

Assignment 3

Q.1

```

1 SELECT (CASE WHEN s.latitude IS NOT NULL THEN
2         'The latitude of ' || s.english_name || ' station is: ' || s.latitude
3         ELSE 'No latitude information for ' || s.english_name || ' station'
4     END) AS lat_info
5 FROM stations s NATURAL RIGHT JOIN line_detail ld
6 WHERE ld.line_id = 4;

```



The screenshot shows the result of the SQL query for line_id 4. It lists 10 stations with their English names and latitudes. The stations are: 1. The latitude of Dornthorn and Fehlbirgler Fieber Station (lat: 22.5779), 2. The latitude of Elvaz Station (lat: 22.5444), 3. The latitude of Fieber's Palace station (lat: 22.50076), 4. The latitude of Fieber's Palace station (lat: 22.5182), 5. The latitude of Fieber station (lat: 22.5182), 6. The latitude of Fieber North station (lat: 22.50076), 7. The latitude of Fieber station (lat: 22.5182), 8. The latitude of Fieber station (lat: 22.5182), 9. The latitude of Fieber station (lat: 22.5182), 10. The latitude of Fieber North station (lat: 22.5182).

Q.2

```

1 WITH bsol AS (
2     SELECT station_id
3     FROM bus_lines
4     WHERE bus_line = '2'
5 )
6 SELECT line_id, chinese_name
7 FROM line_detail
8     NATURAL JOIN bsol
9     NATURAL JOIN stations
10 ORDER BY line_id, station_id;

```



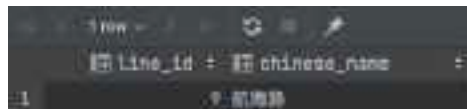
The screenshot shows the result of the SQL query for bus_line '2'. It lists 8 stations with their line_id and chinese_name. The stations are: 1. 罗施, 2. 国图, 3. 罗施, 4. 罗施, 5. 田美, 6. 田美, 7. 田美, 8. 田美.

Q.3

```

1 WITH ln_st AS (
2     SELECT line_id, COUNT(*) cnt
3     FROM line_detail
4     GROUP BY line_id
5 )
6 SELECT ld.line_id, chinese_name
7 FROM ln_st
8     JOIN line_detail ld ON ld.line_id = ln_st.line_id AND ld.num = 1
9     NATURAL JOIN stations
10 WHERE cnt = (SELECT MAX(cnt) FROM ln_st)
11 ORDER BY ld.line_id;

```



Q.4

```

1 SELECT *
2 FROM ((SELECT opening AS year, 'line ' || line_id || ' opened' AS event
3     FROM lines
4     WHERE opening BETWEEN 2008 AND 2021)
5 UNION
6 (SELECT latest_extension AS year, 'line ' || line_id || ' extended' AS event
7     FROM lines
8     WHERE latest_extension BETWEEN 2008 AND 2021)) e
9 ORDER BY year;

```

| | year | event |
|----|------|-----------------|
| 1 | 2010 | line 3 opened |
| 2 | 2010 | line 2 opened |
| 3 | 2011 | line 3 extended |
| 4 | 2011 | line 5 opened |
| 5 | 2011 | line 4 extended |
| 6 | 2011 | line 1 extended |
| 7 | 2011 | line 2 extended |
| 8 | 2016 | line 11 opened |
| 9 | 2016 | line 9 opened |
| 10 | 2016 | line 7 opened |

Q.5

```

1 SELECT *
2 FROM ((SELECT station_id FROM line_detail WHERE line_id = 1)
3 EXCEPT

```

```
4      (SELECT station_id FROM line_detail WHERE line_id = 2)) e
5 ORDER BY station_id;
```



The screenshot shows a terminal window with a query result. At the top, it says "28 rows". Below that, the column header is "station_id". The results are a list of numbers from 1 to 11, each on a new line.

| station_id |
|------------|
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |