Tugas 3 Multithreaded Server dan Protokol

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PEMROGRAMAN JARINGAN - E

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S1 TEKNIK INFORMATIKA

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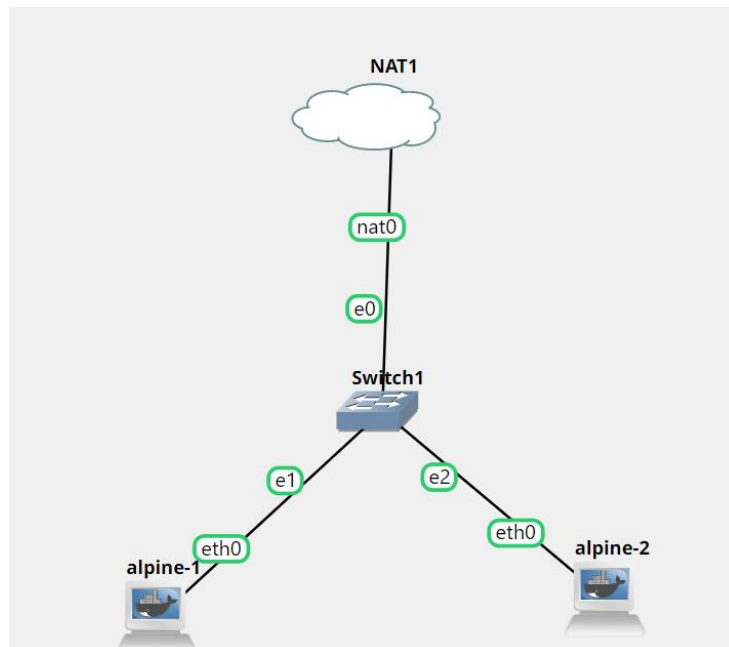## Soal Tugas Multithreaded Server dan Protokol:

semua tugas berikut ini HARUS dijalankan di SIMULATO

1. jalankan program server seperti dalam pembahasan

2. buatlah program client yang dapat melakukan 100 request get pada dalam satu saat untuk operasi get file "pokijan.jpg"

3. capture dan submitlah poin 1 dan 2 dalam satu dokumen pdf. berikan DESKRIPSI dan PENJELASAN

Jawaban Multithreaded Server dan Protokol:

Pada pengerjaan tugas Multithreaded Server dan Protokol, Alpine 1 menjadi Server dan Alpine 2 menjadi Client

- Project GNS

1. *Jalankan program server seperti dalam pembahasan*
- Untuk menjalankan file_server.py dan file_client_cli.py ganti IP address 0.0.0.0 menjadi IP address Alpine 1
- Jalankan file_server.py

```
eth0      Link encap:Ethernet  HWaddr 6E:9D:A7:AB:7E:C4
          inet addr:192.168.122.18  Bcast:192.168.122.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:2199 errors:0 dropped:6 overruns:0 frame:0
          TX packets:405 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:650421 (635.1 KiB)  TX bytes:26339 (25.7 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

/Tugas-3-Progjar/progjar4a # nano file_server.py
/Tugas-3-Progjar/progjar4a # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.18', 6666)
WARNING:root:connection from ('192.168.122.228', 44458)
WARNING:root:string diproses: LIST
WARNING:root:memproses request: LIST
WARNING:root:connection from ('192.168.122.228', 44460)
WARNING:root:string diproses: LIST
WARNING:root:memproses request: LIST
WARNING:root:connection from ('192.168.122.228', 44462)
WARNING:root:string diproses: GET donalbebek.jpg
WARNING:root:memproses request: GET
```

- Lalu jalankan file_interface.py seperti pembahasan, dan hasilnya

- Setelah itu jalankan file_protocol.py seperti pembahasan, dan hasilnya

file_client_cli.py file_protocol.py files
/Tugas-3-Progjar/progjar4a # nano file_protocol.py
/Tugas-3-Progjar/progjar4a # python3 file_protocol.py
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/4AAQSkZJRgABAQAAAQABAAD/2wCEAAAkGBxITEhUSExMVFRUXGBkYF
xgYGBgXHRgXFhgYGxgYGhgYHiggCALGxcXITElJSkrLi4uGiAzODMsNygtLisBCgoKDg0OGxAQGy0mHyYtLS0vLS0tLy0tLS0tLS0tLS0tLS0tL
S0tLS0tLS0tLS0tLS0tLS0tLf/AABEIALwBDAMBEQACEQEDEQH/xAAcAAABBQEBAQAAAAAAAAAAAAAFAAMEBgcCAQj/xABJEAABAwIEAwQGBwUFBwQDA
AABAgMRAAQFEiExBkFREyJhcQcygZGhsRQjQlQlJywdFTYpLh8BUzg7KzJDRDc4KiwhYl0vEXNaP/xAAaAQACAwEBAAAAAAAAAAAAAAAgADBAUG/8QAOxEAA
gECBAMFBwIFBAIDAAAAAECAxEEEiExEyAxEExBUFRE2FxsfAiMoGRoCJ7ijNKmz2hTmUo5UJ6qI+QGp8usU
Yq4G7Gd/wDqC8cXmVdLAOuVKQgDwj+ZqyyK8zG/7avNctw97VTRshczJthit6RBuHJ01J/rr8KV2DmYRbv7r9u4dOo3pdCXZOt7i4UlJ7dyee2tBsOo+3dXJ
M9qsecH5CluHUccurgH+9V8P0pHbU7bvH/ANor4fpS52FJktp97ms/D9KGdjqJJbdc+8Znw291TOw5RwLc+8fh+lDOxlAfbK+ajRUmRxR6CrqaGZksj2Vda
maXUlonozdTQzS6ktHoLvdTRzS6ktEXe60M0upLRPJV1qZpdQ2iIlXWjml1JaJwpS/vH4UM8iZYjalufe+VTtJEyIGYpcvJU0A4RmXB21EHwqyEnrcXJqOre
d++aTOwZRhb737RVNnYjTGnrp/k6r3D9KbMK0yC5f3I2dV8D8xRUhXcaVxDdp+2k+aR+UU1wZmQLvjK9QU6t6mPU/nTpJkzuwzb8b3qipJLY70A9nPsjNRsh
VUYKxf0jYi0QAWNROrZ08PWplBMimwf/wDlbEhM/Rzpp9Wf/lrRyIbOyVhHpiuULAummltk94tgoWkdQCohUdNPOg6fQZS6myWd2262h1tQUhaQpKhsUkSDV
VhzPPSA8px1DSjIbUSI09aCJ8YqyJXNgcISdR622/L2UbiEpDBjnm00j3+GmlC5ApbskaCDHu/WkbCS2LcnbKPPw50rY1iZb256x4UtwpE9i00pR0hG21pJM
dRHm7Wq7liiSM0MUSaI7ygbkDz0o2A5pHaADsQalhc4OxniG1tEy+8lPhMmfIa1ZGEpbCSqJFftPSjhqs2Za0QYGZMzpuMs+O/SnlQkhe1D2HcVWT6koauG1L
VqlM6nSdjSOnJboKqJ8wt2yJjMmekiaWwcyHEkHaoS57FQJ5FQgstSxLnhRQDc5LdCwcwMxdrVr/mfkaaPMsg7slqZqsl0MLt6NyWTI67WmTEcSK7a0biOIN
ubOmuVuIDxm0hbYH3hVkWI1oDWbSSv8VPcSwEx+0TmTIMRrG/PXXf21ZFgW5W3WzsNPzpwg99uiE3j0LOqVhiQrUIccSn8ObN81GqZ7lsdiRx1ayppUd45hv
poRBAPPUzQTFmAmbYDWCD8qjYhPbtCQIPspWxrBG3t45fzpGxkgg1aigMkTEM6bUtx0h9DNAaw52NJJDJgfiHFl24SENhSlAmVKCEJA3KlH8qenBPVlNWs46
RRT7/iu4Ugg39iyojQN5lnzBO+k1ojTguTKc05LczrHrlzN2rl4H1TAyqMyN+6eUGKuW2iCgKi4dbSFhTic2o76td9um9ENkPYYyh4S48ERrmUSSqCPVG5O1
RuwNtiDctQ6YhSRMTA0gkbjSaKChlwmZCyIgp1Mweh3FS9iBbAsOW+TNy2yRGri1ArjkKVysK0tjbfRQ6ewUgraICjAQSVGN1Knr5VnrrW41J8i+VQWiqBFU
IKpYAqAQfim7X4//E0UPDcnxQsJc4U3QsMpDam6lhlIYcZoB0ZCuLfwo3FcSv4vb/WM/j/krIPRlbj6+JHtLTV3wX+X86dvYpUdwBxNbgKSIEQZ956VbTegr
WpWLy1TBy7zz+NW3AA7pqCaJDXvQ/ett2BStQSS8sjU6iE6+8Eeyqp7lsdi08VgfVT+9H/bSEkB27eddaDYLEy3t/KluFIINW9KOkS2mYoDpElKKAx2lFADZ
3lqMW5lHpK/s5JdbuHX3bhYLKUmeyHIRISB51op52lbRGe0VJ3epkzjjIKcoUlA6HOo666mAOe01fqFXsc390zm+qQpIj7SplR+A9lRX5hRGSgEQJBTJOu22
o60QnardxtDbpIKFkwUkE6cj09tS62Bc4tE53UpKlN9oQJOognQk9NqjegS94Fw0u1fU28yl2QT2apBcRzUytOh08jpWSdVSV4v13jKLzaoJ4pgQw95m7aSP
o9wUyh1IV2WYg5SDtoSNOYo0qnaLK90LVhbY12zwm3S527bSErUmMyREp32GlVubasxlCK1SCNKMKgEVEAql7EFUIQr8jM2D978jRiNHcmipuKKgQUUAnCkV

• Dan terakhir kita jalankan file_client_cli.py seperi pembahasan, dab berikut hasilnya

PROTOKOL.txt   file_interface.py   file_server.py
file_client_cli.py   file_protocol.py   files
/Tugas-3-Progjar/progjar4a # nano file_client_cli.py
/Tugas-3-Progjar/progjar4a # python3 file_client_cli.py
WARNING:root:connecting to ('192.168.122.18', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
daftar file :
- pokijan.jpg
- donalbebek.jpg
- rfc2616.pdf
/Tugas-3-Progjar/progjar4a # ls
PROTOKOL.txt   file_interface.py   file_server.py
file_client_cli.py   file_protocol.py   files
/Tugas-3-Progjar/progjar4a # cd files
/Tugas-3-Progjar/progjar4a/files # ls
donalbebek.jpg pokijan.jpg   rfc2616.pdf
/Tugas-3-Progjar/progjar4a/files # cd ..
/Tugas-3-Progjar/progjar4a # nano file_client_cli.py
/Tugas-3-Progjar/progjar4a # python3 file_client_cli.py
WARNING:root:connecting to ('192.168.122.18', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
daftar file :
- pokijan.jpg
- donalbebek.jpg
- rfc2616.pdf
WARNING:root:connecting to ('192.168.122.18', 6666)
WARNING:root:sending message
WARNING:root:data received from server:

• Dan saat dicek dengan command "**ls**" dapat dilihat file donalbebek.jpg yang telah di get

```
/Tugas-3-Progjar/progjar4a # ls
PROTOKOL.txt          file_client_cli.py   file_protocol.py    files
donalbebek.jpg        file_interface.py    file_server.py
/Tugas-3-Progjar/progjar4a #
```

2. **Buatlah program client yang dapat melakukan 100 request get pada dalam satu saat untuk operasi get file "pokijan.jpg"**

- Buatlah file dengan nama multi_process.py lalu masukan source code berikut :

```python
from file_client_cli import remote_get
import time
import datetime
from multiprocessing import Process

def download_semua():
    texec = dict()
    catat_awal = datetime.datetime.now()
    namafile = 'pokijan.jpg'
    for k in range(100):
        print(f"mendownload GET {[k]}")
        waktu = time.time()
        #bagian ini merupakan bagian yang mengistruksikan eksekusi fungsi download gambar secara multiprocess
        texec[k] = Process(target=remote_get, args=(namafile,))
        texec[k].start()
    #setelah menyelesaikan tugasnya, dikembalikan ke main process dengan join
    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_akhir}")

#fungsi download_gambar akan dijalankan secara multi process
if __name__=='__main__':
    download_semua()
```

Program akan melakukan request get sebanyak 100 kali.

- Setelah membuat program multi_process.py, jalankan file_server.py terlebih dahulu
- Lalu jalankan file multi_process.py, dan hasilnya

```
/Tugas-3-Progjar/progjar4a # nano file_client_cli.py
/Tugas-3-Progjar/progjar4a # nano file_client_cli.py
/Tugas-3-Progjar/progjar4a # python3 multi_process.py
mendownload GET [0]
mendownload GET [1]
mendownload GET [2]
mendownload GET [3]
mendownload GET [4]
mendownload GET [5]
mendownload GET [6]
WARNING:root:connecting to ('192.168.122.200', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.200', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.200', 6666)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.200', 6666)
WARNING:root:sending message
mendownload GET [7]
mendownload GET [8]
mendownload GET [9]
mendownload GET [10]
mendownload GET [11]
mendownload GET [12]
WARNING:root:data received from server:
mendownload GET [13]
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.200', 6666)
WARNING:root:sending message
WARNING:root:data received from server:
```

Program akan melakukan get mulai dari 1- 100 kali

- Dan server akan mendapatkan data seperti

```
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.144', 55708)
WARNING:root:connection from ('192.168.122.144', 55710)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.144', 55712)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.144', 55714)
WARNING:root:connection from ('192.168.122.144', 55716)
WARNING:root:connection from ('192.168.122.144', 55718)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
```