In [1]:
```
import sqlite3
```

In [2]:
```
con = sqlite3.connect(':memory:')
cur = con.cursor()
```

In [3]:
```
cur.execute('CREATE TABLE temp (name, age)')
```

Out[3]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [4]:
```
cur.execute('INSERT INTO temp (name, age) VALUES(1,2)')
```

Out[4]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [5]:
```
cur.execute('SELECT * FROM temp')
```

Out[5]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [6]:
```
cur.fetchall()
```

Out[6]:
```
[(1, 2)]
```

In [7]:
```
# qmark, named
cur.execute('INSERT INTO temp VALUES(?,?)', ['hi', 'hello'])
```

Out[7]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [8]:
```
cur.execute('SELECT * FROM temp')
cur.fetchall()
```

Out[8]:
```
[(1, 2), ('hi', 'hello')]
```

In [9]:
```
cur.execute('INSERT INTO temp VALUES(:name,:age)',
            {'name':'이름', 'age':4})
```

Out[9]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [10]:
```
cur.execute('SELECT * FROM temp')
cur.fetchall()
```

Out[10]:
```
[(1, 2), ('hi', 'hello'), ('이름', 4)]
```

In [11]:
```
data = [(1,'A'), (2,'B'), (3,'C')]
cur.executemany('INSERT INTO temp VALUES(?,?)', data)
cur.execute('SELECT * FROM temp')
cur.fetchall()
```

Out[11]:
```
[(1, 2), ('hi', 'hello'), ('이름', 4), (1, 'A'), (2, 'B'), (3, 'C')]
```

In [12]:
```
data = [{'name':4,'age':'A'}, {'name':5,'age':'B'}, {'name':6,'age':'C'}]
cur.executemany('INSERT INTO temp VALUES(:name,:age)', data)
cur.execute('SELECT * FROM temp')
cur.fetchall()
```

Out[12]:
```
[(1, 2),
 ('hi', 'hello'),
 ('이름', 4),
 (1, 'A'),
 (2, 'B'),
 (3, 'C'),
 (4, 'A'),
 (5, 'B'),
 (6, 'C')]
```

In [18]:
```
cur.execute('SELECT * FROM temp LIMIT 1,4')
# cur.fetchmany(4)
cur.fetchall()
```

Out[18]:
```
[('hi', 'hello'), ('이름', 4), (1, 'A'), (2, 'B')]
```

In [31]:
```
cur.executescript('''
    CREATE TABLE temp2 (
        pk INTEGER PRIMARY KEY AUTOINCREMENT,
        name TEXT
    );

    INSERT INTO temp2 (name) VALUES('이름1');  => pk X 자동 1
    INSERT INTO temp2 VALUES (NULL, '이름2');  => null 자동 2
''')
```

Out[31]:
```
<sqlite3.Cursor at 0x1130702d0>
```

In [32]:
```
cur.execute('SELECT * FROM temp2')
cur.fetchall()
```

Out[32]:
```
[(1, '이름1'), (2, '이름2')]
```

In [33]:
```
cur.execute('INSERT INTO temp2 VALUES(1,1)')
```

```
---------------------------------------------------------------------------
IntegrityError                            Traceback (most recent call last)
Cell In [33], line 1
----> 1 cur.execute('INSERT INTO temp2 VALUES(1,1)')

IntegrityError: UNIQUE constraint failed: temp2.pk
```

In [34]:
```
con.close()
```

In [36]:
```
con = sqlite3.connect('test.db')
cur = con.cursor()
```

In [40]:
```
cur.executescript('''
    DROP TABLE IF EXISTS temp1; # 만약 temp1이 기존에 있으면 drop, 매번 초기화
    CREATE TABLE temp1 (
        pk INTEGER PRIMARY KEY,
        name TEXT
    );

    INSERT INTO temp1 VALUES(1,'이름1');
    INSERT INTO temp1 VALUES(2,'이름2'); # 아까는 1때문에 오류(PK 제약)
''')
```

Out[40]:
```
<sqlite3.Cursor at 0x1146f1b90>
```

In [46]:
```
cur.execute('INSERT INTO temp1 VALUES(NULL, "보이나")')
# 된 사람들은, 위에꺼 실행 후 브라우저로 확인 (값 들어있는지 확인) - 안보이는게정상
```

Out[46]:
```
<sqlite3.Cursor at 0x1146f1b90>
```

In [47]:
```
cur.execute('SELECT * FROM temp1')
cur.fetchall()
```

Out[47]:
```
[(1, '이름1'), (2, '이름2'), (3, '111'), (4, '보이나')]
```

DB Browser for SQLite -> Download -> Not install 검색해서 다운로드

In [50]:
```
cur.execute('SELECT * FROM temp1 WHERE pk=usernam')
cur.fetchall()
```

Out[50]:
```
[(1, '이름1')]
```

In [48]:
```
con.commit()
```

In [49]:
```
cur.lastrowid
```

Out[49]:
```
4
```

In [51]:
```
con.close()
```

In [ ]:
```
# 예제 - 프랜차이즈 전산실
# CITY, SUPPLIER, PART, SELLS
# CITY: PK, NAME
# SUPPLIER: PK, NAME, FK(CITY.PK)
# PART: PK, NAME
# SELLS: FK(S.PK), FK(P.PK), PRICE
```

In [52]:
```
con = sqlite3.connect('test1.db')
cur = con.cursor()
```

In [53]:
```
cur.executescript('''
    CREATE TABLE city (
        pk INTEGER PRIMARY KEY,
        name TEXT
    );
    CREATE TABLE supplier (
        pk INTEGER PRIMARY KEY,
        name TEXT,
        fk INTEGER NOT NULL
    );
    CREATE TABLE part (
        pk INTEGER PRIMARY KEY,
        name TEXT
    );
    CREATE TABLE sells (
        fk1 INTEGER NOT NULL,
        fk2 INTEGER NOT NULL,
        price INTEGER NOT NULL
    );
''')
```

Out[53]:
```
<sqlite3.Cursor at 0x1147e70a0>
```

In [56]:
```
data = [('성북구',), ('중구',), ('강북구',), ('어쩌구',), ('저쩌구',)]
cur.executemany('INSERT INTO city(name) VALUES (?)', data)
```

Out[56]:
```
<sqlite3.Cursor at 0x1147e70a0>
```

In [57]:
```
cur.execute('SELECT * FROM city')
cur.fetchall()
```

Out[57]:
```
[(1, '성북구'), (2, '중구'), (3, '강북구'), (4, '어쩌구'), (5, '저쩌구')]
```

In [58]:
```
data = [('메뉴1',), ('메뉴2',), ('메뉴3',), ('메뉴4',), ('메뉴5',)]
cur.executemany('INSERT INTO part(name) VALUES (?)', data)
```

Out[58]:
```
<sqlite3.Cursor at 0x1147e70a0>
```

In [59]:
```
cur.execute('SELECT * FROM part')
cur.fetchall()
```

Out[59]:
```
[(1, '메뉴1'), (2, '메뉴2'), (3, '메뉴3'), (4, '메뉴4'), (5, '메뉴5')]
```

In [61]:
```
cur.execute('SELECT * FROM city')
for row in cur.fetchall():
    if row[1] == '성북구':
        print(row[0])
```

```
1
```

In [62]:
```
cur.execute('SELECT pk FROM city WHERE name=:name', {'name':'성북구'})
cur.fetchone()[0]
```

Out[62]:
```
1
```

In [67]:
```
cur.execute('SELECT pk FROM city WHERE name LIKE :name', {'name':'%강북%'})
cur.fetchone()[0]
```

Out[67]:
```
3
```

In [69]:
```
cur.execute('SELECT * FROM (SELECT pk FROM city WHERE name LIKE :name)',
            {'name':'%강북%'})
cur.fetchall()
```

Out[69]:
```
[(3,)]
```

In [70]:
```
cur.execute('SELECT * FROM city')
for row in cur.fetchall():
    if row[1] == '성북구':
        pk = row[0]
        cur.execute('INSERT INTO supplier(name, fk) VALUES(?,?)',
                    ['안암1호점', pk])
        break
```

In [74]:
```
cur.execute('SELECT * FROM supplier')
cur.fetchall()
```

Out[74]:
```
[(1, '안암1호점', 1)]
```

In [75]:
```
cur.execute('SELECT pk FROM city WHERE name LIKE :name', {'name':'%성북%'})
pk = cur.fetchone()[0]
```

```
cur.execute('INSERT INTO supplier(name, fk) VALUES(?,?)',
                    ['안암2호점', pk])
```

Out[75]: <sqlite3.Cursor at 0x1147e70a0>

In [76]:
```
cur.execute('SELECT * FROM supplier')
cur.fetchall()
```

Out[76]: [(1, '안암1호점', 1), (2, '안암2호점', 1)]

In [77]:
```
cur.execute('''
    INSERT INTO supplier(name, fk)
    VALUES(?, (SELECT pk FROM city WHERE name LIKE ? LIMIT 0,1))
    ''', ['종암1호점', '%성북%'])
```

Out[77]: <sqlite3.Cursor at 0x1147e70a0>

In [78]:
```
cur.execute('SELECT * FROM supplier')
cur.fetchall()
```

Out[78]: [(1, '안암1호점', 1), (2, '안암2호점', 1), (3, '종암1호점', 1)]

In [79]:
```
con.commit()
```

In [81]:
```
data = ['%안암1호%', '%메뉴1%', 4500]

cur.execute('''
    INSERT INTO sells(fk1, fk2, price)
    VALUES((SELECT pk FROM supplier WHERE name LIKE ? LIMIT 0,1),
           (SELECT pk FROM part WHERE name LIKE ? LIMIT 0,1),
           ?)
    ''', data)
```

Out[81]: <sqlite3.Cursor at 0x1147e70a0>

In [82]:
```
data = [['%안암1호%', '%메뉴2%', 4500],
        ['%안암1호%', '%메뉴2%', 5000],
        ['%안암2호%', '%메뉴1%', 4700],
        ['%안암2호%', '%메뉴2%', 4900],
        ['%종암1호%', '%메뉴4%', 5300],
        ['%종암1호%', '%메뉴5%', 2300],
        ['%종암1호%', '%메뉴1%', 900]]

cur.executemany('''
    INSERT INTO sells(fk1, fk2, price)
    VALUES((SELECT pk FROM supplier WHERE name LIKE ? LIMIT 0,1),
           (SELECT pk FROM part WHERE name LIKE ? LIMIT 0,1),
           ?)
    ''', data)
```

Out[82]: <sqlite3.Cursor at 0x1147e70a0>

In [83]:
```
cur.execute('SELECT * FROM sells')
cur.fetchall()
```

Out[83]:
```
[(1, 1, 4500),
 (1, 2, 4500),
 (1, 2, 5000),
 (2, 1, 4700),
 (2, 2, 4900),
 (3, 4, 5300),
 (3, 5, 2300),
 (3, 1, 900)]
```

In [85]:
```
cur.execute('''
    SELECT city.name, supplier.name FROM city
    INNER JOIN supplier
    ON city.pk = supplier.fk
    ''')
cur.fetchall()
```

Out[85]:
```
[('성북구', '안암1호점'), ('성북구', '안암2호점'), ('성북구', '종암1호점')]
```