

Comprehensive Data Analyst Salary Based on Various Factor.

Implementing SQL

Background.

Data analyst is one of the jobs that is in increasing demand. Data analyst salaries are influenced by various factors such as work location, type of experience, company size, and job type. This study aims to provide insight into how these factors affect salary received and can be used as a consideration for job applicants in the data analyst field.

Case Study

This case study focuses on several points

- Identify jobs related to data analysis and their average salaries from the dataset,
- Find out the experience level and type of employment for data analyst jobs along with the salary received,
- Identify the countries that offer the highest salaries for data analyst positions,
- Find out the difference in salary received based on the size of the company and the remote ratio in the country with the highest salary offer,
- Analyze the trend of the average salary of full-time data analyst year-by-year according to the categories used previously.

Dataset Information

Column	Description
work_year	The year the salary was paid
experience_level	The experience level in the job during the year with the following possible values: EN Entry-Level / Mi Mid_Level / SE Senior_Level / EX Executive-Level
employment_type	The type of employment for the role: PT Part-Time / FT Full_Time / CT Contract / FL Freelance
job_title	The role worked in during the year
salary	The total gross salary amount paid
salary_currency	The currency of the paid as an ISO 4217 currency code

Dataset Information

Column	Description
salary_in_usd	The salary in USD currency
employment_residence	Employee's primary country of residence in during the work year as an ISO 3166 country code
remote_ratio	The overall amount of work done remotely, possible values are as follows: 0 No remote work / 50 Partially remote / 100 Fully remote
company_location	The country of the employee's main office or contracting branch as an ISO 3166 country code
company_size	The average number of people that worked for the company during the year: S Small company / M Medium company / L Large company

SQL Exercises

Question 1

What are the jobs related to data analysis?

Answer

```
SELECT DISTINCT job_title
FROM salaries
WHERE job_title LIKE '%data analyst%'
ORDER BY job_title;
```

	job_title
▶	BI Data Analyst
	Business Data Analyst
	Data Analyst
	Finance Data Analyst
	Financial Data Analyst
	Lead Data Analyst
	Marketing Data Analyst
	Principal Data Analyst
	Product Data Analyst

SQL Exercises

Question 2

What is the average salary of jobs related to data analysis?

Answer

```
SELECT job_title,  
       AVG(salary_in_usd) AS avg_salary_usd,  
       AVG((salary_in_usd)* 15500) AS avg_salary_rp  
FROM salaries  
WHERE job_title LIKE '%data analyst%'  
GROUP BY job_title  
ORDER BY avg_salary_usd;
```

	job_title	avg_salary_usd	avg_salary_rp
►	Product Data Analyst	13036.0000	202058000.0000
	Finance Data Analyst	61896.0000	959388000.0000
	BI Data Analyst	74755.1667	1158705083.3333
	Business Data Analyst	76691.2000	1188713600.0000
	Marketing Data Analyst	88654.0000	1374137000.0000
	Lead Data Analyst	92203.0000	1429146500.0000
	Data Analyst	92893.0619	1439842458.7629
	Principal Data Analyst	122500.0000	1898750000.0000
	Financial Data Analyst	275000.0000	4262500000.0000

SQL Exercises

Question 3

What are the experience levels and employment types for the position of data analyst, what is the average salary received based on the experience level and employment type?

Answer

```
SELECT experience_level,  
       employment_type,  
       AVG(salary_in_usd) AS average_salary  
FROM salaries  
WHERE job_title = 'data analyst'  
GROUP BY 1, 2  
ORDER BY average_salary;
```

	experience_level	employment_type	average_salary
▶	EN	PT	10354.0000
	EN	FT	57924.9091
	MI	FT	71699.2069
	SE	FT	111922.6296
	EX	FT	120000.0000

SQL Exercises

Question 4

Which country has the highest average salaries for Full-time data analyst position?

Answer

```
SELECT company_location,  
       AVG(salary_in_usd) AS average_salary  
FROM salaries  
WHERE  
       job_title = 'data analyst'  
       AND employment_type = 'FT'  
GROUP BY company_location  
ORDER BY average_salary DESC  
LIMIT 1;
```

	company_location	average_salary
▶	US	107674.1549

SQL Exercises

Question 5

How do data analyst salaries differ in the US based on company size and remote ratio?

Answer

```
SELECT company_size,  
       CASE  
         WHEN remote_ratio = 100 THEN 'Remote Company'  
         WHEN remote_ratio = 0 THEN 'Onsite Company'  
         ELSE 'Hybrid Company'  
       END AS work_company_type,  
       COUNT(*) AS total_companies,  
       AVG(salary_in_usd) AS average_salary  
FROM salaries  
WHERE company_location = 'US'  
      AND job_title = 'data analyst'  
      AND employment_type = 'FT'  
GROUP BY work_company_type, company_size  
ORDER BY  
  CASE company_size  
    WHEN 'S' THEN 1  
    WHEN 'M' THEN 2  
    WHEN 'L' THEN 3  
  END;
```

SQL Exercises

Question 5

How do data analyst salaries differ in the US based on company size and remote ratio?

Answer

	company_size	work_company_type	total_companies	average_salary
▶	S	Remote Company	3	76666.6667
	S	Onsite Company	2	58000.0000
	M	Remote Company	47	111415.0000
	M	Onsite Company	10	116936.0000
	L	Remote Company	7	108000.0000
	L	Onsite Company	2	68500.0000

SQL Exercises

Question 6

What is the percentage increase in salary for data analyst year by year?

Answer

```
SELECT
    company_size,
    work_year,
    AVG(salary_in_usd) AS avg_salary_usd,
    LAG(AVG(salary_in_usd), 1, 0)
    OVER (PARTITION BY company_size ORDER BY work_year) AS prev_avg_salary,
    AVG(salary_in_usd) - LAG(AVG(salary_in_usd), 1, 0)
    OVER (PARTITION BY company_size ORDER BY work_year) AS salary_increase,
    ROUND(
        (AVG(salary_in_usd) - LAG(AVG(salary_in_usd), 1, 0)
        OVER (PARTITION BY company_size ORDER BY work_year))
        /LAG(AVG(salary_in_usd), 1, 0) OVER (PARTITION BY company_size ORDER BY work_year) * 100, 2
    ) AS percent_increase
FROM salaries
WHERE job_title = 'data analyst'
    AND company_location = 'US'
    AND employment_type = 'FT'
GROUP BY company_size, work_year
ORDER BY
    CASE company_size
        WHEN 'S' THEN 1
        WHEN 'M' THEN 2
        WHEN 'L' THEN 3
    END, work_year;
```

SQL Exercises

Question 6

What is the percentage increase in salary for data analyst year by year?

Answer

	company_size	work_year	avg_salary_usd	prev_avg_salary	salary_increase	percent_increase
▶	S	2021	76666.6667	0.0000	76666.6667	NULL
	S	2022	58000.0000	76666.6667	-18666.6667	-24.35
	M	2021	73333.3333	0.0000	73333.3333	NULL
	M	2022	114553.0556	73333.3333	41219.7223	56.21
	L	2020	82666.6667	0.0000	82666.6667	NULL
	L	2021	107500.0000	82666.6667	24833.3333	30.04

Insights from SQL Exercises

1. There are 9 jobs related to data analysis.
2. The highest average salary of the jobs related to data analysis is the Financial Data Analyst (275,000 USD), while the average salary in the Data Analyst position itself is 92,893 USD.
3. The experience levels in the data analyst position range from entry-level (EN) to expert (EX), then for each experience levels there are only Full-time workers except the entry-level (EN) data analyst position which also has Part-time workers. The average salary received from each experience level seems to increase along with the higher the experience.
4. The country that has the highest average salary for data analyst positions is in the United States. with an average monthly salary reaching 107,674 USD.
5. Based on their size, larger companies have higher average salaries than the smaller companies. However, the average salary generated in each data analyst company in the US is always greater for remote companies than onsite companies, this is because there are more companies with fully remote workers.
6. The percentage of average salaries from small companies decreases yearly, while it shows an increasing trend for Medium and Large companies. If its is related to the amount of remote companies that dominate for the small companies, this could be one of the reasons for the decreasing trend of the average salary.

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