

Tugas Multithreaded Server dan Protokol



OLEH :

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PEMROGRAMAN JARINGAN - E

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S1 TEKNIK INFORMATIKA

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2020

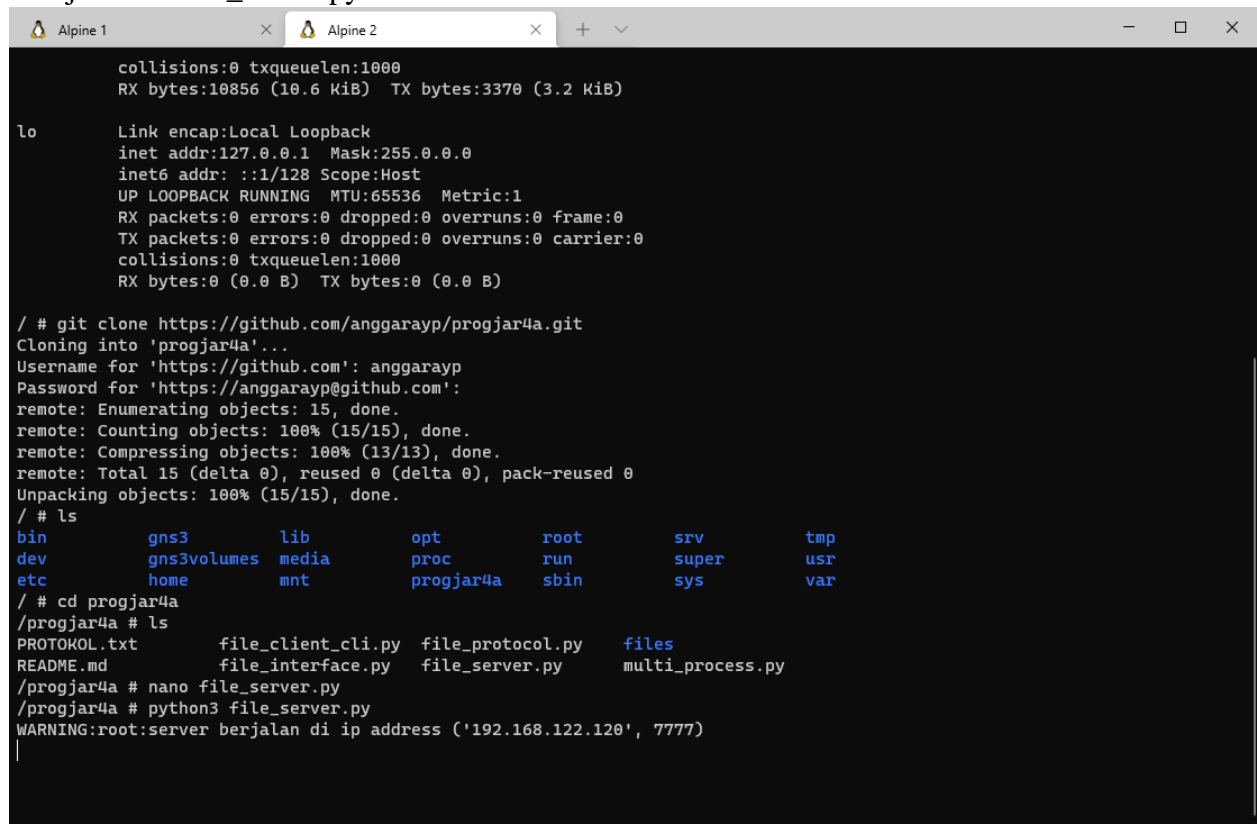
Implementasi program server sesuai contoh

semua tugas berikut ini HARUS dijalankan di SIMULATOR

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

Pada penugasan kali ini, Alpine 1 sebagai client dan Alpine 2 server.

1. Jalankan program server seperti dalam pembahasan
 - a) Ubah 'IP Address' menjadi IP Alpine 1 (192.168.122.120) di file file_server.py dan file_client_cli.py.
 - b) Menjalankan file_server.py



```
Alpine 1 x Alpine 2 x + v
collisions:0 txqueuelen:1000
RX bytes:10856 (10.6 KiB) TX bytes:3370 (3.2 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)

/ # git clone https://github.com/anggarayp/progjar4a.git
Cloning into 'progjar4a'...
Username for 'https://github.com': anggarayp
Password for 'https://anggarayp@github.com':
remote: Enumerating objects: 15, done.
remote: Counting objects: 100% (15/15), done.
remote: Compressing objects: 100% (13/13), done.
remote: Total 15 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (15/15), done.
/ # ls
bin          gns3        lib          opt          root         srv          tmp
dev          gns3volumes media        proc         run          super        usr
etc          home        mnt         progjar4a    sbin         sys          var

/ # cd progjar4a
/progjar4a # ls
PROTOKOL.txt      file_client_cli.py  file_protocol.py   files
README.md         file_interface.py  file_server.py     multi_process.py
/progjar4a # nano file_server.py
/progjar4a # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.120', 7777)
|
```

c) Jalankan file_interface.py

```
Alpine 1 x Alpine 2 x + v -
RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

/progjar4a # nano file_client_cli.py
/progjar4a # nano file_server.py
/progjar4a # python3 file_interface.py
{"status": "OK", "data": ["pokijan.jpg", "donalbebek.jpg", "rfc2616.pdf"]}
```

... (transmitted data) ...

d) Jalankan file_protocol.py

```
Alpine 1 x Alpine 2 x + v -

T0sqjyBOLDJhOTkiUMItx/ww/4B+LTJhOxS2MNZH/Cb/hFTJhOe7Fk1+zR/CKGSPQHxHGqLre3ZPm2g/LTWSIQn+Dc0X61lbn/CQPKKa7IeJg/DwABZ24A2h
pA+MunSe5ZgrOHutruj6OHLMbWzPX1E+fsk7KHRF/BAHYnbtJfNkkYmx+xa/gt+Lhs49EVvFVn+uXzYjhVvIPYtSNjKT9sUySwwXKpKtVtJtj1m0oyotBPu
pBPvIo2Fuz02f3EfEwihLXQftan9T+Z4bnV9mj+EfpUSSFc5S3bohboAgITHSBRBC6DSfuj3ChYmZ9RFLP3R7hRI23uehAHIE6oA9qEPahBVCCqEOVD+pNQg
pqEPZqEI93ZNOCHG0LH76QrSioQr17wHhbb71kxz9VOTciFuijmZAO/60cLg7fIgTI9Z208JUV9LHMyBfzhWzWtYglxi3bbXEZwJVB3GYyr40g9B9xAoEP/Z'
}

/progjar4a # nano file_client_cli.py
/progjar4a # python3 file_protocol.py
WARNING:root:string dipozes: LIST
WARNING:root:memprozes request: LIST
{"status": "OK", "data": ["pokijan.jpg", "donalbebek.jpg", "rfc2616.pdf"]}
```

... (transmitted data) ...

e) Jalankan file_client_cli.py

```
Alpine 1 Alpine 2
0+BxxTibjDKHEoK0JebKiN0JzCVRZG48JrplQ5r05d9vWzSP7byLmfCe2sYtIIBHkSK000yXh5hqxcU0yk+klX/tz/wDhff5usnCPxkPj/1ZnjuF8Mwxq
3W80hKRDCagSA6Ar/Nn91W8Ru5xb2a8vS+Y9VWkVL0i8NPP0C4ZbLoyBKkAiQQTrBiQqewunLXR4VjqNkm6cnbXQNNJ6xt4kv0a4E9bpdceBQXMiUoJBKuo
zSTG0LQ91V8Vxd0tLjT0ufiJJ6nnpSdGvKBYBBUuJ5Hu3yr+GtXCKVnKfK1vuGIP9GzSy4txZSUJ9WI9dQjLzCc38Qq3iidQpamt35Ik3bQs3FnEn0Rtkw
LLilqCQjPLJnc7GY02HMVycJhF4itWaySu3v+BYRc5ZYlce46foib0TzL2B/FkiPGtn+mUn/wC36fubHwzEr9D+R3hnF6nHEoXbltK1ZAsrB7ST6pAJ1AE7
aiknwyF0m5Qne3d+5nrYKtSV5xaJXEjBcYUAJIhafxIM8+uo9tZsLJ061kttn8fVynDVuyqxm9r6+BVsIXAC5YSBM5p6ABtZ+ddWpSfZSb9anoek4uLp0nHn
bzRY0I8QLVutYVBGXb8adNeorNh8PGVRJ9/kcLC15U6iaAVviTKila09msHQjUE+I8RoYrX0hUpq0dV05noI160IjLmGX7TtUhaCFAj7Me6uW8T2crTVjDU4
Um/ZYGxjBHVMMKRLPqQ18Y8/ktNLGUot04LPhU3JK5qHddq43asoI9VtA9yRprXWVTmroqnsUZXNKL6cOHXUMXSJKWcyXgPuKIIIX1gEgftTsDV8WZmZh3Wm
h0qPuqHL7FQ2ATRMbaddT+VZKuHLN6CuDlseyLYiYrxsonuocBKRvL/SjToSpwd+dhoRcU7L5t76q3EZMJMLV0IyYTs7wHQQjxP8qTKOpHd+00SMqsJg9RU
SAeikyMyTzEjwIIBpJQjJWmrr1sCUVNWYDuOKPoxAu2XGh+0Q00aOu+cCUzPMCS74Y5a0pJ92z9fEodJrYkMekGyCF0JfIEnuqn3EVLhGJ5L6othKcQXfe
Lft05atmdZccAATtqEifeSOWhq+npPnXenRfk30JKTS/L+4MRfLSgtxz0s6q72g/Xzq2cIR0hGyPYYGmL83km+7bwQUwrHG7dSn3cwEQK2E7EHbySazV6Eq6
UI9VuZe0YVWXc2h+l5n4JO/mQuLeOrS7ZQw0XM5eZUJSE6BYPWrsHwuthqjStbLLn3HkMEv/Ip/wB0fNarHQ2pLQcIk+prrmB0j8604RSz6Ht+KzJGg4t9C
XwDxE5buhm4BHDyGGRmQD3SnNEX8qmPwWdXicLtY47Ddk9Jrb138+8u2J8eWCUlDucBQgpKRQDodM22tYlwmvvyCfiefKL03KRw36QxavrtipS7LMezUoFw
InvAGTqJMVvxeALxo2dLPS/Q01W5wzWjVvHHH1o/ZustqczLYAHL0cLxct0miTvWDAcIXFDExqTtZX59zRkUwmmdcM8TXLRirplaVqKcmUEAKCepT6vPWNCTV
sduNW9CS7J+PgddCnnaDnt08V+Sx0hWSUGurU0r7q0k/FEgxrLR4RWteFpd6f50Pww1WjLJU10+88f9IvPlbUvrm5RqgFXISoTv0B3FaaPCKv67RRWo
N6FTfeU+ov3BBUdKjUR0gbDoD4zW+UoUoKLR2XPqen4Vwtr+ZWxgn5sPt8R2to0LJzzGchK0pid/AD2VgqYCriJZ1b4s5PF6c3iG3a3Jdy/IEv8XREXCXUJO
RpHdzjJVe5j70/9grdQwzW1Bxdryfl16uNwiiu2zy5a/HkQ8TxdCDLQ2patpTJA36U8aN1roJvzxLnLjqDmGlyLxSVFQIIEEB0x+FNKwMwK0KFTu30s1qWlX
FSZACHSQJICNCRqYPOsiwFXDwseTq4eUJukd0iq2jxTdm5DbwZCLedxWYkZER5n4Cui4yLS7N+8aXSk6kk/D6kjGuKXG3EJKgrTQgDZQ00um0VXQws4TUm
ZYU2ncqjuIL0IV4bzv47Ct9i90Rw7GHwgJXovXVW05Ax46Vnr4aNRd5Z29RbMmYbiLxfoi0YworWDqSQkAAySd4Anas0cBCLu0i200rp7m94LZrYZQ044px
SZLcJTm10sJECtdlyKJTCndh6KgoCc4Mw5SipVmxJ1JyAT7BA03YL16Twbh42tgf4RQJLQ6nh0xGotWf4RUJLR7/wCLbkZ+joHLIHuBihLRmqPWOGBRBJDKd
T0sqjyB0LDJH0TKiUMItx/ww/4B+LTJH0sX2MNZH/Cb/hFTJH0E7Fk1+zR/CKGSPQHxHqLqre3ZPm2g/LTWSIQn+Dc0X61lbn/CQPkka7IeJg/DwABZ24A2h
pA+MUrSe5ZGr0Hutr4j60HLMbWzPX1E+fSk7KHRF/8AHYNbtJfNkkyWw+xa/gT+Lhs49EVvFVn+uXzYjhVvIPYtSNjKTI9sUySwXKPKTvtJtjJlM0oyptBPU
pBPvIo2Fuz02j3EfwiHlXQftan9T+Z4bNv9mj+EfpUSSFc5S3b0hboAgITHSBRBC6DSfuj3ChYmZ9RFLP3R7hRI23uehAHIE6oA9qEPahBVCCqEOVD+pNQg
pqEPZqEI93ZNOCHG0LH76Qr5ioQr17WHbh71kxz9V0TciFuijmZA0/60cLgf7IgTI9Z208JUY9LHMYBfhzhWytglxi3bbXEZwJVB3GYyr40GyB9xAoEP/Z"
}

/progjar4a # python3 file_client_cli.py
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:data received from server:
daftar file :
- pokijan.jpg
- donalbebek.jpg
- rfc2616.pdf
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:data received from server:
/progjar4a #
```

f) Hasil :

```
/progjar4a # ls
PROTOKOL.txt      donalbebek.jpg      file_protocol.py      multi_process.py
README.md          file_client_cli.py  file_server.py        pokijan.jpg
__pycache__       file_interface.py   files
```

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

a) Buat file multi_process.py seperti pada tugas sebelumnya, namun terdapat modifikasi

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

def mengunduh():
    texec = dict()
    # urls = get_url_list()
    catat_awal = datetime.datetime.now()
    fileName = 'pokijan.jpg'
    for k in range(100):
        print(f"mendownload GET {[k]}")
        waktu = time.time()
        #bagian ini merupakan bagian yang menginstruksikan eksekusi fung
        si download gambar secara multiprocess
```

```

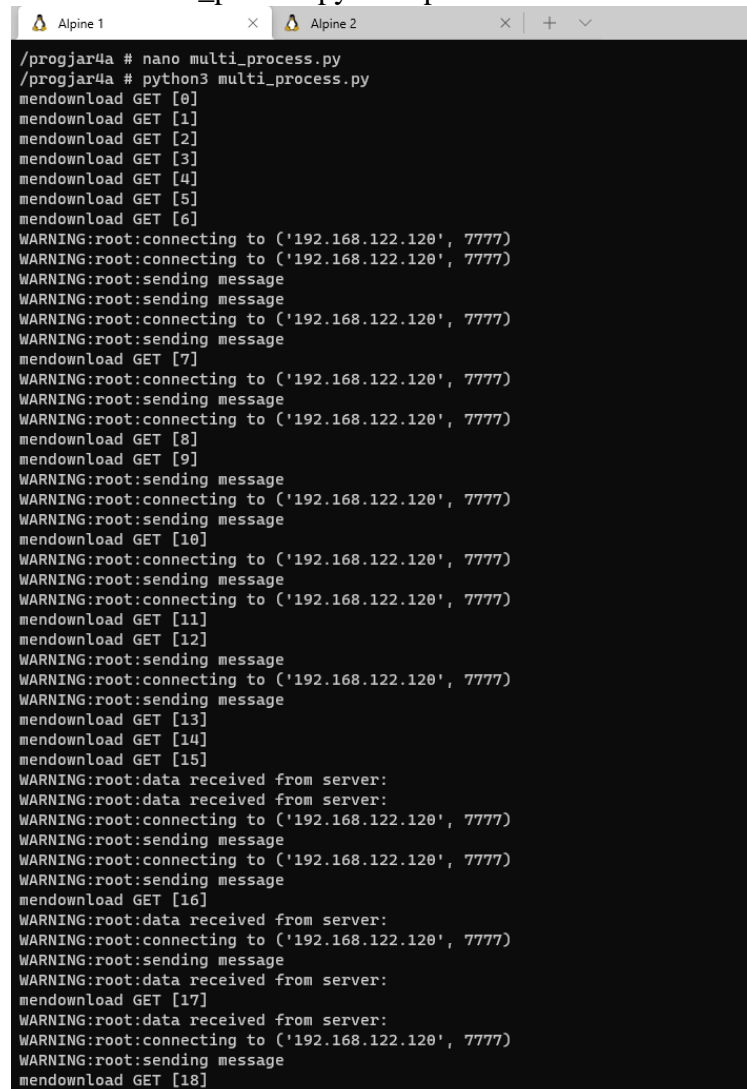
        texec[k] = Process(target=remote_get, args=(fileName,))
        texec[k].start()

    #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__':
    mengunduh()

```

b) Jalankan file_server.py di Alpine 2

c) Jalankan multi_process.py di Alpine 1



```

Alpine 1
/progjar4a # nano multi_process.py
/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 ('192.168.122.120', 7777)
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [7]
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
mendownload GET [8]
mendownload GET [9]
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [10]
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
mendownload GET [11]
mendownload GET [12]
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [13]
mendownload GET [14]
mendownload GET [15]
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [16]
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:data received from server:
mendownload GET [17]
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [18]

```



```
Alpine 1 x Alpine 2 x + v
mendownload GET [98]
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
mendownload GET [99]
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:sending message
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:sending message
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:connecting to ('192.168.122.120', 7777)
WARNING:root:sending message
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
WARNING:root:data received from server:
Waktu TOTAL yang dibutuhkan 0:00:02.356604 detik 2021-07-02 07:09:43.550570 s/d 2021-07-02 07:09:45.907174
/progjar4a # |
```

d) Berikut notifikasi dari server

```
Alpine 1 x Alpine 2 x + v
/progjar4a # python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.120', 7777)
WARNING:root:connection from ('192.168.122.2', 46168)
WARNING:root:connection from ('192.168.122.2', 46170)
WARNING:root:connection from ('192.168.122.2', 46172)
WARNING:root:connection from ('192.168.122.2', 46174)
WARNING:root:connection from ('192.168.122.2', 46176)
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 ('192.168.122.2', 46178)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.2', 46180)
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 ('192.168.122.2', 46182)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.2', 46184)
WARNING:root:connection from ('192.168.122.2', 46186)
WARNING:root:connection from ('192.168.122.2', 46188)
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 ('192.168.122.2', 46190)
WARNING:root:connection from ('192.168.122.2', 46192)
WARNING:root:connection from ('192.168.122.2', 46194)
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 ('192.168.122.2', 46196)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.2', 46198)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.2', 46200)
WARNING:root:connection from ('192.168.122.2', 46202)
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
```