Sample Questions

1. Election

Given a database of the results of an election, find the number of seats won by each party. There are some rules to going about this:

- There are many constituencies in a state and many candidates who are contesting the election from each constituency.
- Each candidate belongs to a party.
- The candidate with the maximum number of votes in a given constituency wins for that constituency.

The output should be in the following format: Party Seats_won
The ordering should be in the order of seats won in descending order.

▶ **Schema**

▶ **Sample Data Tables**

Candidates

id	gender	age	party
1	M	55	Democratic
2	M	51	Democratic
3	F	62	Democratic
4	M	60	Republic
5	F	61	Republic
6	F	58	Republic

Results

constituency_id	candidate_id	votes
1	1	847529
1	4	283409
2	2	293841
2	5	394385
3	3	429084

4	M	60	Republic
5	F	61	Republic
6	F	58	Republic

Results		
constituency_id	candidate_id	votes
1	1	847529
1	4	283409
2	2	293841
2	5	394385
3	3	429084
3	6	303890

Expected Output:
Democratic 2
Republic 1

2. Advertising System Deviations Report

As part of HackerAd's advertising system analytics, they need a list of the customers who have the most failures and successes in ad campaigns.

There should be exactly two rows that contain *type, customer, campaign, total.*

- *type* contains 'success' in the first row and 'failure' in the second. These relate to *events.status.*
- *customer* is the *customers.first_name* and *customers.last_name*, separated by a single space.
- *campaign* is a comma-separated list of *campaigns.name* that are associated with the customer, ordered ascending.
- *total* is the number of associated events.

Report only 2 customers, the two with the most successful and the most failing campaigns.

▶ **Schema**

customers

id	first_name	last_name
1	Carolyn	O'Lunny
2	Matteo	Husthwaite
3	Melessa	Rowesby

campaigns

id	customer_id	name
2	1	Overcoming Challenges
4	1	Business Rules
3	2	YUI
1	3	Quantitative Finance
5	3	MMC

events

campaign_id	status
1	success
1	success
2	success
2	success
2	success
2	success
2	success
3	success
3	success
3	success
4	success
4	success

4	failure
4	failure
5	failure
5	failure
5	failure
5	failure
5	failure
5	failure

he expected output is:

event_type	customer	campaign	total
success	Carolyn O'Lunny	Business Rules,Overcoming Challenges	8
failure	Melessa Rowesby	MMC,Quantitative Finance	9

3. Election Exit Poll by State Report

As part of HackerPoll's election exit poll analytics, a team needs a list of candidates and their top 3 vote totals and the states where they occurred.

The result should be in the following format: *candidate_name, 1st_place, 2nd_place, 3rd_place*.

- Concatenate the candidate's first and last names with a space between them.
- *1st_place, 2nd_place, 3rd_place* are comma-separated US state names and numbers of votes in a format "%statename% (%votes%)", for example, "New York (23)".
- Results should be sorted ascending by *candidate_name*.

▶ Schema

▶ Sample Data Tables

candidates

id	first_name	last_name
1	Davide	Kentish
2	Thorstein	Bridge

results

candidate_id	state
1	Alabama
1	Alabama
1	California
1	California
1	California
1	California
1	California
2	California
2	California
2	New York
2	New York
2	Texas
2	Texas
2	Texas

the expected output is:

candidate_name ▲	1st_place	2nd_place	3rd_place
Davide Kentish	California (5)	Texas (3)	Alabama (2)
Thorstein Bridge	California (3),Texas (3)	New York (2)	Alabama (1)

Note that top vote counts for Thorstein Bridge are 3, 2, and 1. Both states where the vote count is *3* are included in *1st_place*.