

CS307 Assignment1

Deadline: March. 27th 2023

1. Lists all the stations **in** 'Nanshan' or 'Futian' district whose English names **contain** 'Shenzhen', ordered by latitude **ascendingly**. Your records should contain the station id and its Chinese name.

列出所有在 'Nanshan' or 'Futian' 区的地铁站，并且这些地铁站中名字包含 Shenzhen，返回结果按照 latitude 升序排列。返回的列包含 station id 和 Chinese name。

	🔍 station_id	📄 chinese_name
1	173	深圳湾公园
2	18	深大
3	170	深大东

2. Please order the colors from color_names by their hexadecimal representation **descendingly** and output all the columns with a **limited** result of 10, **skipping** the first 12 rows.

根据 hex 降序列出 color_names 表中的颜色，返回所有的列，返回结果跳过前 12 行后保留 10 行

	🔍 name	📄 hex
1	MistyRose	#FFE4E1
2	Bisque	#FFE4C4
3	Moccasin	#FFE4B5
4	NavajoWhite	#FFDEAD
5	PeachPuff	#FFDAB9
6	Gold	#FFD700
7	Pink	#FFC0CB
8	LightPink	#FFB6C1
9	Orange	#FFA500
10	LightSalmon	#FFA07A

3. Which station is crossed by the least number of bus lines? If your answer contains more than one rows, output them all in **descending** order by their station ids. Your output should contain the station id and the number of bus lines.

哪些地铁站周围的公交站最少？如果并列公交站最少的地铁站有多个，按照station id的降序排列这些地铁站。返回结果包含station id 与 其公交站的数量

	station_id	cnt
1	181	1
2	179	1
3	120	1
4	54	1
5	26	1
6	23	1

4. In this question, you should calculate a percentage. Let S_1, S_2 denote the set of stations that metro line 2 and 5 passes through, respectively. Then what's the percentage of the common stations and the stations that crossed by metro line 5, namely, $\frac{|S_1 \cap S_2|}{|S_2|}$? Show the result as a percentage and rounds the number to 2 decimal places.

这道题目需要计算一个百分比， S_1, S_2 分别代表地铁2、5号线里的地铁站，问2、5号地铁线中共同的地铁站占五号线所有的地铁站的比重， $\frac{|S_1 \cap S_2|}{|S_2|}$? 返回的百分比四舍五入保留2位小数。

	percentage
1	3.70%

5. Output a column called 'longitude_information' which satisfies the following requirements.

- The information is about the stations on metro line 9.
- If the station does not have the longitude item, you should output `no info`
- Else, you should output `longitude=<longitude>`.

输出叫做 `longitude_information` 的一列，并满足下列条件

- 该信息有关地铁9号线上的所有地铁站
- 如果地铁站没有longitude，需要输出 `no info`
- 否则，需要输出 `longitude=<longitude>`

longitude_information	
1	longitude=114.02583
2	longitude=113.978222
3	longitude=114.04333
4	longitude=114.1102833
5	longitude=114.05944
6	longitude=114.11083
7	no info
8	no info
9	no info
10	no info
11	no info

6. In Futian district, list all stations in line 4 but not in line 1. Your output should contain station id and its English name and in **ascending** order by their station id.

在福田区中，列出所有在地铁四号线上并且不在地铁一号线上的地铁站。返回结果集中包含station id与其英文名，并按照station id升序排列。

station_id		english_name
1	67	Civic Center
2	75	Children's Palace
3	100	Futian Checkpoint
4	101	Fumin
5	102	Lianhua North
6	103	Shangmeilin

7. From those lines opened before 2015 (<2015), which one(or more) has/have the **minimal** number of stations? If your answer contains more than one rows, output them all in **ascending** order by their line colors. Your output should contain the metro line id, metro line color and the number of stations.

在2015年之前开放的地铁线路，哪一条/哪几条的地铁站数量最少？如果你的答案包含多行信息，按照line color的升序排列。返回结果集包含line id， line color与地铁站数量

	line_id	line_color	cnt
1	4	Red	23

8. For the metro line that passes through the most stations, output its third station(num = 3). If your result set contains more than one rows, order them **ascendingly** by their Chinese names. Your output should contain the metro line id, station id and the Chinese name.

找到拥有最多地铁站的地铁线，并返回它的第三个地铁站。如果结果集中有多行数据，那么根据地铁站中文名升序排列。返回结果集中的列包含line id, station id与中文名。

	line_id	station_id	chinese_name
1	9	164	临海路