Tugas Multithreaded Server and Protocol Pemrograman Jaringan



Kelas E

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2021

1. Jalankan program server seperti dalam pembahasan

a. Ganti IP address pada file serevr.py dengan IP address server (alpine-1)

```
×
 < ole
                 alpine-1
                                      alpine-2
                                                            al >
                          X
                                               X
 GNU nano 4.6
                                   file_server.py
                                                                       Modified
                break
        self.connection.close()
class Server(threading.Thread):
   def __init__(self,ipaddress='192.168.122.192',port=8889):
        self.ipinfo=(ipaddress,port)
        self.the clients = []
        self.my socket = socket.socket(socket.AF INET, socket.SOCK STREAM)
        self.my socket.setsockopt(socket.SOL SOCKET, socket.SO REUSEADDR, 1)
        threading. Thread. init (self)
   def run(self):
        logging.warning(f"server berjalan di ip address {self.ipinfo}")
        self.my socket.bind(self.ipinfo)
        self.my socket.listen(1)
        while True:
            self.connection, self.client_address = self.my_socket.accept()
            logging.warning(f"connection from {self.client address}")
```

```
alpine-1
 < :ole
                                       alpine-2
                                                             al >
 GNU nano 4.6
                                    file server.py
                                                                        Modified
        self.my socket.bind(self.ipinfo)
        self.my socket.listen(1)
        while True:
            self.connection, self.client_address = self.my_socket.accept()
            logging.warning(f"connection from {self.client address}")
            clt = ProcessTheClient(self.connection, self.client address)
            clt.start()
            self.the clients.append(clt)
def main():
    svr = Server(ipaddress='192.168.122.192',port=8889)
    svr.start()
    name == " main ":
    main()
```

b. Jalankan file tersebut

```
// cole alpine-1 x alpine-2 x al > - X
// home/work/Pemrograman_Jaringan_E/progjar4a # nano file_server.py
// home/work/Pemrograman_Jaringan_E/progjar4a # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.192', 8889)
```

Jalankan file interface.py pada client (alpine-2)

```
< ∶ole
                                        alpine-2
                                                                                  ×
                  alpine-1
                                                               al >
                                                  ×
/home/work/Pemrograman_Jaringan_E/progjar4a # python3 file_interface.py
{'status': 'OK', 'data': ['pokijan.jpg', 'donalbebek.jpg', 'rfc2616.pdf']}
{'status': 'OK', 'data_namafile': 'pokijan.jpg', 'data_file': '/9j/4AAQSkZJRgABA
\mathtt{QAAAQABAAD/2wCEAAkGBxITEhUSExMVFRUXGBkYFxgYGBgXHRgXFhgYGxgYGhgYHiggGCAlGxcXITElJ}
SkrLi4uGiAzODMsNyqtLisBCqoKDq00GxAQGy0mHyYtLS0vLS0tLy0tLS0tLS0tLS0tLS0tLS0tLS0tLS0tL
S0tLS0tLS0tLS0tLS0tLS0tLS0tLf/AABEIALwBDAMBEQACEQEDEQH/xAAcAAABBQEBAQAAAAAAAAAAA
AAFAAMEBqcCAQj/xABJEAABAwIEAwQGBwUFBwQDAAABAqMRAAQFEiExBkFREyJhcQcyqZGhsRQjQlJyw
dftyplh8Buzq7KzjDRDc4Kiwhy10vEXNaP/xAAaAQACAwEBAAAAAAAAAAAAAAABAqADBAUG/8QAOxEAA
gECBAMFBwIFBAIDAAAAAAECAxEEEiExBUFRE2FxsfAiMoGRocHRQuEUI1Jy8RUzNLIkQwaCkv/aAAwDA
QACEQMRAD8A1Ti7iJNkz2hTmUo5UJ6qI+QGp8usUYq4G7Gd/wDqC8cXmVdLAOuVKQqDwj+ZqyyK8zG/7
avNctw97VTRshczJthit6RBuHJ01J/rr8KV2DmYRbv7r9u4d0o3pdCXZOt7i4UlJ7dyee2tBs0o+3dXJ
M9qsecH5CluHUccurgH+9V8P0pHIbU7bvH/ANor4fpS52FJktp97ms/D9KGdjqJJbdc+8Znw291Tow5R
wLc+8fh+lD0xlAfbK+ajRUmRxR6CrqaGZksj2VdamaXUlonozdTQzS6ktHoLvdTRzS6ktEXe60M0upLR
PJV1qZpdQ2iI1XWjml1JaJwpS/vH4UM8iZYjalufe+VTtJEyIGYpcvJU0A4RmXB21EHwqyEnrcXJqOre
d++aTOwZRhb737RVNnYjTGnrp/k6r3D9KbMK0yC5f3I2dV8D8xRUhXcaVxDdp+2k+aR+UU1wZmQLvjK9
QU6t6mPU/nTpJkzuwzb8b3qipJLY70A9nPsjNRshVUYKxf0jYi0QAWNROrZ08PWplBMimwf/wDlbEhM/
Rzpp9Wf/1rRyIbOyVhHpiuULAumm1tk94tqoWkdQCohUdNPOq6fQZS6myWd2262h1tQUhaQpKhsUkSDV
VhzPPSA8px1DSjIbUSI09aCJ8YqyJXNqcISdR622/L2UbiEpDBjnm00j3+GmlC5ApbskaCDHu/WkbCS2
LcnbKPPw50rY1iZb256x4UtwpE9i00pR0hG21pJMdRHm7Wq7liiS0MUSaI7ygbkDz0o2A5pHaADsQalh
```

d. Jalankan file protocol.py pada client (alpine-2)

```
alpine-2
                                                                           ×
 < cole
                alpine-1
                                                         al >
WARNING:root:string diproses: LIST
WARNING:root:memproses request: LIST
{"status": "OK", "data": ["pokijan.jpg", "donalbebek.jpg", "rfc2616.pdf"]}
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
{"status": "OK", "data_namafile": "pokijan.jpg", "data_file": "/9j/4AAQSkZJRgABA
\mathtt{QAAAQABAAD/2wCEAAkGBxITEhUSExMVFRUXGBkYFxgYGBgXHRgXFhgYGxgYGhgYHiggGCAlGxcXITElJ}
{	t SkrLi4uGiAzODMsNygtLisBCgoKDg00GxAQGy0mHyYtLS0vLS0tLy0tLS0tLS0tLS0tLS0tLS0tLS0tLS0tL}
S0tLS0tLS0tLS0tLS0tLS0tLS0tLf/AABEIALwBDAMBEQACEQEDEQH/xAAcAAABBQEBAQAAAAAAAAAAA
AAFAAMEBqcCAQj/xABJEAABAwIEAwQGBwUFBwQDAAABAqMRAAQFEiExBkFREyJhcQcyqZGhsRQjQlJyw
dftyplh8Buzg7KzJDRDc4Kiwhy10vexnap/xaAaaQaCaweBaaaaaaaaaaaaaaaaaagaDBaug/8QaOxEAa
gECBAMFBwIFBAIDAAAAAAECAxEEEiExBUFRE2FxsfAiMoGRocHRQuEUI1Jy8RUzNLIkQwaCkv/aAAwDA
QACEQMRAD8A1Ti7iJNkz2hTmUo5UJ6qI+QGp8usUYq4G7Gd/wDqC8cXmVdLAOuVKQqDwj+ZqyyK8zG/7
avNctw97VTRshczJthit6RBuHJ01J/rr8KV2DmYRbv7r9u4d0o3pdCXZOt7i4UlJ7dyee2tBs0o+3dXJ
M9qsecH5CluHUccurgH+9V8P0pHIbU7bvH/ANor4fpS52FJktp97ms/D9KGdjqJJbdc+8Znw291TOw5R
wLc+8fh+lD0xlAfbK+ajRUmRxR6CrqaGZksj2VdamaXUlonozdTQzS6ktHoLvdTRzS6ktEXe60M0upLR
PJV1qZpdQ2iI1XWjml1JaJwpS/vH4UM8iZYjalufe+VTtJEyIGYpcvJU0A4RmXB21EHwqyEnrcXJqOre
```

e. Ubah IP server_address pada file_client_cli di client (alpine-2) menjadi IP address dari server yang digunakan (alpine-1)

```
< :ole
                 alpine-1
                                       alpine-2
                                                            al >
                                                                               ×
                          ×
                                                X
                                  file client_cli.py
 GNU nano 4.6
mport socket
import json
import base64
import logging
server_address=('192.168.122.192',8889)
def send command(command str=""):
   global server address
   sock = socket.socket(socket.AF INET, socket.SOCK STREAM)
   sock.connect(server address)
   logging.warning(f"connecting to {server_address}")
        logging.warning(f"sending message ")
        sock.sendall(command str.encode())
        # Look for the response, waiting until socket is done (no more data)
        data received="" #empty string
        while True:
            #socket does not receive all data at once, data comes in part, need>
            data = sock.recv(16)
```

```
alpine-2
                                                                               ×
 < :ole
                 alpine-1
                                                            al >
                                                ×
 GNU nano 4.6
                                  file client cli.py
   hasil = send command(command str)
   if (hasil['status']=='OK'):
        #proses file dalam bentuk base64 ke bentuk bytes
       namafile= hasil['data namafile']
        isifile = base64.b64decode(hasil['data file'])
        fp = open(namafile,'wb+')
        fp.write(isifile)
        fp.close()
        return True
   else:
       print("Gagal")
        return False
if name ==' main ':
   server address=('192.168.122.192',8889)
   remote_list()
   #remote get('donalbebek.jpg')
```

f. Jalankan file client cli.py pada client (alpine-2)

```
/ ole alpine-1 x alpine-2 x al > - x
/home/work/Pemrograman_Jaringan_E/progjar4a # python3 file_client_cli.py
WARNING:root:connecting to ('192.168.122.192', 8889)
WARNING:root:sending message
WARNING:root:data received from server:
daftar file :
    pokijan.jpg
    donalbebek.jpg
    rfc2616.pdf
```

- 2. Buatlah program client yang dapat melakukan 100 request get pada dalam satu saat untuk operasi get file "pokijan.jpg"
 - a. Buat program dalam file baru pada client (alpine-2) supaya dapat melakukan 100 request get

```
< :ole
                 alpine-1
                                       alpine-2
                                                 ×
                                                              al >
                           ×
  GNU nano 4.6
                                 udp multi thread.py
from file client cli import remote get
import time
import datetime
import threading
import socket
def kirim semua():
    texec = dict()
    daftar = 'pokijan.jpg'
    catat awal = datetime.datetime.now()
    for k in range (100):
        print(f"mengirim {k}")
        texec[k] = threading.Thread(target=remote get, args=(daftar,))
        texec[k].start()
    for k in range (100):
        texec[k].join()
    catat akhir = datetime.datetime.now()
```

```
×
 < :ole
                                      alpine-2
                                                            al >
                 alpine-1
                          ×
                                                X
 GNU nano 4.6
                                 udp multi thread.py
def kirim semua():
    texec = dict()
   daftar = 'pokijan.jpg'
    catat awal = datetime.datetime.now()
    for k in range (100):
        print(f"mengirim {k}")
        texec[k] = threading.Thread(target=remote get, args=(daftar,))
        texec[k].start()
    for k in range (100):
        texec[k].join()
    catat akhir = datetime.datetime.now()
    selesai = catat akhir - catat awal
   print(f"Waktu TOTAL yang dibutuhkan {selesai} detik {catat awal} s/d {catat>
if name ==' main ':
    kirim semua()
```

b. Jalankan file server.py pada server (alpine-1)

c. Jalankan udp_multi_thread.py pada client (alpine-2)

```
×
 < :ole
                 alpine-1
                                       alpine-2
                                                              al >
                           X
                                                 ×
/home/work/Pemrograman Jaringan E/progjar4a # python3 udp multi thread.py
mengirim 0
mengirim 1
mengirim 2
mengirim 3
mengirim 4
mengirim 5
mengirim 6
mengirim 7
mengirim 8
mengirim 9
mengirim 10
WARNING:root:connecting to ('192.168.122.192', 8889)
WARNING:root:sending message
mengirim 11
```

