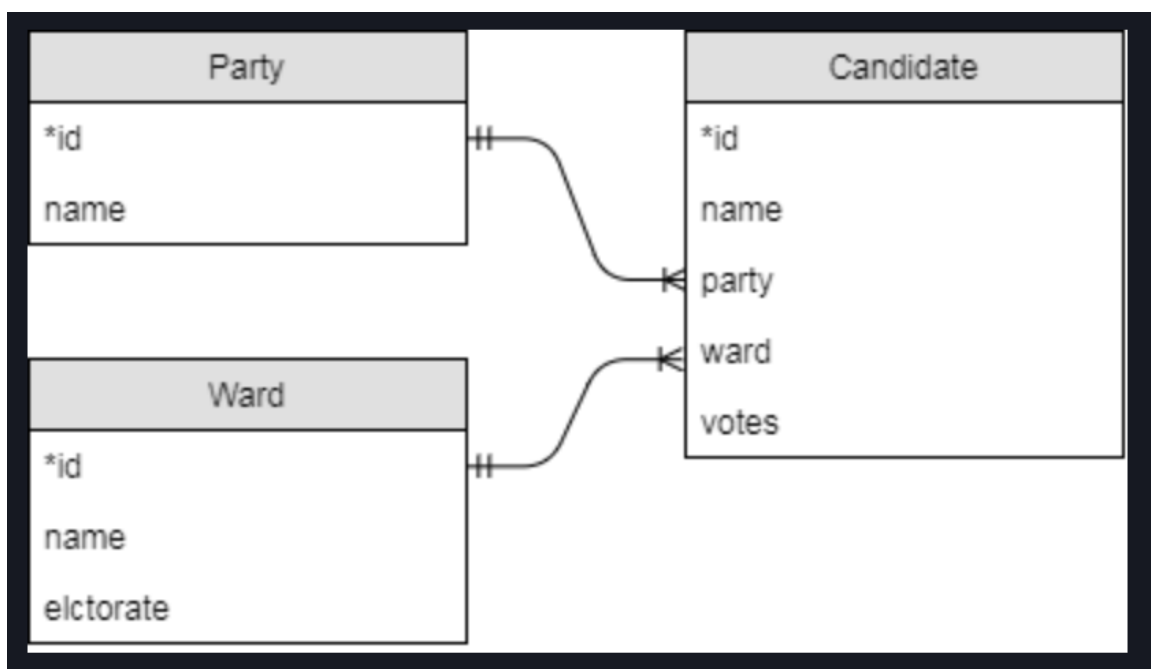# Intermediate SQL Exercises (1)

Here are some more advanced exercises based on the census and elections schemas from the last activity.

Your answer to each question should be a single SQL query, that is one semicolon at the end. JOINs, subqueries, WITH clauses etc. are allowed of course. Where an identifier is given in the question you may use it, e.g. when I say "the Cabot ward (E05001979)" you can use the ward id directly and do not need to join on the ward table to look up the name, but if I say "the Green party" then you do need to join on the party table to look up the name instead of hard-coding the party id.

Elections

1. **How many votes were cast in all of Bristol in the 2014 elections?**

```
SELECT SUM(Candidate.votes) AS TotalVotes
      FROM Candidate
```

```
  ;
```

ANSWER:

```
+-------------+
| TotalVotes  |
+-------------+
|       78807 |
+-------------+
```

2. **How many votes were cast in the 'Windmill Hill' ward and what percentage of the electorate in this ward does this represent? Your statement should produce a table with one row and two columns called 'votes' and 'percentage'.**

```
SELECT
  SUM(Candidate.votes) AS votes,
  (SUM(Candidate.votes) / (SELECT electorate
FROM Ward
WHERE name = 'Windmill Hill') * 100) AS percentage
FROM Candidate
JOIN Ward ON Candidate.ward = Ward.id
WHERE Ward.name = 'Windmill Hill'
  ;
```

ANSWER:

```
+-------+------------+
| votes | percentage |
+-------+------------+
|  3818 |    40.4064 |
+-------+------------+
1 row in set (0.000 sec)
```

3. **List the names, parties and *percentage* of votes obtained for all candidates in the Southville ward. Order the candidates by percentage of votes obtained descending.**

- choose the columns we want with `SELECT`

candidate.name, party .name

Join those two together

```
SELECT
    Party.name AS party
    Candidate.name AS name,
    SUM(Candidate.votes) AS votes
    (SUM(Candidate.votes) / (SELECT electorate
FROM Ward WHERE Ward.name = 'Southville') * 100) AS

JOIN Party ON Candidate.party = Party.id


SELECT
  SUM(Candidate.votes) AS votes,
  (SUM(Candidate.votes) / (SELECT electorate
FROM Ward
WHERE name = 'Southville') * 100) AS percentage
```

5. **How successful (in % of votes cast) was the Conservative party in each ward?**

6. **Which rank did Labour end up in the 'Whitchurch Park' ward? Your statement should produce a table with a single row and column containing the answer as a number. You can assume no ties.**

7. **What is the total number of votes that each party got in the elections? Your result should be a table with two columns party, votes.**

8. **Find all wards where the Green party beat Labour and create a table with two columns ward, difference where the difference column is the number of Green votes minus the number of Labour votes. Your table should be ordered by difference, with the highest one first.**