Self join

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(id) as no_stops  from stops
```

Submit SQL

Restore default

Correct answer

no_stops
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 stops.id = route.stop
WHERE num = '4' AND company = 'LRT';
```

Submit SQL Restore default

Correct answer

id	name
19	Bingham
177	Northfield
149	London Road
194	Princes Street
115	Haymarket
53	Craiglockhart
179	Oxgangs
85	Fairmilehead
117	Hillend

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 a.company, a.num FROM route a
JOIN route b ON (a.company = b.company AND a.num = b.num)
WHERE a.stop = 115 AND b.stop = 137
GROUP BY a.company, a.num;
```

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 a.company, a.num 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 = 'Tollcross';
```

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.

```
SELECT DISTINCT  stopb.name, a.company, a.num 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 a.company = 'LRT';
```

Submit SQL Restore default

Craiglockhart	LRT	45
Colinton	LRT	45
Currie	LRT	45
Riccarton Campus	LRT	45
Canonmills	LRT	47
Hanover Street	LRT	47
Tollcross	LRT	47
Craiglockhart	LRT	47
Colinton	LRT	47
Currie	LRT	47
Balerno	LRT	47
Cockburn Crescent	LRT	47
Balerno Church	LRT	47

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.

```
SELECT a.num,  a.company, trans1.name, c.num, c.company FROM route a
JOIN route b ON (a.company = b.company AND a.num = b.num)
JOIN( route c JOIN route d ON( c.company = d.company AND c.num = d.num))
JOIN stops start ON (a.stop = start.id)
JOIN stops trans1 ON (b.stop = trans1.id)
JOIN stops trans2 ON (c.stop = trans2.id);
```

Submit SQL

Restore default

Clear your results

Self join Quiz
