

SERVER DNS

```
clientdhcp.py  serverdns.py  serverdhcp.py
1  import socket
2  1 usage
3  def start_server():
4      # Create a TCP/IP socket
5      server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
6
7      # Allow reuse of the same address
8      server_socket.setsockopt(socket.SOL_SOCKET, socket.SO_REUSEADDR, 1)
9
10     # Bind the socket to the address and port
11     server_address = ('localhost', 65433) # Changed port to 65433
12     print(f'Starting server on {server_address[0]} port {server_address[1]}')
13     try:
14         server_socket.bind(server_address)
15     except socket.error as e:
16         print(f'Failed to bind socket: {e}')
17         return
18     # Listen for incoming connections
19     server_socket.listen(1)
20     while True:
21         print('Waiting for a connection...')
22         connection, client_address = server_socket.accept()
23         try:
24             print(f'Connection from {client_address}')
25
26             # Receive the data in small chunks and process it
27             while True:
28                 data = connection.recv(1024)
29                 if data:
30                     domain_name = data.decode('utf-8')
31                     try:
32                         ip_address = socket.gethostbyname(domain_name)
33                         response = f'The IP address of {domain_name} is {ip_address}'
34                     except socket.gaierror:
35                         response = f'Could not resolve the domain name {domain_name}'
36                     connection.sendall(response.encode('utf-8'))
37                 else:
38                     break
39             finally:
40                 # Clean up the connection
41                 connection.close()
42 if __name__ == '__main__':
43     start_server()
```

SERVER DNS OUTPUT

```
Command Prompt - python serverdns.py
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C:\Users\Adithya>cd C:\Users\Adithya\PycharmProjects\pythonProject4

C:\Users\Adithya\PycharmProjects\pythonProject4>python server_script.py
python: can't open file 'C:\\Users\\Adithya\\PycharmProjects\\pythonProject4\\server_script.py': [Errno 2] No such file or directory

C:\Users\Adithya\PycharmProjects\pythonProject4>cd C:\Users\Adithya\PycharmProjects\pythonProject4

C:\Users\Adithya\PycharmProjects\pythonProject4>python serverdns.py
Starting server on localhost port 65432
Traceback (most recent call last):
  File "C:\Users\Adithya\PycharmProjects\pythonProject4\serverdns.py", line 43, in <module>
    start_server()
  File "C:\Users\Adithya\PycharmProjects\pythonProject4\serverdns.py", line 11, in start_server
    server_socket.bind(server_address)
OSError: [WinError 10048] Only one usage of each socket address (protocol/network address/port) is normally permitted

C:\Users\Adithya\PycharmProjects\pythonProject4>cd C:\Users\Adithya\PycharmProjects\pythonProject4

C:\Users\Adithya\PycharmProjects\pythonProject4>python serverdns.py
Starting server on localhost port 65432
Failed to bind socket: [WinError 10013] An attempt was made to access a socket in a way forbidden by its access permissions

C:\Users\Adithya\PycharmProjects\pythonProject4>cd C:\Users\Adithya\PycharmProjects\pythonProject4

C:\Users\Adithya\PycharmProjects\pythonProject4>python serverdns.py
Starting server on localhost port 65433
Waiting for a connection...
```

CLIENT DNS

```
clientdhcp.py  serverdns.py  clientdns.py  x  serverdhcp.py
1 import socket
2 1 usage
3 def send_request(domain_name):
4     # Create a TCP/IP socket
5     client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
6
7     # Connect the socket to the server's port
8     server_address = ('localhost', 65433) # Ensure this matches the server port
9     print(f'Connecting to {server_address[0]} port {server_address[1]}')
10    client_socket.connect(server_address)
11
12    try:
13        # Send data
14        print(f'Sending domain name "{domain_name}"')
15        client_socket.sendall(domain_name.encode('utf-8'))
16
17        # Look for the response
18        response = client_socket.recv(1024)
19        print(f'Received "{response.decode("utf-8")}"')
20
21    finally:
22        print('Closing connection')
23        client_socket.close()
24
25 if __name__ == '__main__':
26     domain_name = input("Enter the domain name: ")
27     send_request(domain_name)
28
```

CLIENT DNS OUTPUT

```
C:\> Command Prompt
Microsoft Windows [Version 10.0.22621.1485]
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C:\Users\Adithya>cd C:\Users\Adithya\PycharmProjects\pythonProject4

C:\Users\Adithya\PycharmProjects\pythonProject4>python clientdns.py
Enter the domain name: google.com
Connecting to localhost port 65433
Sending domain name "google.com"
Received "The IP address of google.com is 142.250.182.142"
Closing connection
```