Database Exercises (1)

MariaDB setting up and exploring the imported database

```
root@debian12:/home/vagrant# mysql
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 33
Server version: 10.11.6-MariaDB-0+deb12u1 Debian 12
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
[MariaDB [(none)]> SHOW DATABASES;
| Database
  census
  data
  elections
  information_schema
  mysql
  performance_schema
7 rows in set (0.001 sec)
[MariaDB [(none)]> USE elections;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
Database changed
[MariaDB [elections]> SHOW TABLES;
| Tables_in_elections
  Candidate
  Party
  Ward
3 rows in set (0.000 sec)
[MariaDB [elections]> SELECT * FROM Party;
  id | name
   7 | Conservative
     Green
   3 | Independent
     | Independents for Bristol
   6 | Labour
   2 | Liberal Democrat
     Respect
   1
       Trade Unionists and Socialists Against Cuts
   5 | UKIP
9 rows in set (0.000 sec)
[MariaDB [elections]> DESCRIBE Party;
 Field | Type
                       | Null |
                                Key | Default | Extra
  id
          int(11)
                       | NO
                                PRI
                                      NULL
                                                auto_increment
         varchar(100) | NO
                                UNI
                                      NULL
  name
2 rows in set (0.001 sec)
MariaDB [elections]>
```

Entity Relationship Diagram

UK Census

Bristol Elections

Finding specifc info using joins

• what party does Patrick Dorian Hume belong to?

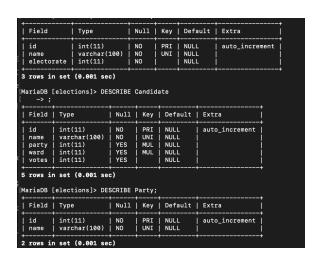
```
[MariaDB [elections]> SELECT * FROM Candidate WHERE Candidate.name LIKE '%Patrick Dorian Hulme%';
  id | name
                              | party | ward | votes |
   1 | Patrick Dorian Hulme
                                                    16
1 row in set (0.000 sec)
[MariaDB [elections]> SELECT Candidate.name LIKE '%Patrick Dorian Hulme%';
ERROR 1109 (42S02): Unknown table 'Candidate' in field list
[MariaDB [elections]> SELECT * FROM electorate WHERE Candidate.name LIKE '%Patrick Dorian Hulme%';
ERROR 1146 (42S02): Table 'elections.electorate' doesn't exist
[MariaDB [elections]> SELECT * FROM party WHERE Candidate.name LIKE '%Patrick Dorian Hulme%';
ERROR 1146 (42S02): Table 'elections.party' doesn't exist
[MariaDB [elections]> SELECT * FROM Party WHERE Candidate.name LIKE '%Patrick Dorian Hulme%'; 
ERROR 1054 (42S22): Unknown column 'Candidate.name' in 'where clause'
[MariaDB [elections]> SELECT Candidate.name AS CandidateName, Party.name AS PartyName
    -> FROM Candidate
    -> INNER JOIN Party ON Party.id = Candidate.party
    -> WHERE Candidate.name LIKE '%Patrick Dorian Hulme%';
  CandidateName
                         | PartyName
  Patrick Dorian Hulme | Trade Unionists and Socialists Against Cuts
1 row in set (0.000 sec)
MariaDB [elections]>
```

Querying Challenges

1. List the names of all parties that stood in the election, ordered alphabetically by name.

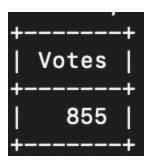
2. List the names of all parties that stood in the Bedminster ward.

- 3. How many votes did Labour get in the Stockwood ward?
 - need to SUM the votes for each candidate who is associated with Labour
 - join party and candidate tables to match the party names with candidate votes
 - Candidate.party LIKE '%Labour%'
 - Table list:



```
SELECT SUM(Candidate.votes) AS Votes
FROM Candidate
INNER JOIN Party ON Candidate.party = Party.id
INNER JOIN Ward ON Candidate.ward = Ward.id
WHERE Ward.name LIKE '%Stockwood%' AND Party.name LIKE '%Lal;
```

SOLUTION:



4. List the names, parties and number of votes obtained for all candidates in the Southville ward. Order the candidates by number of votes obtained descending (winner comes first).

SELECT Candidate.name AS Name, Party.name AS PartyName, Candidate FROM Candidate

```
INNER JOIN Ward ON Candidate.ward = Ward.id
INNER JOIN Party ON Candidate.party = Party.id
WHERE Ward.name LIKE '%Southville%'
ORDER BY VotesObtained DESC;
```

OUTPUT:

Name	PartyName	VotesObtained
Charlie Bolton	Green	1700
Celia Christine Phipps	Labour	1322
Paul Anthony Turner	UKIP	402
James Andrew Hale Stevenson	Conservative	289
Lena Clare Wright	Liberal Democrat	208
Matthew Edward Carey	Trade Unionists and Socialists Against Cuts	76

5. List the name, party and number of votes obtained for the winner only in the Knowle ward. (Hint: apart from changing the ward name, you only need one small modification to the statement from the last question. You may assume no ties.)

```
SELECT Candidate.name AS Name, Party.name AS PartyName, Candidate FROM Candidate
INNER JOIN Ward ON Candidate.ward = Ward.id
INNER JOIN Party ON Candidate.party = Party.id
WHERE Ward.name LIKE '%Knowle%'
ORDER BY WinningVotes DESC
LIMIT 1;
```

OUTPUT:

+	.	.	
Name	PartyName	WinningVotes	
Gary Hopkins	Liberal Democrat	1659	
1 row in set (0.001 sec)			