Jonathan Woodhouse

```
import sqlite3

# establish connection
conn = sqlite3.connect('demo.db')

# used to execute SQL commands
cursor = conn.cursor()


#create 'Users' table
cursor.execute('''CREATE TABLE IF NOT EXISTS Users (
                user_id INTERGER PRIMARY KEY,
                username TEXT UNIQUE,
                email TEXT UNIQUE,
                passowrd TEXT,
                created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
              )''')

# create 'UserActivities' table
cursor.execute('''CREATE TABLE IF NOT EXISTS UserActivities (
                activity_id INTERGER PRIMARY KEY,
                user_id INTERGER,
                activity EXT,
                activity_time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
                FOREIGN KEY (user_id) REFERENCES Users(user_id)

)''')

# create 'UserConnections' table
cursor.execute(''' CREATE TABLE IF NOT EXISTS UserConnections (
                connection_id Id INTERGER PRIMARY KEY,
                user1_id INTERGER,
                user2_id INTERGER,
                connection_time TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
                FOREIGN KEY (user1_id) REFERENCES Users(user_id),
                FOREIGN KEY (user2_id) REFERENCES Users(user_id)
)''')
```

```
<sqlite3.Cursor at 0x7ee0ac4af2c0>
```

```
# create indexes for data retrieval
cursor.execute("CREATE INDEX IF NOT EXISTS idx_user_id ON UserActivities(user_id)")
cursor.execute("CREATE INDEX IF NOT EXISTS idx_user1_user2 ON UserConnections(user1_id, user2_id)")
```

```
<sqlite3.Cursor at 0x7ee0ac4af2c0>
```

```
# commit (save) changes
conn.commit()


# add (insert) data into Users table
cursor.execute("INSERT INTO Users (username, email, password) VALUES (?, ?, ?)", ('alice', 'alice@example.com', 'password123'))
cursor.execute("INSERT INTO Users (username, email, password) VALUES (?, ?, ?)", ('bob', 'bob@example.com', 'secret123'))

# add (insert) data into UserActivities table
cursor.execute ("INSERT INTO UserActivites (user_id, activity) VALUES (?, ?)", (1, 'Logged in'))
cursor.execute ("INSERT INTO UserActivites (user_id, activity) VALUES (?, ?)", (1, 'Posted a comment'))

# add (insert) data into UserConnections table
cursor.execute ("INSERT INTO UserConnections (user1_id) VALUES (?, >)", (1,2))
cursor.execute ("INSERT INTO UserConnections (user1_id) VALUES (?, >)", (2,1))


# commit (save) changes
conn.commit()
```

```
# query and print data from the Users table
print("Users:")
cursor.execute("SELECT * FROM Users")
for row in cursor.fetchall():
  print(row)
```

```
    Users:
```

```
# query and print data from the UserActivites table
print("\nUser Activities:")
cursor.execute("SELECT * FROM UserActivities")
for row in cursor.fetchall():
  print(row)
```

```
# query and print data from the UserConnectons table
print("\nUser Connections:")
cursor.execute("SELECT * FROM UserConnections")
for row in cursor.fetchall():
  print(row)
```

```
# close the database connection
conn.close()
```