إعداد الطلاب:

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برمجة شبكات

الوظيفة الثانية

Question 1: Bank ATM Application with TCP Server/Client and Multi-threading

Project Description:

Build a TCP server and client Bank ATM application using Python. The server should handle multiple client connections simultaneously using multi-threading. The application should allow clients to connect, perform banking operations (such as check balance, deposit, and withdraw), and receive their updated account status upon completion.

كود السيرفر:

I.py × II.py

```python
import socket
import threading

# Bank account details
accounts = {
    '1234': 1000,
    '5678': 500
}


1 usage
def handle_client(client_socket):
    account_number = client_socket.recv(1024).decode()
    if account_number in accounts:
        client_socket.send(b"Welcome! You have connected to the bank server.")
    else:
        client_socket.send(b"Invalid account number. Connection terminated.")
        client_socket.close()
        return
```

```
while True:
    option = client_socket.recv(1024).decode()

    if option == 'check balance':
        balance = accounts[account_number]
        client_socket.send(f"Your current balance is: {balance}".encode())
    elif option == 'deposit':
        amount = int(client_socket.recv(1024).decode())
```

I.py

I.py × II.py

```
11  def handle_client(client_socket):
28              accounts[account_number] += amount
29              client_socket.send(f"Deposit successful. Your new balance is: {accounts[account_number]}".encode())
30          elif option == 'withdraw':
31              amount = int(client_socket.recv(1024).decode())
32              if accounts[account_number] >= amount:
33                  accounts[account_number] -= amount
34                  client_socket.send(f"Withdrawal successful. Your new balance is: {accounts[account_number]}".encode())
35              else:
36                  client_socket.send("Insufficient funds. Withdrawal failed.".encode())
37          else:
38              break
39
40      client_socket.close()
41
```

```python

def start_server():
    server = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    server.bind(('127.0.0.1', 12345))
    server.listen(5)
    print("Server listening on port 12345...")

    while True:
        client_socket, address = server.accept()
        print(f"Connection from {address} established.")
        client_thread = threading.Thread(target=handle_client, args=(client_socket,))
        client_thread.start()


start_server()
```

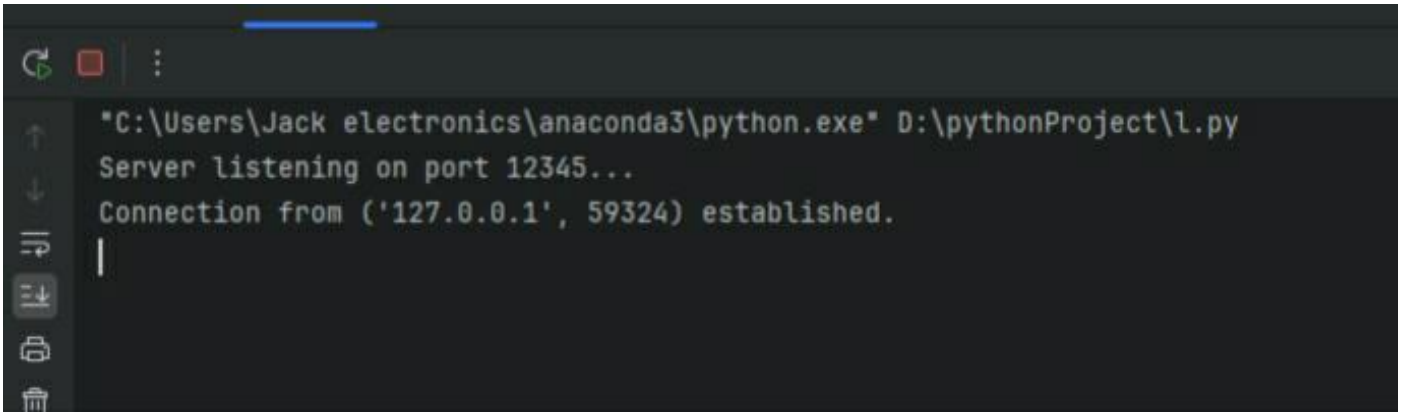
كود العميل:

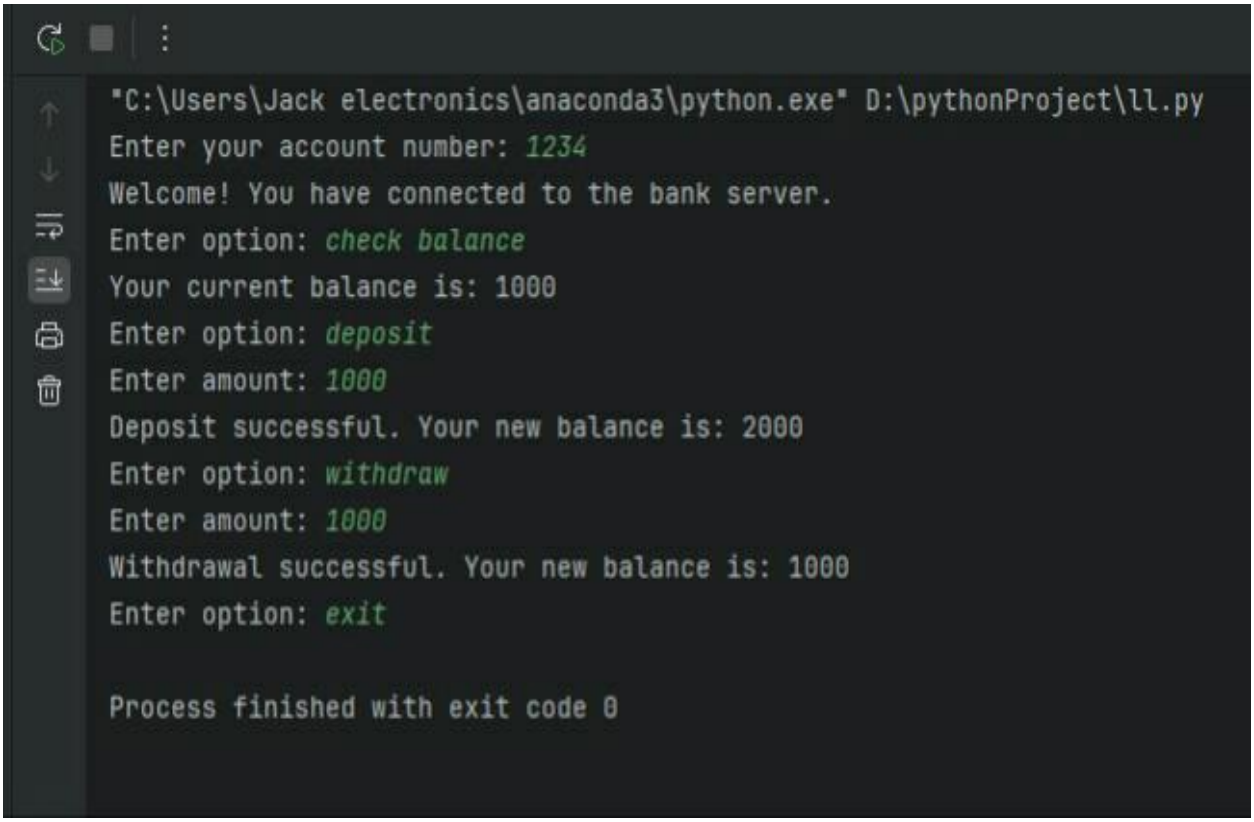
I.py II.py

```python
import socket


1 usage
def main():
    client = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    client.connect(('127.0.0.1', 12479))

    account_number = input("Enter your account number: ")
    client.send(account_number.encode())

    print(client.recv(1024).decode())

    while True:
        option = input("Enter option: ")
        if option == 'exit':
            break
        client.send(option.encode())

        if option == 'check balance':
            print(client.recv(1024).decode())
        elif option == 'deposit' or option == 'withdraw':
            amount = input("Enter amount: ")
            client.send(amount.encode())
            print(client.recv(1024).decode())

    client.close()
```

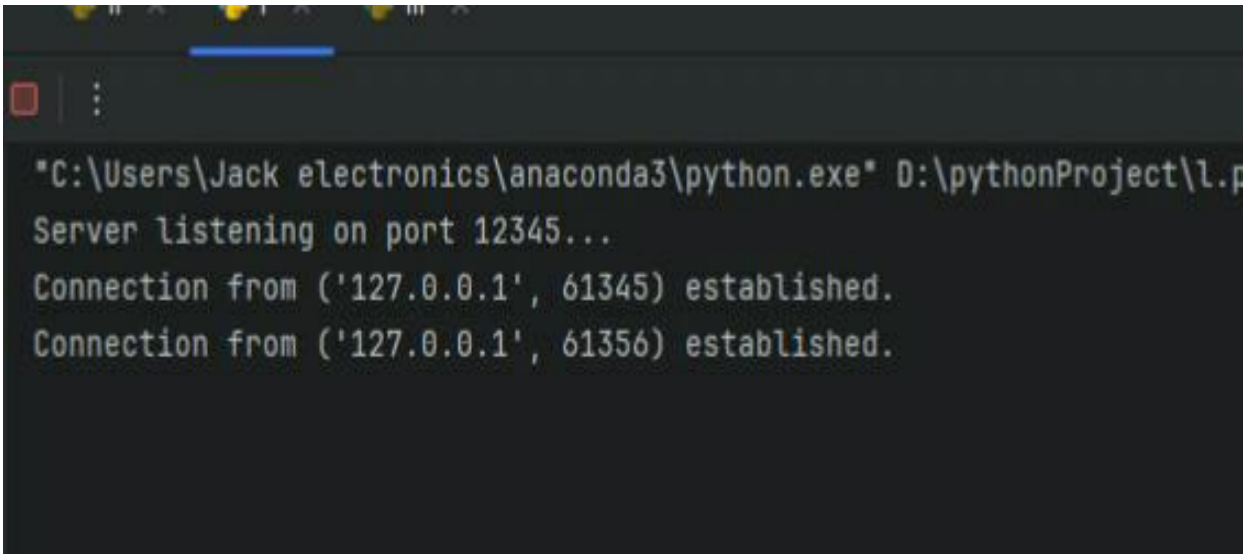
الخرج:

اتصال عميل مع السيرفر:





اتصال عميلين مع السيرفر في نفس الوقت:



Question 2: Simple Website Project with Python Flask Framework (you have choice to use Django or any Other Deferent Useful Python Project “from provide Project Links”)

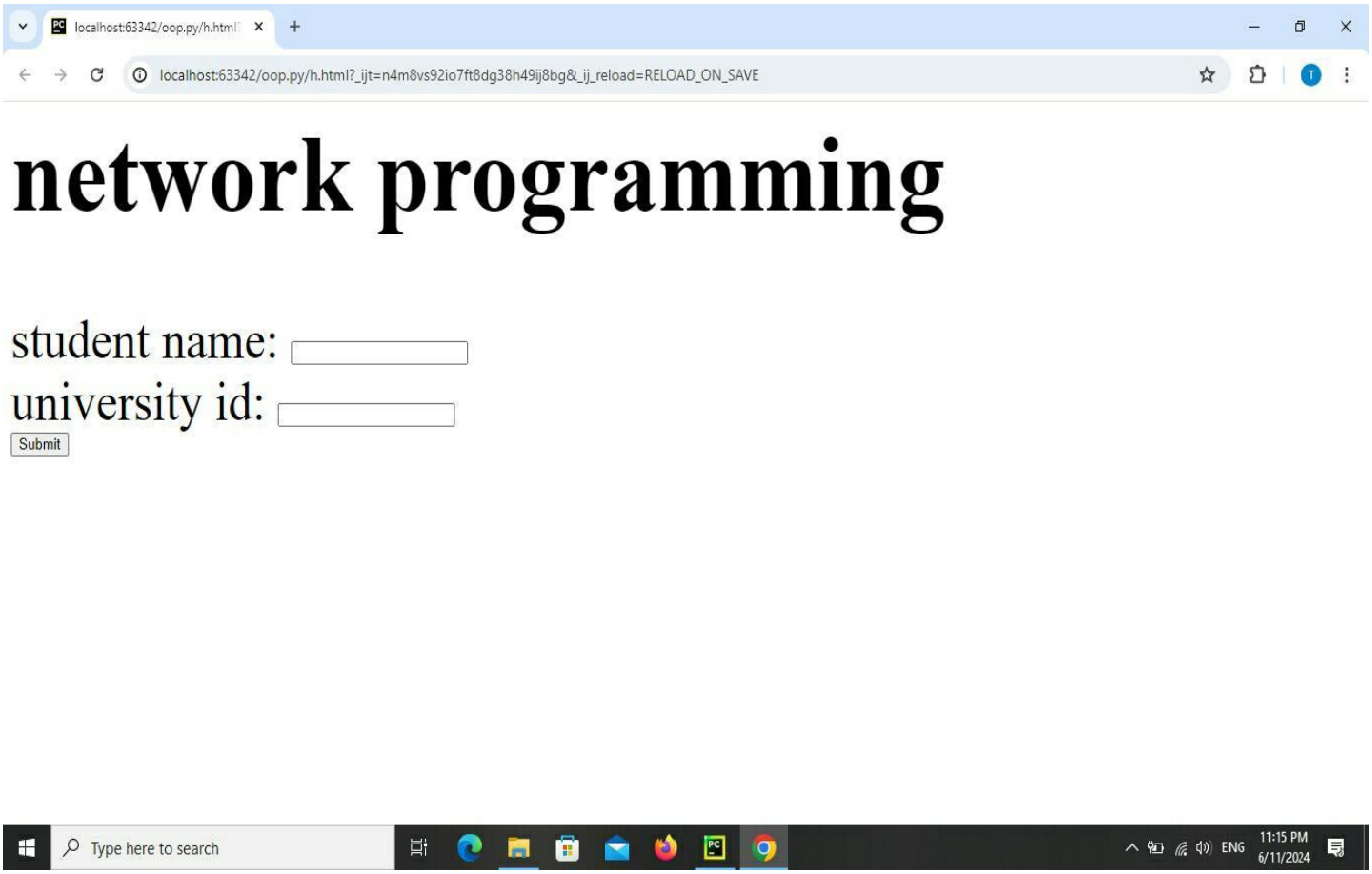
Create a simple website with multiple pages using Flask, HTML, CSS, and Bootstrap. The website should demonstrate your understanding of web design principles .

هذا الكود يستخدم لإنشاء نموذج يسمح للمستخدم بإدخال بياناته، الاسم والرقم الجامعي .النموذج يحتوي على حقول إدخال نصية للبيانات وزر لإرسالها .عند الضغط على الزر، يمكن أن ترسل البيانات المدخلة للخادم لمعالجتها.

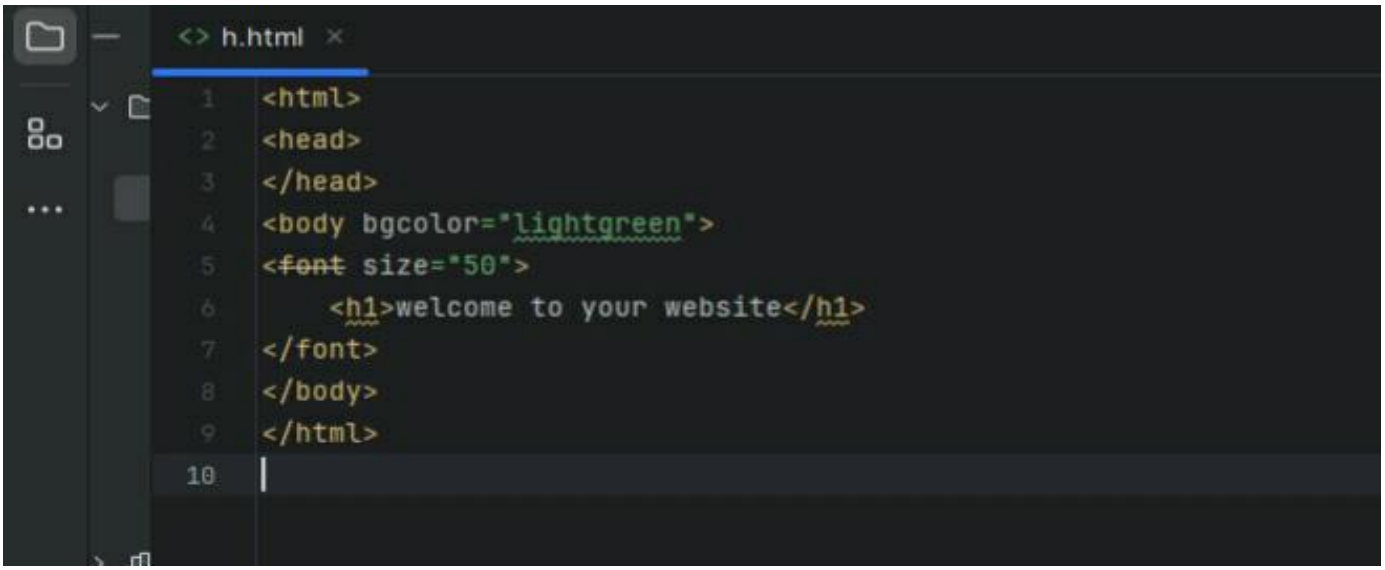
الصفحة الرئيسية:

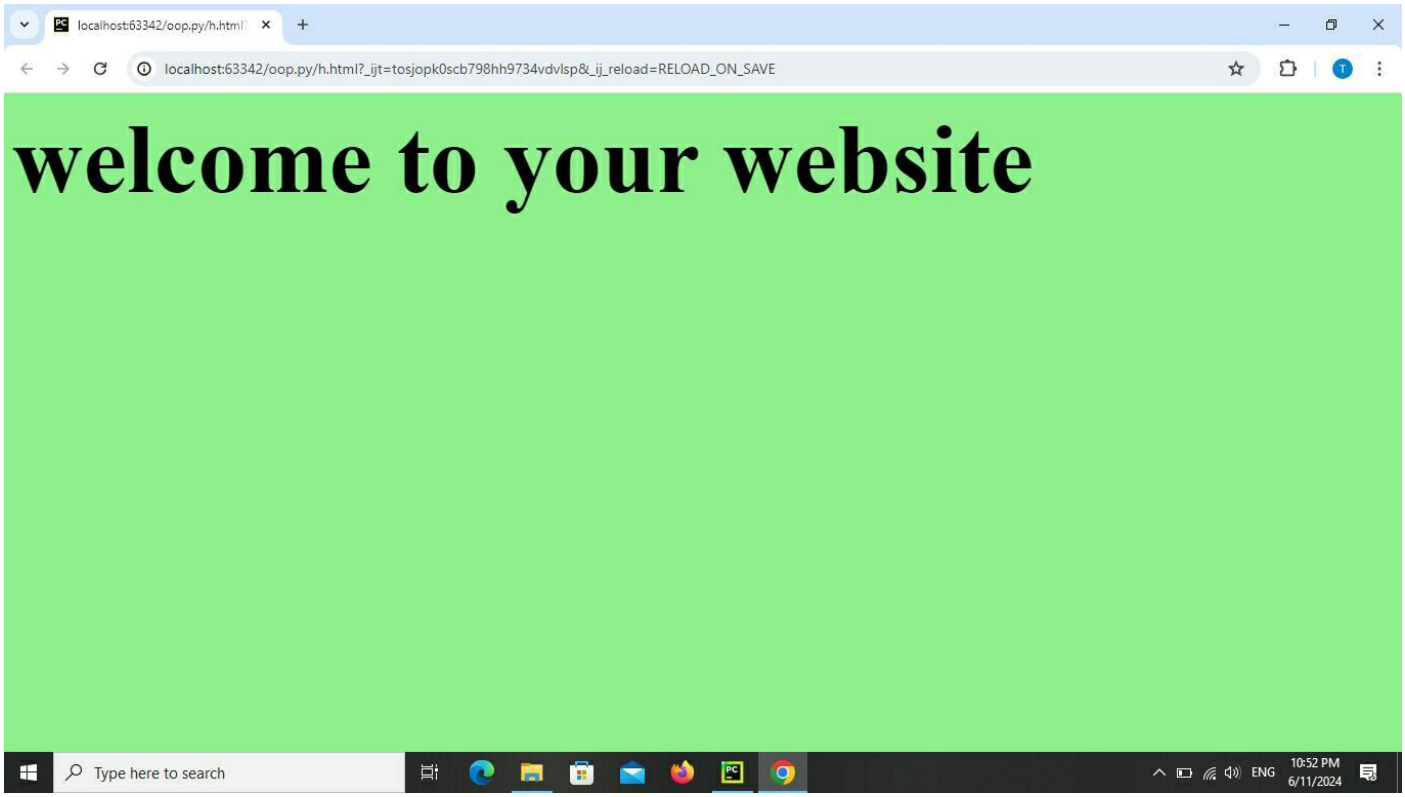
h.html

```
<html>
<head>
</head>
<body>
<font size="50">
    <h1>network programming</h1>
    <form action="http://localhost:7000/login" method="post">
        student name:
        <input type="text" name="username"><br>
        university id:
        <input type="text" name="num"><br>
        <input type="submit" name="login"><br>
    </form>
</font>
</body>
</html>
```



عند تسجيل الدخول الصحيح:

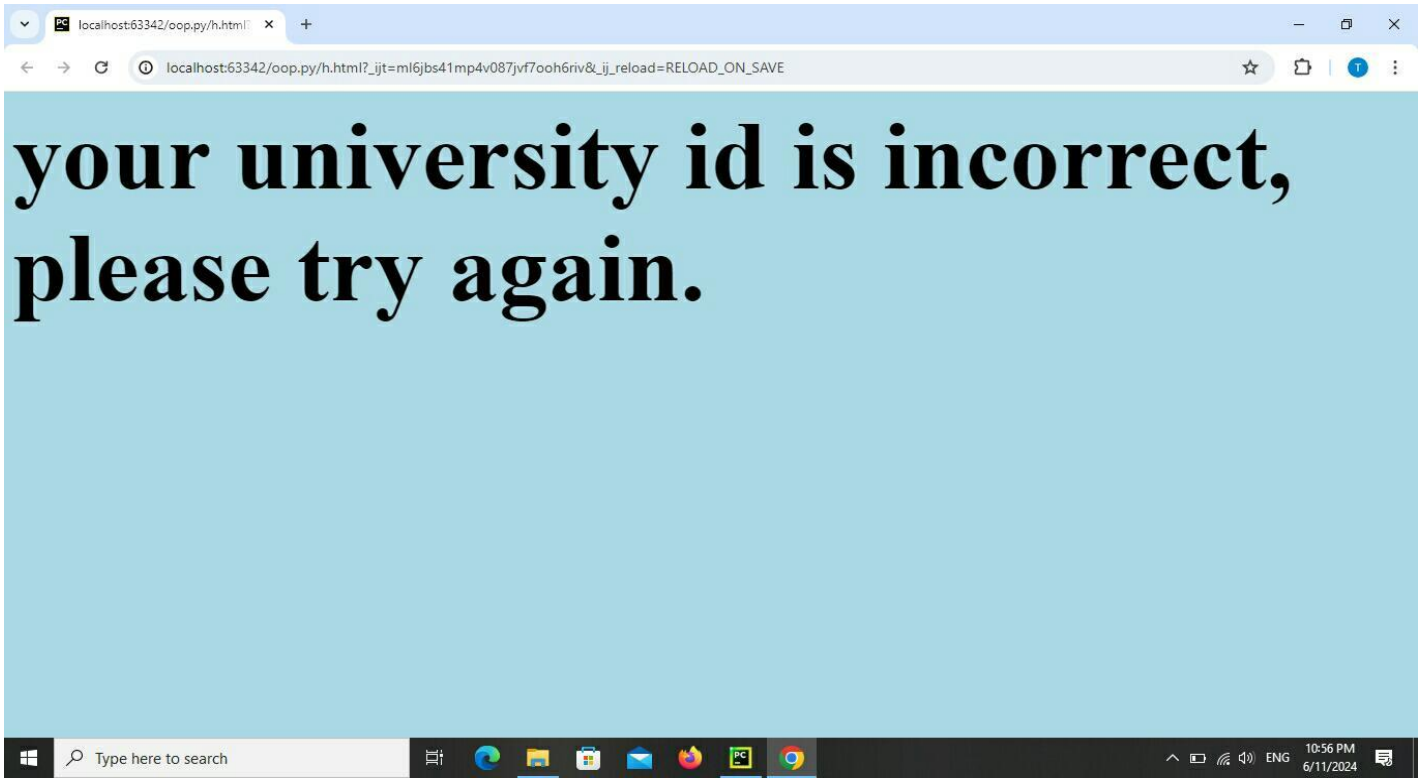




تسجيل دخول خاطئ:

h.html

```
<html>
<head>
</head>
<body bgcolor="lightblue">
<font size="50">
    <h1>your university id is incorrect, please try again. </h1>
</font>
</body>
</html>
```


localhost:63342/oop.py/h.html
localhost:63342/oop.py/h.html?_ijt=ml6jbs41mp4v087jvf7ooh6riv&_ij_reload=RELOAD_ON_SAVE
your university id is incorrect, please try again.
Type here to search
ENG
10:56 PM
6/11/2024