

5c SQLite with Python (Part 2)

- Query with Python

View data in the table

- View particular row(s) in the table

```
SELECT * FROM flights WHERE id = 3;
```

```
SELECT * FROM flights WHERE origin = 'New York';
```

```
SELECT * FROM flights WHERE duration > 500;
```

```
SELECT * FROM flights WHERE destination = 'Paris'  
AND duration > 500;
```

```
SELECT * FROM flights WHERE destination = 'Paris'  
OR duration > 500;
```

Aggregate Functions

- AVG, COUNT, SUM, MAX, MIN

```
SELECT AVG(duration) FROM flights;
```

```
SELECT AVG(duration) FROM flights WHERE  
origin = 'New York';
```

```
SELECT COUNT(*) FROM flights;
```

Other commands

- IN and LIKE

```
SELECT * FROM flights WHERE origin IN ('New  
York', 'Lima');
```

```
SELECT * FROM flights WHERE origin LIKE  
'%a%';
```

Change data in the table

- Update info for some rows of data

```
UPDATE flights
    SET duration = 430
    WHERE origin = 'New York'
    AND destination = 'London';
```

- Delete a row from the table

```
DELETE FROM flights
    WHERE destination = 'India';
```

What if you delete a row, then add a new row, what will the `id` be?

Query

- **Sorting the data**

```
SELECT * FROM flights LIMIT 3;
```

```
SELECT * FROM flights ORDER BY duration ASC  
LIMIT 3;
```

```
SELECT * FROM flights ORDER BY duration DSC  
LIMIT 3;
```

Query

- Group some data

```
SELECT origin, COUNT(*) FROM flights  
GROUP BY origin;
```

```
SELECT origin, COUNT(*) FROM flights  
GROUP BY origin HAVING COUNT(*) > 1;
```

Combining multiple queries

```
SELECT * FROM passengers WHERE name = 'Alice';  
SELECT * FROM flights WHERE id = 1;
```

we can combine them into :

```
SELECT origin, destination, name FROM  
passengers p, flights f WHERE  
p.flight_id = f.id AND p.name = 'Alice';
```


Nested Query

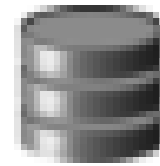
```
SELECT flight_id FROM passengers GROUP BY  
flight_id HAVING COUNT(*) > 1;
```

To select all the flights with more than 1 passenger:

```
SELECT * FROM flights WHERE id IN  
(SELECT flight_id FROM passengers GROUP BY  
flight_id HAVING COUNT(*) > 1);
```

Creating a Menu

A menu for Query:



airline.db

- List all the flights
- Prompt the user to choose a flight
 - Verify chosen flight is valid
 - Display list of passengers on the chosen flight

List all the flights

SQL Command :

```
SELECT origin, destination, duration FROM flights
```

Python code :

```
flights = c.fetchall()
```

```
for flight in flights:  
    print(flight)
```

List all the flights

```
import sqlite3
db = sqlite3.connect('airline.db')
c = db.cursor()
c.execute('''SELECT origin, destination,
duration FROM flights''')

flights = c.fetchall()

for flight in flights:
    print(flight[0], 'to', flight[1], ',',
flight[2], 'minutes.')

db.commit()
db.close()
```

Prompt user to choose a flight

```
# Prompt user to choose a flight.  
flight_id = input("Choose a Flight ID: ")
```

SQL Command :

```
SELECT origin, destination, duration FROM flights  
WHERE id = flight_id
```

Python Code :

```
c.execute('' 'SELECT origin, destination,  
            duration FROM flights WHERE id = :id''',  
          {"id": flight_id})
```

Prompt user to choose a flight

```
# Prompt user to choose a flight.
flight_id = input("\nChoose a Flight ID: ")

c.execute('''SELECT origin, destination,
              duration FROM flights
              WHERE id = :id''',
          {"id": flight_id})

flight = c.fetchone()
#print(flight)
```

Verify the flight is valid

```
# Make sure flight is valid.

if flight == None:
    print("Error: No such flight.")
else:
    print(flight)
```


Display list of passengers on chosen flight

```
# Make sure flight is valid.
if flight == None:
    print("Error: No such flight.")
else:
    # print(flight)
    # List passengers.
    c.execute('''SELECT name FROM passengers
                WHERE flight_id = :flight_id''',
              {"flight_id": flight_id})
    passengers = c.fetchall()
    print(passengers)
```

Display list of passengers on chosen flight – what if no passenger?

```
passengers = c.fetchall()

if len(passengers) == 0:
    print("No passenger.")
else:
    print("\nPassengers:")

    for passenger in passengers:
        print("\t", passenger[0])
```