

## DB Ass1

### Q1

```
select station_id,english_name,chinese_name,district from stations
where english_name like'%East%'
or english_name like'%South%'
or english_name like'%West%'
or english_name like'%North%'
```

station_id	english_name	chinese_name	district
13	Qiaocheng East	侨城东	Futian
30	Airport East	机场东	Bao'an
39	Airport North	机场北	Bao'an
45	Hongshwan South	红树湾南	Nanshan
47	Gangxia North	岗厦北	Futian
59	Qiaocheng North	侨城北	Nanshan
64	Xiangmei North	香梅北	Futian
66	Lianhua West	莲花西	Futian
68	Huaqiang North	华强北	Futian
102	Lianhua North	莲花北	Futian
106	Shenzhen North Station	深圳北站	Longhua
112	Qinghu North	清湖北	
124	Honglang North	洪浪北	Bao'an
155	Huaqiang South	华强南	Futian
158	Hongling North	红岭北	Luohu
170	Shenzhen University East	深大东	Nanshan
183	Hongling South	红岭南	Luohu
185	Renmin South	人民南	Luohu

### Q2

```
select district,
       round(cast(max(latitude) - min(latitude) as numeric)*111,0) as 南北跨度 km
from stations
where latitude is not null
group by district;
```

	district	南北跨度km
1	Bao'an	27
2	Luohu	6
3	Futian	6
4	Longgang	15
5	Nanshan	13
6	Longhua	8

### Q3

```
select 'Station ' || station_id || ' ' || english_name || '(' || chinese_name || ')' in '  
    ||district  
from stations  
where station_id between 2 and 10
```

	station_information
1	Station 2 Guomao(国贸) in Luohu
2	Station 3 Laojie(老街) in Luohu
3	Station 4 Grand Theater(大剧院) in Luohu
4	Station 5 Science Museum(科学馆) in Futian
5	Station 6 Huaqiang Rd(华强路) in Futian
6	Station 7 Gangxia(岗厦) in Futian
7	Station 8 Convention and Exhibition Center Station(会展中心) in Futian
8	Station 9 Shopping Park(购物公园) in Futian
9	Station 10 Xiangmihu(香蜜湖) in Futian

### Q4

```
select DISTINCT station_id  
from bus_lines  
where bus_line = '103'  
or bus_line = '104'  
order by station_id DESC;
```

station_id
174
150
149
146
144
142
141
127
102
101
81
80
76
73
70
65
64
63
62
59
7
6
4
3

## Q5

```
select station_id  
from bus_lines b1  
join bus_lines b2 using(station_id)  
where b1.bus_line = '103'  
and b2.bus_line = '104'  
order by station_id;
```

station_id
3
4
6
141

## Q6

```
select round(1.0*count(num1034.station_id) / count(num103.station_id),2)  
from  
    (select DISTINCT station_id from bus_lines where bus_line = '103') as num103  
left join  
    (select DISTINCT station_id from bus_lines where bus_line = '104') as num1034  
using (station_id);
```

round
0.33

## Q7

```
select bus_line,count(station_id) as cnt  
from bus_lines  
group by bus_line  
having count(station_id) >= 10  
order by cnt DESC;
```

bus_line	cnt
N4	21
366	20
309	20
651	18
204	18
79	18
M268	18
113	17
223	17
383	17
303	17
101	16
338	16
104	16
Shen-Hui 3A (深惠3A)	16
351	15
323	15
M372	15
80	15
812	15
372	15
N6	15
202	14
26	14
369	14
123	14
M378	13
M203	13
325	13
357	13
311	13
64	13
365	13
382	12
121	12
839	12
324	12
374	12
103	12
M433	12
M369	12
373	12
222	12
M370	12
N14	12
326	11
M414	11
322	11
336	11
201	11
235	11
59	11
377	11
245	11
21	11
M448	11
M266	11
54	11
K105	11
K113	11
M359	11
215	11
38	10
203	10
M358	10
320	10
333	10
14	10
234	10
M500	10
371	10
M447	10
N8	10
67	10
M435	10
379	10

## Q8

```
select station_id, count(bus_line) as cnt
from bus_lines
group by station_id
having count(bus_line) = (
    select max(cnt)
    from(
        select count(bus_line) as cnt
        from bus_lines
        group by station_id
    )as t
);

```

station_id	cnt
104	65

## Q9

```
select bus_line, count(station_id) as count
from bus_lines
where bus_line like 'N%'
    and (
        bus_line like '%0'
        or bus_line like '%1'
        or bus_line like '%2'
        or bus_line like '%3'
        or bus_line like '%4'
        or bus_line like '%5'
        or bus_line like '%6'
        or bus_line like '%7'
        or bus_line like '%8'
        or bus_line like '%9'
    )
group by bus_line
order by count;
```

bus_line	count
N12	3
N21	3
N2	8
N15	5
N6	15
N9	8
N7	6
N1	7
N14	12
N4	21
N19	7
N24	3
N3	7
N16	4
N8	10
N10	7
N18	5
N25	4
N17	3

## Q10

```
select bus_line, count(station_id) as cnt,  
case
```

```
when
```

```
bus_line like 'N%'  
and (  
bus_line like '%0'  
or bus_line like '%1'  
or bus_line like '%2'  
or bus_line like '%3'  
or bus_line like '%4'  
or bus_line like '%5'  
or bus_line like '%6'  
or bus_line like '%7'  
or bus_line like '%8'  
or bus_line like '%9'
```

```
) then '夜班公交'
```

```
when
```

```
bus_line like 'M%'  
and (  
bus_line like '%0'  
or bus_line like '%1'  
or bus_line like '%2'  
or bus_line like '%3'  
or bus_line like '%4'  
or bus_line like '%5'  
or bus_line like '%6'  
or bus_line like '%7'  
or bus_line like '%8'  
or bus_line like '%9'
```

```
) then '主干线公交'
```

```
else null
```

```
end as 备注
```

```
from bus_lines
```

```
group by bus_line
```

```
having count(station_id) >= 10
```

```
order by cnt DESC;
```

bus_line	cnt	备注
N4	21	夜班公交
366	20	<null>
309	20	<null>
651	18	<null>
204	18	<null>
79	18	<null>
M268	18	主干线公交
113	17	<null>
223	17	<null>
383	17	<null>
303	17	<null>
101	16	<null>
338	16	<null>
104	16	<null>
Shen-Hui 3A (深惠3A)	16	<null>
351	15	<null>
323	15	<null>
M372	15	主干线公交
80	15	<null>
812	15	<null>
372	15	<null>
N6	15	夜班公交
202	14	<null>
26	14	<null>
369	14	<null>
123	14	<null>
M378	13	主干线公交
M203	13	主干线公交
325	13	<null>
357	13	<null>
311	13	<null>
64	13	<null>
365	13	<null>
382	12	<null>
121	12	<null>
839	12	<null>
324	12	<null>
374	12	<null>
103	12	<null>
M433	12	主干线公交
M369	12	主干线公交
373	12	<null>
222	12	<null>
M370	12	主干线公交
N14	12	夜班公交
326	11	<null>
M414	11	主干线公交
322	11	<null>
336	11	<null>
201	11	<null>
235	11	<null>
59	11	<null>
377	11	<null>

245	11 <null>
21	11 <null>
M448	11 主干线公交
M266	11 主干线公交
54	11 <null>
K185	11 <null>
K113	11 <null>
M359	11 主干线公交
215	11 <null>
38	10 <null>
203	10 <null>
M358	10 主干线公交
328	10 <null>
333	10 <null>
14	10 <null>
234	10 <null>
M588	10 主干线公交
371	10 <null>
M447	10 主干线公交
N8	10 夜班公交
67	10 <null>
M435	10 主干线公交
379	10 <null>