In [1]:

```
import sqlite3
import pandas as pd
```

In [2]:

```
db_connect = sqlite3.connect('RU.db')
```

In [3]:

```
# show data
```

In [ ]:

```

```

In [4]:

```
pd.read_sql('SELECT * from Department; ',con=db_connect)
```

Out[4]:

	dept_id	dept_name	chair_name	facultyMember_number
0	1	Department of Math	Addison	10
1	2	Department of Chinese	Adelaide	32
2	3	Department of Computer	Andrew	11
3	4	Department of Art	Haley	33
4	5	Department of law	Hunter	23

In [ ]:

```

```

In [5]:

```
pd.read_sql('SELECT * from Major; ',con=db_connect)
```

Out[5]:

	major_id	major_name	dept_id	code
0	1	computer math	1	CPM
1	2	chinese art	2	CNA
2	3	database	3	DBS
3	4	art history	4	AHT
4	5	Legal Fundamentals	5	LFM

In [6]:

```
pd.read_sql('SELECT * from Event; ',con=db_connect)
```

Out[6]:

	event_id	event_name	start_date	end_date
0	1	math competition on line	2022-10-11	2022-10-20
1	2	math competition	2022-10-21	2022-10-24
2	3	music concert	2022-10-10	2022-10-19
3	4	english competition	2022-10-11	2022-10-22
4	5	speaking competition	2022-11-26	2022-11-28

In [7]:

```
pd.read_sql('SELECT * from Student; ',con=db_connect)
```

Out[7]:

	student_id	student_fname	student_lname	initials
0	1	Ma	Peter	PM
1	2	Zhang	Jack	JZ
2	3	Li	Tom	TL
3	4	Liu	Mark	ML
4	5	Wen	Zhihui	ZW

In [8]:

```
pd.read_sql('SELECT * from Enrollment; ',con=db_connect)
```

Out[8]:

	student_id	major_id
0	1	1
1	2	2
2	3	3
3	4	4
4	5	4

In [9]:

```
pd.read_sql('SELECT * from Participation; ',con=db_connect)
```

Out[9]:

	student_id	event_id
0	1	1
1	2	2
2	3	3
3	4	4
4	5	5

In [10]:

```
pd.read_sql('SELECT * from Activity; ',con=db_connect)
```

Out[10]:

	dept_id	event_id
0	1	1
1	2	2
2	2	3
3	2	4
4	1	5

In [11]:

```
# sql query
```

In [12]:

```
#1----How many students are there in total? 5

df = pd.read_sql('SELECT COUNT(*) from Student; ',con=db_connect)
df
```

Out[12]:

	COUNT(*)
0	5

In [ ]:

```

```

In [13]:

```
#2---Students who did not attend any events? None
sql = """
SELECT * from Student
where student_id not in (
SELECT student_id from Participation
)
"""
df = pd.read_sql(sql,con=db_connect)
df
```

Out[13]:

	student_id	student_fname	student_lname	initials

In [ ]:

```

```

In [14]:

```
#3 --- --- There are those depts that publish more than 2 events ?  Department of Ch


sql = """
SELECT d.dept_id,d.dept_name,count(*) as event_num
from Department d,Activity e
WHERE d.dept_id = e.dept_id
GROUP BY d.dept_id,d.dept_name
HAVING COUNT(*) > 2
"""
df = pd.read_sql(sql,con=db_connect)
df
```

Out[14]:

	dept_id	dept_name	event_num
0	2	Department of Chinese	3

In [15]:

```
#4 --- How many students does each dept have?


sql ="""
SELECT d.dept_id,d.dept_name,count(*) as student_number
from Department d,Enrollment e,Major m
WHERE d.dept_id =m.dept_id and e.major_id = m.major_id
GROUP BY d.dept_id,d.dept_name;"""

df = pd.read_sql(sql,con=db_connect)
df
```

Out[15]:

	dept_id	dept_name	student_number
0	1	Department of Math	1
1	2	Department of Chinese	1
2	3	Department of Computer	1
3	4	Department of Art	2

In [ ]:

```

```

In [ ]:

```

```

In [16]:

```
# 5 -What kind of students are there in the math department? Ma ,Peter
sql ="""
SELECT d.dept_id,d.dept_name,s.student_id,student_fname,student_lname
from Department d,Enrollment e,Major m ,Student s
WHERE d.dept_id =m.dept_id and e.major_id = m.major_id and s.student_id = e.student_
and d.dept_name ='Department of Math'"""

df = pd.read_sql(sql,con=db_connect)
df
```

Out[16]:

	dept_id	dept_name	student_id	student_fname	student_lname
0	1	Department of Math	1	Ma	Peter

In [ ]:

```

```

In [ ]:

```

```

In [ ]: