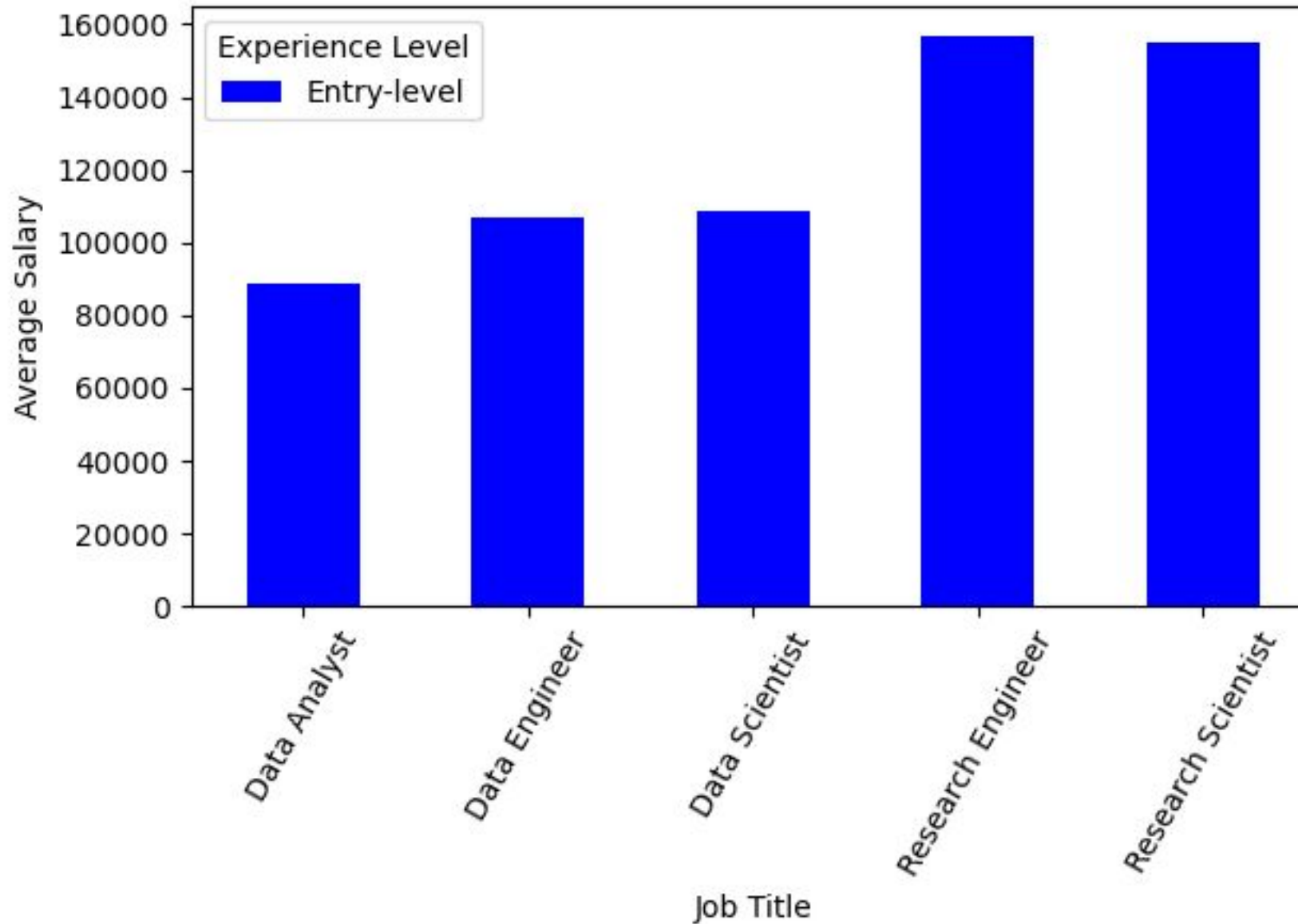
**Hypothesis:** Data science professionals salaries are higher for those who work more in person.

# Top 5 Jobs by Level of Remote Work



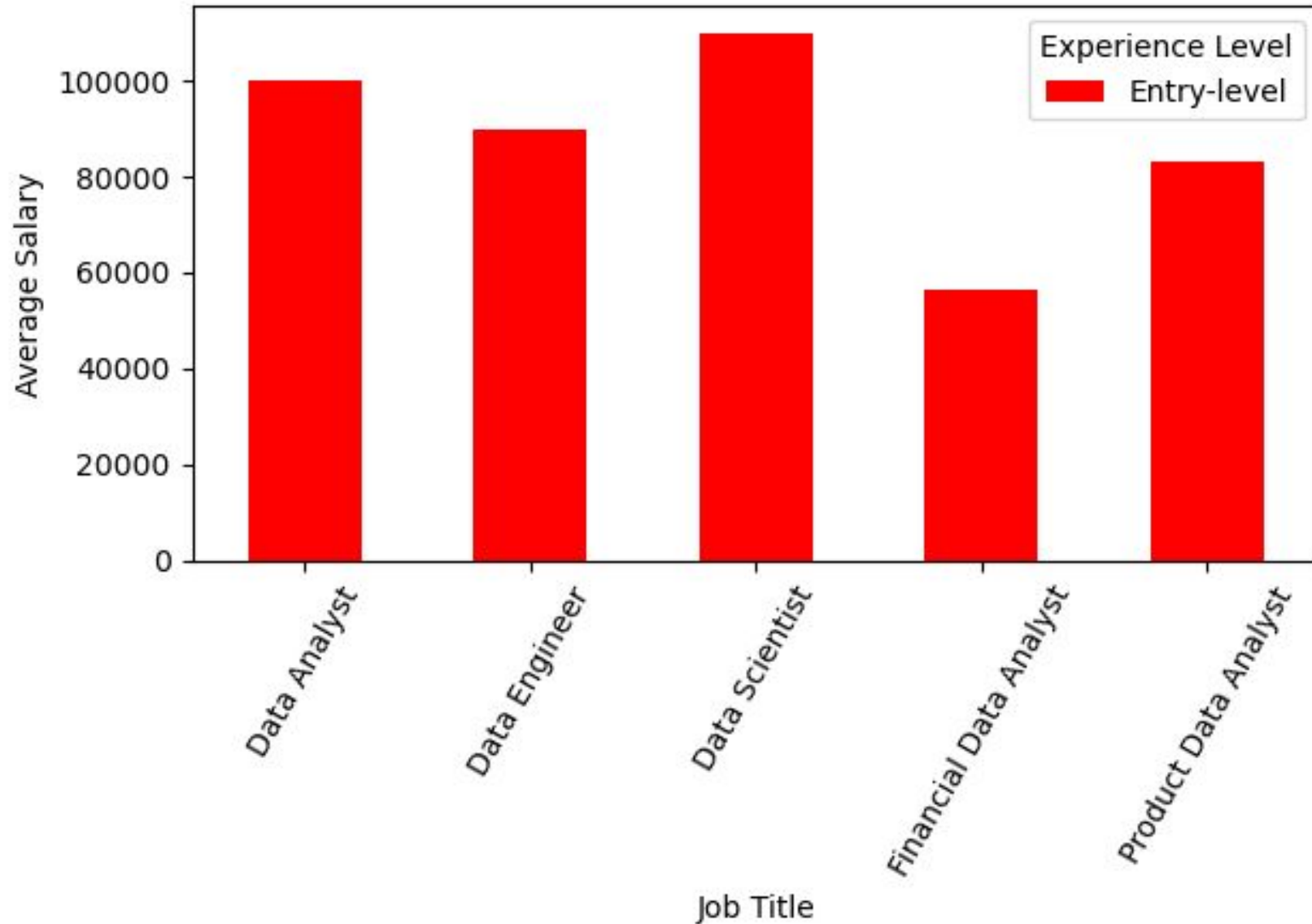
# Level of Remote Work

No remote work (less than 20%)



# Level of Remote Work

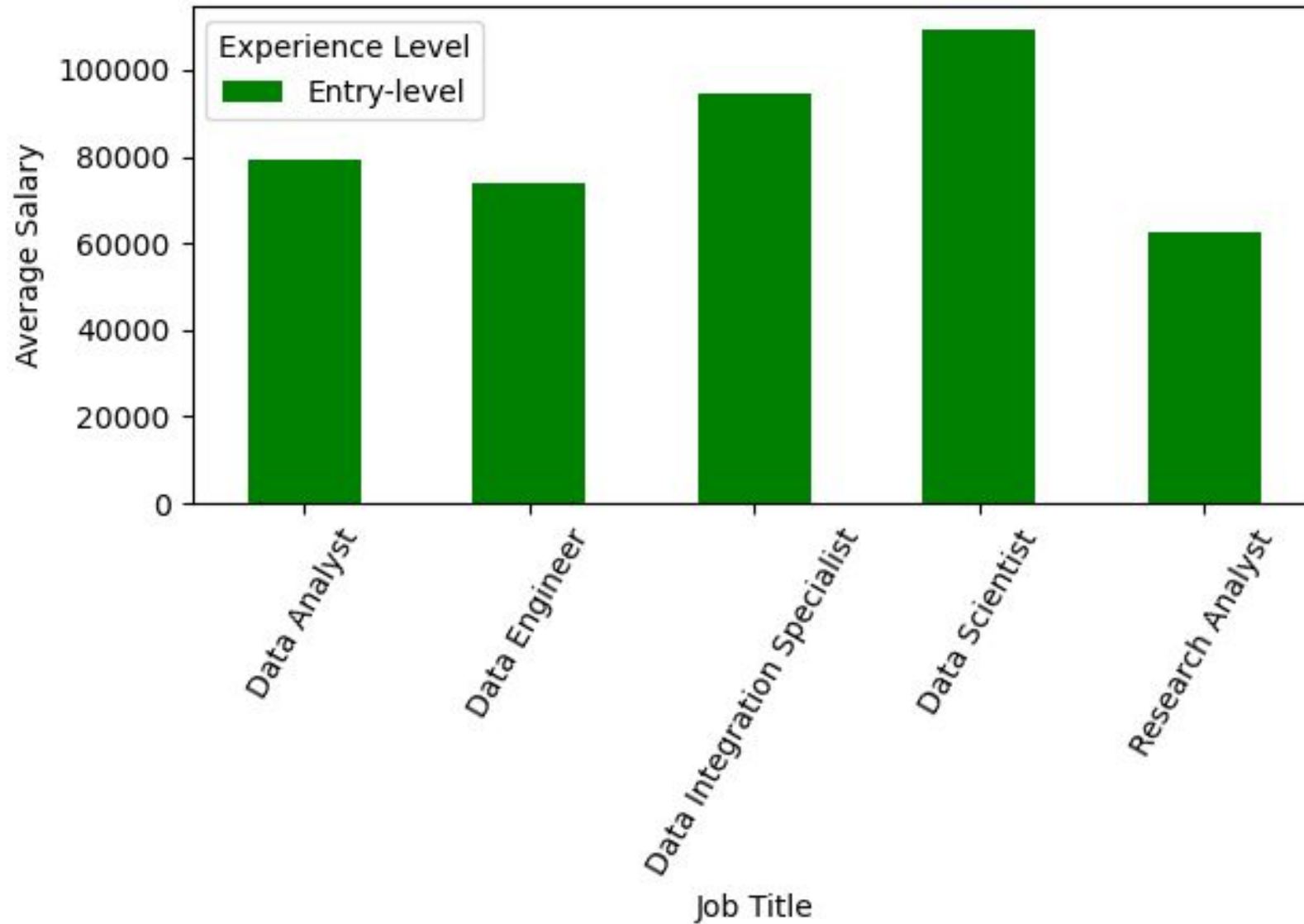
Partially remote/hybrid





# Level of Remote Work

Fully remote (more than 80%)





## Question 4

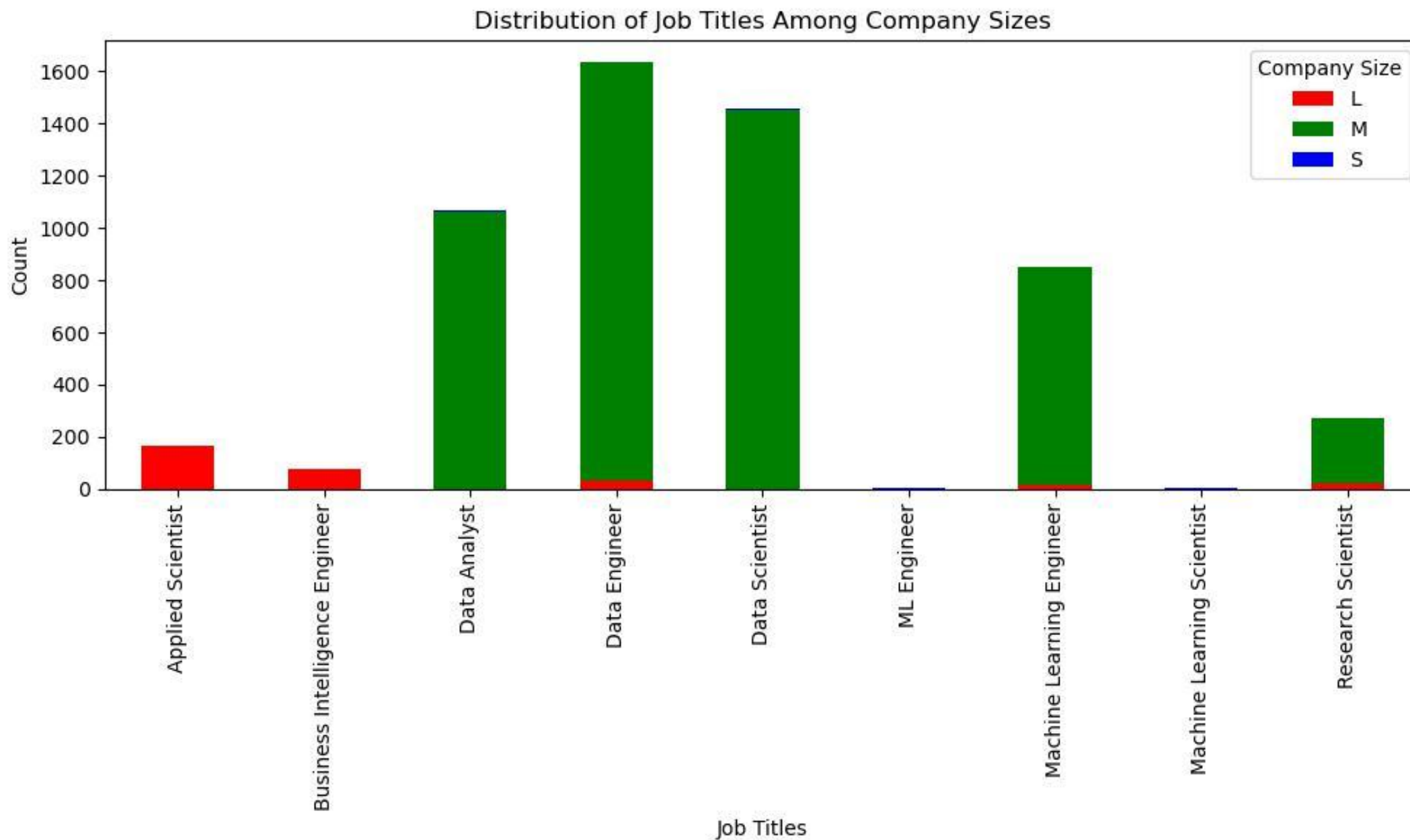
How does company size impact the type of data professionals they hire?

## Company Size

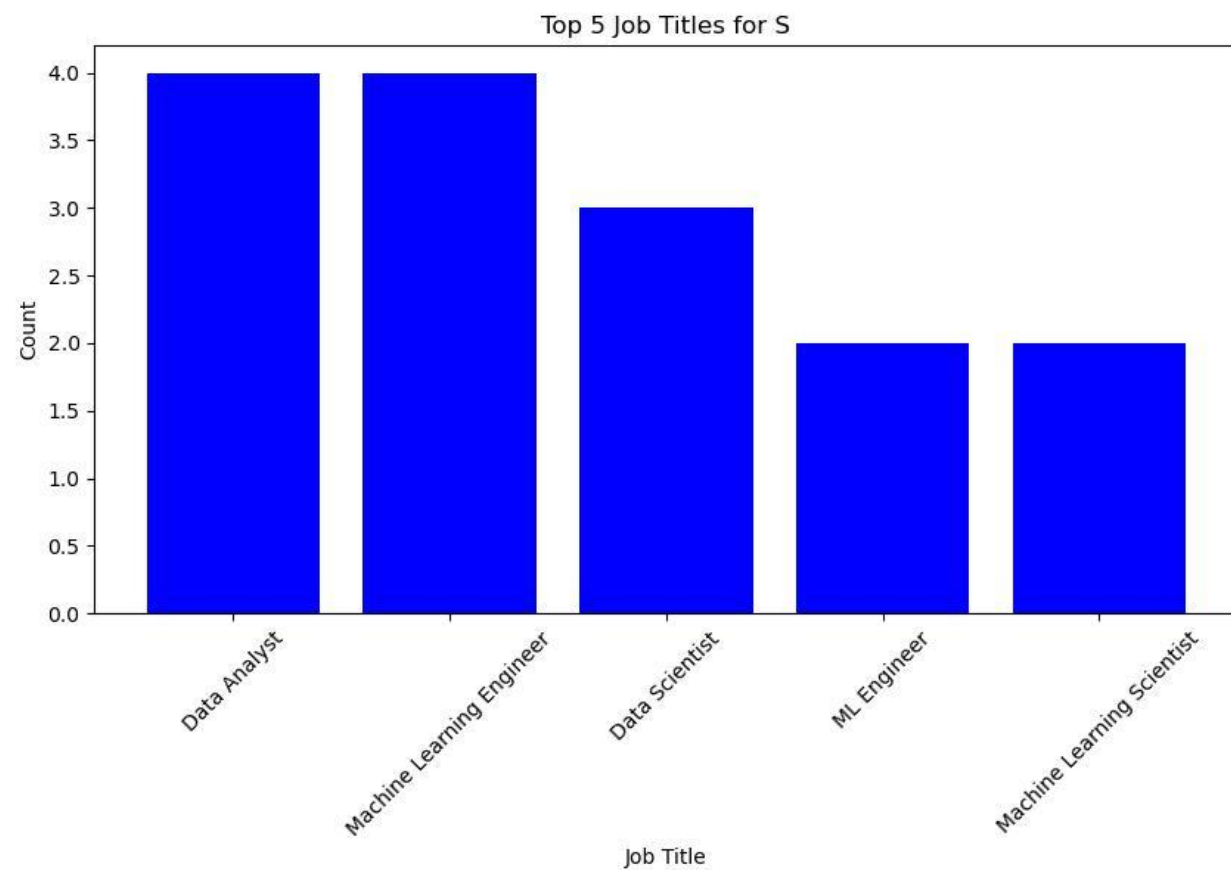
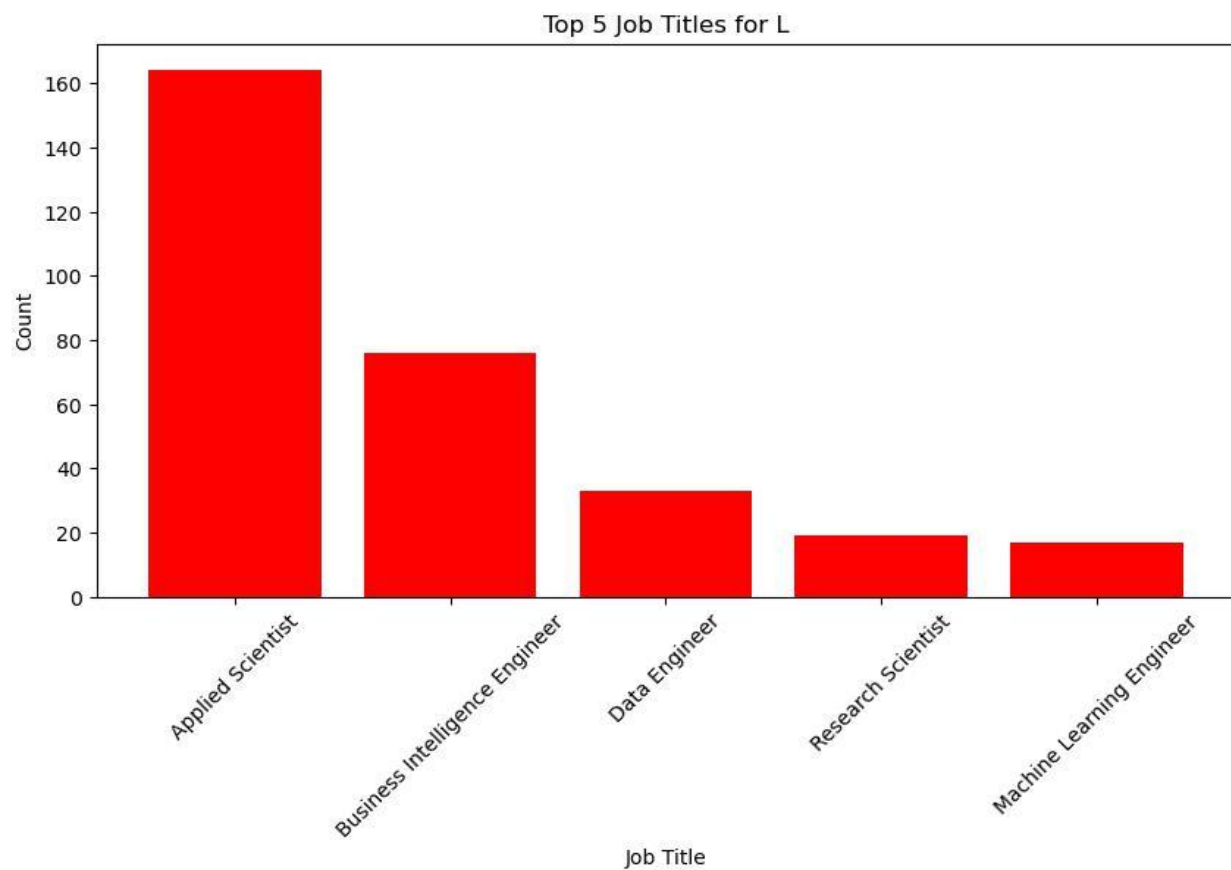
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**Hypothesis:** Certain job titles are more prevalent in larger (more than 250 employees) companies compared to smaller ones (less than 50 employees).

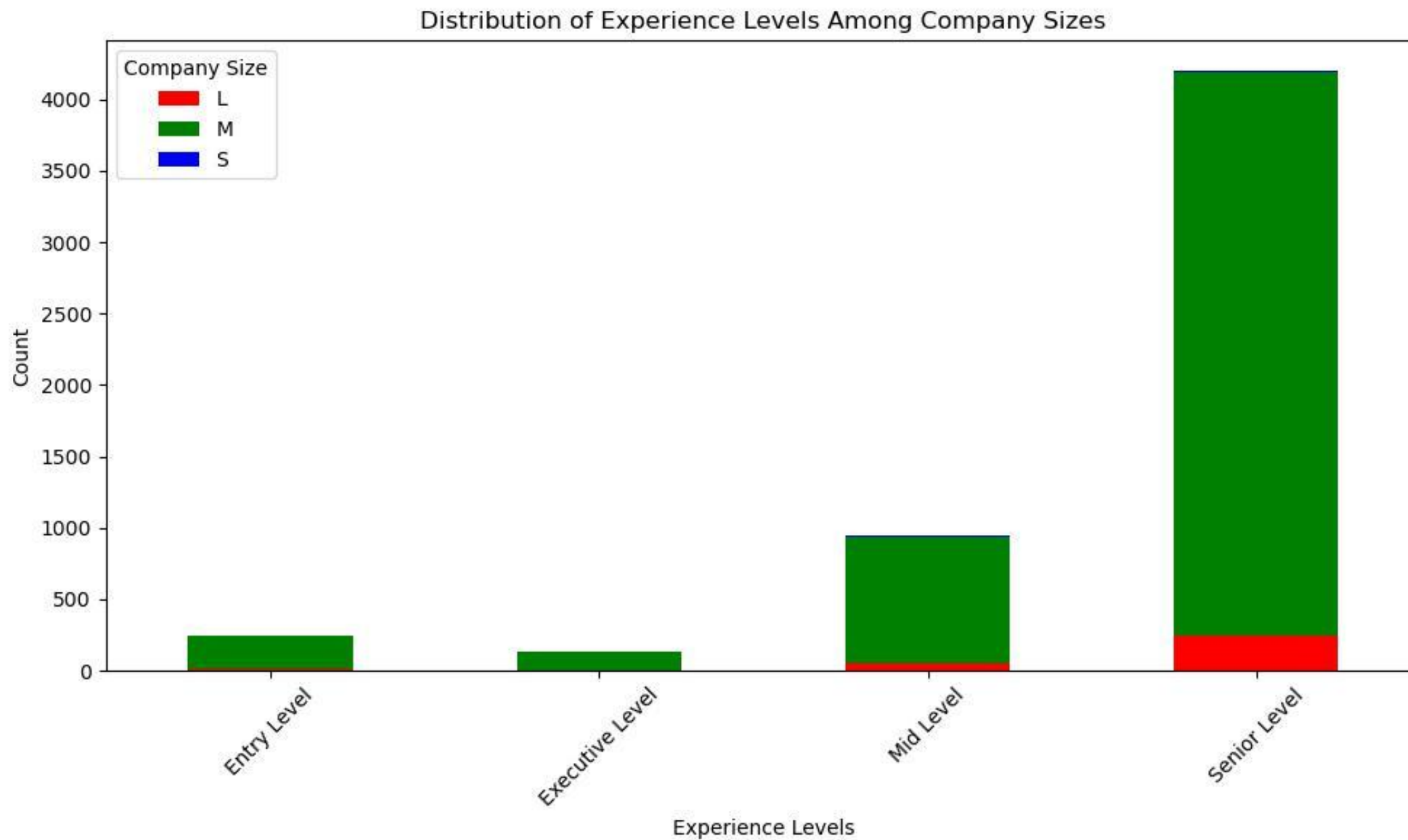
# Impact of Company Size on Top 5 Job Title



# Impact of Company Size on Job Title

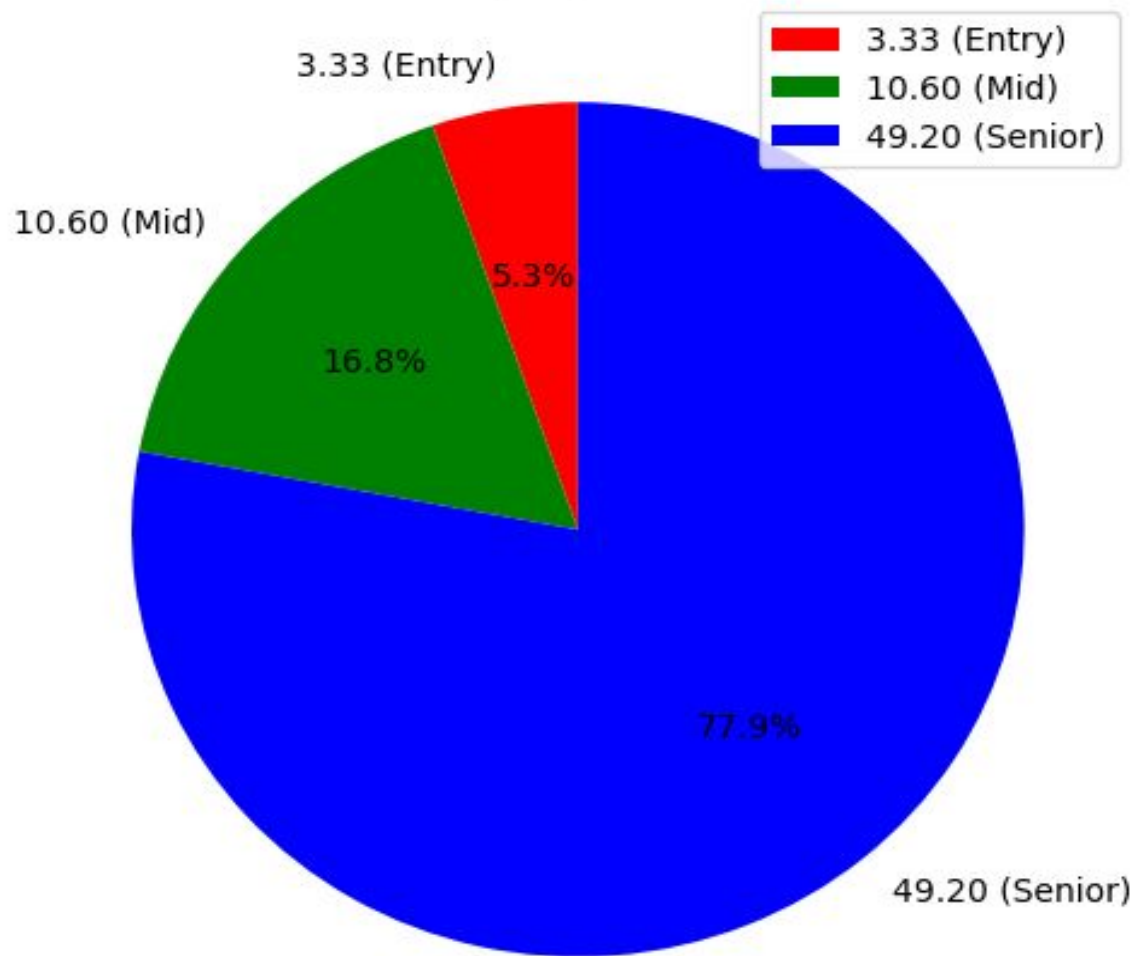


# Impact of Company Size on Experience Level

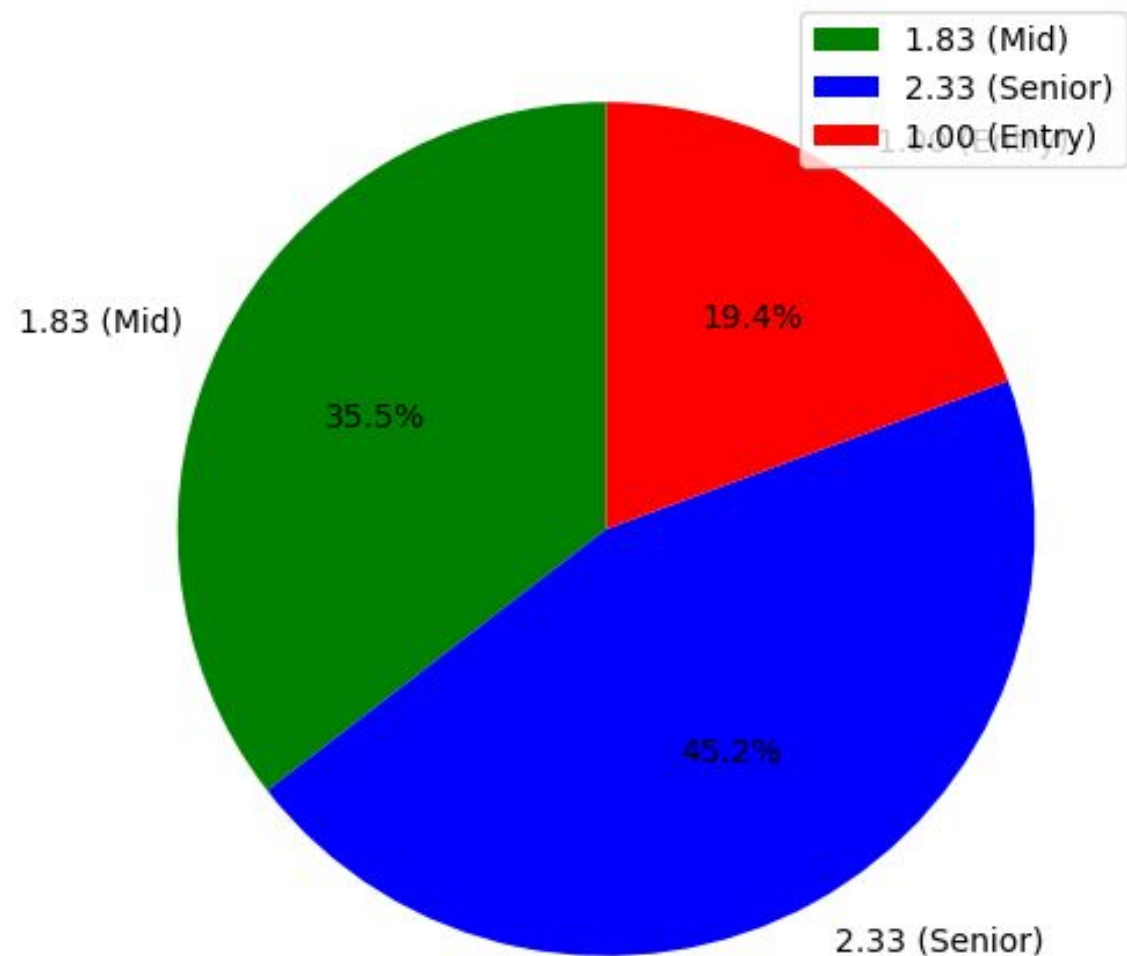


## Impact of Company Size on Experience Level

Company Size: L



Company Size: S



# Findings

- There is a positive relationship between earnings and experience level in the data science profession and therefore the more experience one gets the salary increases. However, you don't have to be an executive to earn the most money in this field.
- Salaries are similar for data professionals who work in person or fully remote work, while salaries for partially remote/hybrid tend to be lower. Not all jobs offer each level of remote work.
- The overall distribution of job titles varies among different company sizes. Medium-sized companies exhibit considerable variability and spread of job title count, large companies have a less variability closer to that of small companies, and small companies show low variability with a more concentrated distribution.



# Limitations

- The majority of companies utilizing the job board are medium size (50 to 250 employees).
- Missing data for Executive experience level in large and small companies.
- Only 11 data points included in the dataset were hybrid (compared to 5,089 no remote work and 2,261 fully remote work).
- Dataset included data from 2020-2023, however, the amount of jobs was not comparable across years.
- We were unable to utilize popular websites like Salary.com, Glassdoor.com, etc. because they require you to purchase the data.



**Thank You**

The image features a solid green background. In the center, there are two overlapping diamonds. The outer diamond is outlined in a thin orange line, and the inner diamond is outlined in a thin blue line. The text "Q&A" is written in a bold, white, sans-serif font, centered within the overlapping area of the two diamonds.

**Q&A**

# Glossary of Terms

<b>remote ratio</b>	<p>The overall amount of work done remotely, possible values are as follows:</p> <ul style="list-style-type: none"><li>• 0 No remote work (less than 20%)</li><li>• 50 Partially remote/hybrid</li><li>• 100 Fully remote (more than 80%)</li></ul>
<b>company size</b>	<ul style="list-style-type: none"><li>• The average number of people that worked for the company during the year:<ul style="list-style-type: none"><li>• <b>S</b> less than 50 employees (small)</li><li>• <b>M</b> 50 to 250 employees (medium)</li><li>• <b>L</b> more than 250 employees (large)</li></ul></li></ul>
<b>Applied Scientist</b>	<ul style="list-style-type: none"><li>• Applied Scientists work on projects that have a direct impact on the business. They are responsible for developing algorithms and models that can be used to solve specific problems. They work with data to develop predictive models, recommend actions, and optimize processes. Applied Scientists are also responsible for <u>Testing</u> and validating their models to ensure they are accurate and reliable. They work closely with stakeholders to understand their needs and provide recommendations based on <u>Data analysis</u>.</li></ul>
<b>Research Scientist</b>	<ul style="list-style-type: none"><li>• Research Scientists must have a strong background in <u>Mathematics</u>, <u>Statistics</u>, and <u>Computer Science</u>. They must be familiar with advanced machine learning techniques and algorithms. Research Scientists should also have experience working with large datasets and be proficient in programming languages such as Python, R, or Java. They must have excellent research and analytical skills and be able to communicate their findings effectively.</li></ul>
<b>Data Engineers</b>	<ul style="list-style-type: none"><li>• Data Engineers and AI Scientists require different skill sets to excel in their respective roles. Data Engineers need to have strong programming skills, particularly in languages like Python, Java, and SQL. They also need to have experience with data storage systems like Hadoop, Spark, and NoSQL databases. Other essential skills for Data Engineers include data modeling, Data Warehousing, and ETL (extract, transform, load) processes.</li></ul>
<b>Data Scientist</b>	<ul style="list-style-type: none"><li>• A data scientist is a professional who collects, analyzes, and interprets large and complex data sets to identify patterns, trends, and insights that can be used to inform business decisions. They use statistical and Machine Learning techniques to build predictive models and algorithms that can be used to make predictions and forecasts.</li></ul>
<b>Machine Learning Engineer</b>	<ul style="list-style-type: none"><li>• A Machine Learning Engineer is a professional who designs, builds, and deploys machine learning models. They work on creating algorithms that can learn from data and make predictions or decisions. They are responsible for developing and implementing machine learning solutions to solve business problems.</li></ul>
<b>Data Analyst</b>	<ul style="list-style-type: none"><li>• A Data Analyst is a professional who collects, processes, and performs statistical analyses on large datasets to identify patterns and insights that can be used to inform business decisions. They work with various data sources, such as databases, spreadsheets, and data warehouses, and use tools like SQL, Excel, and Tableau to clean, transform, and visualize data.</li></ul>

# Glossary of Terms

<b>Business Intelligence Engineer</b>	A Business Intelligence Engineer (BIE) is a technical professional who designs, develops, and maintains the infrastructure and Architecture of BI systems. They are responsible for creating and maintaining Data pipelines, data warehouses, and ETL (Extract, Transform, Load) processes. BIEs use programming languages, such as SQL, Python, and Java, to build and automate data processes. They also work closely with BI analysts and business stakeholders to ensure that the data is accurate, reliable, and accessible.
<b>Business Data Analyst</b>	Business Data Analyst is responsible for analyzing business data to identify trends, patterns, and insights that can help drive business decisions. They work with various departments within a company to collect, clean, and analyze data. They then use this information to create reports, dashboards, and visualizations that provide insights into the company's performance.
<b>Product Analyst</b>	
<b>Data Architect</b>	A Data Architect is a professional who is responsible for designing, creating, deploying, and maintaining an organization's data Architecture. They work closely with the IT team, data analysts, and business stakeholders to ensure that the organization's data is organized, secure, and easily accessible. Data Architects are also responsible for creating data models, defining data standards, and ensuring that data is stored in a way that is optimized for performance.
<b>Machine learning Scientist</b>	Machine learning scientists, on the other hand, are responsible for: Developing and implementing algorithms and models to analyze and make predictions on large datasets Using machine learning techniques to build models that can learn from data and improve their performance over time Identifying and selecting appropriate datasets for Model training and testing Collaborating with stakeholders to understand their business needs and develop solutions that can be implemented using machine learning techniques