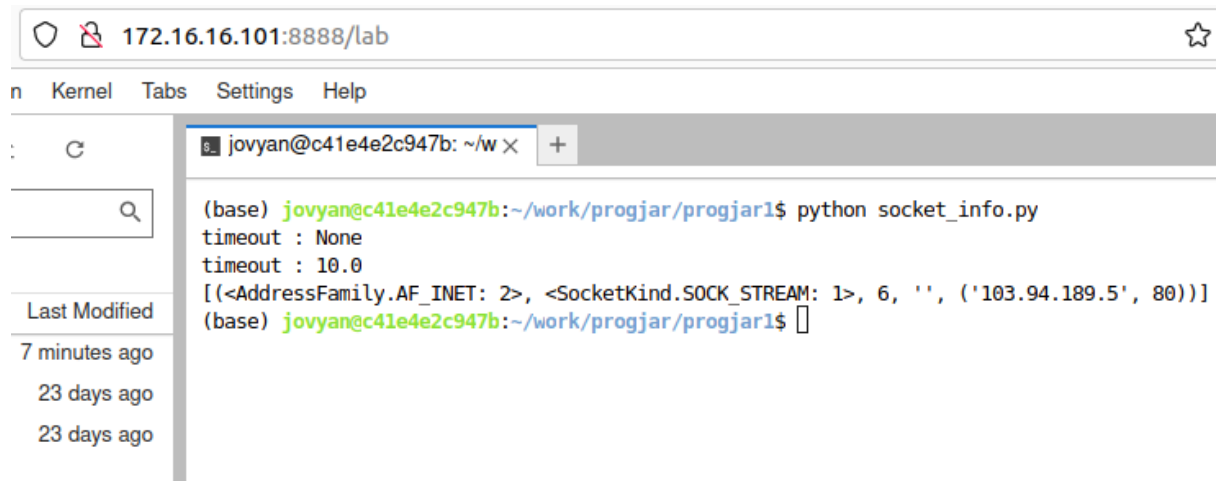


## TUGAS 1 PEMROGRAMAN JARINGAN (C)

[Shagdovala159/Tugas-1-Pemrograman-Jaringan-C \(github.com\)](https://github.com/Shagdovala159/Tugas-1-Pemrograman-Jaringan-C)

jalankan socket\_info.py di mesin-1 dan mesin-2, capturelah hasilnya

Pada Mesin 1 :



The screenshot shows a terminal window with the title bar "172.16.16.101:8888/lab". The terminal content is as follows:

```
jovyan@c41e4e2c947b: ~/work/progjar/progjar1$ python socket_info.py
timeout : None
timeout : 10.0
[(<AddressFamily.AF_INET: 2>, <SocketKind.SOCK_STREAM: 1>, 6, '', ('103.94.189.5', 80))]
(base) jovyan@c41e4e2c947b:~/work/progjar/progjar1$
```

On the left side of the terminal, there is a sidebar with a search icon and a "Last Modified" section listing:

- 7 minutes ago
- 23 days ago
- 23 days ago

Pada Mesin 2 :



The screenshot shows a terminal window with the title bar "172.16.16.102:8888/lab". The terminal content is as follows:

```
jovyan@6660117121f9: ~/work/progjar/progjar1$ python socket_info.py
timeout : None
timeout : 10.0
[(<AddressFamily.AF_INET: 2>, <SocketKind.SOCK_STREAM: 1>, 6, '', ('103.94.189.5', 80))]
(base) jovyan@6660117121f9:~/work/progjar/progjar1$
```

On the left side of the terminal, there is a sidebar with a search icon and a "Last Modified" section listing:

- 8 minutes ago
- 23 days ago
- 23 days ago

Jika IP Address itu diakses maka akan merujuk ke [www.its.ac.id](http://www.its.ac.id)

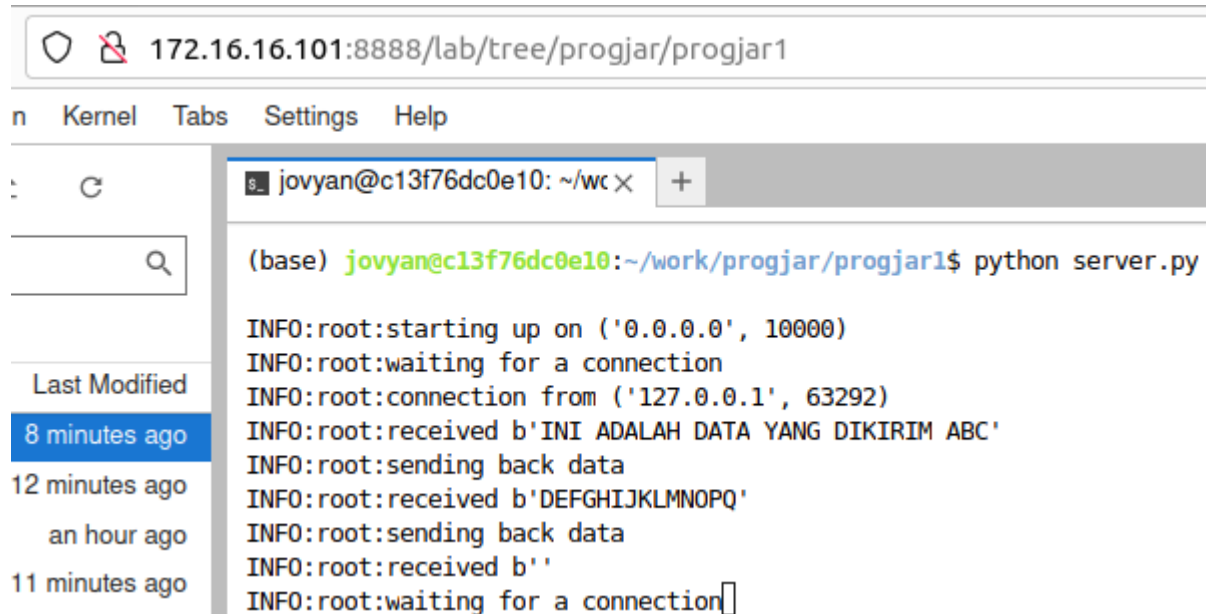


[www.its.ac.id](http://www.its.ac.id)

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jalankan server.py di mesin-1 dan client.py di mesin-2, sesuaikan isi program, pastikan komunikasi dapat dilakukan, capturelah hasilnya

Pada mesin 1 :

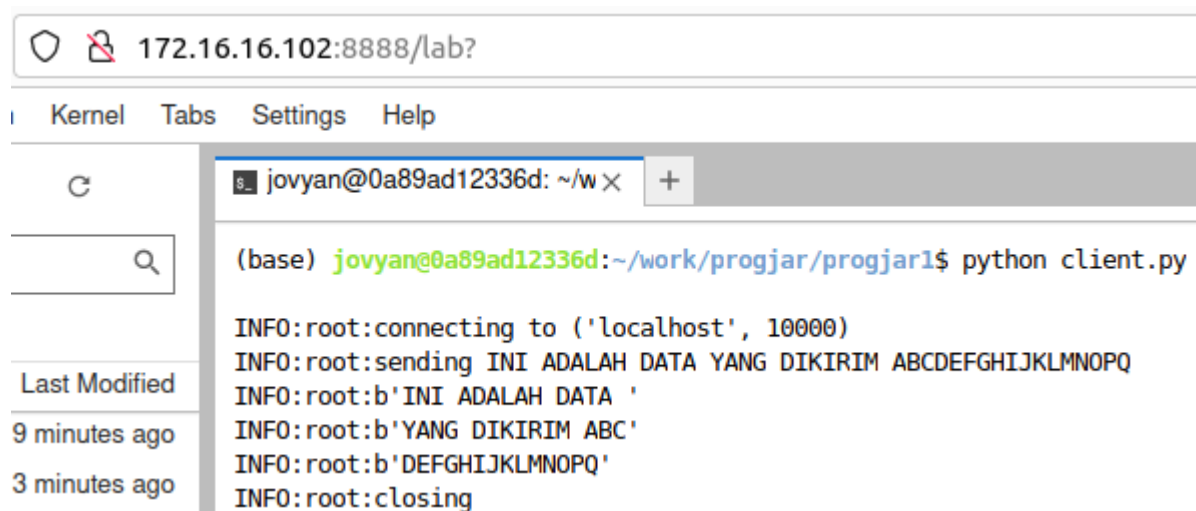


```
172.16.16.101:8888/lab/tree/progjar/progjar1
Kernel  Tabs  Settings  Help

jovyan@c13f76dc0e10: ~/work/progjar/progjar1$ python server.py

INFO:root:starting up on ('0.0.0.0', 10000)
INFO:root:waiting for a connection
INFO:root:connection from ('127.0.0.1', 63292)
INFO:root:received b'INI ADALAH DATA YANG DIKIRIM ABC'
INFO:root:sending back data
INFO:root:received b'DFGHIJKLMNOPQ'
INFO:root:sending back data
INFO:root:received b''
INFO:root:waiting for a connection
```

Pada mesin 2 :



```
172.16.16.102:8888/lab?
Kernel  Tabs  Settings  Help

jovyan@0a89ad12336d: ~/work/progjar/progjar1$ python client.py

INFO:root:connecting to ('localhost', 10000)
INFO:root:sending INI ADALAH DATA YANG DIKIRIM ABCDEFGHIJKLMNOPQ
INFO:root:b'INI ADALAH DATA '
INFO:root:b'YANG DIKIRIM ABC'
INFO:root:b'DFGHIJKLMNOPQ'
INFO:root:closing
```

Dapat terlihat bahwa komunikasi dapat terjalin karena server dan client menggunakan port localhost yang sama. Client akan mengirimkan datanya secara bertahap untuk mencegah buffer overflow. Namun, hal ini tidak terlalu kritis karena saya mengubah ukuran buffer server menjadi lebih besar daripada buffer client.

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jalankan kembali soal nomor 3, namun kali ini rubahlah komunikasi agar berjalan di port 32444, kirimkan isi sebuah file, dan capturelah hasilnya

Parameter instasiasi socket diubah nilai port agar sesuai. Selain itu dibuatkan file pengujian bernama testing.txt pada working directory. Client membaca dari file bernama testing.txt dengan perubahan kode seperti berikut:

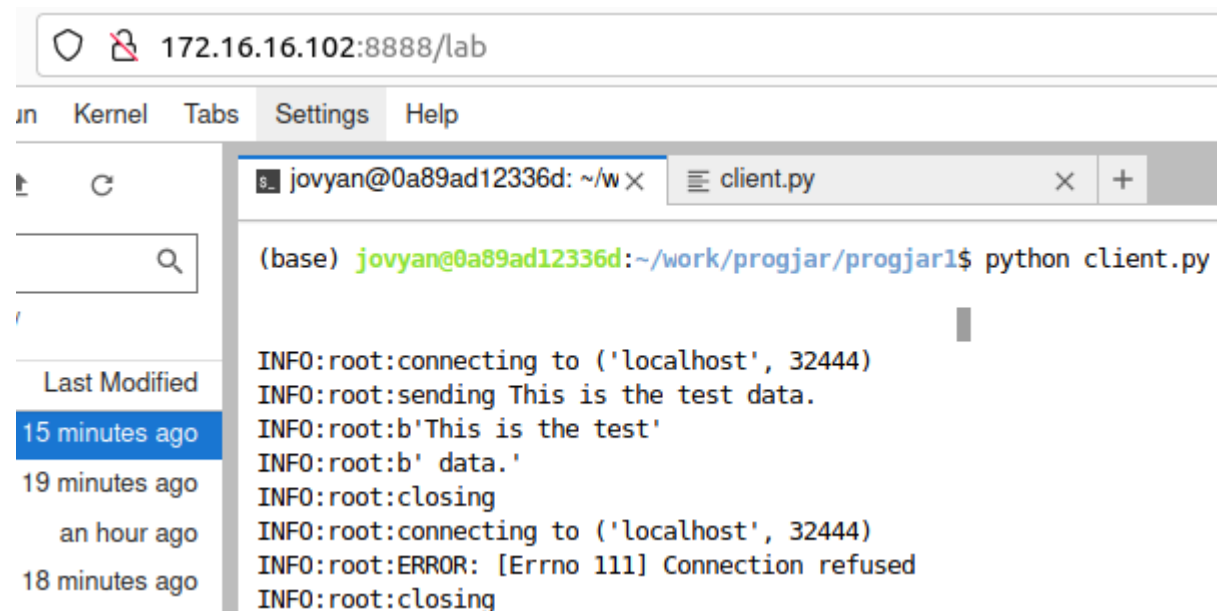
```
# Send data
f = open("testing.txt", "r")
message = f.read()
```

Berikut output terminal server.py:

```
(base) jovyan@c13f76dc0e10:~/work/progjar/progjar1$ python server.py

INFO:root:starting up on ('0.0.0.0', 32444)
INFO:root:waiting for a connection
INFO:root:connection from ('127.0.0.1', 63937)
INFO:root:received b'This is the test data.'
INFO:root:sending back data
INFO:root:received b''
INFO:root:waiting for a connection
INFO:root:ERROR: timed out
INFO:root:closing
```

Berikut output client.py:



The screenshot shows a JupyterLab environment. At the top, a web browser address bar displays '172.16.16.102:8888/lab'. Below the browser, the JupyterLab interface includes tabs for 'Kernel', 'Tabs', 'Settings', and 'Help'. A terminal window is open, showing the command '(base) jovyan@0a89ad12336d: ~/work/progjar/progjar1\$ python client.py'. The terminal output shows the client connecting to localhost on port 32444, sending the test data, and receiving the response. The output is as follows:

```
(base) jovyan@0a89ad12336d:~/work/progjar/progjar1$ python client.py

INFO:root:connecting to ('localhost', 32444)
INFO:root:sending This is the test data.
INFO:root:b'This is the test'
INFO:root:b' data.'
INFO:root:closing
INFO:root:connecting to ('localhost', 32444)
INFO:root:ERROR: [Errno 111] Connection refused
INFO:root:closing
```

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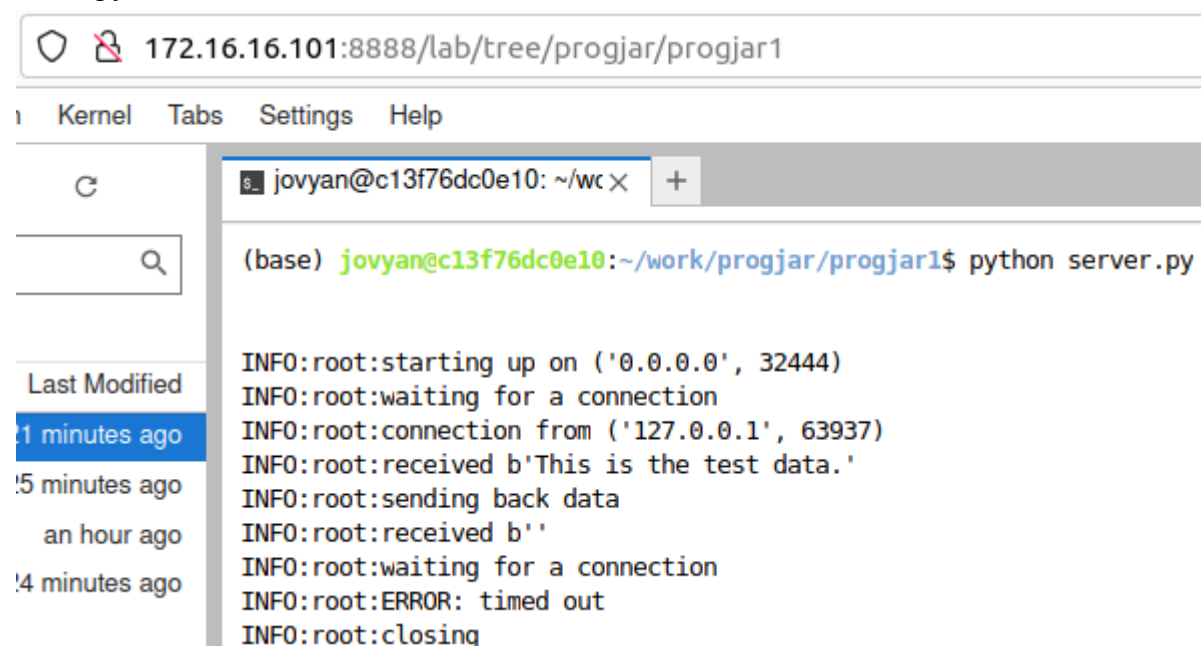
Jalankan client di mesin-3 dan mesin-4 dengan server berada di mesin-1, jalankan client secara bersamaan, apakah yang terjadi ? capturelah hasilnya

Ditambahkan fungsi sleep() untuk memberi waktu menjalankan beberapa client seperti berikut:

```
while True:
    # Wait for a connection
    logging.info("waiting for a connection")
    connection, client_address = sock.accept()
    logging.info(f"connection from {client_address}")
    import time
    time.sleep(10)
```

Output dengan satu client:

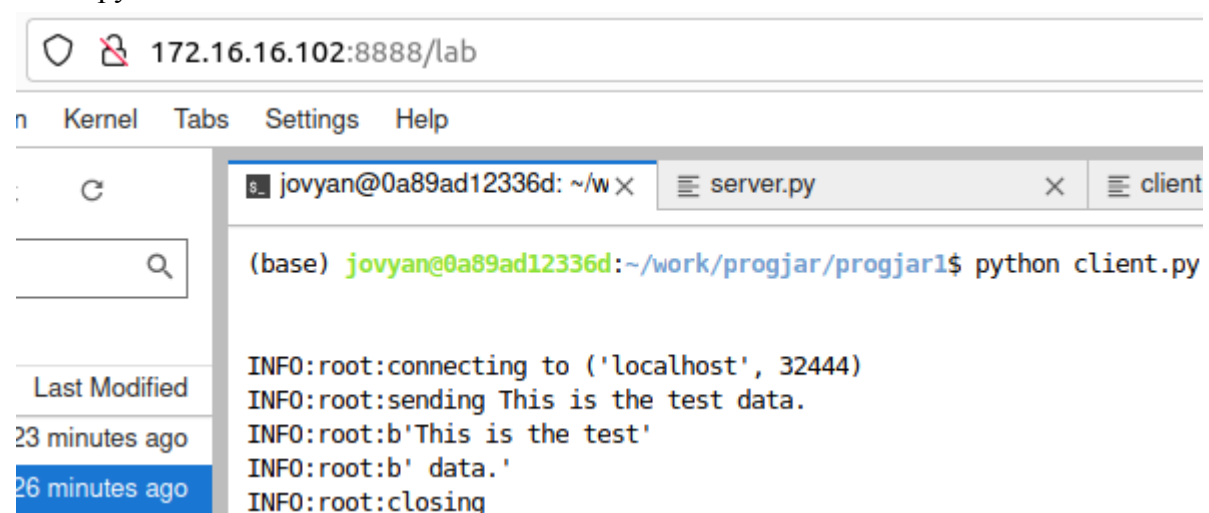
server.py



```
(base) jovyan@c13f76dc0e10:~/work/progjar/progjar1$ python server.py

INFO:root:starting up on ('0.0.0.0', 32444)
INFO:root:waiting for a connection
INFO:root:connection from ('127.0.0.1', 63937)
INFO:root:received b'This is the test data.'
INFO:root:sending back data
INFO:root:received b''
INFO:root:waiting for a connection
INFO:root:ERROR: timed out
INFO:root:closing
```

Client.py

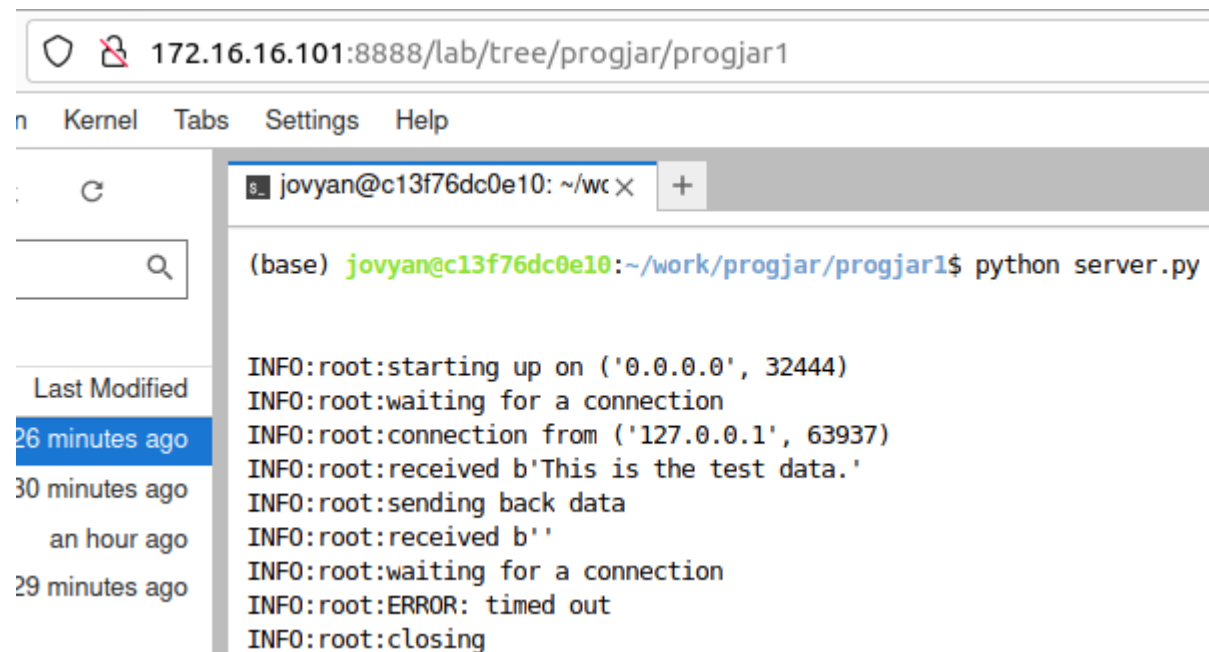


```
(base) jovyan@0a89ad12336d:~/work/progjar/progjar1$ python client.py

INFO:root:connecting to ('localhost', 32444)
INFO:root:sending This is the test data.
INFO:root:b'This is the test'
INFO:root:b' data.'
INFO:root:closing
```

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Output dengan dua client:  
Server.py



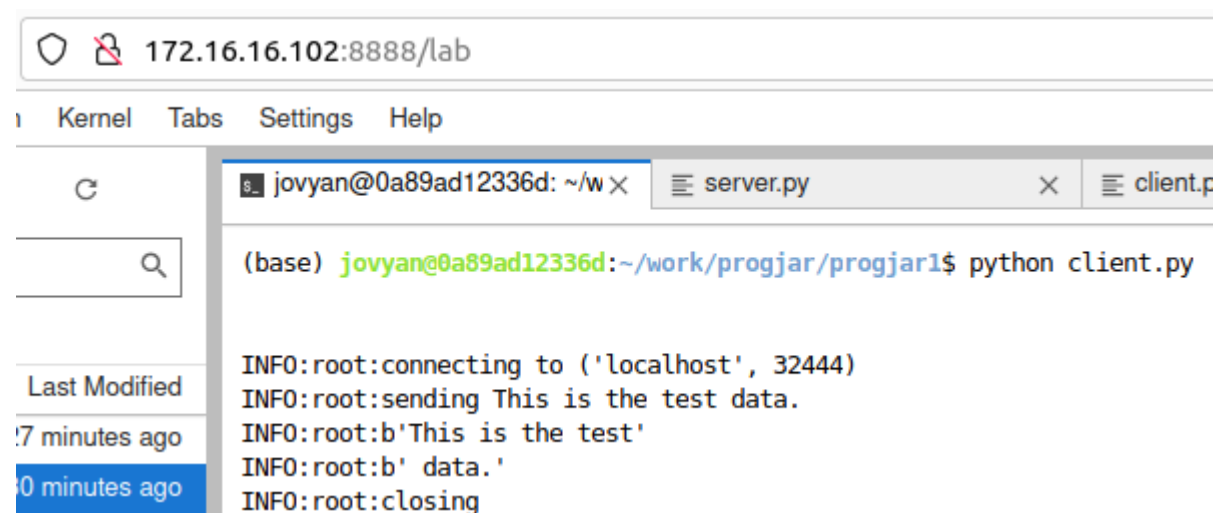
```
172.16.16.101:8888/lab/tree/progjar/progjar1

Kernel  Tabs  Settings  Help

jovyan@c13f76dc0e10: ~/work/progjar/progjar1$ python server.py

INFO:root:starting up on ('0.0.0.0', 32444)
INFO:root:waiting for a connection
INFO:root:connection from ('127.0.0.1', 63937)
INFO:root:received b'This is the test data.'
INFO:root:sending back data
INFO:root:received b''
INFO:root:waiting for a connection
INFO:root:ERROR: timed out
INFO:root:closing
```

client.py (Client pertama)



```
172.16.16.102:8888/lab

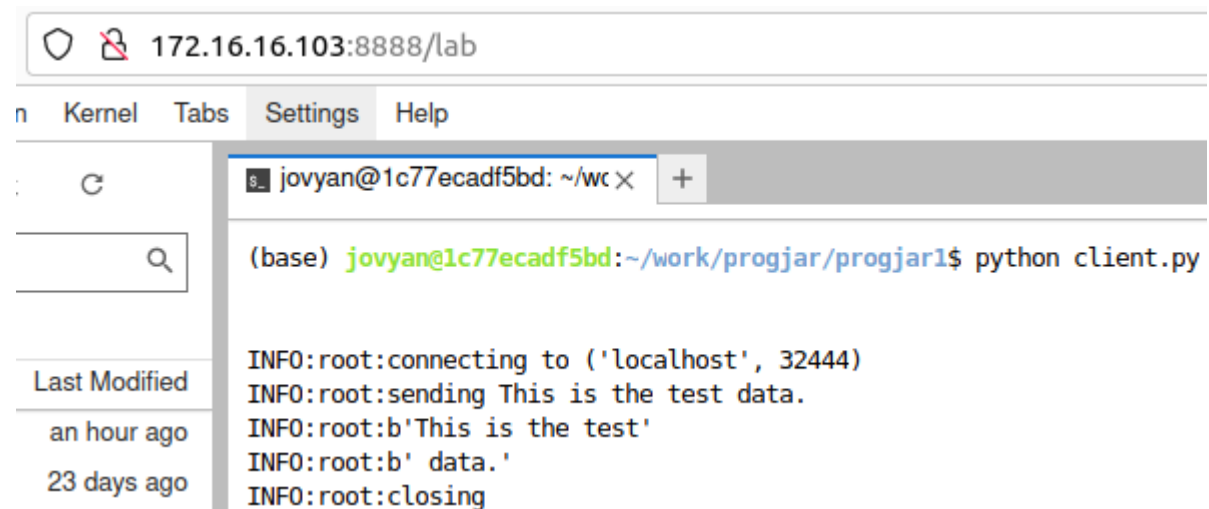
Kernel  Tabs  Settings  Help

jovyan@0a89ad12336d: ~/work/progjar/progjar1$ python client.py

INFO:root:connecting to ('localhost', 32444)
INFO:root:sending This is the test data.
INFO:root:b'This is the test'
INFO:root:b' data.'
INFO:root:closing
```

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client.py (Client kedua)



The screenshot shows a JupyterLab interface with a terminal window. The address bar at the top displays '172.16.16.103:8888/lab'. The terminal window has a title bar 'jovyan@1c77ecadf5bd: ~/work' and a tab 'Kernel'. The terminal output shows the execution of 'python client.py' in a Jupyter environment. The output consists of several log messages: 'INFO:root:connecting to ('localhost', 32444)', 'INFO:root:sending This is the test data.', 'INFO:root:b'This is the test'', 'INFO:root:b' data.', and 'INFO:root:closing'. On the left side of the terminal, there is a sidebar with a search bar and a 'Last Modified' section showing 'an hour ago' and '23 days ago'.

```
(base) jovyan@1c77ecadf5bd:~/work/progjar/progjar1$ python client.py

INFO:root:connecting to ('localhost', 32444)
INFO:root:sending This is the test data.
INFO:root:b'This is the test'
INFO:root:b' data.'
INFO:root:closing
```

Karena socket hanya listen untuk 1 koneksi, maka request kedua tidak diterima sampai koneksi client pertama putus. Meskipun kedua client pada akhirnya berhasil mendapatkan data, mereka harus melakukannya secara sekuensial, tidak bisa secara konkuren.

Karena socket hanya listen untuk 1 koneksi, maka request kedua tidak diterima sampai koneksi client pertama putus. Meskipun kedua client pada akhirnya berhasil mendapatkan data, mereka harus melakukannya secara sekuensial, tidak bisa secara konkuren.