

LAPORAN
Socket Programming Simple Server and Client

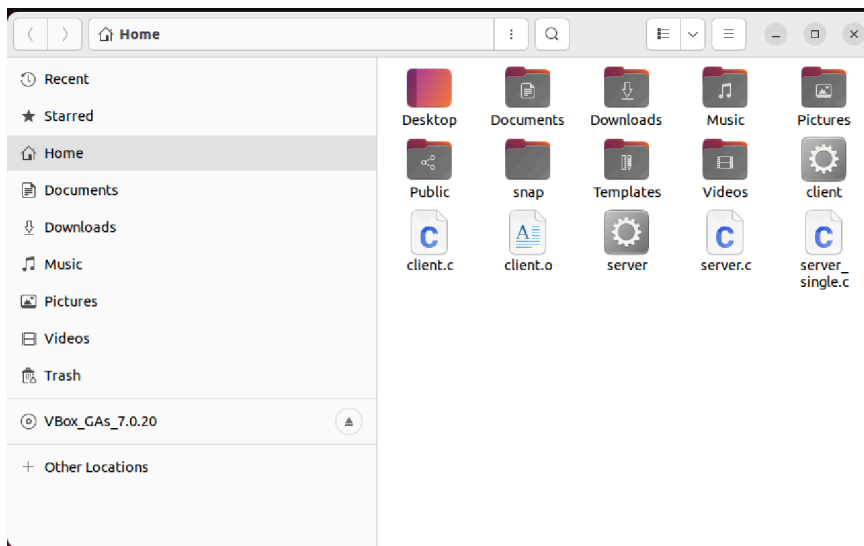


Mata Kuliah :
Konsep Jaringan

Dosen :
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1. Mempaste program client.c dan server.c di IDE code block dan simpan di directory home



2. Mencompile file client.c dan server.c di terminal

```
yusufwr@yusufwr-VirtualBox:~$ gcc -o server server.c
yusufwr@yusufwr-VirtualBox:~$ gcc -o client client.c
yusufwr@yusufwr-VirtualBox:~$
```

3. Menjalankan server dan client
 - Di terminal pertama, jalankan perintah ./server

```
yusufwr@yusufwr-VirtualBox: ~ x yusufwr@yusufwr-VirtualBox: ~ x v
yusufwr@yusufwr-VirtualBox:~$ ./server
```

Maka server akan menunggu koneksi dari client

- Di terminal kedua, jalankan perintah ./client

```
yusufwr@yusufwr-VirtualBox: ~ x yusufwr@yusufwr-VirtualBox: ~ x v
yusufwr@yusufwr-VirtualBox:~$ ./client
What do you want to say?
```

- Dan coba kirim pesan “ hello “. Jika berhasil, server akan menerima pesan dari client dan menampilkan pesan dari client

```
yusuf@yusuf-VirtualBox: ~  
yusuf@yusuf-VirtualBox:~$ ./server  
Connection with '4' has been established and delegated to the process 3323.  
Waiting for a query...  
Process 3323: Received 'hello'. Processing... Responded with 'hello'. Waiting for a new query...
```

```
yusuf@yusuf-VirtualBox: ~  
yusuf@yusuf-VirtualBox:~$ ./client  
What do you want to say? hello  
server replied: hello  
What do you want to say? █
```

4. Multi user server

Program server dengan fork() yang ketika setiap kali klien baru terhubung, server akan membuat proses baru (child process) untuk menangani klien tersebut, sehingga server utama tetap dapat menerima koneksi baru dari klien lain

- Client 1

```
yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x  
yusuf@yusuf-VirtualBox:~$ ./client  
What do you want to say? hello1  
server replied: hello1  
What do you want to say? world1  
server replied: world1  
What do you want to say? █
```

- Client 2

```
yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x  
yusuf@yusuf-VirtualBox:~$ ./client  
What do you want to say? hello2  
server replied: hello2  
What do you want to say? world2  
server replied: world2  
What do you want to say? █
```

- Server

```
yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x yusuf@yusuf-Virt... x  
yusuf@yusuf-VirtualBox:~$ ./server  
Connection with '4' has been established and delegated to the process 3413.  
Waiting for a query...  
Connection with '4' has been established and delegated to the process 3421.  
Waiting for a query...  
Process 3413: Received 'hello1'. Processing... Responded with 'hello1'. Waiting for a new query...  
Process 3421: Received 'hello2'. Processing... Responded with 'hello2'. Waiting for a new query...  
Process 3421: Received 'world2'. Processing... Responded with 'world2'. Waiting for a new query...  
Process 3413: Received 'world1'. Processing... Responded with 'world1'. Waiting for a new query...
```

5. Kesimpulan

- Server bertugas untuk menerima koneksi dan menangani permintaan dari client, sedangkan client berfungsi untuk mengirimkan data atau permintaan ke server dan menerima respons dari server.
- Socket digunakan sebagai alat untuk komunikasi antara client dan server. Server membuka socket untuk mendengarkan koneksi, sedangkan client membuat socket untuk menghubungkan dirinya ke server
- Dengan multi-user server menggunakan `fork()`, server dapat menangani beberapa klien secara simultan, memungkinkan komunikasi antara banyak client tanpa saling mengganggu antar client