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ASSIGNMENT – 2 (SQL)

create database zssn;

select * from zssn.restapi_survivor;

select * from zssn.restapi_item;

select * from zssn.restapi_inventory_items;

Survivor Table

id	name	age	gender	longitude	latitude	is_infected	count_reports
1	Ashish Kumar	26	M	77.087658	28.598428	0	0
2	Santosh Devi	26	F	77.087658	28.598428	0	0
3	Karuna Rai	26	F	77.087658	28.598428	0	0
4	Amit Shah	26	M	77.087658	28.598428	0	0
5	Meena Shah	26	M	77.087658	28.598428	0	0
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Item Table

	id	name	point
▶	1	food	3
	2	water	4
	3	medication	2
	4	ammunition	1

Inventory Items

id	survivor_id	items
1	1	1
2	1	2
3	1	3
4	1	4
5	2	1
6	2	2
7	2	3
8	2	4
9	3	1
10	3	2
11	3	3
12	3	4
13	4	1
14	4	2
15	5	1
16	5	2
17	5	4
NULL	NULL	NULL

Note: There is no infected survivor in the survivor table able. Flagging the Id 1 survivor “Ashish Kumar” the survivor table looks like:

id	name	age	gender	longitude	latitude	is_infected	count_reports
1	Ashish Kumar	26	M	77.087658	28.598428	1	4
2	Santosh Devi	26	F	77.087658	28.598428	0	0
3	Karuna Rai	26	F	77.087658	28.598428	0	0
4	Amit Shah	26	M	77.087658	28.598428	0	0
5	Meena Shah	26	M	77.087658	28.598428	0	0
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Question 1: There are two tables Survivor with columns “id”, “name”, “age”, “gender”, “longitude”, “latitude”, “is_infected”, “count_reports” and Inventory_items table with columns “id”, “survivor_id” and “items” performing join on these tables and then finding the average amount of each kind of resource by survivor where there are 4 different resources (food, water, medication and ammunition)

Answer 1: The equivalent SQL statement to find the average amount of each kind of resource (assuming to be food, water, medication, and ammunition) per survivor would be:

```
SELECT
  AVG(CASE WHEN items = 1 THEN 1 ELSE 0 END) AS avg_food,
  AVG(CASE WHEN items = 2 THEN 1 ELSE 0 END) AS avg_water,
  AVG(CASE WHEN items = 3 THEN 1 ELSE 0 END) AS avg_medication,
  AVG(CASE WHEN items = 4 THEN 1 ELSE 0 END) AS avg_ammunition,
  s.name AS survivor_name,
  s.age,
  s.gender,
  s.longitude,
  s.latitude,
  s.count_reports
FROM Inventory_Items i
  JOIN Survivor s ON i.survivor_id = s.id
WHERE s.is_infected = false
GROUP BY s.name, s.age, s.gender, s.longitude, s.latitude, s.count_reports;
```

Elaborating the Above SQL Statement:

The SQL statement retrieves the average of food, water, medication, and ammunition items that each survivor has. The statement performs an inner join on two tables, zssn.restapi_inventory_items (i) and zssn.restapi_survivor (s), using the survivor_id from the inventory table and id from the survivor table as the join condition. The statement also filters the results to only include survivors who have not been infected (is_infected = false).

The CASE WHEN clause inside the AVG function is used to calculate the average of either 0 or 1 depending on the value of the items column. For each survivor, the values of food, water, medication, and ammunition will either be 0 or 1. The AVG function then returns the average value of all the survivors.

The statement also retrieves other attributes of each survivor such as name, age, gender, longitude, latitude, and count_reports. Finally, the results are grouped by all the survivor's attributes to get an average for each survivor.

Result:

avg_food	avg_water	avg_medication	avg_ammunition	survivor_name	age	gender	longitude	latitude	count_reports
0.2500	0.2500	0.2500	0.2500	Santosh Devi	26	F	77.087658	28.598428	0
0.2500	0.2500	0.2500	0.2500	Karuna Rai	26	F	77.087658	28.598428	0
0.5000	0.5000	0.0000	0.0000	Amit Shah	26	M	77.087658	28.598428	0
0.3333	0.3333	0.0000	0.3333	Meena Shah	26	M	77.087658	28.598428	0

Question 2: There are two tables Survivor with columns “id”, “name”, “age”, “gender”, “longitude”, “latitude”, “is_infected”, “count_reports” and Inventory_items table with columns “id”, “survivor_id” and “items” performing join on these tables and then finding the percentage of food, water, medication and ammunition among uninfected survivors in the zssn database.

Answer 2: The equivalent SQL statement to find the percentage of food, water, medication and ammunition among uninfected survivors would be:

```
SELECT
  SUM(CASE WHEN i.items = 1 THEN 1 ELSE 0 END) / COUNT(DISTINCT s.id) AS food_percentage,
  SUM(CASE WHEN i.items = 2 THEN 1 ELSE 0 END) / COUNT(DISTINCT s.id) AS water_percentage,
  SUM(CASE WHEN i.items = 3 THEN 1 ELSE 0 END) / COUNT(DISTINCT s.id) AS medication_percentage,
  SUM(CASE WHEN i.items = 4 THEN 1 ELSE 0 END) / COUNT(DISTINCT s.id) AS ammunition_percentage
FROM zssn.restapi_survivor s
JOIN zssn.restapi_inventory_items i ON s.id = i.survivor_id
WHERE s.is_infected = false;
```

Elaborating the Above SQL Statement:

The above SQL statement calculates the percentage of survivors who have items with a specific type. It selects the following columns:

- food_percentage: percentage of survivors who have food items (items=1)
- water_percentage: percentage of survivors who have water items (items=2)
- medication_percentage: percentage of survivors who have medication items (items=3)
- ammunition_percentage: percentage of survivors who have ammunition items (items=4)

It joins the zssn.restapi_survivor table and zssn.restapi_inventory_items table on the survivor_id column to get the relationship between survivors and their items.

The query only considers survivors who are not infected (is_infected=false). The percentage for each item is calculated by summing up the number of survivors with that item (1) divided by the total number of distinct survivors.

Result:

food_percentage	water_percentage	medication_percentage	ammunition_percentage
1.0000	1.0000	0.5000	0.7500