

Assignment

Network Systems Assignment

Objective:

Implement a basic client-server application in Python using sockets where the client sends a message to the server and the server responds back with an acknowledgment.

Client Side Code -

```
import socket

client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

#define host and port
host = 'localhost'
port = 12345

#connect to the server
client_socket.connect((host, port))

#send data to the server
message = "Hello"
client_socket.sendall(message.encode())

#receive acknowledgement from the server
ack_message = client_socket.recv(1024).decode()
print(f"Received from server: {ack_message}")

#close the connection
client_socket.close()
```

Server Side Code -

```
import socket

server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

#define host and port
host = 'localhost'
port = 12345

server_socket.bind((host, port))
server_socket.listen(1)

print(f"Server is listening on {host}:{port} ...")

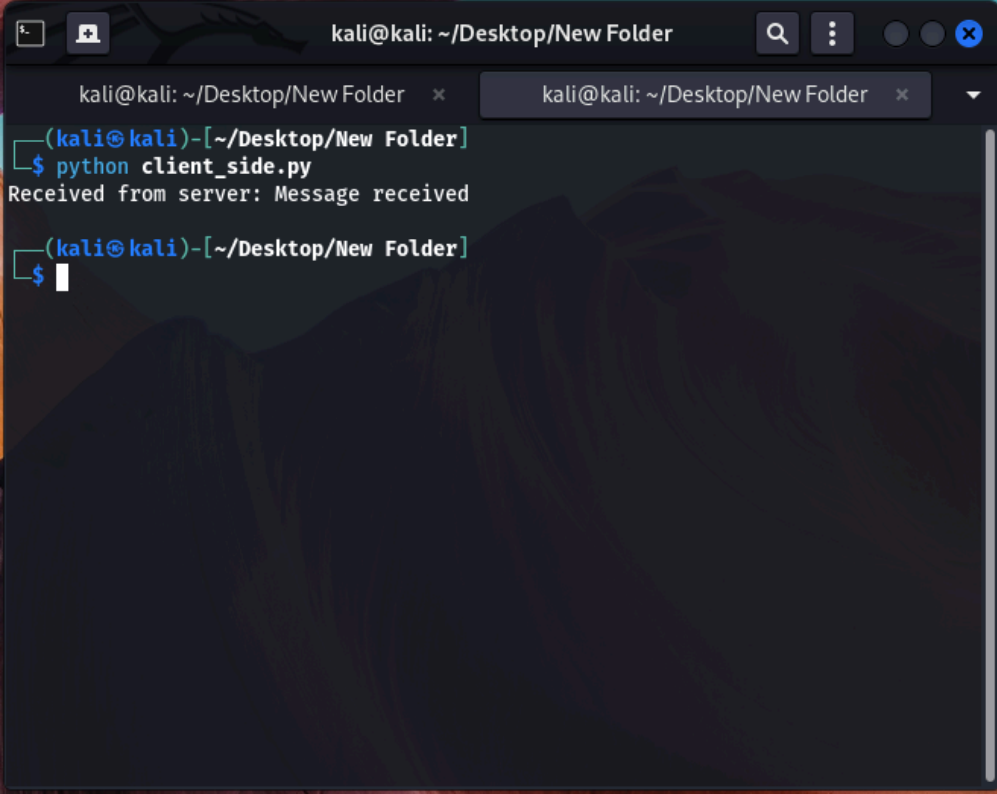
#accept a client connection
conn, addr = server_socket.accept()
print(f"Connected to {addr}")

#receive data from the client
data = conn.recv(1024).decode('utf-8')
print(f"Received from client: {data}")

#send acknowledgement to the client
ack_message = "Message received"
conn.sendall(ack_message.encode())

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

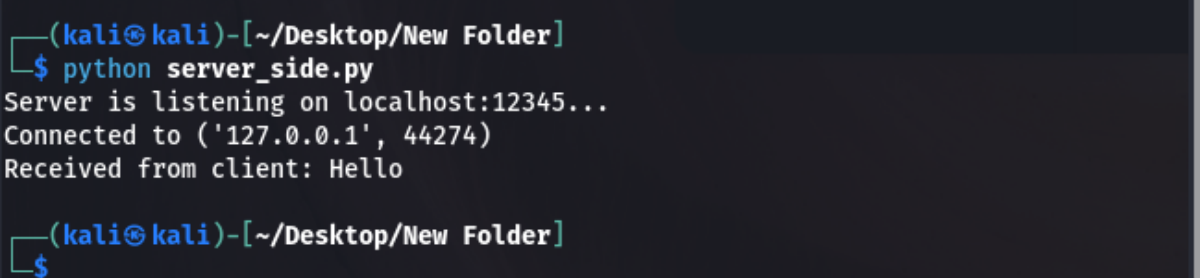
Executing client_side.py and sending the message

A terminal window titled 'kali@kali: ~/Desktop/New Folder' with two tabs. The active tab shows the command 'python client_side.py' being executed. The output is 'Received from server: Message received'. The prompt is '(kali@kali)-[~/Desktop/New Folder] \$' with a cursor.

```
(kali@kali)-[~/Desktop/New Folder]
$ python client_side.py
Received from server: Message received

(kali@kali)-[~/Desktop/New Folder]
$
```

Listening and receiving the sent message with server_side.py

A terminal window titled 'kali@kali: ~/Desktop/New Folder' showing the command 'python server_side.py' being executed. The output shows the server listening on localhost:12345, connecting to '127.0.0.1', 44274, and receiving the message 'Hello'. The prompt is '(kali@kali)-[~/Desktop/New Folder] \$' with a cursor.

```
(kali@kali)-[~/Desktop/New Folder]
$ python server_side.py
Server is listening on localhost:12345...
Connected to ('127.0.0.1', 44274)
Received from client: Hello

(kali@kali)-[~/Desktop/New Folder]
$
```

Output

The server is running successfully, and the connection is being established. Once the client sends a packet, the server will respond with an acknowledgment

Submitted by

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