

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

stops	route
<i>id</i>	<i>num</i>
<i>name</i>	<i>company</i>
	<i>pos</i>
	<i>stop</i>

1. 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.

```
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'
```

Output

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

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

```
SELECT DISTINCT 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

Output

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

3. 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'

Output

company	num
LRT	10
LRT	27
LRT	45
LRT	47

4. 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';
```

Output

name	company	num
Silverknowes	LRT	10
Muirhouse	LRT	10
Newhaven	LRT	10
Leith	LRT	10
Leith Walk	LRT	10
...		

5. 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.

```
SELECT S.num, S.company, S.name, T.num, T.company
FROM
    (SELECT DISTINCT a.num, a.company, sb.name
     FROM route a JOIN route b ON (a.num = b.num and a.company = b.company)
     JOIN stops sa ON sa.id = a.stop
     JOIN stops sb ON sb.id = b.stop
     WHERE sa.name = 'Craiglockhart' AND sb.name <> 'Craiglockhart')
```

)S

JOIN

(SELECT x.num, x.company, sy.name

FROM route x JOIN route y ON (x.num = y.num and x.company = y.company)

JOIN stops sx ON sx.id = x.stop

JOIN stops sy ON sy.id = y.stop

WHERE sx.name = 'Lochend' AND sy.name <> 'Lochend'

)T

ON (S.name = T.name)

ORDER BY S.num, S.name, T.num

Output

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
...				