



Analyzing Data Analyst Salary Trends with SQL



Project Overview

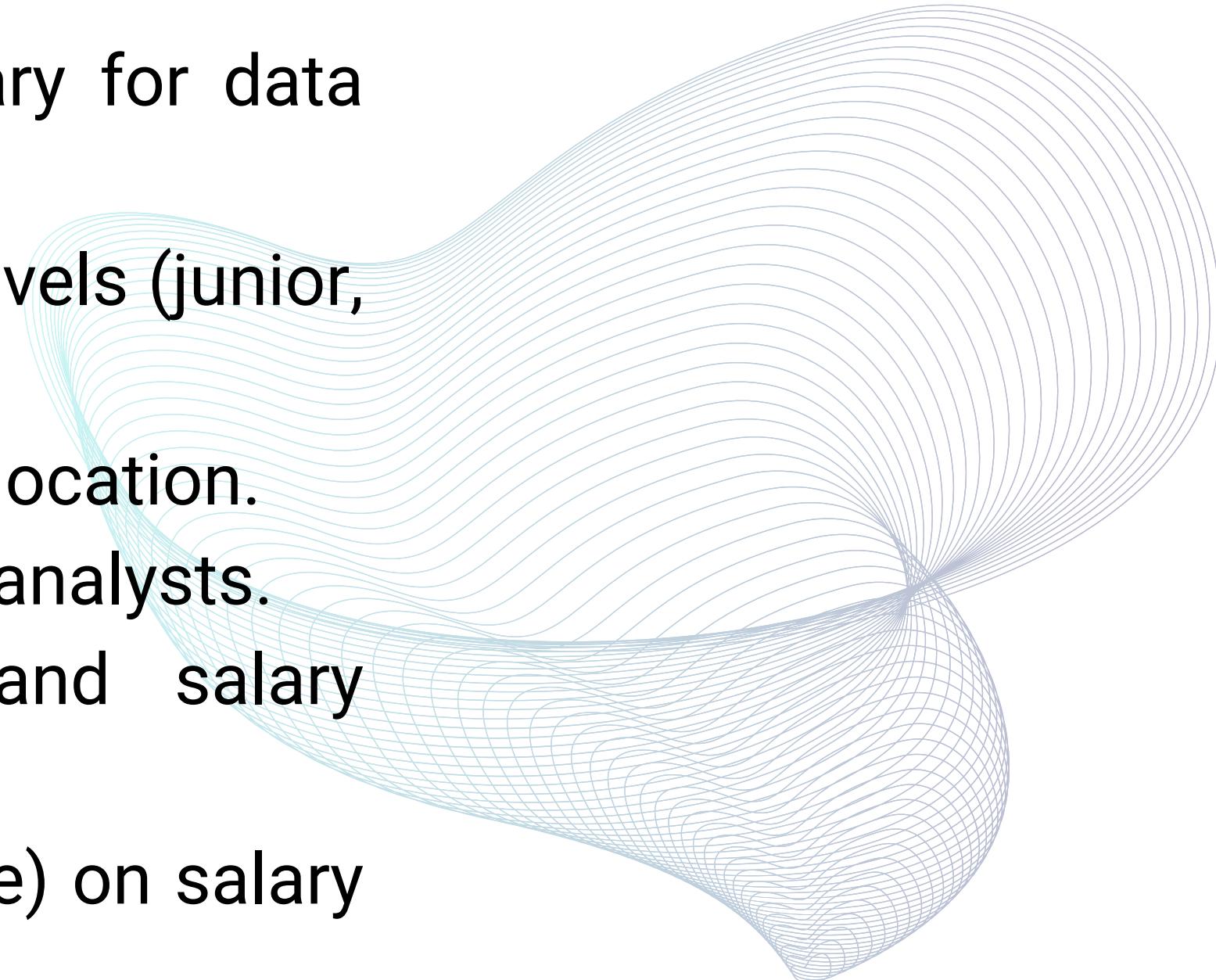
Explored the DS_Salaries dataset using SQL to uncover salary patterns for Data Analyst roles. The analysis involved identifying missing values, comparing salary averages by experience and employment type, and determining the highest-paying countries.

Also examined yearly salary growth differences between mid-level and senior positions using CTEs.



Analysis Performed

- Identify average, minimum, and maximum salary for data analysts.
- Compare salary differences across experience levels (junior, mid, senior).
- Analyze salary distribution by company size and location.
- Find top-paying countries or companies for data analysts.
- Determine correlation between experience and salary growth.
- Explore the impact of job type (remote vs on-site) on salary levels.





Tools & Technologies

- Database: MySQL
- Techniques: SQL Joins, GROUP BY, Aggregation, CTEs, Window Functions
- Focus: Salary analytics, data querying, business intelligence





Data Science Salaries Dataset

Column	Description
work_year	Tahun pembayaran gaji
experience_level	Tingkat pengalaman pada pekerjaan selama tahun tersebut. Nilai-nilai pada kolom ini: (1) EN Entry-level / Junior, (2) MI Mid-level / Intermediate, (3) SE Senior-level / Expert, (4) EX Executive-level / Director
employment_type	Tipe hubungan kerja: (1) PT Part-time, (2) FT Full-time, (3) CT Contract, (4) FL Freelance
job_title	Posisi / peran selama tahun tersebut
salary	Total gaji kotor (<i>gross salary</i>) yang didapatkan
salary_currency	Mata uang (ISO 4217)



Data Science Salaries Dataset

Column	Description
salary_in_usd	Gaji dalam USD (FX rate divided by avg. USD rate for the respective year via fxdata.foorilla.com).
employee_residence	Domisili utama karyawan (negara) selama tahun tersebut (ISO 3166 country code)
remote_ratio	Rasio bekerja <i>remote</i> keseluruhan, dengan: (1) 0 berarti tidak remote / kurang dari 20%, (2) 50 remote Sebagian, (3) 100 remote penuh / lebih dari 80%
company_location	Negara perusahaan (main office / contracting branch) (ISO 3166 country code)
company_size	Rata-rata jumlah pekerja pada tahun tersebut, dengan: (1) S (small / kurang dari 50 karyawan), (2) M (medium) (antara 50 to 250 karyawan), dan (3) L (lebih dari 250 karyawan)



1. Apakah ada data yang null?

-- 1. apakah ada data yang NULL?

```
SELECT *  
from ds_salaries  
where work_year IS NULL  
OR experience_level IS NULL  
OR employment_type IS NULL  
OR job_title IS NULL  
OR salary IS NULL  
OR salary_currency IS NULL  
OR salary_in_usd IS NULL  
OR employee_residence IS NUL  
OR remote_ratio IS NULL  
OR company_location IS NULL  
OR company_size IS NULL;
```

Answer:



2. Apa saja job title yang ada?

```
-- 2. melihat ada job_title apa saja  
select distinct job_title  
from ds_salaries  
order by job_title;
```

Answer:

Result Grid		Filter Rows:	Export:	Wrap Cell Content:	Columns
	job_title				
▶	3D Computer Vision Researcher				
	AI Scientist				
	Analytics Engineer				
	Applied Data Scientist				
	Applied Machine Learning Scientist				
	BI Data Analyst				
	Big Data Architect				
	Big Data Engineer				
	Business Data Analyst				
	Cloud Data Engineer				
	Computer Vision Engineer				
ds_salaries 1		x			



3. Job title apa saja yang berkaitan dengan Data Analyst?

```
-- 3. melihat job_title apa saja yang berkaitan dengan data analyst  
select distinct job_title  
from ds_salaries  
where job_title like '%data analyst%'  
order by job_title;
```

Answer:

Result Grid		Filter Rows:	Export:	Wrap Cell Content:	
	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				



4. Berapa rata-rata gaji Data Analyst berdasarkan experience level dan employment typenya?

```
-- 4 berapa rata-rata gaji data analyst berdasarkan experience level dan employment typenya?  
select experience_level,  
       employment_type,  
       (avg(salary_in_usd) * 15000) /12 as avg_sal_rp_monthly  
from ds_salaries  
group by experience_level,  
        employment_type  
order by experience_level, employment_type;
```

Answer:

	experience_level	employment_type	avg_sal_rp_monthly
▶	EN	CT	82421875.00000000
	EN	FT	80571819.62025250
	EN	PT	35821071.42857125
	EX	CT	520000000.00000000
	EX	FT	238409650.00000000
	MI	CT	337500000.00000000
	MI	FL	55000000.00000000
	MI	FT	110503962.37864000
	MI	PT	54211250.00000000
	SE	CT	131250000.00000000
	SE	FL	75000000.00000000
	SE	FT	173776267.98561125



5. Negara dengan gaji yang menarik untuk posisi Data Analyst dan full time

```
-- 5. negara dengan gaji yang menarik untuk posisi data analyst, full time
select company_location,
       avg(salary_in_usd) as avg_sal_in_usd
  from ds_salaries
 where job_title like '%data analyst%'
   and employment_type = 'FT'
   and experience_level in ('MI', 'EN')
 group by company_location
 having avg_sal_in_usd >= 20000;
```

Answer:

Result Grid		Filter Rows:	Export:	Wrap Cell Content:	Print
	company_location	avg_sal_in_usd			
▶	HN	20000.0000			
	US	101397.2069			
	FR	52930.5000			
	GB	50875.6000			
	LU	59102.0000			
	ES	38470.0000			
	GR	32313.3333			
	CA	70818.6667			



6. Di tahun berapa kenaikan gaji dari mid ke senior memiliki kenaikan yang tertinggi (untuk pekerjaan yang berkaitan dengan Data Analyst full time)

```
-- 6. di tahun berapa kenaikan gaji dari mid ke senior itu memiliki kenaikan yang tertinggi
-- (untuk pekerjaan yang berkaitan dengan data analyst yang penuh waktu)

with ds_1 as (
    select work_year,
        avg(salary_in_usd) sal_in_usd_ex
    from ds_salaries
    where
        employment_type = 'FT'
        and experience_level = 'EX'
        and job_title like '%data analyst%'
    group by work_year
), ds_2 as (
    select work_year,
        avg(salary_in_usd) sal_in_usd_mi
    from ds_salaries
    where
        employment_type = 'FT'
        and experience_level = 'MI'
        and job_title like '%data analyst%'
    group by work_year
) select ds_1.work_year,
    ds_1.sal_in_usd_ex,
    ds_2.sal_in_usd_mi,
    ds_1.sal_in_usd_ex - ds_2.sal_in_usd_mi differences
from ds_1
left outer join ds_2
on ds_1.work_year = ds_2.work_year;
```

Answer:

	work_year	sal_in_usd_ex	sal_in_usd_mi	differences
▶	2021	150000.0000	108398.8182	41601.1818
	2022	120000.0000	68970.5909	51029.4091



Insight

- Structured and queried a relational database representing job and salary data.
- Discovered how experience level and company size strongly affect salary distribution.
- Identified top 5 locations offering the highest pay for data analyst roles.
- Strengthened SQL proficiency in data aggregation, filtering, and analytical queries.



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