

# DATA ANALYSIS WITH POWER BI



Project Presentation  
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# GOAL

The goal of the project is to analyze the job satisfaction of data specialists regarding aspects such as salary, work-life balance, the difficulty of entering the profession, and preferences in programming languages. The research will help to understand how various factors influence career satisfaction and success in this profession.

# PROBLEM

Data engineers from different countries face varying working conditions and salary levels. However, the lack of structured data makes it difficult to identify the key factors influencing their career development and satisfaction. It is necessary to clean and normalize the data to uncover the main trends and dependencies.

# HYPOTHESIS

- There is a hypothesis of a positive correlation between salary satisfaction and work-life balance with the choice of field in data analysis, programming languages, country of residence, and salary level. Data specialists in high-demand fields such as machine learning or big data may receive higher salaries, which increases their level of satisfaction.
- Work-life balance may also depend on the choice of programming language. Languages like Python and R are more commonly used in projects that support flexibility and remote work, improving work-life balance.
- The hypothesis also includes the idea that the difficulty of entering the profession varies depending on the role in the field of data analysis (e.g., data analyst or data engineer), which affects the level of preparation and challenges for newcomers.
- Additionally, the country of residence plays a key role, as different educational systems and access to resources can facilitate or hinder career entry. Countries with developed IT ecosystems often provide more opportunities for internships and mentorship, making it easier to enter the profession.

# METHODOLOGY

1. Data collection: surveys of data engineers from various countries (an open data source was used).
2. Data cleaning and normalization using Power BI.
3. Visualization of key indicators on a dashboard for further analysis.
4. Analysis of trends and relationships between variables (salary, work-life balance, difficulty of entry, and preferred programming languages).

## DATA CLEANSING

1. Removal of empty rows and columns
2. Removal of duplicates
3. Normalization of date and numerical values



# DATA CLEANSING

4. Consolidating the "Other" categories into a single category for enhanced visualization.

Before

Table with 3 columns: Location, Time Spent, and Q1 - Which Title Best Fits your Current Role? The table contains 30 rows of data. The 'Q1' column lists various job titles, including 'Database Developer', 'Data Analyst', and many 'Other (Please Specify):' entries. A red circle highlights the 'Other' entries.

After

Table with 4 columns: Location, Time Spent, Q1 - Which Title Best Fits your Current Role?.1, and Q1 - Which Title Best Fits your Current Role?.2. The table contains 31 rows of data. The 'Q1.1' column lists various job titles, including 'Database Developer', 'Data Analyst', and 'Other'. The 'Q1.2' column contains the corresponding values for each row. A red circle highlights the 'Other' entry in the 'Q1.1' column.

# DATA CLEANSING

## 5. Calculating the average salary from the textual range values ("from" and "to") to ensure reliable visualization.

Table: RemoveColumns("#Changed Type2",{"Q5 - Favorite Programming Language"})

Q3 - Current Yearly Salary (in USD)	Q4 - What Industry are you in?
106k-125k	Healthcare
41k-65k	Finance
0-40k	Other (Please Specify)
150k-225k	Finance
41k-65k	Healthcare
0-40k	Other (Please Specify)
0-40k	Finance
125k-150k	Other (Please Specify)
86k-105k	Healthcare
41k-65k	Telecommunication
66k-85k	Other (Please Specify)
0-40k	Other (Please Specify)
0-40k	Tech
0-40k	Education
41k-65k	Construction
41k-65k	Finance
0-40k	Tech
0-40k	Other (Please Specify)
41k-65k	Tech
0-40k	Other (Please Specify)
41k-65k	Finance
106k-125k	Tech
0-40k	Healthcare
0-40k	Finance
0-40k	Tech
0-40k	Tech
66k-85k	Other (Please Specify)
106k-125k	Other (Please Specify)
86k-105k	Healthcare
0-40k	Other (Please Specify)
41k-65k	Finance

Table: Split Column by Digit to Non-Digit

Q3 - Current Yearly Salary (in USD)	Q4 - What Industry are you in?
106	Healthcare
41	Finance
0	Other (Please Specify)
150	Finance
41	Healthcare
0	Other (Please Specify)
0	Finance
125	Other (Please Specify)
86	Healthcare
41	Telecommunication
66	Other (Please Specify)
0	Other (Please Specify)
0	Tech
41	Education
41	Construction
0	Finance
41	Tech
0	Other (Please Specify)
41	Tech
0	Other (Please Specify)
41	Finance
106	Tech
0	Healthcare
41	Finance
106	Tech
0	Tech
0	Tech
66	Other (Please Specify)
106	Other (Please Specify)
86	Healthcare
0	Other (Please Specify)
0	Finance

Custom Column

Add a column that is computed from the other columns.

New column name: Average Salary

Custom column formula: 
$$= ([\text{"Q3 - Current Yearly Salary (in USD)"} - \text{Copy.1}]) + [\text{"Q3 - Current Yearly Salary (in USD)"} - \text{Copy.2}] / 2$$

Available columns: Q9 - Male/Female?, Q10 - Current Age, Q11 - Which Country do you live in?, Q12 - Highest Level of Education, Q13 - Ethnicity, Q3 - Current Yearly Salary (in USD), Q3 - Current Yearly Salary (in USD)

<< Insert

Learn about Power Query formulas

✓ No syntax errors have been detected.

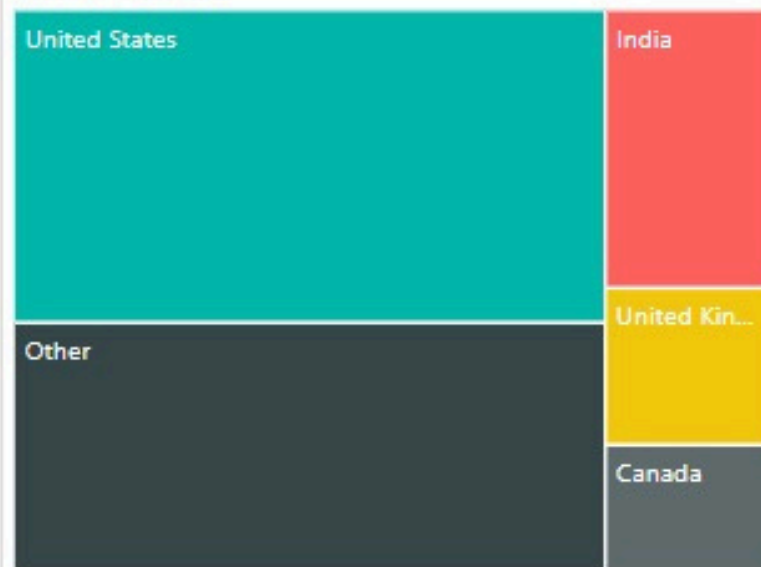
OK Cancel



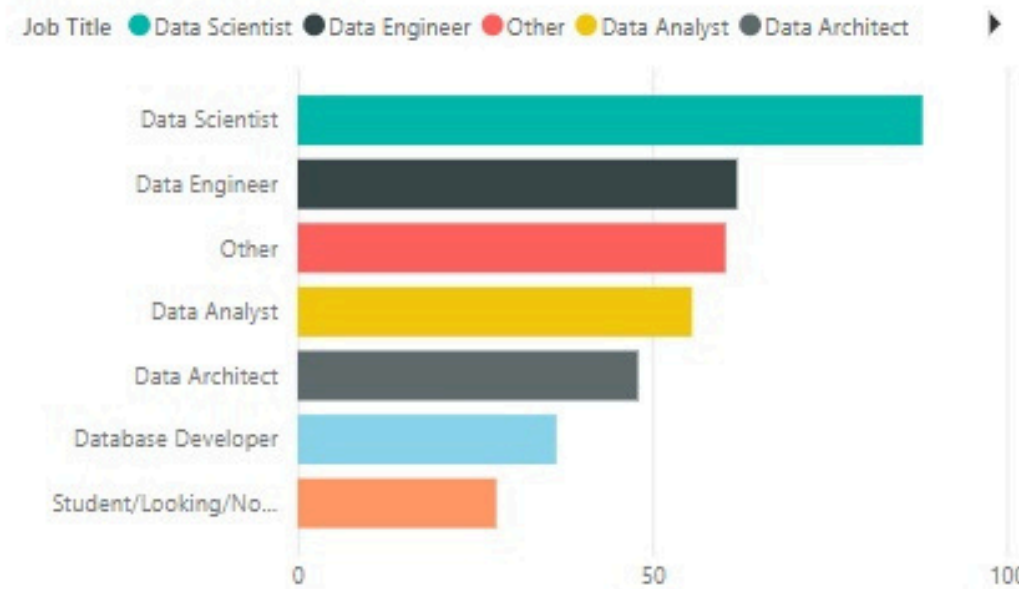
# DASHBOARD

## Data Professional Survey Breakdown

Country of Voters



Average Salary by Job Title



504

Count of Survey Takers

29,89

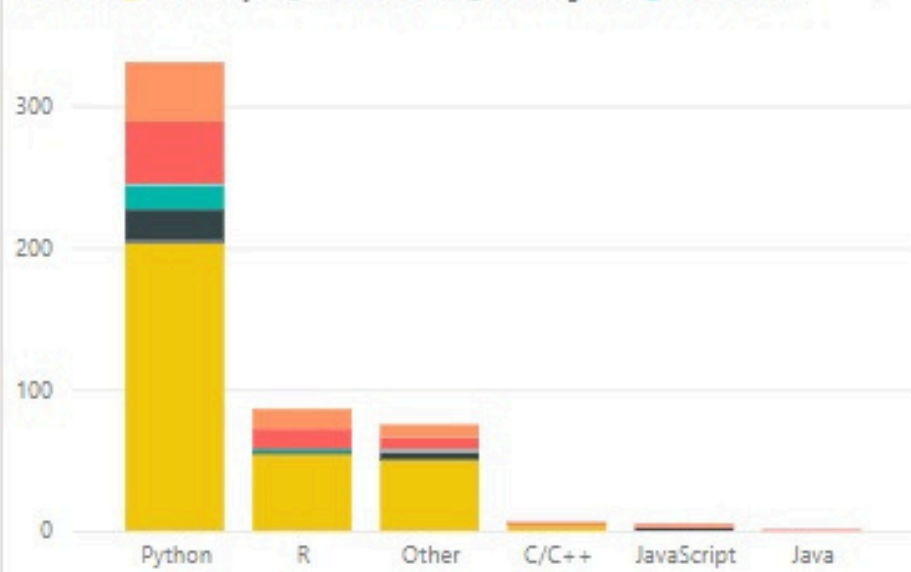
Average of Current Age

Happy with Salary

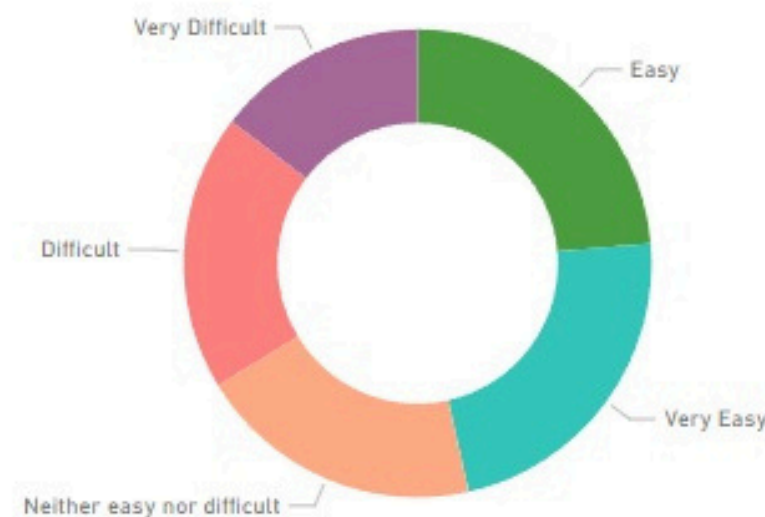


Favorite Programming Languages

Job Title ● Data Analyst ● Data Architect ● Data Engineer ● Data Scientist



Difficulty to Break into Data

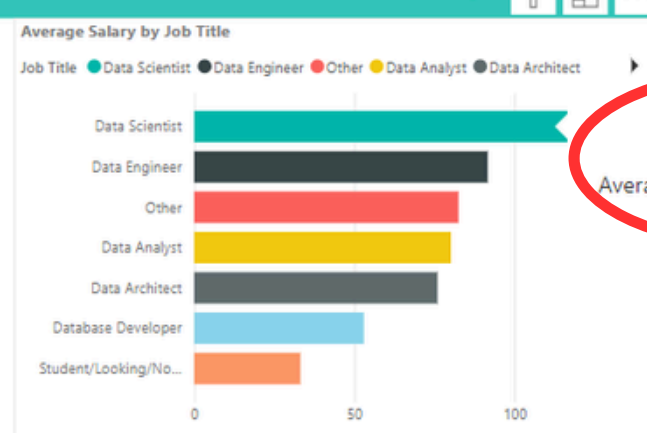
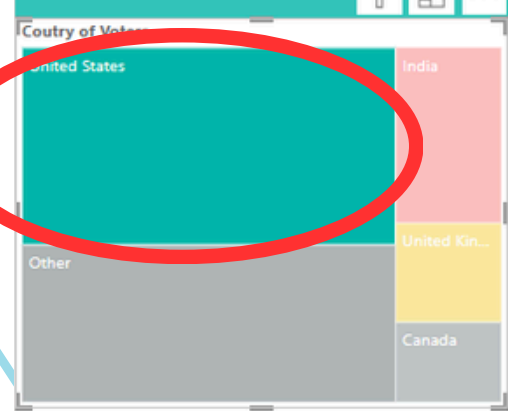


Happy with Work/Life Balance

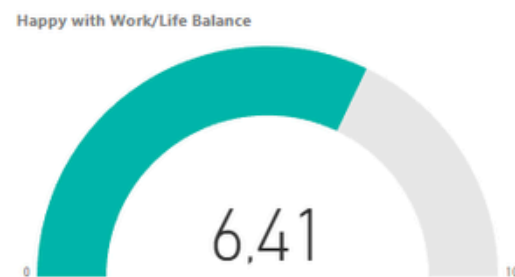
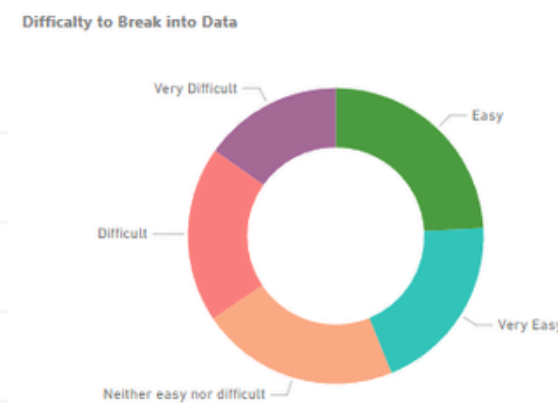
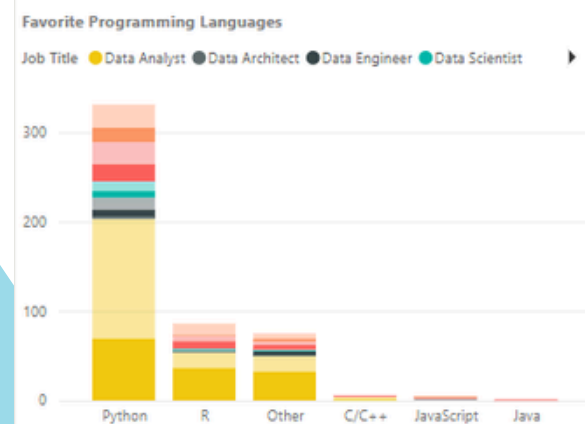
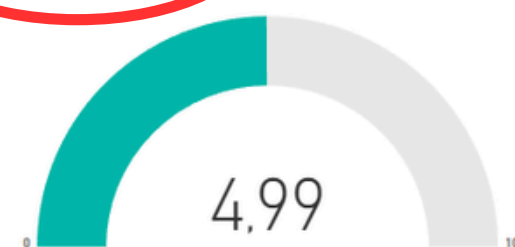


# DATA COMPARISON

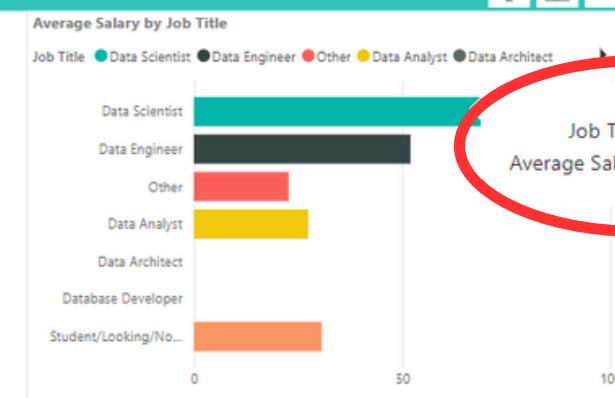
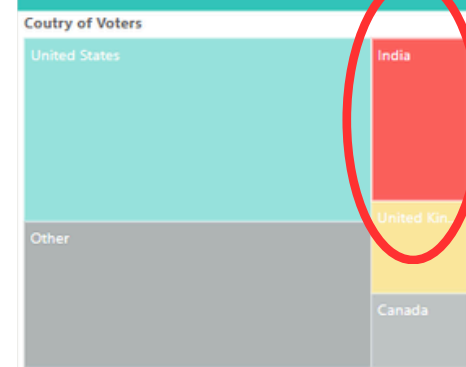
## Data Professional Survey Breakdown



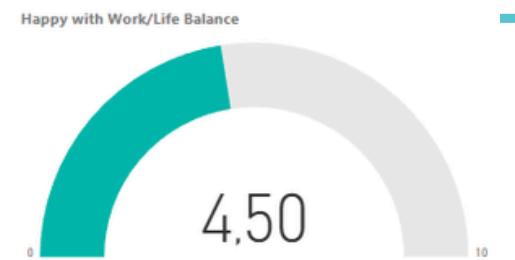
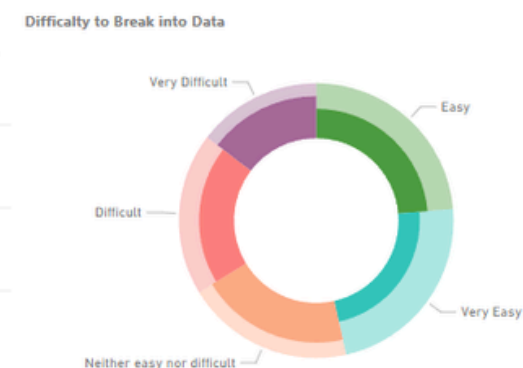
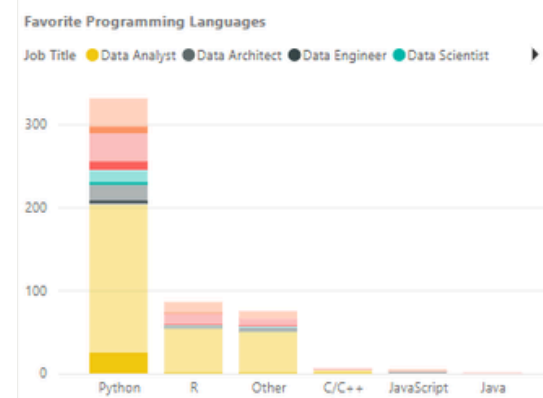
Job Title Data Scientist  
Average Salary 122,88  
Average of Current Age 30,53



## Data Professional Survey Breakdown



Job Title Data Scientist  
Average Salary 84,67  
Average of Current Age 27,55



# DATA ANALYSIS

## 1. Geographical Distribution:

Both countries show a high interest in the profession of data scientists, though the U.S. has a higher proportion of respondents.

## 2. Average Age:

The average age of respondents in India (27 years) is three years younger than in the U.S. (30 years), which may indicate earlier engagement of youth in the field of data analysis in India.

## 3. Salary:

The average salary in the U.S. (\$122,000 per year) is significantly higher than in India (\$85,000 per year), which may reflect differences in the economy and demand for specialists in these countries.

## 4. Satisfaction Levels:

Salary satisfaction in India (3.67 out of 10) is lower than in the U.S. (4.99 out of 10). This may indicate that Indian specialists experience more dissatisfaction with their income.

Work-life balance satisfaction is also lower in India (4.5 out of 10) compared to the U.S. (6.41 out of 10), suggesting a higher workload or less flexible working conditions.

## 5. Preferred Programming Languages:

In both countries, Python remains the dominant programming language, confirming its popularity among data specialists.

## 6. Ease of Entry into the Profession:

In both countries, around 43% of respondents indicated that it was easy for them to enter the profession, highlighting the overall attractiveness of this field.

# CONCLUSION

1. **Salary Differences:** Salaries in the U.S. are significantly higher, which may attract specialists from other countries, including India.
2. **Satisfaction Levels:** The low levels of salary and work-life balance satisfaction in India may require attention from employers to improve working conditions and boost employee motivation.
3. **Youth in the Profession:** The younger average age of respondents in India may indicate a trend toward earlier engagement of youth in the field of data analysis, which opens up opportunities for further growth and development in this area.
4. **Opportunities for Improvement:** Companies in both countries could benefit from implementing programs that increase employee satisfaction, improve working conditions, and offer career opportunities, which would help attract and retain talented specialists.



# THANK YOU

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