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 total_stops FROM stops;
```

Submit SQL Restore default

Correct answer

total_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 AS a
JOIN route AS 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, astop.name, bstop.name FROM route AS a
JOIN route AS b ON (a.company = b.company) AND (a.num = b.num)
JOIN stops AS astop ON a.stop = astop.id
JOIN stops AS bstop ON (b.stop = bstop.id)
WHERE astop.name = 'Craiglockhart' AND bstop.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 a.company, a.num FROM route AS a
JOIN route AS b ON (a.company = b.company) AND (a.num = b.num)
JOIN stops AS astop ON a.stop = astop.id
JOIN stops AS bstop ON b.stop = bstop.id
WHERE astop.name = 'Haymarket' AND bstop.name = 'Leith'
GROUP BY a.num, a.company;
```

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 DISTINCT a.company, a.num FROM route AS a
JOIN route AS b ON (a.company = b.company) AND (a.num = b.num)
JOIN stops AS astop ON a.stop = astop.id
JOIN stops AS bstop ON b.stop = bstop.id
WHERE astop.name = 'Craiglockhart' AND bstop.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 bstop.name, a.company, a.num FROM route AS a
JOIN route AS b ON (a.company = b.company) AND (a.num = b.num)
JOIN stops AS astop ON a.stop = astop.id
JOIN stops AS bstop ON b.stop = bstop.id
WHERE astop.name = 'Craiglockhart';
```

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
Craiglockhart	LRT	10
Colinton	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

```
SELECT a.num, a.company, bstop.name, c.num, c.company FROM route AS a JOIN route AS b ON (a.company = b.company) AND (a.num = b.num)
JOIN route AS c ON b.stop = c.stop
JOIN route AS d ON (c.company = d.company) AND (c.num = d.num)
JOIN stops AS astop ON a.stop = astop.id
JOIN stops AS bstop ON b.stop = bstop.id
JOIN stops AS cstop ON c.stop = cstop.id
```

Submit SQL Restore default

Result:

num	company	name	num	company
45	LRT	Brunstane	32	LRT
45	LRT	Brunstane	52	LRT
27	LRT	Canonmills	34	LRT
27	LRT	Canonmills	34	LRT
27	LRT	Canonmills	35	LRT
27	LRT	Canonmills	35	LRT
47	LRT	Canonmills	34	LRT
47	LRT	Canonmills	34	LRT
47	LRT	Canonmills	35	LRT

Clear your results

Self join Quiz

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