# Self join

| Language: | English • 日本語 • 中文 |
|---|---|

## Edinburgh Buses

Details of the database Looking at the data

```
stops(id, name)
route(num, company, pos, stop)
```

| stops |
|---|
| *id* |
| name |

| route |
|---|
| *num* |
| *company* |
| *pos* |
| stop |

---

Summary

# 1.

How many **stops** are in the database.

```
select count(*) from stops
```

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## Correct answer

| count(*) |
|---|
| 246 |

# 2.

Find the **id** value for the stop 'Craiglockhart'

```
select id from stops where name = 'Craiglockhart'
```

Submit SQL restore default

## Correct answer

| id |
| --- |
| 53 |

# 3.

Give the **id** and the **name** for the **stops** on the '4' 'LRT' service.

```
select id , name from stops join route on id = stop
where num = 4 and company = 'lrt'
order by pos
```

Submit SQL restore default

# Correct answer

| id | name |
|---|---|
| 19 | Bingham |
| 177 | Northfield |
| 149 | London Road |
| 194 | Princes Street |
| 115 | Haymarket |
| 53 | Craiglockhart |
| 179 | Oxgangs |

## Routes and stops

# 4.

The query shown gives the number of routes that visit either London Road (149) or Craiglockhart (53). Run the query and notice the two services that link these **stops** have a count of 2. Add a HAVING clause to restrict the output to these two routes.

```
SELECT company, num, COUNT(*)
FROM route WHERE stop=149 OR stop=53
GROUP BY company, num having count(*)=2
```

Submit SQL restore default

## Correct answer

| company | num | COUNT(*) |
|---|---|---|
| LRT | 4 | 2 |
| LRT | 45 | 2 |

# 5.

Execute the self join shown and observe that b.stop gives all the places you can get to from Craiglockhart, without changing routes. Change the query so that it shows the services from Craiglockhart to London Road.

```
SELECT a.company, a.num, a.stop, b.stop
FROM route a JOIN route b ON
  (a.company=b.company AND a.num=b.num)
WHERE a.stop=53 and b.stop = 149
```

Submit SQL restore default

## Correct answer

| company | num | stop | stop |
|---|---|---|---|
| LRT | 4 | 53 | 149 |
| LRT | 45 | 53 | 149 |

# 6.

The query shown is similar to the previous one, however by joining two copies of the **stops** table we can refer to **stops** by **name** rather than by number. Change the query so that the services between 'Craiglockhart' and 'London Road' are shown. If you are tired of these places try 'Fairmilehead' against 'Tollcross'

```
SELECT a.company, a.num, stopa.name, stopb.name
FROM route a JOIN route b ON
  (a.company=b.company AND a.num=b.num)
  JOIN stops stopa ON (a.stop=stopa.id)
  JOIN stops stopb ON (b.stop=stopb.id)
WHERE stopa.name='Craiglockhart' and stopb.name = 'London Road'
```

Submit SQL restore default

# Correct answer

| company | num | name | name |
|---|---|---|---|
| LRT | 4 | Craiglockhart | London Road |
| LRT | 45 | Craiglockhart | London Road |

## Using a self join

7.

Give a list of all the services which connect stops 115 and 137 ('Haymarket' and 'Leith')

```
SELECT distinct(r1.company), r1.num
FROM route r1
JOIN route r2
  ON r1.company = r2.company
 AND r1.num = r2.num
WHERE r1.stop = 115
  AND r2.stop = 137;
```

Submit SQL restore default

## Correct answer

| company | num |
|---|---|
| LRT | 12 |
| LRT | 2 |
| LRT | 22 |
| LRT | 25 |
| LRT | 2A |
| SMT | C5 |

# 8.

Give a list of the services which connect the **stops** 'Craiglockhart' and 'Tollcross'

```
SELECT r1.company, r1.num
FROM route r1
JOIN route r2
  ON r1.company = r2.company
 AND r1.num = r2.num
WHERE r1.stop =  53
  AND r2.stop = 230
```

Submit SQL restore default

## Correct answer

| company | num |
|---|---|
| LRT | 10 |
| LRT | 27 |
| LRT | 45 |
| LRT | 47 |

# 9.

Give a distinct list of the **stops** which may be reached from 'Craiglockhart' by taking one bus, including 'Craiglockhart' itself, offered by the LRT company. Include the company and bus no. of the relevant services.

```
JOIN route r2
    ON r1.company = r2.company
   AND r1.num = r2.num
JOIN stops s2
    ON r2.stop = s2.id
WHERE s1.name = 'Craiglockhart'
ORDER BY r2.num, r2.pos
```

Submit SQL restore default

## Correct answer

| name | company | num |
|---|---|---|
| Silverknowes | LRT | 10 |
| Muirhouse | LRT | 10 |
| Newhaven | LRT | 10 |
| Leith | LRT | 10 |
| Leith Walk | LRT | 10 |
| Princes Street | LRT | 10 |
| Tollcross | LRT | 10 |

# 10.

Find the routes involving two buses that can go from **Craiglockhart** to **Lochend**.
Show the bus no. and company for the first bus, the name of the stop for the transfer,
and the bus no. and company for the second bus.

*Hint*
Self-join twice to find buses that visit Craiglockhart and Lochend, then join those on matching stops.

```
JOIN stops s_end ON d.stop = s_end.id
WHERE s_start.name = 'Craiglockhart'
  AND s_end.name = 'Lochend'
  AND s_transfer.name <> 'Craiglockhart'
ORDER BY a.num, s_transfer.name, c.num;
```

Submit SQL restore default

# Correct answer

| num | company | name | num | company |
|---|---|---|---|---|
| 10 | LRT | Leith | 34 | LRT |
| 10 | LRT | Leith | 35 | LRT |
| 10 | LRT | Leith | 87 | LRT |
| 10 | LRT | Leith | C5 | SMT |
| 10 | LRT | Princes Street | 65 | LRT |
| 10 | LRT | Princes Street | C5 | SMT |
| 27 | LRT | Canonmills | 34 | LRT |

Clear your results

Self join Quiz

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