

Assignment 1

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Question1

answer code :

```
select station_id, english_name, chinese_name, district
from stations
where (
    english_name like '%East%' or
    english_name like '%West%' or
    english_name like '%South%' or
    english_name like '%North%'
)
order by station_id;
```

sanpshot of result table :

	station_id	english_name	chinese_name	district
1	13	Qiaocheng East	侨城东	Futian
2	30	Airport East	机场东	Bao'an
3	39	Airport North	机场北	Bao'an
4	45	Hongshuwan South	红树湾南	Nanshan
5	47	Gangxia North	岗厦北	Futian
6	59	Qiaocheng North	侨城北	Nanshan
7	64	Xiangmei North	香梅北	Futian
8	66	Lianhua West	莲花西	Futian
9	68	Huaqiang North	华强北	Futian
10	102	Lianhua North	莲花北	Futian
11	106	Shenzhen North Station	深圳北站	Longhua
12	112	Qinghu North	清湖北	
13	124	Honglang North	洪浪北	Bao'an
14	155	Huaqiang South	华强南	Futian
15	158	Hongling North	红岭北	Luohu
16	170	Shenzhen University East	深大东	Nanshan
17	183	Hongling South	红岭南	Luohu
18	185	Renmin South	人民南	Luohu

Question2

answer code :

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

sanpshot of result table :

	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

Question 3

answer code :

```
select 'Station ' || station_id || ' '
      || english_name || '(' || chinese_name || ')' in ' ' || district
as station_information
from stations
where station_id between 2 and 10
order by station_id;
```

sanpshot of result table :

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



9 rows

Question 4

answer code :

```
select distinct station_id
from bus_lines
where bus_line in ('103', '104')
order by station_id DESC;
```

sanpshot of result table :

station_id  	
1	174
2	150
3	149
4	146
5	144
6	142
7	141
8	127
9	102
10	101
11	81
12	80
13	76
14	73
15	70
16	65
17	64
18	63
19	60

19	62
20	59
21	7
22	6
23	4
24	3

Question 5

answer code :

```
select distinct station_id
from bus_lines
where bus_line in ('103', '104')
group by station_id
having count(distinct bus_line ) = 2
order by station_id;
```

sanpshot of result table (ascending) :

	station_id
1	3
2	4
3	6
4	141

Question 6

answer code :

```
select
  round(
    1.0 * count(*) /
    (select count(distinct station_id)
     from bus_lines
     where bus_line = '103'),
    2
  ) as round
from (
  select station_id
  from bus_lines
  where bus_line in ('103', '104')
  group by station_id
  having count(distinct bus_line) = 2
) as common;
```

sanpshot of result table :

	round
1	0.33

Question 7

answer code :

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

sanpshot of result code :

	<div><div>bus_line</div><div>▼</div></div>	<div><div>cnt</div><div>▼</div></div>
1	N4	21
2	309	20
3	366	20
4	204	18
5	79	18
6	651	18
7	M268	18
8	303	17
9	383	17
10	223	17
11	113	17
12	104	16
13	338	16
14	Shen-Hui 3A (深惠3A)	16
15	101	16
16	372	15
17	812	15
18	80	15
19	323	15
20	M372	15
21	N6	15
22	351	15
23	202	14
24	369	14

76 rows

▼

⋮

	bus_line	cnt
53	245	11
54	M266	11
55	235	11
56	M359	11
57	201	11
58	215	11
59	M414	11
60	21	11
61	M448	11
62	377	11
63	333	10
64	67	10
65	N8	10
66	234	10
67	320	10
68	203	10
69	371	10
70	379	10
71	38	10
72	M435	10
73	M447	10
74	M358	10
75	14	10
76	M500	10

76 rows

Question 8

answer code :

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







```

    from bus_lines
    group by station_id
) as max
);

```

sanpshot of result code :

	 station_id 	 cnt 
1	104	65

Question 9

answer code :

```

select bus_line,
       count(distinct station_id) as count
from bus_lines
where bus_line ~ '^N[0-9]'
group by bus_line
order by cast(substring(bus_line from 2) as INTEGER);

```

sanpshot of result code :

	bus_line	count
1	N1	7
2	N2	8
3	N3	7
4	N4	21
5	N6	15
6	N7	6
7	N8	10
8	N9	8
9	N10	7
10	N12	3
11	N14	12
12	N15	5
13	N16	4
14	N17	3
15	N18	5
16	N19	7
17	N21	3
18	N24	3
19	N25	4

19 rows

Question 10

answer code :

```
select bus_line,
       count(distinct station_id) as cnt,
       case
         when bus_line ~ '^N[0-9]' then '夜班公交'
         when bus_line ~ '^M[0-9]' then '主干线公交'
         else ''
       end
       as 备注
```

```
from bus_lines
group by bus_line
having count(distinct station_id) > 10
order by cnt DESC;
```

sanpshot of result code :

	bus_line	cnt	备注
1	N4	21	夜班公交
2	309	20	
3	366	20	
4	79	18	
5	M268	18	主干线公交
6	204	18	
7	651	18	
8	113	17	
9	223	17	
10	383	17	
11	303	17	
12	338	16	
13	Shen-Hui 3A (深惠3A)	16	
14	104	16	
15	101	16	
16	812	15	
17	N6	15	夜班公交
18	M372	15	主干线公交
19	351	15	
20	80	15	
21	323	15	
22	372	15	
23	202	14	
24	123	14	

62 rows

	bus_line	cnt	备注
25	369	14	
26	26	14	
27	M378	13	主干线公交
28	311	13	
29	325	13	
30	357	13	
31	365	13	
32	64	13	
33	M203	13	主干线公交
34	373	12	
35	382	12	
36	121	12	
37	324	12	
38	839	12	
39	103	12	
40	222	12	
41	M369	12	主干线公交
42	M370	12	主干线公交
43	M433	12	主干线公交
44	N14	12	夜班公交
45	374	12	
46	K105	11	
47	K113	11	
48	M414	11	主干线公

62 rows



	bus_line	cnt	备注
44	N14	12	夜班公交
45	374	12	
46	K105	11	
47	K113	11	
48	M414	11	主干线公交
49	M266	11	主干线公交
50	201	11	
51	M359	11	主干线公交
52	377	11	
53	M448	11	主干线公交
54	326	11	
55	54	11	
56	59	11	
57	336	11	
58	215	11	
59	322	11	
60	245	11	
61	235	11	
62	21	11	

62 rows