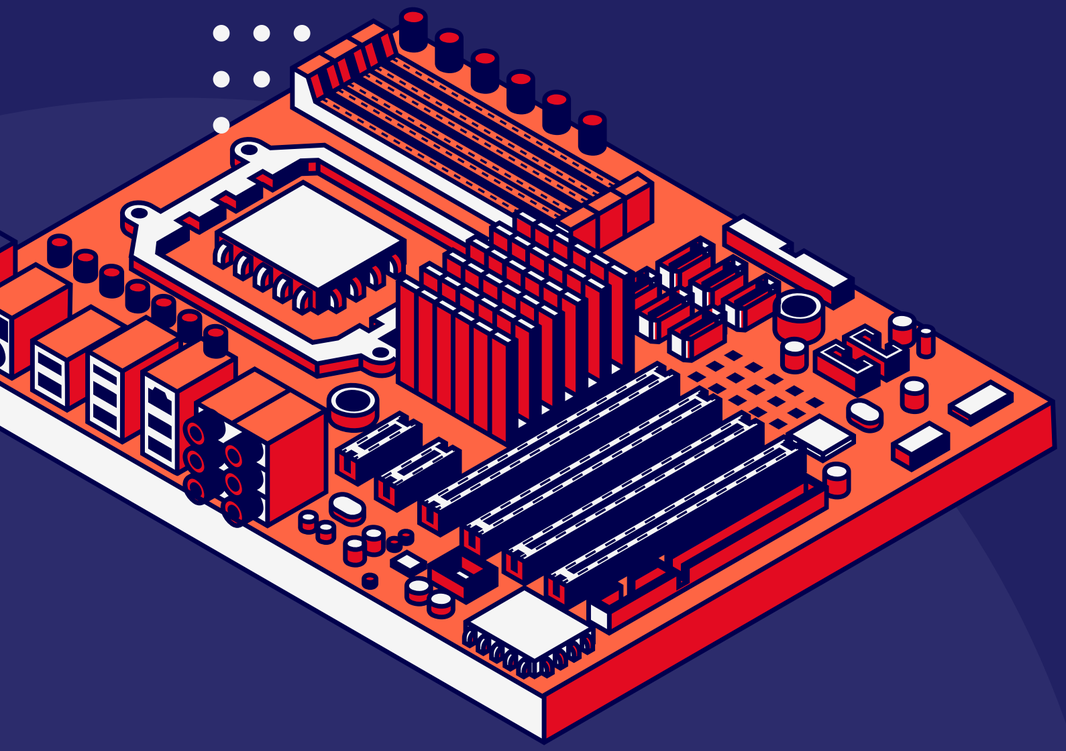
Studio Shodwe

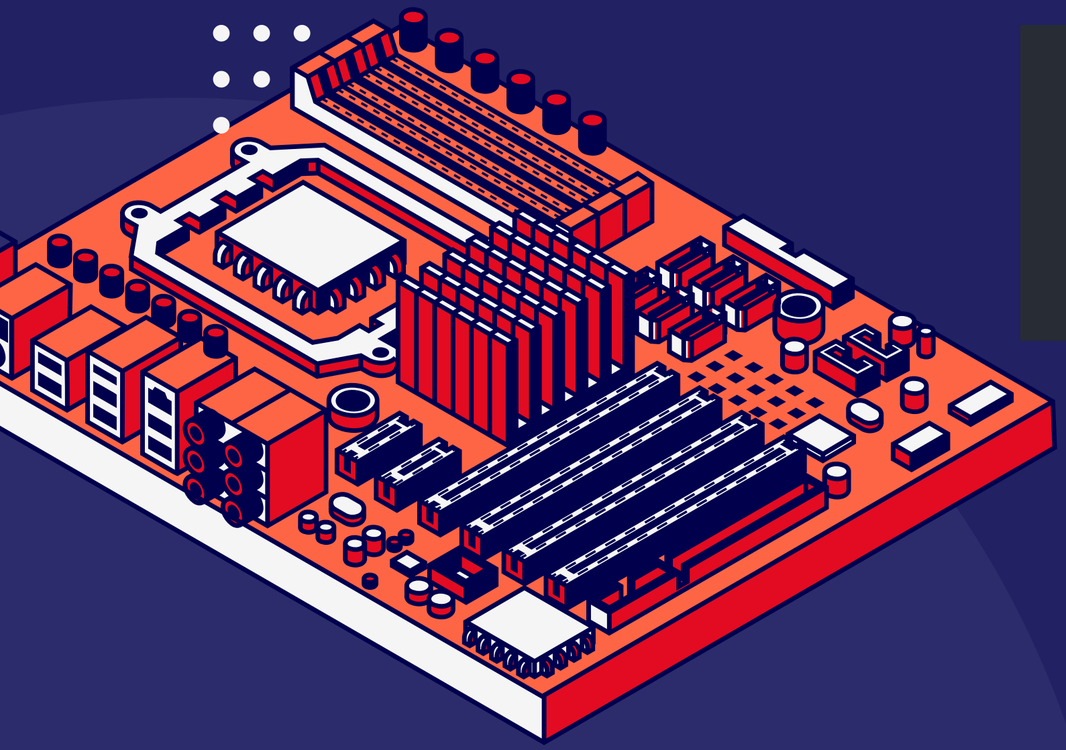
Jaringan Komputer

Kelompok YTTA



Single Thread

Hanya satu thread yang aktif.
Server melayani satu klien dalam satu waktu.



```
HOST = '0.0.0.0'
PORT = 6789
```

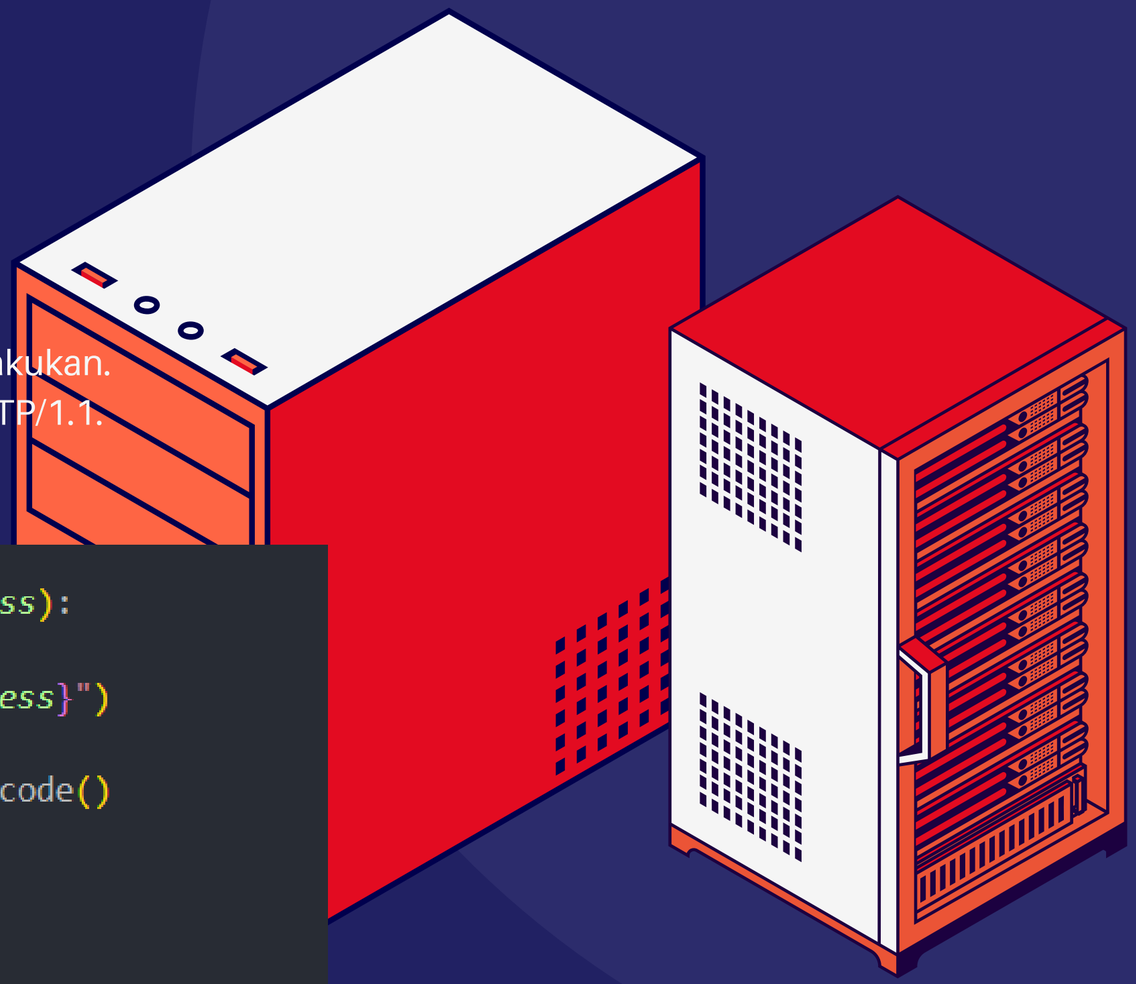
- HOST = '0.0.0.0' untuk server menerima koneksi dari semua alamat IP (localhost & jaringan).
- PORT = 6789 untuk port server. Bisa diakses dari browser: http://localhost:6789/.

Konfigurasi ke Server

Studio Shodwe

Fungsi handle_client()

- Fungsi ini bertanggung jawab melayani 1 klien.
- Di sinilah proses membaca request dan membalas file dilakukan.
- Ambil method dan path dengan contoh GET /file.html HTTP/1.1.
- Buang tanda / di depan path menjadi nama file lokal.



```
def handle_client(client_socket, client_address):
    try:
        print(f"[+] Koneksi dari {client_address}")

        request = client_socket.recv(1024).decode()
        print(f"[REQUEST] {request}")

        lines = request.splitlines()
        if len(lines) > 0:
            method, path, _ = lines[0].split()
            filename = path.lstrip('/')
```

Studio Shodwe

Pengangan Request

```
if method != 'GET':
    response = "HTTP/1.1 405 Method Not Allowed\r\n\r\nMethod Not Allowed"
    client_socket.sendall(response.encode())
elif not os.path.isfile(filename):
    response = "HTTP/1.1 404 Not Found\r\n\r\n404 File Not Found"
    client_socket.sendall(response.encode())
```

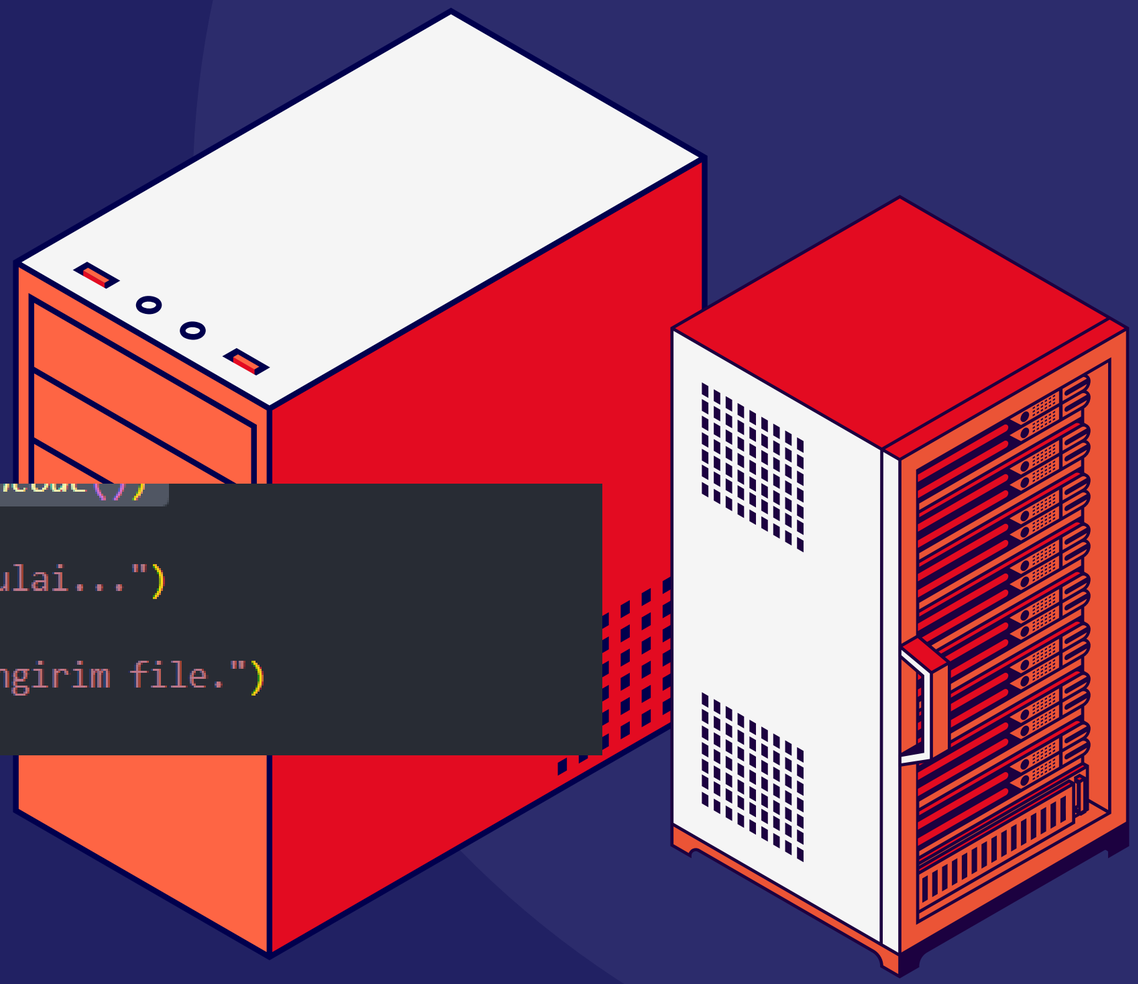
Cek apakah method GET, dan file benar-benar ada.

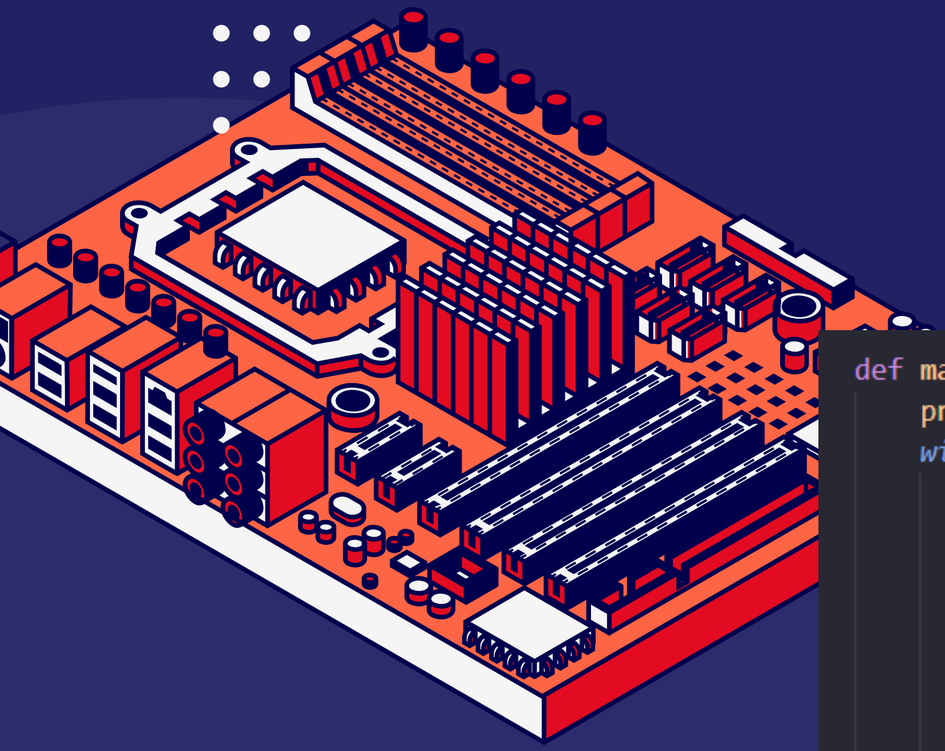
Studio Shodwe

Simulasi Delay

- Delay 3 detik untuk mensimulasikan server sedang sibuk.

```
        else:
            print("[DEBUG] Delay 3 detik dimulai...")
            time.sleep(3)
            print("[DEBUG] Delay selesai. Mengirim file.")
```



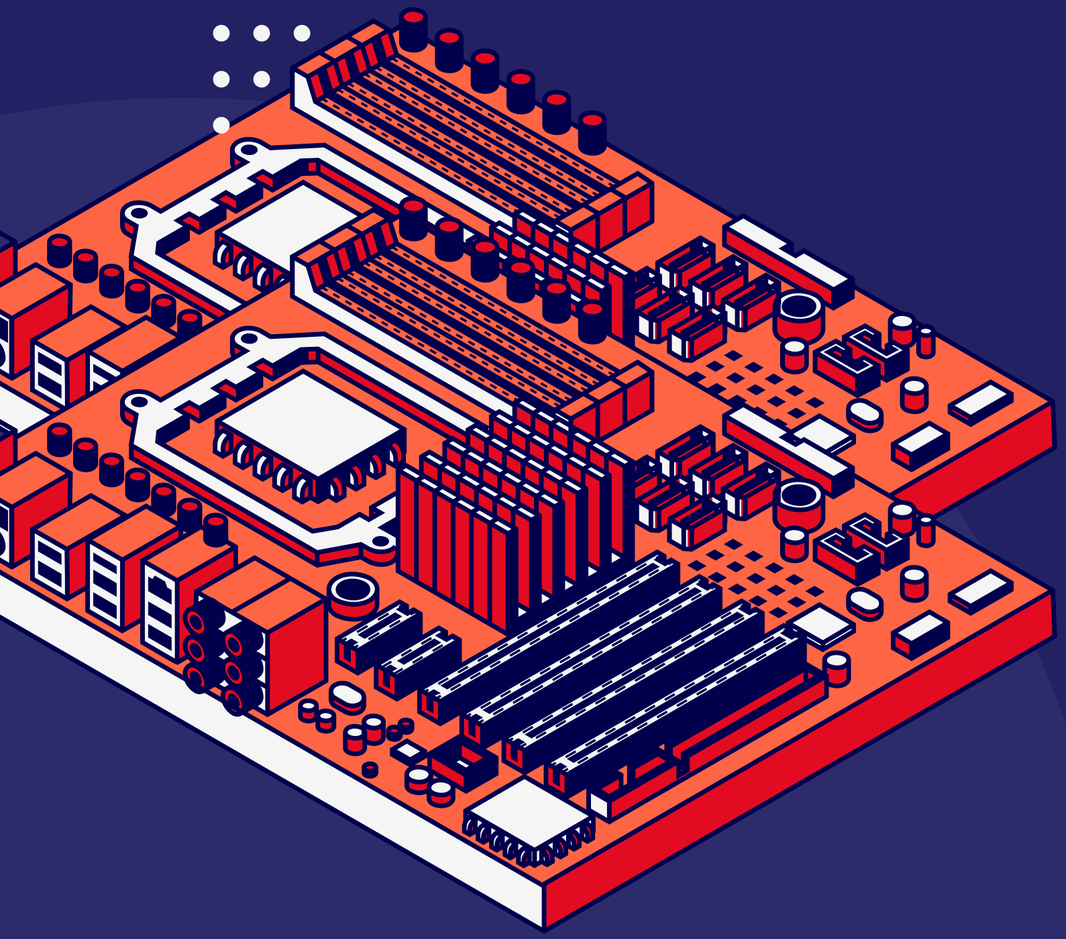


Loop Utama main()

```python
def main():
    print("[*] Server SINGLE THREAD sedang berjalan")
    with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as server_socket:
        server_socket.setsockopt(socket.SOL_SOCKET, socket.SO_REUSEADDR, 1)
        server_socket.bind((HOST, PORT))
        server_socket.listen(1)
        print(f"[*] Listening di {HOST}:{PORT}")

        while True:
            client_socket, client_address = server_socket.accept()
            handle_client(client_socket, client_address)
```

- Server menerima koneksi satu per satu.
- Tidak ada thread klien berikutnya menunggu.



Multi Thread

- Satu program bisa punya banyak thread yang jalan paralel.
- Masing-masing thread bisa menjalankan tugas yang berbeda atau menangani klien yang berbeda.

Konsep

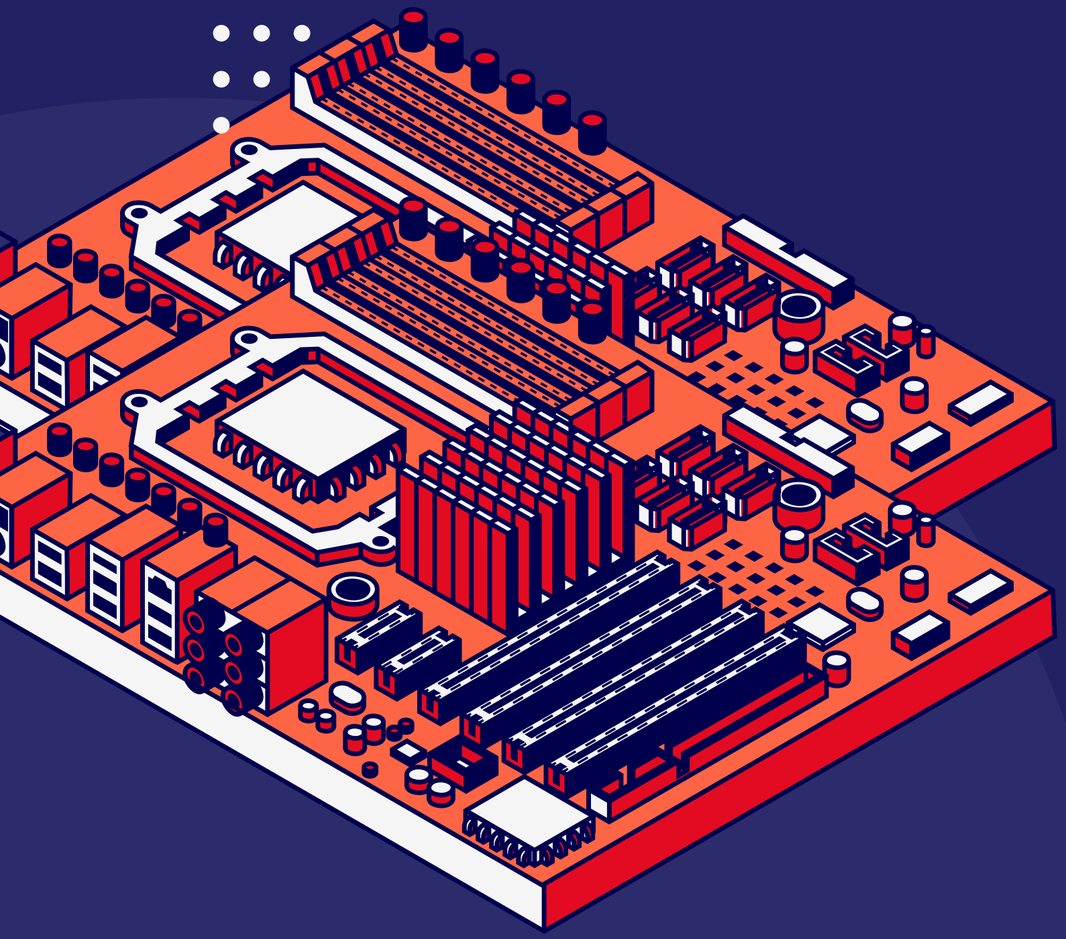
- Setiap koneksi dijalankan di thread terpisah.
- Beberapa klien bisa dilayani secara bersamaan.

Kelebihan

- Lebih cepat, efisien untuk banyak klien.
- Klien tidak harus menunggu giliran.

Kekurangan:

- Lebih kompleks (perlu manajemen thread).
- Konsumsi memori lebih tinggi.



Konfigurasi Server

```
HOST = '0.0.0.0'
PORT = 6789
```

Studio Shodwe

Fungsi handle_client()

- Fungsi ini bertanggung jawab melayani banyak klien.
- Di sinilah proses membaca request dan membalas file dilakukan.
- Ambil method dan path dengan contoh GET /file.html HTTP/1.1.
- Buang tanda / di depan path menjadi nama file lokal.

```python
def handle_client(client_socket, client_address):
    try:
        print(f"[+] Koneksi dari {client_address}")

        request = client_socket.recv(1024).decode()
        print(f"[REQUEST] {request}")

        lines = request.splitlines()
        if len(lines) > 0:
            method, path, _ = lines[0].split()
            filename = path.lstrip('/')

            if method != 'GET':
                response = "HTTP/1.1 405 Method Not Allowed\r\n\r\nMethod Not Allowed"
                client_socket.sendall(response.encode())
            elif not os.path.isfile(filename):
                response = "HTTP/1.1 404 Not Found\r\n\r\n404 File Not Found"
                client_socket.sendall(response.encode())
            else:
                with open(filename, 'rb') as f:
                    content = f.read()

                header = (
                    "HTTP/1.1 200 OK\r\n"
                    f"Content-Length: {len(content)}\r\n"
                    "Content-Type: text/html\r\n"
                    "\r\n"
                ).encode()

                client_socket.sendall(header + content)

    except Exception as e:
        print(f"[ERROR] {e}")
    finally:
        client_socket.close()
        print(f"[-] Koneksi ditutup dari {client_address}")
```

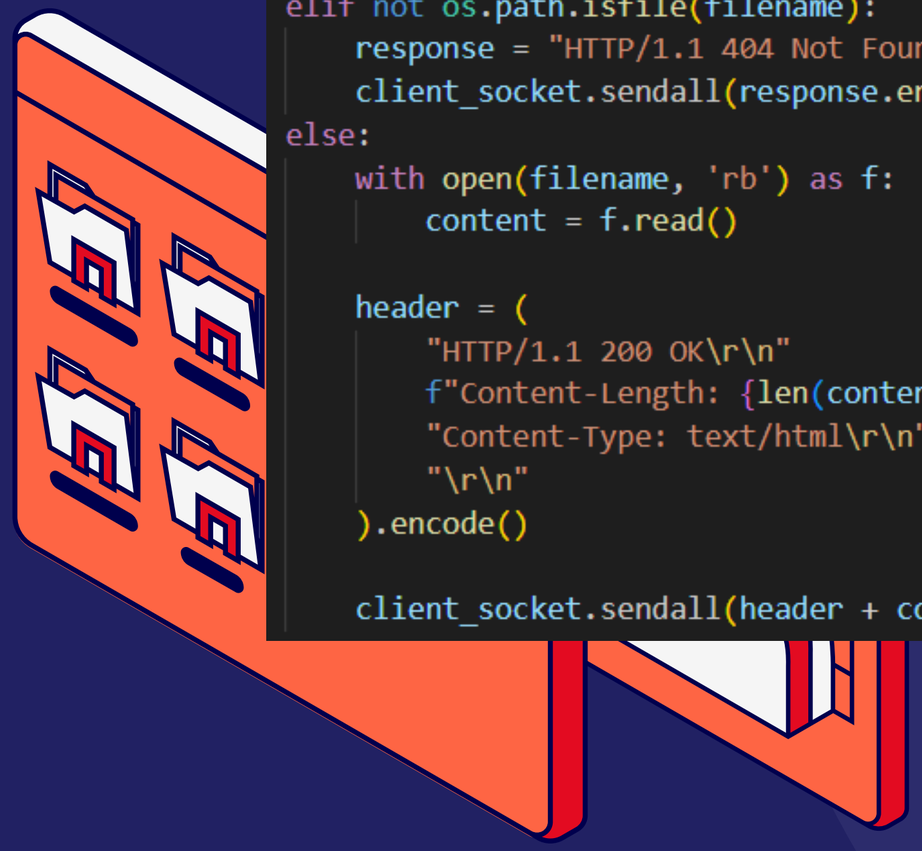
Studio Shodwe

Pengangan Request

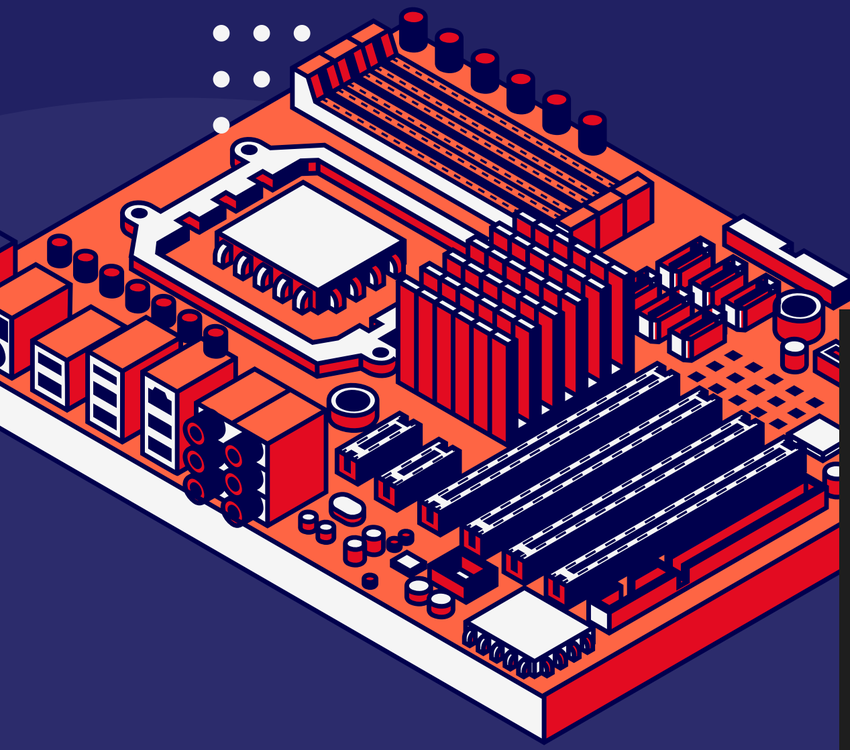
```
if method != 'GET':
    response = "HTTP/1.1 405 Method Not Allowed\r\n\r\nMethod Not Allowed
    client_socket.sendall(response.encode())
elif not os.path.isfile(filename):
    response = "HTTP/1.1 404 Not Found\r\n\r\n404 File Not Found"
    client_socket.sendall(response.encode())
else:
    with open(filename, 'rb') as f:
        content = f.read()

    header = (
        "HTTP/1.1 200 OK\r\n"
        f"Content-Length: {len(content)}\r\n"
        "Content-Type: text/html\r\n"
        "\r\n"
    ).encode()

    client_socket.sendall(header + content)
```



Cek apakah method GET, dan file benar-benar ada.



Loop Utama main()

```python
def main():
    print("[*] Server MULTI THREAD sedang berjalan")
    with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as server_socket:
        server_socket.bind((HOST, PORT))
        server_socket.listen(5)
        print(f"[*] Listening di {HOST}:{PORT}")

        while True:
            client_socket, client_address = server_socket.accept()
            thread = threading.Thread(target=handle_client, args=(client_socket, client_address))
            thread.start()

if __name__ == "__main__":
    main()
```

MKSH

(>_<)

+62 896-0416-2102

https://github.com/Hiiroga/Tubes-Jaringan-Komputer