

```
SELECT * FROM salaries LIMIT 10;
```

	year integer	exp_level text	emp_type text	job_title text	salary integer	salary_curr text	salary_in_usd integer	emp_location text	remote_ratio integer	comp_location text	comp_size text
1	2023	SE	FT	Principal Data Scientist	80000	EUR	85847	ES	100	ES	L
2	2023	MI	CT	ML Engineer	30000	USD	30000	US	100	US	S
3	2023	MI	CT	ML Engineer	25500	USD	25500	US	100	US	S
4	2023	SE	FT	Data Scientist	175000	USD	175000	CA	100	CA	M
5	2023	SE	FT	Data Scientist	120000	USD	120000	CA	100	CA	M
6	2023	SE	FT	Applied Scientist	222200	USD	222200	US	0	US	L
7	2023	SE	FT	Applied Scientist	136000	USD	136000	US	0	US	L
8	2023	SE	FT	Data Scientist	219000	USD	219000	CA	0	CA	M
9	2023	SE	FT	Data Scientist	141000	USD	141000	CA	0	CA	M
10	2023	SE	FT	Data Scientist	147100	USD	147100	US	0	US	M

-- #1. Display salaries of ML Engineer in 2023, add sorting in ascending order.

```
SELECT
    year
    , job_title
    , salary_in_usd AS salary
FROM salaries
WHERE
    year = 2023
    AND job_title = 'ML Engineer'
ORDER BY salary_in_usd ASC;
```

	year integer	job_title text	salary integer
1	2023	ML Engineer	25500
2	2023	ML Engineer	30000
3	2023	ML Engineer	110000
4	2023	ML Engineer	135000
5	2023	ML Engineer	147000
6	2023	ML Engineer	150000
7	2023	ML Engineer	160000
8	2023	ML Engineer	200000
9	2023	ML Engineer	202353
10	2023	ML Engineer	203500
11	2023	ML Engineer	220000
12	2023	ML Engineer	234100
13	2023	ML Engineer	260000
14	2023	ML Engineer	289076

-- #2. Name the country (company_location) with the lowest salary for a Data Scientist in 2023

```
SELECT
    comp_location
    , salary_in_usd
    , job_title
    , year
FROM salaries
WHERE
    year = 2023
    AND job_title = 'Data Scientist'
ORDER BY 2 ASC
LIMIT 1;
```

	comp_location text	salary_in_usd integer	job_title text	year integer
1	IN	9727	Data Scientist	2023


-- #3. Display the top 5 salaries among all specialists who work completely remotely (remote_ratio = 100)

```
SELECT
    salary_in_usd
    , remote_ratio
FROM salaries
WHERE
    remote_ratio = 100
ORDER BY salary_in_usd DESC
LIMIT 5;
```

	salary_in_usd integer	remote_ratio integer
1	416000	100
2	412000	100
3	405000	100
4	380000	100
5	376080	100

-- #4. Output unique values for a column (categorical)

```
SELECT
    DISTINCT comp_location
FROM salaries;
```


Showing rows: 1 to 72 

	comp_location text
1	RU
2	DK
3	CZ
4	SI
5	SG
6	US
7	KE
8	JP
9	NZ
10	BS
11	HN
12	AE
13	IQ
14	IR
15	AU
16	CL
17	CF
18	NL
19	CN
20	IN

-- #5. Output count of unique values for a column


```
SELECT
    COUNT(DISTINCT comp_location)
FROM salaries;
```




Showing rows: 1 to

	count bigint 
1	72

-- #6. Output the average, minimum and maximum salary for 2023.

```
SELECT
    ROUND(AVG(salary_in_usd),2) AS salary_avg
    , MIN(salary_in_usd) as salary_min
    , MAX(salary_in_usd) as salary_max
FROM salaries
WHERE year = '2023';
```

Showing rows: 1 to 1  Page No: 1

	salary_avg numeric 	salary_min integer 	salary_max integer 
1	149045.54	7000	423834

-- #7. Display the 5 highest salaries in 2023 for representatives of the ML Engineer specialty. Transfer wages to CAD.

```
SELECT
    salary_in_usd
    , salary_in_usd * 1.45 AS salary_in_cad
    , job_title
    , year
FROM salaries
WHERE
    year = 2023
    AND job_title = 'ML Engineer'
```

ORDER BY salary_in_usd DESC
LIMIT 5;

	salary_in_usd integer	salary_in_cad numeric	job_title text	year integer
1	289076	419160.20	ML Engineer	2023
2	260000	377000.00	ML Engineer	2023
3	234100	339445.00	ML Engineer	2023
4	220000	319000.00	ML Engineer	2023
5	203500	295075.00	ML Engineer	2023

-- #8. Output Unique values of remote_ratio column, data format must be fractional with two decimal places

-- Example: "50" should be displayed as "0.50"

```
SELECT  
    DISTINCT ROUND((remote_ratio/100.0), 2) AS remote_frac  
FROM salaries;
```

Showing rows: 1 to 3	
	remote_frac numeric
1	0.50
2	1.00
3	0.00

-- #9. Output the table data by adding the column 'exp_level_full' with the full name of the employee experience levels according to the column exp_level

```

SELECT *
    , CASE
        WHEN exp_level = 'EN'
        THEN 'Entry-level-level'
        WHEN exp_level = 'SE'
        THEN 'Senior'
        WHEN exp_level = 'MI'
        THEN 'Mid-level'
        ELSE 'Executive-level' END AS full_exp_level
FROM salaries
LIMIT 10;

```

Data Output Messages Notifications													
Showing rows: 1 to 10 Page No: 1 of 1													
	year	exp_level	emp_type	job_title	salary	salary_curr	salary_in_usd	emp_location	remote_ratio	comp_location	comp_size	full_exp_level	
integer	text	text	text	text	integer	text	integer	text	integer	text	text	text	
1	2023	SE	FT	Principal Data Scientist	80000	EUR	85847	ES	100	ES	L	Senior	
2	2023	MI	CT	ML Engineer	30000	USD	30000	US	100	US	S	Mid-level	
3	2023	MI	CT	ML Engineer	25500	USD	25500	US	100	US	S	Mid-level	
4	2023	SE	FT	Data Scientist	175000	USD	175000	CA	100	CA	M	Senior	
5	2023	SE	FT	Data Scientist	120000	USD	120000	CA	100	CA	M	Senior	
6	2023	SE	FT	Applied Scientist	222200	USD	222200	US	0	US	L	Senior	
7	2023	SE	FT	Applied Scientist	136000	USD	136000	US	0	US	L	Senior	
8	2023	SE	FT	Data Scientist	219000	USD	219000	CA	0	CA	M	Senior	
9	2023	SE	FT	Data Scientist	141000	USD	141000	CA	0	CA	M	Senior	
10	2023	SE	FT	Data Scientist	147100	USD	147100	US	0	US	M	Senior	

--Example with salary column

```


SELECT *
    , CASE
        WHEN salary_in_usd < 50000
        THEN 'Category 1'
        WHEN salary_in_usd < 100000
        THEN 'Category 2'
        WHEN salary_in_usd < 150000
        THEN 'Category 3'
        ELSE 'Category 4' END AS salary_level
FROM salaries
LIMIT 10;

```

	year integer	exp_level text	emp_type text	job_title text	salary integer	salary_curr text	salary_in_usd integer	emp_location text	remote_ratio integer	comp_location text	comp_size text	salary_level text
1	2023	SE	FT	Principal Data Scientist	80000	EUR	85847	ES	100	ES	L	Category 2
2	2023	MI	CT	ML Engineer	30000	USD	30000	US	100	US	S	Category 1
3	2023	MI	CT	ML Engineer	25500	USD	25500	US	100	US	S	Category 1
4	2023	SE	FT	Data Scientist	175000	USD	175000	CA	100	CA	M	Category 4
5	2023	SE	FT	Data Scientist	120000	USD	120000	CA	100	CA	M	Category 3
6	2023	SE	FT	Applied Scientist	222200	USD	222200	US	0	US	L	Category 4
7	2023	SE	FT	Applied Scientist	136000	USD	136000	US	0	US	L	Category 3
8	2023	SE	FT	Data Scientist	219000	USD	219000	CA	0	CA	M	Category 4
9	2023	SE	FT	Data Scientist	141000	USD	141000	CA	0	CA	M	Category 3
10	2023	SE	FT	Data Scientist	147100	USD	147100	US	0	US	M	Category 3

-- #10. Examine all columns for missing values

SELECT COUNT(*) - COUNT(salary_in_usd) AS missing_values
FROM salaries;

Showing rows: 1 to 1 

	missing_values bigint
1	0

/*

#11. For each profession and corresponding experience level:

- number in the table


- average salary

*/

```
SELECT
    job_title
    , exp_level
    , COUNT(*) AS job_nmb
    , ROUND(AVG(salary_in_usd*1.45), 2) AS salary_avg_in_cad
FROM salaries
WHERE year =2023
GROUP BY job_title, exp_level
```

ORDER BY 1,2;


Showing rows: 1 to 109





Page No:


1

of 1










	job_title text	exp_level text	job_nmb bigint	salary_avg_in_cad numeric
1	AI Developer	EN	4	173638.59
2	AI Developer	MI	2	199389.50
3	AI Developer	SE	2	121800.00
4	AI Programmer	EN	1	101500.00
5	AI Scientist	MI	1	56014.95
6	AI Scientist	SE	1	614559.30
7	Analytics Engineer	EX	2	271150.00
8	Analytics Engineer	MI	2	254257.50
9	Analytics Engineer	SE	42	245291.32
10	Applied Data Scientist	MI	2	72985.75
11	Applied Data Scientist	SE	1	99061.10
12	Applied Machine Learning Engineer	MI	2	144819.48
13	Applied Machine Learning Scientist	EN	1	62238.35
14	Applied Machine Learning Scientist	SE	1	130500.00
15	Applied Scientist	EN	6	242667.17

-- #12. For professions that occur only once, indicate the salary

```
SELECT -- step 4
      job_title
--      , COUNT(*) AS job_nmb
--      , ROUND(AVG(salary_in_usd*1.45), 2) AS salary_avg_in_cad
FROM salaries--step 1
WHERE year =2023 --2
GROUP BY job_title --3
HAVING COUNT(*) = 1 --job title which is occurs once
ORDER BY 2; --5 order by second column
```



Showing rows: 1 to 16



Page No:

1

of 1



	job_title text	salary_avg_in_cad numeric
1	Autonomous Vehicle Technician	10150.00
2	Product Data Analyst	23800.30
3	Data Analytics Lead	25388.05
4	Compliance Data Analyst	43500.00
5	Machine Learning Researcher	72500.00
6	Data DevOps Engineer	77798.30
7	Computer Vision Software Engineer	77798.30
8	BI Data Engineer	87000.00
9	AI Programmer	101500.00
10	BI Data Analyst	104250.65
11	Machine Learning Research Engineer	105725.30
12	Principal Data Scientist	124478.15
13	Azure Data Engineer	145000.00
14	Deep Learning Researcher	178937.25
15	Financial Data Analyst	188500.00
16	Big Data Architect	220257.90

-- #13. Display all specialists whose salaries are above the average in the table

```

SELECT *
FROM salaries
WHERE salary_in_usd >
(
    SELECT AVG(salary_in_usd)
    FROM salaries
)
AND year = 2023;

```

Showing rows: 1 to 976 Page No: 1 of 1											
	year integer	exp_level text	emp_type text	job_title text	salary integer	salary_curr text	salary_in_usd integer	emp_location text	remote_ratio integer	comp_location text	comp_size text
1	2023	SE	FT	Data Scientist	175000	USD	175000	CA	100	CA	M
2	2023	SE	FT	Applied Scientist	222200	USD	222200	US	0	US	L
3	2023	SE	FT	Data Scientist	219000	USD	219000	CA	0	CA	M
4	2023	SE	FT	Data Scientist	141000	USD	141000	CA	0	CA	M
5	2023	SE	FT	Data Scientist	147100	USD	147100	US	0	US	M
6	2023	EN	FT	Applied Scientist	213660	USD	213660	US	0	US	L
7	2023	SE	FT	Data Modeler	147100	USD	147100	US	0	US	M
8	2023	SE	FT	Data Scientist	170000	USD	170000	US	0	US	M
9	2023	SE	FT	Data Scientist	150000	USD	150000	US	0	US	M
10	2023	MI	FT	Data Analyst	150000	USD	150000	US	100	US	M
11	2023	SE	FT	Research Engineer	275000	USD	275000	DE	0	DE	M
12	2023	SE	FT	Research Engineer	174000	USD	174000	DE	0	DE	M
13	2023	SE	FT	Analytics Engineer	230000	USD	230000	GB	100	GB	M
14	2023	SE	FT	Analytics Engineer	143200	USD	143200	GB	100	GB	M
15	2023	SE	FT	Business Intelligence Engineer	225000	USD	225000	US	0	US	M

-- #14.Display all specialists who live in countries where the average salary is higher than the average among all countries.

-- 1) avg salary

-- 2) avg salary for each country

-- 3) compare them and show list of countries

-- 4) job title that live and work in that countries

```

SELECT
    comp_location
FROM salaries
WHERE year = 2023
GROUP BY 1
HAVING AVG(salary_in_usd) >
(
    SELECT AVG(salary_in_usd)
    FROM salaries
    WHERE year = 2023
);

```

	comp_location text
1	US
2	IL

--

SELECT *

```

FROM salaries
WHERE emp_location IN (SELECT
    comp_location
FROM salaries
WHERE year = 2023
GROUP BY 1
HAVING AVG(salary_in_usd) >
(
    SELECT AVG(salary_in_usd)
    FROM salaries
    WHERE year = 2023
));

```

	year integer	exp_level text	emp_type text	job_title text	salary integer	salary_curr text	salary_in_usd integer	emp_location text	remote_ratio integer	comp_location text	comp_size text
1	2023	MI	CT	ML Engineer	30000	USD	30000	US	100	US	S
2	2023	MI	CT	ML Engineer	25500	USD	25500	US	100	US	S
3	2023	SE	FT	Applied Scientist	222200	USD	222200	US	0	US	L
4	2023	SE	FT	Applied Scientist	136000	USD	136000	US	0	US	L
5	2023	SE	FT	Data Scientist	147100	USD	147100	US	0	US	M
6	2023	SE	FT	Data Scientist	90700	USD	90700	US	0	US	M
7	2023	SE	FT	Data Analyst	130000	USD	130000	US	100	US	M
8	2023	SE	FT	Data Analyst	100000	USD	100000	US	100	US	M
9	2023	EN	FT	Applied Scientist	213660	USD	213660	US	0	US	L
10	2023	EN	FT	Applied Scientist	130760	USD	130760	US	0	US	L
11	2023	SE	FT	Data Modeler	147100	USD	147100	US	0	US	M
12	2023	SE	FT	Data Modeler	90700	USD	90700	US	0	US	M
13	2023	SE	FT	Data Scientist	170000	USD	170000	US	0	US	M
14	2023	SE	FT	Data Scientist	150000	USD	150000	US	0	US	M
15	2023	MI	FT	Data Analyst	150000	USD	150000	US	100	US	M

-- #15. Find the minimum wage among the maximum wages countries
-- 1 part

```

SELECT
    comp_location
    , MAX(salary_in_usd)
FROM salaries
GROUP BY 1;

```

Showing rows: 1 to 72



Page No

	comp_location text	max integer
1	RU	230000
2	DK	88654
3	CZ	69999
4	SI	102839
5	SG	89294
6	US	450000
7	KE	80000
8	JP	260000
9	NZ	125000
10	BS	45555
11	HN	20000
12	AE	120000
13	IQ	100000
14	IR	100000
15	AU	171000

-- final part inner query

SELECT MIN(t.salary_in_usd)

FROM

(SELECT

comp_location


, MAX(salary_in_usd) as salary_in_usd

FROM salaries

GROUP BY 1



) AS t

;

	min integer 
1	6304

--another simple way




```
SELECT
    comp_location
    , MAX(salary_in_usd) as salary_in_usd
FROM salaries
GROUP BY 1
ORDER BY 2 ASC
LIMIT 1;
```

	comp_location text 	salary_in_usd integer 
1	MK	6304

-- #16. For each profession, derive the difference between the average wage and salary
--the maximum salary of all specialists
-- step 1: max salary
-- step 2: table job_title and avg salary
-- step 3: result difference between them

```
SELECT MAX(salary_in_usd)
FROM salaries;
```

```
SELECT
    job_title
    , ROUND(AVG(salary_in_usd) -
(
    SELECT MAX(salary_in_usd)
    FROM salaries
),2) AS diff
FROM salaries
GROUP BY 1;
```

Showing rows: 1 to 93  Page No: 1 of 1		
	job_title text 	diff numeric 
1	Data Science Lead	-293665.63
2	Machine Learning Engineer	-295309.27
3	Director of Data Science	-254859.27
4	Data Scientist	-309130.23
5	Lead Data Analyst	-377430.60
6	Manager Data Management	-325000.00
7	Machine Learning Scientist	-286779.92
8	Product Data Analyst	-393502.80
9	Analytics Engineer	-297631.37
10	Lead Machine Learning Engineer	-367072.33
11	Data Science Manager	-258721.22
12	Machine Learning Manager	-294298.67
13	Data Management Specialist	-381707.00
14	Power BI Developer	-444591.00
15	BI Developer	-320153.85

-- #17. Display data on an employee who receives the second largest salary in

```

SELECT *
FROM
(
    SELECT *
    FROM salaries
    ORDER BY salary_in_usd DESC
    LIMIT 2
) AS t
ORDER BY salary_in_usd ASC
LIMIT 1;

```

Data Output Messages Notifications											
Showing rows: 1 to 1 Page No: 1											
	year Integer	exp_level text	emp_type text	job_title text	salary Integer	salary_curr text	salary_in_usd Integer	emp_location text	remote_ratio Integer	comp_location text	comp_size text
1	2022	MI	FT	Data Analyst	350000	GBP	430967	GB	0	GB	M

-- other way

```
SELECT *
FROM salaries
ORDER BY salary_in_usd DESC
LIMIT 1 OFFSET 1;
```

Data Output Messages Notifications											
Showing rows: 1 to 1 Page No: 1											
	year Integer	exp_level text	emp_type text	job_title text	salary Integer	salary_curr text	salary_in_usd Integer	emp_location text	remote_ratio Integer	comp_location text	comp_size text
1	2022	MI	FT	Data Analyst	350000	GBP	430967	GB	0	GB	M


-- #Data Research:



```
SELECT *
FROM salaries
LIMIT 10;
```

```
SELECT COUNT(*)
FROM salaries;
```

	count bigint
1	3755

```
SELECT COUNT(*)
, COUNT(*) - COUNT(salary_in_usd) AS missing_values
FROM salaries;
```


Showing rows: 1 to 1  Page No



	count bigint 	missing_values bigint 
1	3755	0

```

SELECT
    job_title
    , COUNT(*)
FROM salaries
GROUP BY 1
ORDER BY 2 DESC
LIMIT 10;

```

Showing rows: 1 to 10  Page No: 1

	job_title text 	count bigint 
1	Data Engineer	1040
2	Data Scientist	840
3	Data Analyst	612
4	Machine Learning Engineer	289
5	Analytics Engineer	103
6	Data Architect	101
7	Research Scientist	82
8	Data Science Manager	58
9	Applied Scientist	58
10	Research Engineer	37

-- #Descriptive Statistics

```

SELECT
    job_title
    , exp_level

```



```

, MIN(salary_in_usd)
, MAX(salary_in_usd)
, ROUND(AVG(salary_in_usd),2) AS avg
, ROUND(stddev(salary_in_usd),2) as std
FROM salaries
GROUP BY 1,2

```


	job_title text	exp_level text	min integer	max integer	avg numeric	std numeric
1	Business Data Analyst	EN	12877	100000	48573.33	30877.91
2	Data Science Manager	MI	70000	241000	160187.50	57628.08
3	Data Science Consultant	MI	51716	103000	76980.40	19872.78
4	Data Scientist Lead	SE	183000	183000	183000.00	[null]
5	Marketing Data Engineer	EN	66970	66970	66970.00	[null]
6	Data Architect	EX	155000	180000	167500.00	17677.67
7	Financial Data Analyst	EN	100000	100000	100000.00	[null]
8	Lead Data Analyst	MI	18238	87000	48211.75	34701.81
9	AI Scientist	EX	200000	200000	200000.00	[null]
10	Deep Learning Researcher	SE	123405	123405	123405.00	[null]
11	AI Scientist	MI	30000	200000	117726.20	82908.18
12	ML Engineer	EN	15966	21013	18489.50	3568.77
13	Research Scientist	MI	23000	450000	141575.09	97026.81
14	ETL Developer	MI	52533	52533	52533.00	0.00
15	Data Analytics Lead	MI	17509	17509	17509.00	[null]



-- #Distribution of Values

```

SELECT
CASE
    WHEN salary_in_usd <= 10000 THEN 'A'
    WHEN salary_in_usd <= 20000 THEN 'B'
    WHEN salary_in_usd <= 50000 THEN 'C'
    WHEN salary_in_usd <= 100000 THEN 'D'
    WHEN salary_in_usd <= 200000 THEN 'E'
    ELSE 'F' END AS salary_category
, COUNT(*)
FROM salaries
GROUP BY 1;


```


Showing rows: 1 to 6  Page No

	salary_category text 	count bigint 
1	D	803
2	B	53
3	A	27
4	E	2134
5	C	207
6	F	531

-- #Correlation of Values

```
SELECT
    corr(remote_ratio, salary_in_usd)
FROM salaries;
```

Showing rows: 1 to 1  Page No

	corr double precision 
1	-0.06417098519057558