

CS 359

COMPUTER NETWORK LAB

ASSIGNMENT 4

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UDP - Single Threaded Server

It runs on a docker container and accepts and parses the client's request. If the requested file is present in the server's file system, then it sends the file content directly to the client else , it sends an 'ERROR: File not found' message.

Activities Visual Studio Code Tue Mar 15 20:10

udp_server.py - Lab 4 - Visual Studio Code

File Edit Selection View Go Run Terminal Help

Dockerfile sample.txt udp_server.py x udp_client.py

assign4 > server > udp_server.py > ...

1 #!/usr/bin/env python3

2

3 import socket

4 import os

5

6 HOST = '0.0.0.0'

7 PORT = 1234

8

9 # Function to read a file in server

10 def readFile(file):

11 with open(file, 'rb') as f:

12 return f.read()

13

14 with socket.socket(socket.AF_INET, socket.SOCK_DGRAM) as serverSo

15

16 # Binding the socket with server

17 serverSocket.bind((HOST, PORT))

18 print('Server up and listening ...')

19

20 while True:

21 print('Waiting for connection...')

22

23 # Receiving data from a client

24 message, clientAddress = serverSocket.recvfrom(1024)

25 print('Connected with client ',clientAddress)

26 file_name = str(message, 'utf-8')

27 path=os.path.join(os.path.dirname(__file__),file_name)

28

29 # If given file present in server, Send its content, Else

30 if os.path.isfile(path):

31 content = readFile(path)

32 else:

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

bash - server

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4\$ cd server

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4/server\$ docker build -t my_udp_server .

Sending build context to Docker daemon 4.608kB

Step 1/6 : FROM python:latest

--> dfce7257b7ba

Step 2/6 : ADD udp_server.py /server/

--> 8a36c5a156f6

Step 3/6 : ADD sample.txt /server/

--> 48afd71fe68c

Step 4/6 : WORKDIR /server/

--> Running in 13e3eb983dc3

Removing intermediate container 13e3eb983dc3

--> 788d66bf2818

Step 5/6 : EXPOSE 1234/udp

--> Running in 32b1462b4314

Removing intermediate container 32b1462b4314

--> 894c9bc16bd6

Step 6/6 : CMD ["python3", "/server/udp_server.py"]

--> Running in 8168d327a8c1

Removing intermediate container 8168d327a8c1

--> 5ad18ac33ce7

Successfully built 5ad18ac33ce7

Successfully tagged my_udp_server:latest

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4/server\$ docker run -p 1234:1234/udp my_udp_server

^CServer up and listening ...

Waiting for connection...

Connected with client ('172.17.0.1', 47592)

Waiting for connection...

Connected with client ('172.17.0.1', 53117)

Waiting for connection...

Traceback (most recent call last):

File "/server/udp_server.py", line 24, in <module>

message, clientAddress = serverSocket.recvfrom(1024)

KeyboardInterrupt

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4/server\$

Activities Visual Studio Code Tue Mar 15 20:11

udp_client.py - Lab 4 - Visual Studio Code

File Edit Selection View Go Run Terminal Help

Dockerfile sample.txt udp_server.py x udp_client.py

assign4 > server > udp_client.py > ...

1 #!/usr/bin/env python3

2 # ipc_client.py

3

4 import socket

5

6 HOST = '0.0.0.0' # The server's hostname or IP address

7 PORT = 1234 # The port used by the server

8

9 with socket.socket(socket.AF_INET, socket.SOCK_DGRAM) as clientSo

10

11 file_name = input('Enter the file name: ')

12

13 # Encode given file name in UTF-8 format

14 data=file_name.encode('utf-8')

15

16 # Send data to server host and defined port

17 clientSocket.sendto(data,(HOST,PORT))

18

19 # Receive data from server in packets of 4096 bytes (4kB)

20 data,server_address = clientSocket.recvfrom(4096)

21

22 # Decode the received content

23 file_content=str(data, 'utf-8')

24

25 print(file_content)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

bash - assign4

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4\$ python3 udp_client.py

Enter the file name: sample.txt

START

PACKET

SOCKET PROGRAMMING

TCP

UDP

CLIENT

SERVER

FINISH

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4\$ python3 udp_client.py

Enter the file name: anything.txt

ERROR: File not found

(base) sachan@CLOUD-DESK:~/Documents/VI Semester/CS358 Computer Network/Lab/Lab 4/assign4\$

Instructions

For UDP server

```
cd server  
docker build -t my_udp_server .  
docker run -p 1234:1234/udp my_udp_server
```

For UDP client

```
python3 udp_client.py
```
