

# **TUGAS MENJALANKAN PROGRAM CHAT DI EMULATOR**



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**Kelas:  
Pemrograman Jaringan D**

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## Soal

Jalankan program chat tersebut di EMULATOR. lakukan menggunakan konfigurasi

- 1 mesin berfungsi sebagai chat server
- 2 mesin berfungsi sebagai chat client

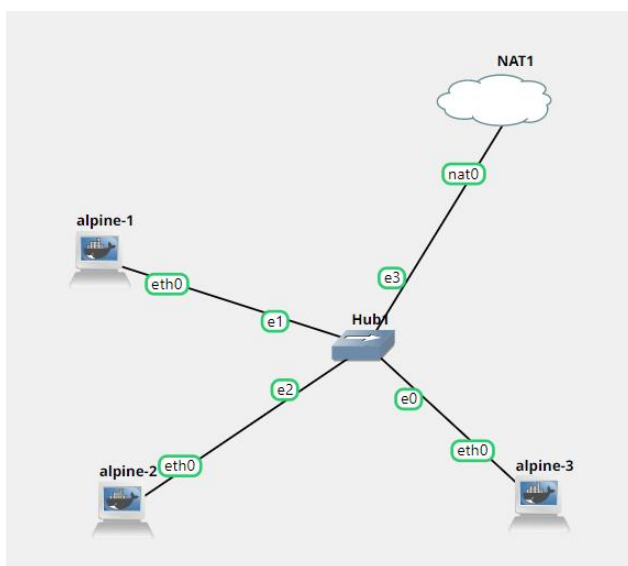
Buatlah interaksi antara 2 mesin client dengan server. Lakukan aktifitas-aktifitas berikut ini

- Authentication
- Berkirim pesan antar user

dan capturelah ke dalam gambar, dan submitlah dalam bentuk 1 dokumen PDF. Berikan PENJELASAN SINGKAT dari hasil capture anda.

## Jawaban

### 1. Topologi



### 2. Konfigurasi

alpine-1: server  
alpine-2: client  
alpine-3: client

### 3. Mengubah IP pada server\_thread\_chat.py pada alpine-1 menjadi IP Server 192.168.122.53

```
alpine-1 x alpine-2 x alpine-3 x
/home/work/Pemrograman_Jaringan_D/progjar4c # ifconfig
eth0      Link encap:Ethernet  HWaddr 9A:CF:0C:0E:38:87
          inet addr:192.168.122.53  Bcast:192.168.122.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:18046 errors:0 dropped:0 overruns:0 frame:0
          TX packets:2283 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:18990582 (18.1 MiB)  TX bytes:128122 (125.1 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)

/home/work/Pemrograman_Jaringan_D/progjar4c #
```

```
GNU nano 4.6 server_thread_chat.py Modified
class Server(threading.Thread):
    def __init__(self):
        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):
        self.my_socket.bind(('192.168.122.53', 8889))
        self.my_socket.listen(1)
        while True:
            self.connection, self.client_address = self.my_socket.accept()
            logging.warning("connection from {}".format(self.client_address))

            clt = ProcessTheClient(self.connection, self.client_address)
            clt.start()
            self.the_clients.append(clt)
```

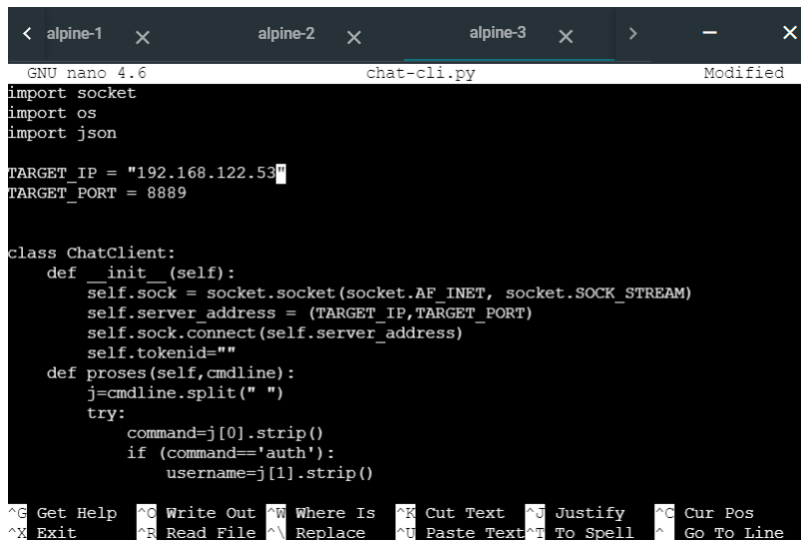
4. Mengubah Target IP pada chat-cli.py pada alpine-2 dan alpine-3 menjadi IP Server 192.168.122.53

```
GNU nano 4.6 chat-cli.py Modified
import socket
import os
import json

TARGET_IP = "192.168.122.53"
TARGET_PORT = 8889

class ChatClient:
    def __init__(self):
        self.sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
        self.server_address = (TARGET_IP, TARGET_PORT)
        self.sock.connect(self.server_address)
        self.tokenid = ""

    def proses(self, cmdline):
        j = cmdline.split(" ")
        try:
            command = j[0].strip()
            if (command == 'auth'):
                username = j[1].strip()
```

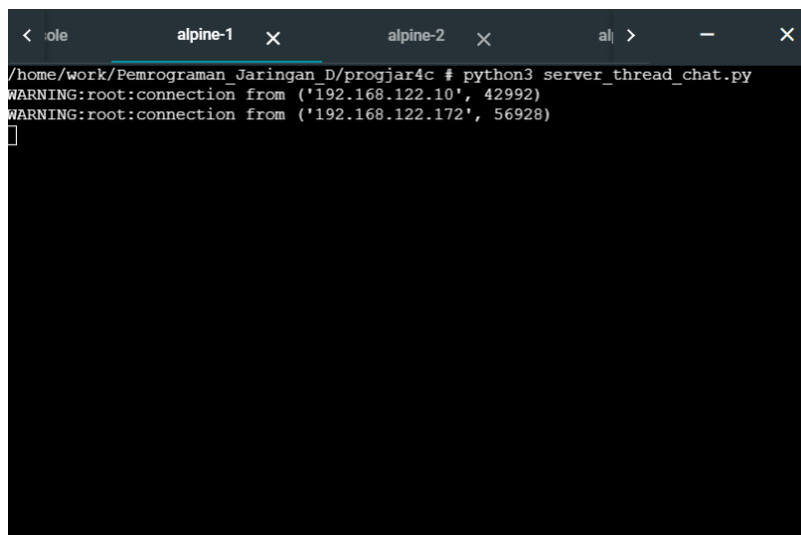


```
GNU nano 4.6 chat-cli.py Modified
import socket
import os
import json

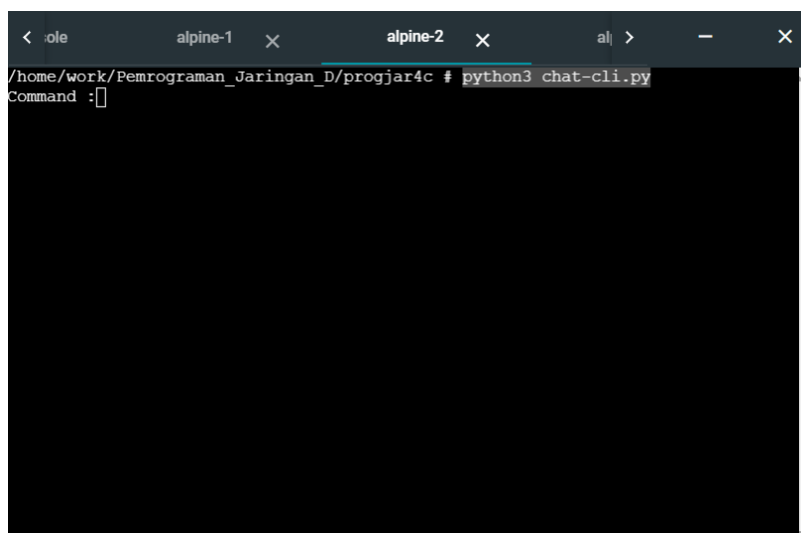
TARGET_IP = "192.168.122.53"
TARGET_PORT = 8889

class ChatClient:
    def __init__(self):
        self.sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
        self.server_address = (TARGET_IP, TARGET_PORT)
        self.sock.connect(self.server_address)
        self.tokenid=""
    def proses(self, cmdline):
        j=cmdline.split(" ")
        try:
            command=j[0].strip()
            if (command=='auth'):
                username=j[1].strip()
```

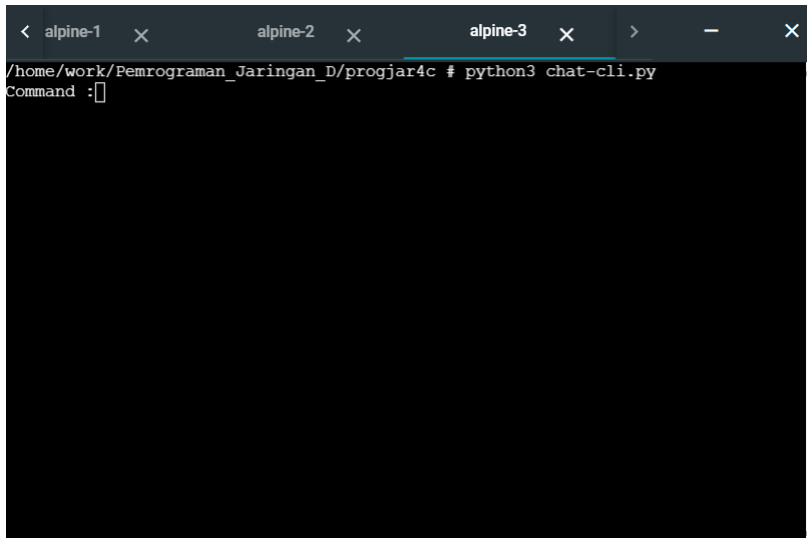
5. Menjalankan program dengan command  
alpine-1: python3 server\_thread\_chat.py  
alpine-2 dan alpine-3: python3 chat-cli.py



```
< .ole alpine-1 alpine-2 alpine-3
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 server_thread_chat.py
WARNING:root:connection from ('192.168.122.10', 42992)
WARNING:root:connection from ('192.168.122.172', 56928)
```



```
< .ole alpine-1 alpine-2 alpine-3
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :>
```



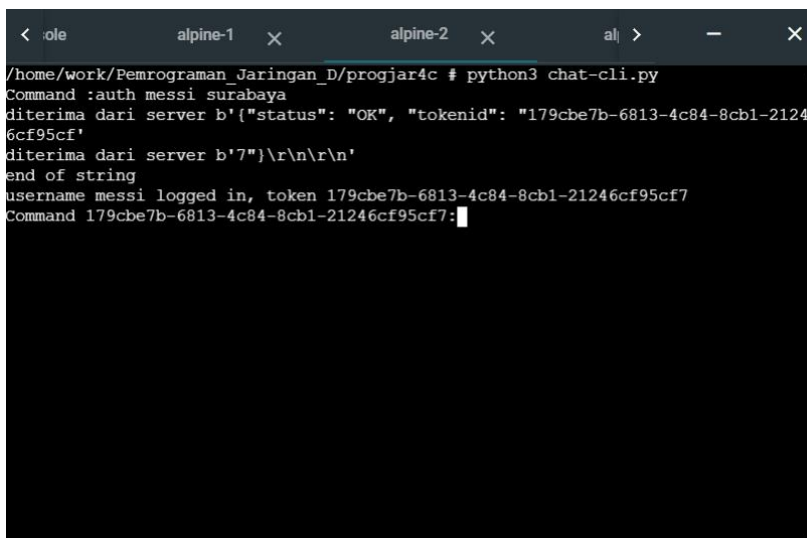
```
alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :█
```

## 6. Authentication

- Berikut adalah daftar user yang terdaftar

```
self.users['messi']={ 'nama': 'Lionel Messi', 'negara': 'Argentina', 'password': 'surabaya', 'incoming': {}, 'outgoing': {}}
self.users['henderson']={ 'nama': 'Jordan Henderson', 'negara': 'Inggris', 'password': 'surabaya', 'incoming': {}, 'outgoing': {}}
self.users['lineker']={ 'nama': 'Gary Lineker', 'negara': 'Inggris', 'password': 'surabaya', 'incoming': {}, 'outgoing': {}}
```

- Jika kita berhasil memasukkan username dan password dengan benar



```
alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth messi surabaya
diterima dari server b'{"status": "OK", "tokenid": "179cbe7b-6813-4c84-8cb1-21246cf95cf7"}\n'
diterima dari server b'7"\n\n'
end of string
username messi logged in, token 179cbe7b-6813-4c84-8cb1-21246cf95cf7
Command 179cbe7b-6813-4c84-8cb1-21246cf95cf7:█
```

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth henderson surabaya
diterima dari server b'{"status": "OK", "tokenid": "808769d2-a567-4a70-bb69-93628002f0bc"}\r\n\r\n'
end of string
username henderson logged in, token 808769d2-a567-4a70-bb69-93628002f0bc
Command 808769d2-a567-4a70-bb69-93628002f0bc:
```

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 server_thread_chat.py
WARNING:root:connection from ('192.168.122.10', 43002)
WARNING:root:connection from ('192.168.122.172', 56938)
WARNING:root:data dari client: auth messi surabaya

WARNING:root:AUTH: auth messi surabaya
WARNING:root:balas ke client: {"status": "OK", "tokenid": "3d2aaa5c-305c-40b2-819e-12d930010691"}

WARNING:root:data dari client: auth henderson surabaya

WARNING:root:AUTH: auth henderson surabaya
WARNING:root:balas ke client: {"status": "OK", "tokenid": "808769d2-a567-4a70-bb69-93628002f0bc"}


```

- Jika kita salah memasukkan username, maka akan muncul pesan error “User Tidak Ada”

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth test surabaya
diterima dari server b'{"status": "ERROR", "message": "User Tidak Ada"}\r\n\r\n'
end of string
Error, User Tidak Ada
Command :
```

```
alpine-1 x alpine-2 x alpine-3 x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 server_thread_chat.py
WARNING:root:connection from ('192.168.122.172', 56934)
WARNING:root:data dari client: auth test surabaya

WARNING:root:AUTH: auth test surabaya
WARNING:root:balas ke client: {"status": "ERROR", "message": "User Tidak Ada"}
```

- Jika kita salah memasukkan password, maka akan muncul pesan error “Password Salah”

```
alpine-1 x alpine-2 x alpine-3 x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth messi jakarta
diterima dari server b'{"status": "ERROR", "message": "Password Salah"}\r\n\r\n'
end of string
Error, Password Salah
Command :
```

```
alpine-1 x alpine-2 x alpine-3 x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 server_thread_chat.py
WARNING:root:connection from ('192.168.122.10', 42998)
WARNING:root:data dari client: auth messi jakarta

WARNING:root:AUTH: auth messi jakarta
WARNING:root:balas ke client: {"status": "ERROR", "message": "Password Salah"}
```

7. Berkirir pesan antar user

- Jika user Messi pada alpine-2 akan mengirim pesan kepada user Henderson pada alpine-3, maka user Messi akan melakukan command send dan user Henderson akan melakukan command inbox

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth messi surabaya
diterima dari server b'{"status": "OK", "tokenid": "3d2aaa5c-305c-40b2-819e-12d930010691"}\r\n\r\n'
end of string
username messi logged in, token 3d2aaa5c-305c-40b2-819e-12d930010691
Command 3d2aaa5c-305c-40b2-819e-12d930010691:send henderson halo
send 3d2aaa5c-305c-40b2-819e-12d930010691 henderson halo

diterima dari server b'{"status": "OK", "message": "Message Sent"}\r\n\r\n'
end of string
message sent to henderson
Command 3d2aaa5c-305c-40b2-819e-12d930010691:[]
```

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth henderson surabaya
diterima dari server b'{"status": "OK", "tokenid": "808769d2-a567-4a70-bb69-93628002f0bc"}\r\n\r\n'
end of string
username henderson logged in, token 808769d2-a567-4a70-bb69-93628002f0bc
Command 808769d2-a567-4a70-bb69-93628002f0bc:inbox
diterima dari server b'{"status": "OK", "messages": {"messi": [{"msg_from": "Lionel Messi", "msg_to": "Jordan Henderson", "msg": " halo \r\n"}]}}\r\n\r\n'
end of string
{"messi": [{"msg_from": "Lionel Messi", "msg_to": "Jordan Henderson", "msg": " halo \r\n"}]}
Command 808769d2-a567-4a70-bb69-93628002f0bc:[]
```

- Jika user Henderson pada alpine-3 akan mengirim pesan kepada user Messi pada alpine-2, maka user Henderson akan melakukan command send dan user Messi akan melakukan command inbox



```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth henderson surabaya
diterima dari server b'{"status": "OK", "tokenid": "808769d2-a567-4a70-bb69-93628002f0bc"}\r\n\r\n'
diterima dari server b'c'}\r\n\r\n'
end of string
username henderson logged in, token 808769d2-a567-4a70-bb69-93628002f0bc
Command 808769d2-a567-4a70-bb69-93628002f0bc:inbox
diterima dari server b'{"status": "OK", "messages": {"messi": [{"msg_from": "Lionel Messi", "msg_to": "Jordan Henderson", "msg": " halo \r\n"}]}\r\n\r\n'
end of string
{"messi": [{"msg_from": "Lionel Messi", "msg_to": "Jordan Henderson", "msg": " halo \r\n"}]}
Command 808769d2-a567-4a70-bb69-93628002f0bc:send messi halo juga
send 808769d2-a567-4a70-bb69-93628002f0bc messi halo juga

diterima dari server b'{"status": "OK", "message": "Message Sent"}\r\n\r\n'
end of string
message sent to messi
Command 808769d2-a567-4a70-bb69-93628002f0bc:[]
```

```
< alpine-1 x alpine-2 x alpine-3 x > - x
/home/work/Pemrograman_Jaringan_D/progjar4c # python3 chat-cli.py
Command :auth messi surabaya
diterima dari server b'{"status": "OK", "tokenid": "3d2aaa5c-305c-40b2-819e-12d930010691"}\r\n\r\n'
diterima dari server b'l'}\r\n\r\n'
end of string
username messi logged in, token 3d2aaa5c-305c-40b2-819e-12d930010691
Command 3d2aaa5c-305c-40b2-819e-12d930010691:send henderson halo
send 3d2aaa5c-305c-40b2-819e-12d930010691 henderson halo

diterima dari server b'{"status": "OK", "message": "Message Sent"}\r\n\r\n'
end of string
message sent to henderson
Command 3d2aaa5c-305c-40b2-819e-12d930010691:inbox
diterima dari server b'{"status": "OK", "messages": {"henderson": [{"msg_from": "Jordan Henderson", "msg_to": "Lionel Messi", "msg": " halo juga \r\n"}]}\r\n\r\n'
diterima dari server b'Jordan Henderson', "msg_to": "Lionel Messi", "msg": " halo juga \r\n"}]}\r\n\r\n'
end of string
{"henderson": [{"msg_from": "Jordan Henderson", "msg_to": "Lionel Messi", "msg": " halo juga \r\n"}]}
Command 3d2aaa5c-305c-40b2-819e-12d930010691:[]
```

- Berikut adalah pesan yang muncul pada server ketika dua user saling bertukar / berkirim pesan

```
< role alpine-1 x alpine-2 x alpine-3 x > - x
WARNING:root:data dari client: inbox 808769d2-a567-4a70-bb69-93628002f0bc
WARNING:root:INBOX: 808769d2-a567-4a70-bb69-93628002f0bc
WARNING:root:balas ke client: {"status": "OK", "messages": {"messi": [{"msg_from": "Lionel Messi", "msg_to": "Jordan Henderson", "msg": " halo \r\n"}]}}
WARNING:root:data dari client: send 808769d2-a567-4a70-bb69-93628002f0bc messi halo juga
WARNING:root:SEND: session 808769d2-a567-4a70-bb69-93628002f0bc send message from henderson to messi
WARNING:root:balas ke client: {"status": "OK", "message": "Message Sent"}

WARNING:root:data dari client: inbox 3d2aaa5c-305c-40b2-819e-12d930010691
WARNING:root:INBOX: 3d2aaa5c-305c-40b2-819e-12d930010691
WARNING:root:balas ke client: {"status": "OK", "messages": {"henderson": [{"msg_from": "Jordan Henderson", "msg_to": "Lionel Messi", "msg": " halo juga \r\n"}]}}
WARNING:root:[]
```