Aggregation

1. Revising aggregation - The count Function

Query a count of the number of cities in CITY having a Population larger than 100,000.

Input Format

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

Link of question Markdown Live Preview.

```
Query : SELECT COUNT(*) FROM CITY WHERE POPULATION > 100000;
```

2. Revising aggregation - The Sum Function

Query the total population of all cities in CITY where District is California.

Input Format

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

The CITY table is described as follows:

Link of question Markdown Live Preview.

```
Query : SELECT SUM(POPULATION)
FROM CITY
WHERE DISTRICT = 'California';
```

3. Revising aggregation - Averages

Query the average population of all cities in CITY where District is California.

Input Format

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

Link of question Markdown Live Preview.

```
Query : SELECT AVG(POPULATION)
FROM CITY
WHERE DISTRICT ='California';
```

4. Averages Population

Query the average population for all cities in CITY, rounded down to the nearest integer.

Input Format

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

Link of question Markdown Live Preview.

```
Query : SELECT FLOOR(AVG(POPULATION))
FROM CITY;
```

5. Japan Population

Query the sum of the populations for all Japanese cities in CITY. The COUNTRYCODE for Japan is JPN.

Input Format

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

Link of question Markdown Live Preview.

```
Query : SELECT SUM(POPULATION)
FROM CITY
WHERE COUNTRYCODE ='JPN';
```

6. Population Density Difference

Query the difference between the maximum and minimum populations in CITY.

Input Format

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

Link of question Markdown Live Preview.

```
Query : SELECT MAX(POPULATION) - MIN(POPULATION)
FROM CITY;
```

7. The Blunder

Samantha was tasked with calculating the average monthly salaries for all employees in the EMPLOYEES table, but did not realize her keyboard's 0 key was broken until after completing the calculation. She wants your help finding the difference between her miscalculation (using salaries with any zeros removed), and the actual average salary.

Write a query calculating the amount of error (i.e.: actual - miscalculated average monthly salaries), and round it up to the next integer.

Input Format

The EMPLOYEES table is described as follows:

Column	Type
ID	Integer
Name	String
Salary	Integer

Note: Salary is per month.

Constraints

$1000 < Salary < 10^5$.

Sample Input

ID	Name	Salary
1	Kristeen	1420
2	Ashley	2006
3	Julia	2210
4	Maria	3000

Sample Output

2061

Explanation

The table below shows the salaries without zeros as they were entered by Samantha:

ID	Name	Salary
1	Kristeen	142
2	Ashley	26
3	Julia	221
4	Maria	3

Samantha computes an average salary of 98.00. The actual average salary is 2159.00.

The resulting error between the two calculations is 2159.00-98.00 = 2061.00. Since it is equal to the integer 2061, it does not get rounded up.

Link of question Markdown Live Preview.

```
Query : SELECT CEIL(AVG(Salary)-AVG(REPLACE(Salary,'0','')))
FROM  EMPLOYEES;
```

8. Top Earners

We define an employee's total earnings to be their monthly salary * months worked, and the maximum total earnings to be the maximum total earnings for any employee in the Employee table. Write a query to find the maximum total earnings for all employees as well as the total number of employees who have maximum total earnings. Then print these values as 2space-separated integers.

Input Format

The Employee table containing employee data for a company is described as follows:

Column	Type
employee_id	Integer
name	String
months	Integer
salary	Integer

where employee_id is an employee's ID number, name is their name, months is the total number of months they've been working for the company, and salary is the their monthly salary.

Sample Input

employee_id	name	months	salary
12228	Rose	15	1968
33645	Angela	1	3443
45692	Frank	17	1608
56118	Patrick	7	1345
59725	Lisa	11	2330
74197	Kimberly	16	4372
78454	Bonnie	8	1771
83565	Michael	6	2017
98607	Todd	5	3396
99989	Joe	9	3573

Sample Output

69952 1

Explanation

The table and earnings data is depicted in the following diagram:

employee_id	name	months	salary	earnings
12228	Rose	15	1968	29520
33645	Angela	1	3443	3443
45692	Frank	17	1608	27336
56118	Patrick	7	1345	9415
59725	Lisa	11	2330	25630
74197	Kimberly	16	4372	69952
78454	Bonnie	8	1771	14168
83565	Michael	6	2017	12102
98607	Todd	5	3396	16980
99989	Joe	9	3573	32157

The maximum earnings value is 69952. The only employee with earnings = 69952 is Kimberly, so we print the maximum earnings value (69952) and a count of the number of employees who have earned $69952 (which is 1) as two space-separated values.

Link of question Markdown Live Preview.

```
Query : SELECT MONTHS*SALARY AS earnings, COUNT(*)
FROM employee
GROUP BY earnings
ORDER BY earnings DESC
LIMIT 1;
```

9. Weather Observation Season-2

Query the following two values from the STATION table:

1. The sum of all values in LAT_N rounded to a scale 2 of decimal places.
2. The sum of all values in LONG_W rounded to a scale 2 of decimal places. Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Output Format

Your results must be in the form:

lat lon where lat is the sum of all values in LAT_N and lon is the sum of all values in LONG_W. Both results must be rounded to a scale of 2 decimal places.

Link of question Markdown Live Preview.

```
Query : SELECT ROUND(SUM(LAT_N),2),ROUND(SUM(LONG_W),2)
FROM STATION;
```

10. Weather Observation Season-13

Query the sum of Northern Latitudes (LAT_N) from STATION having values greater than 38.7880 and less than 137.2345. Truncate your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query : select Round(sum(LAT_N),4)
from STATION
where LAT_N > 38.7880 and LAT_N < 137.2345;
```

11. Weather Observation Season-14

Query the greatest value of the Northern Latitudes (LAT_N) from STATION that is less than 137.2345. Truncate your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query : select Round(max(LAT_N),4)
from STATION
where LAT_N < 137.2345;
```

12. Weather Observation Season-15

Query the Western Longitude (LONG_W) for the largest Northern Latitude (LAT_N) in STATION that is less than 137.2345. Round your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
 Query :   select Round(LONG_W,4)
  from  STATION
  where LAT_N = (Select Max(LAT_N)from STATION where LAT_N < 137.2345);
```

13. Weather Observation Season-16

Query the smallest Northern Latitude (LAT_N) from STATION that is greater than 38.7780. Round your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
 Query : select Round(min(LAT_N),4)
  from STATION
  where LAT_N > 38.7780;
```

14. Weather Observation Season-17

Query the Western Longitude (LONG_W)where the smallest Northern Latitude (LAT_N) in STATION is greater than 38.7780. Round your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query : select Round(LONG_W,4)
from STATION
where LAT_N = (
select MIN(LAT_N)
from STATION
where LAT_N > 38.7780);
```

15. Weather Observation Season-18

Consider P1(a,b) and P2(c,d) to be two points on a 2D plane.

- a happens to equal the minimum value in Northern Latitude (LAT_N in STATION).
- b happens to equal the minimum value in Western Longitude (LONG_W in STATION).
- c happens to equal the maximum value in Northern Latitude (LAT_N in STATION).
- d happens to equal the maximum value in Western Longitude (LONG_W in STATION). Query the Manhattan Distance between points P1 and P2 and round it to a scale of 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query :

select Round(ABS(MIN(LAT_N) - MAX(LAT_N)) + ABS(MIN(LONG_W) - MAX(LONG_W)),4)
FROM STATION;
```

16. Weather Observation Season-19

Consider P1(a,b) and P2(c,d) to be two points on a 2D plane where (a,b) are the respective minimum and maximum values of Northern Latitude (LAT_N) and (c,d) are the respective minimum and maximum values of Western Longitude (LONG_W) in STATION.

Query the Euclidean Distance between points P1 and P2 and format your answer to display 4 decimal digits.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query : SELECT ROUND(SQRT(POWER(MAX(LAT_N)-MIN(LAT_N),2)+POWER(MAX(LONG_W)-
MIN(LONG_W),2)),4)
FROM STATION;
```

17. Weather Observation Season-20

A median is defined as a number separating the higher half of a data set from the lower half. Query the median of the Northern Latitudes (LAT_N) from STATION and round your answer to 4 decimal places.

Input Format

The STATION table is described as follows:

STATION

Field	Type
ID	NUMBER
CITY	VARCHAR2(21)
STATE	VARCHAR2(2)
LAT_N	NUMBER
LONG_W	NUMBER

where LAT_N is the northern latitude and LONG_W is the western longitude.

Link of question Markdown Live Preview.

```
Query : SELECT Round(st.lat_n, 4)
FROM station AS st
WHERE (SELECT Count(lat_n) FROM station WHERE lat_n < st.lat_n) = (SELECT
Count(lat_n) FROM station WHERE lat_n > st.lat_n);
```