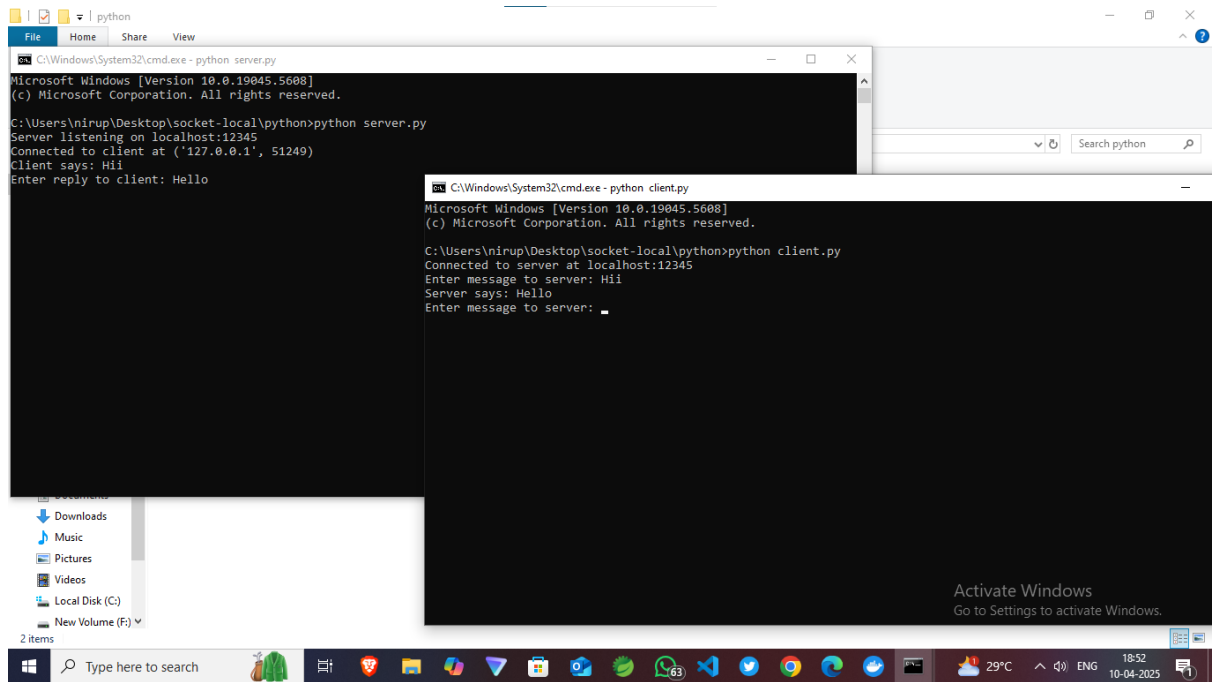


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Capstone-4

➤ Python Local



The screenshot shows a Windows 10 desktop with two command prompts open. The left prompt is titled 'C:\Windows\System32\cmd.exe - python server.py' and shows the execution of 'python server.py'. The server is listening on localhost:12345. A client connects from '127.0.0.1', 51249, sends 'Hi!', and the server responds with 'Hello'. The right prompt is titled 'C:\Windows\System32\cmd.exe - python client.py' and shows the execution of 'python client.py'. The client connects to the server at localhost:12345, sends 'Hi!', and the server responds with 'Hello'. The client then prompts for a message to send to the server.

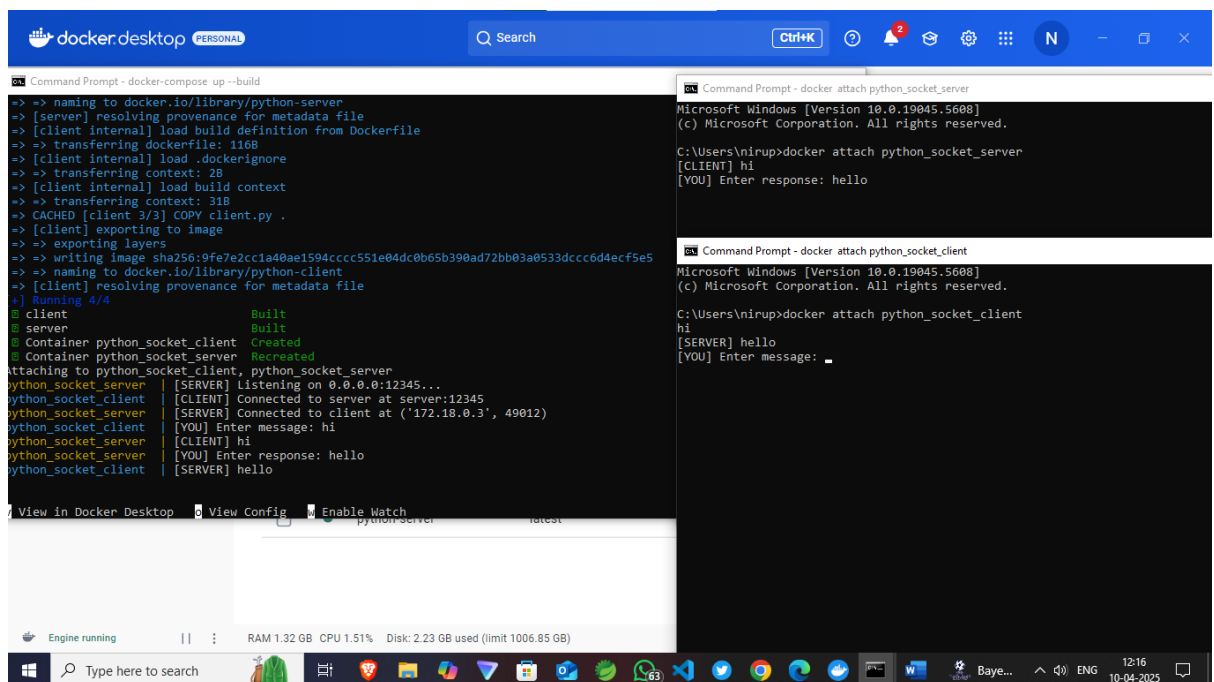
```
C:\Windows\System32\cmd.exe - python server.py
Microsoft Windows [Version 10.0.19045.5608]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nirup\Desktop\socket-local\python>python server.py
Server listening on localhost:12345
Connected to client at ('127.0.0.1', 51249)
Client says: Hi!
Enter reply to client: Hello

C:\Windows\System32\cmd.exe - python client.py
Microsoft Windows [Version 10.0.19045.5608]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nirup\Desktop\socket-local\python>python client.py
Connected to server at localhost:12345
Enter message to server: Hi!
Server says: Hello
Enter message to server: _
```

➤ Python Docker



The screenshot shows Docker Desktop with two command prompts. The left prompt shows the build process for a Docker image named 'python-socket-server'. It includes steps for naming the image, resolving provenance, transferring the Dockerfile, loading the Dockerignore file, loading the build context, transferring the context, copying the client.py file, and exporting the image. The right prompt shows the execution of 'docker attach python_socket_server'. It shows the server listening on 0.0.0.0:12345. A client connects from '172.18.0.3', 49012, sends 'hi', and the server responds with 'hello'. The client then prompts for a message to send to the server.

```
docker desktop PERSONAL
Search
Ctrl+K

Command Prompt - docker-compose up --build
-> => naming to docker.io/library/python-server
-> [server] resolving provenance for metadata file
-> [client internal] load build definition from Dockerfile
-> => transferring dockerfile: 116B
-> [client internal] load .dockerignore
-> => transferring context: 2B
-> [client internal] load build context
-> => transferring context: 31B
-> CACHED [client 3/3] COPY client.py .
-> [client] exporting to image
-> => exporting layers
-> => writing image sha256:9fe7e2cc1a40ae1594cccc551e04dc0b65b390ad72bb03a0533dccc6d4ecf5e5
-> => naming to docker.io/library/python-client
-> [client] resolving provenance for metadata file
Running 4/4
client Built
server Built
Container python_socket_client Created
Container python_socket_server Recreated
Attaching to python_socket_client, python_socket_server
python_socket_server | [SERVER] listening on 0.0.0.0:12345...
python_socket_client | [CLIENT] Connected to server at server:12345
python_socket_server | [SERVER] Connected to client at ('172.18.0.3', 49012)
python_socket_client | [YOU] Enter message: hi
python_socket_server | [CLIENT] hi
python_socket_server | [YOU] Enter response: hello
python_socket_client | [SERVER] hello

View in Docker Desktop View Config Enable Watch

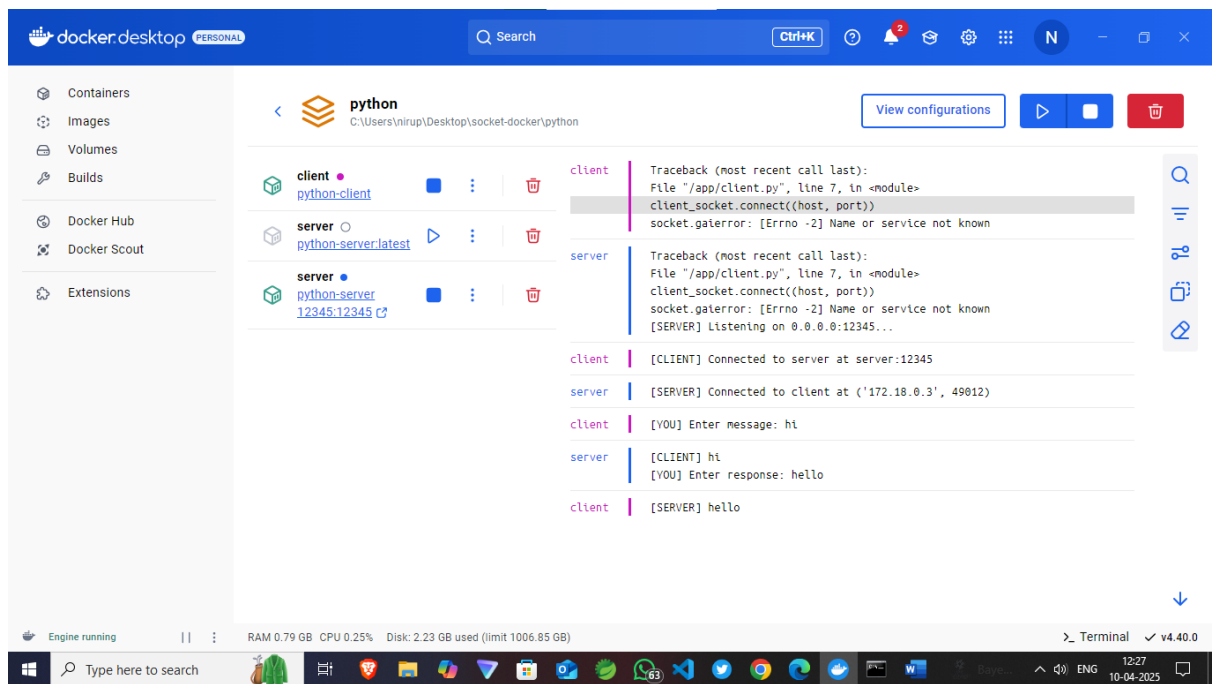
Engine running RAM 1.32 GB CPU 1.51% Disk: 2.23 GB used (limit 1006.85 GB)

Command Prompt - docker attach python_socket_server
Microsoft Windows [Version 10.0.19045.5608]
(c) Microsoft Corporation. All rights reserved.

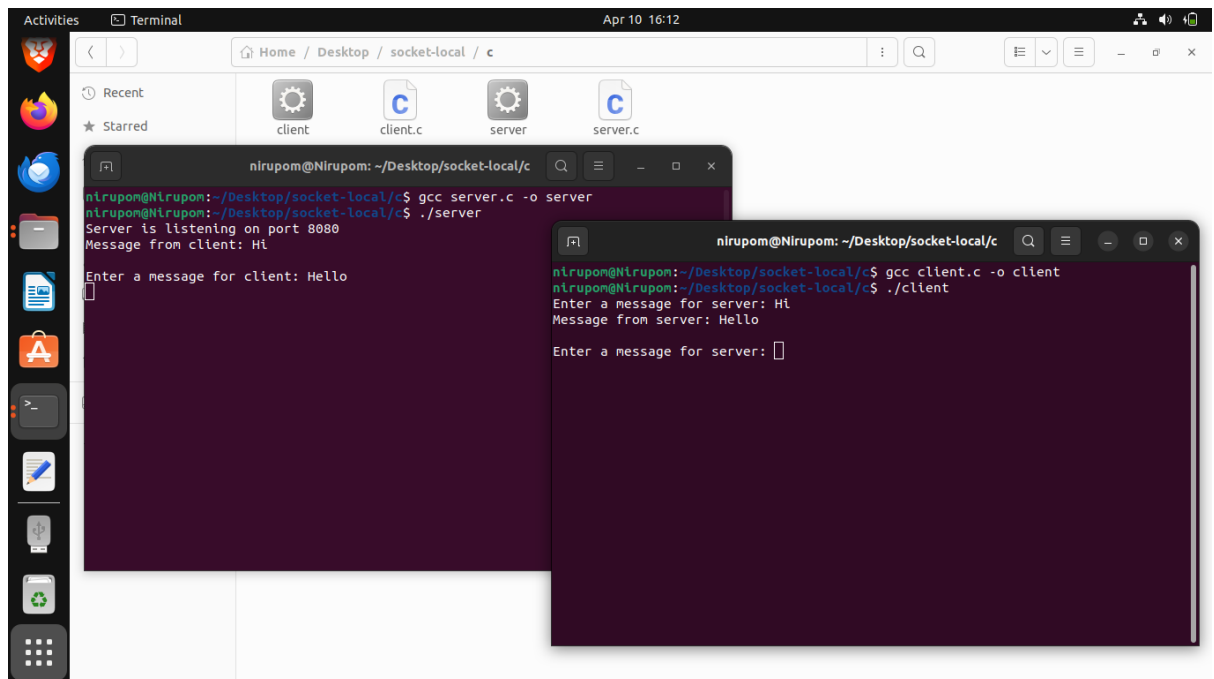
C:\Users\nirup>docker attach python_socket_server
[CLIENT] hi
[YOU] Enter response: hello

Command Prompt - docker attach python_socket_client
Microsoft Windows [Version 10.0.19045.5608]
(c) Microsoft Corporation. All rights reserved.

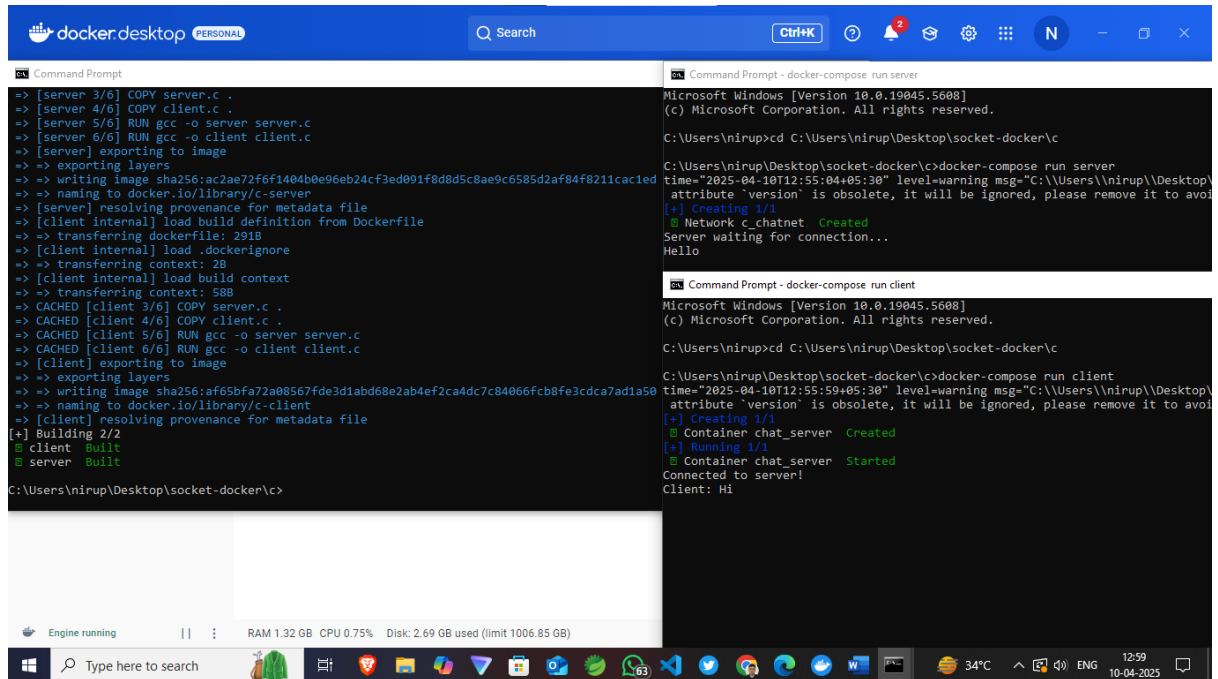
C:\Users\nirup>docker attach python_socket_client
hi
[SERVER] hello
[YOU] Enter message: _
```



➤ C Local



➤ C Docker



The screenshot shows the Docker Desktop interface with two terminal windows open. The left terminal shows the process of building a Docker image for a C server and client. The right terminal shows the execution of the containers using Docker Compose.

```
[+] Building 2/2
 client Built
 server Built

C:\Users\nirup\Desktop\socket-docker>
```

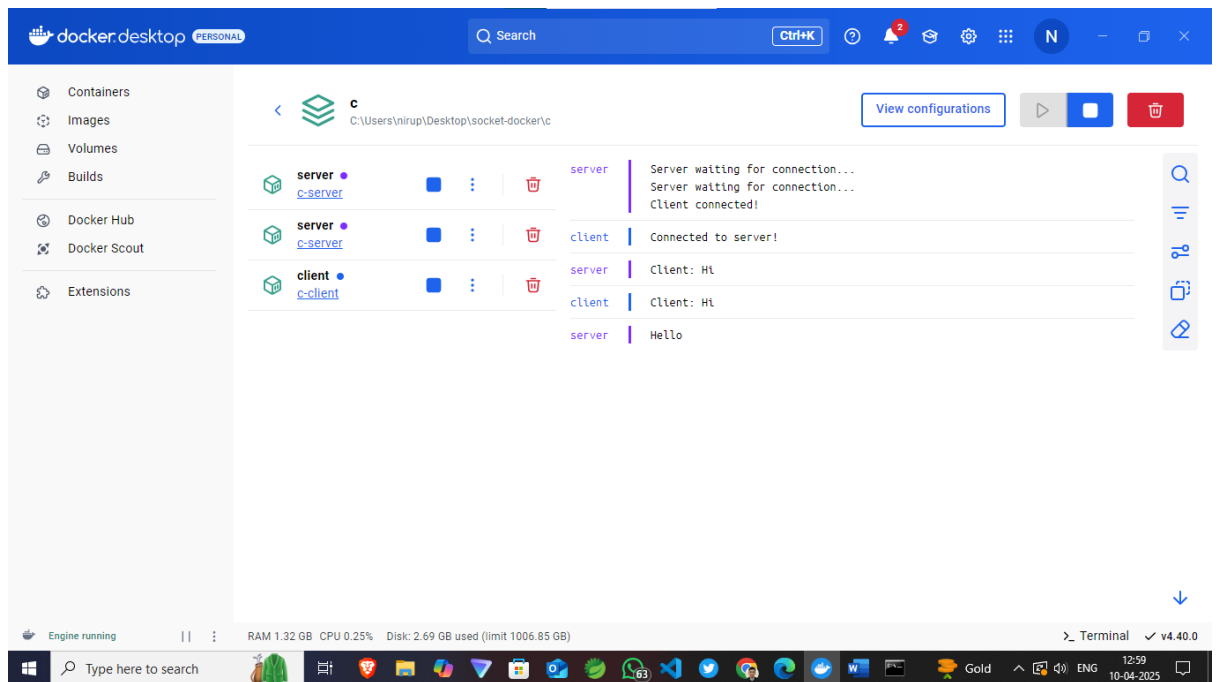
```
Microsoft Windows [Version 10.0.19045.5608]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nirup>cd C:\Users\nirup\Desktop\socket-docker\c

C:\Users\nirup\Desktop\socket-docker\c>docker-compose run server
time="2025-04-10T12:55:04+05:30" level=warning msg="C:\\Users\\nirup\\Desktop\\
attribute 'version' is obsolete, it will be ignored, please remove it to avoid
[+] Creating 1/1
  Network c_chatnet Created
Server waiting for connection...
Hello

C:\Users\nirup\Desktop\socket-docker\c>docker-compose run client
time="2025-04-10T12:55:59+05:30" level=warning msg="C:\\Users\\nirup\\Desktop\\
attribute 'version' is obsolete, it will be ignored, please remove it to avoid
[+] Creating 1/1
  Container chat_server Created
[+] Running 1/1
  Container chat_server Started
Connected to server!
Client: Hi
```

Engine running | RAM 1.32 GB CPU 0.75% Disk: 2.69 GB used (limit 1006.85 GB)



The screenshot shows the Docker Desktop interface with the container management view. The left sidebar shows the navigation menu. The main area displays the container details for the 'c' project, including a list of containers and a log view.

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

View configurations

Container	Status	Log
server	Running	Server waiting for connection... Server waiting for connection... Client connected!
client	Running	Connected to server!
server	Running	Client: Hi
client	Running	Client: Hi
server	Running	Hello

Engine running | RAM 1.32 GB CPU 0.25% Disk: 2.69 GB used (limit 1006.85 GB)

Terminal v4.40.0