Project Part 3

(a)

```
CREATE TABLE Department(
    DName VARCHAR(100) CHECK(DName LIKE'Department%'),
    CName VARCHAR(100),
    FNmuber INT,
    PRIMARY KEY(DName)
    )

CREATE TABLE Student(
    Student_id INT,
    SName VARCHAR(100),
    SInitial VARCHAR(100) NOT NULL,
    PRIMARY KEY(Student_id)
    )

CREATE TABLE Major(
    MName VARCHAR(100),
    MCode VARCHAR(100) CHECK(LENGTH(MCode) = 3),
    DName VARCHAR(100),
    PRIMARY KEY(MName),
    FOREIGN KEY(DName) REFERENCES Department(DName) ON UPDATE CASCADE
    )

CREATE TABLE Event(
    EName VARCHAR(100),
    SDate DATE,
    EDate DATE CHECK(EDate > SDate),
    PRIMARY KEY(EName)
    )

CREATE TABLE StudentMajor(
    Student_id INT,
    MName VARCHAR(100),
    PRIMARY KEY(Student_id, MName),
    FOREIGN KEY(Student_id) REFERENCES Student(Student_id) ON UPDATE CASCADE ON DELETE
CASCADE,
    FOREIGN KEY(MName) REFERENCES Major(MName) ON UPDATE CASCADE ON DELETE
CASCADE
    )
```

```
CREATE TABLE StudentEvent(
        Student_id INT,
        EName VARCHAR(100),
        PRIMARY KEY(Student_id, EName),
        FOREIGN KEY(Student_id) REFERENCES Student(Student_id) ON UPDATE CASCADE ON DELETE CASCADE,
        FOREIGN KEY(EName) REFERENCES Event(EName) ON UPDATE CASCADE ON DELETE CASCADE
        )

CREATE TABLE DepartEvent(
        DName VARCHAR(100),
        EName VARCHAR(100),
        PRIMARY KEY(DName, EName),
        FOREIGN KEY(DName) REFERENCES Department(DName) ON UPDATE CASCADE ON DELETE SET NULL,
        FOREIGN KEY(EName) REFERENCES Event(EName) ON UPDATE CASCADE ON DELETE CASCADE
        )
```

(b)

Department table:

```
INSERT INTO Department
VALUES ("Department phy", "c1", 10)

INSERT INTO Department
VALUES ("Department bio", "c2", 12)

INSERT INTO Department
VALUES ("Department csc", "c3", 14)

INSERT INTO Department
VALUES ("Department eco", "c4", 16)

INSERT INTO Department
VALUES ("Department art", "c5", 18)
```

Student table:

```
INSERT INTO Student
VALUES (1, "A", "A")

INSERT INTO Student
VALUES (2, "B", "B")

INSERT INTO Student
VALUES (3, "C", "C")

INSERT INTO Student
VALUES (4, "D", "D")

INSERT INTO Student
VALUES (5, "E", "E")
```

Major table:

```
INSERT INTO Major
VALUES ("Physics", "PHY", "Department phy")

INSERT INTO Major
VALUES ("Biology", "BIO", "Department bio")

INSERT INTO Major
VALUES ("Economy", "ECO", "Department eco")
```

```
INSERT INTO Major
VALUES ("ComputerSience", "CSC", "Department csc")

INSERT INTO Major
VALUES ("Art", "ART", "Department art")
```

Event table:

```
INSERT INTO Event
VALUES ("E1", "2000-01-01", "2000-01-02")

INSERT INTO Event
VALUES ("E2", "2001-01-01", "2001-01-02")

INSERT INTO Event
VALUES ("E3", "2002-01-01", "2002-01-02")

INSERT INTO Event
VALUES ("E4", "2003-01-01", "2003-01-02")

INSERT INTO Event
VALUES ("E5", "2004-01-01", "2004-01-02")
```

StudentMajor table:

```
INSERT INTO StudentMajor
VALUES (1,"Physics")

INSERT INTO StudentMajor
VALUES (2,"Biology")

INSERT INTO StudentMajor
VALUES (3,"Economy")

INSERT INTO StudentMajor
VALUES (4,"ComputerSience")

INSERT INTO StudentMajor
VALUES (5,"Art")
```

StudentEvent table:

```
INSERT INTO StudentEvent
VALUES (1,"E1")

INSERT INTO StudentEvent
VALUES (2,"E2")

INSERT INTO StudentEvent
VALUES (3,"E3")

INSERT INTO StudentEvent
VALUES (4,"E4")

INSERT INTO StudentEvent
VALUES (5,"E5")
```

DepartEvent table:

```
INSERT INTO DepartEvent
VALUES ("Department phy","E1")

INSERT INTO DepartEvent
VALUES ("Department bio","E2")

INSERT INTO DepartEvent
VALUES ("Department csc","E3")

INSERT INTO DepartEvent
VALUES ("Department eco","E4")

INSERT INTO DepartEvent
VALUES ("Department art","E5")
```

```
In [1]: runfile('C:/Users/24622/Desktop/csc423/connect_sqlite.py', wdir='C:/Users/24622/Desktop/
csc423')
            DName CName  FNmuber
0  Department phy    c1       10
1  Department bio    c2       12
2  Department csc    c3       14
3  Department eco    c4       16
4  Department art    c5       18
Index(['DName', 'CName', 'FNmuber'], dtype='object')
   Student_id SName SInitial
0           1     A        A
1           2     B        B
2           3     C        C
3           4     D        D
4           5     E        E
Index(['Student_id', 'SName', 'SInitial'], dtype='object')
            MName MCode           DName
0         Physics   PHY  Department phy
1         Biology   BIO  Department bio
2         Economy   ECO  Department eco
3  ComputerSience   CSC  Department csc
4             Art   ART  Department art
Index(['MName', 'MCode', 'DName'], dtype='object')
  EName       SDate       EDate
0    E1  2000-01-01  2000-01-02
1    E2  2001-01-01  2001-01-02
2    E3  2002-01-01  2002-01-02
3    E4  2003-01-01  2003-01-02
4    E5  2004-01-01  2004-01-02
Index(['EName', 'SDate', 'EDate'], dtype='object')
   Student_id           MName
0           1         Physics
1           2         Biology
2           3         Economy
3           4  ComputerSience
4           5             Art
Index(['Student_id', 'MName'], dtype='object')
   Student_id EName
0           1    E1
1           2    E2
2           3    E3
3           4    E4
4           5    E5
Index(['Student_id', 'EName'], dtype='object')
            DName EName
0  Department phy    E1
1  Department bio    E2
2  Department csc    E3
3  Department eco    E4
4  Department art    E5
Index(['DName', 'EName'], dtype='object')
```

Screen shot for code in (a) and (b)

(c)
In connect_sqlite.py

(d)
Github linke:
https://github.com/FredGuo0208/CSC423-Final-Project-Zhenyang-Guo