```
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 INTEGER PRIMARY KEY,
                  username TEXT UNIQUE,
                  email TEXT UNIQUE,
                  password TEXT,
                  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
                )''')
# create 'UserActivities' table
cursor.execute('''CREATE TABLE IF NOT EXISTS UserActivities (
                   activity_id INTEGER PRIMARY KEY,
                   user_id INTEGER,
                   activity TEXT,
                   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 INTEGER PRIMARY KEY,
                   user1_id INTEGER,
                   user2_id INTEGER,
                   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 0x7ab6a0112cc0>
```

```
# 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_user_id ON UserConnections(user1_id, user2_id)")
```

```
<sqlite3.Cursor at 0x7ab6a0112cc0>
```

```
# 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 UserActivities (user_id, activity) VALUES (?,?)", (1, 'Logged in'))
cursor.execute ("INSERT INTO UserActivities (user_id, activity) VALUES (?,?)", (2, 'Posted a comment'))

# add (insert) data into UserConnections table
cursor.execute("INSERT INTO UserConnections (user1_id, user2_id) VALUES (?,?)",(1,2))
cursor.execute("INSERT INTO UserConnections (user1_id, user2_id) VALUES (?,?)",(2,1))
```

```
<sqlite3.Cursor at 0x7ab6a0112cc0>
```

```
# 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:
(1, 'alice', 'alice@example.com', 'password123', '2024-05-01 01:47:12')
```

```
(2, 'bob', 'bob@example.com', 'secret123', '2024-05-01 01:47:12')
```

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

```
 User Activities:
 (1, 1, 'Logged in', '2024-05-01 01:47:12')
 (2, 2, 'Posted a comment', '2024-05-01 01:47:12')
```

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

```
 User Connnections:
 (1, 1, 2, '2024-05-01 01:47:12')
 (2, 2, 1, '2024-05-01 01:47:12')
```

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