

Capstone Project:

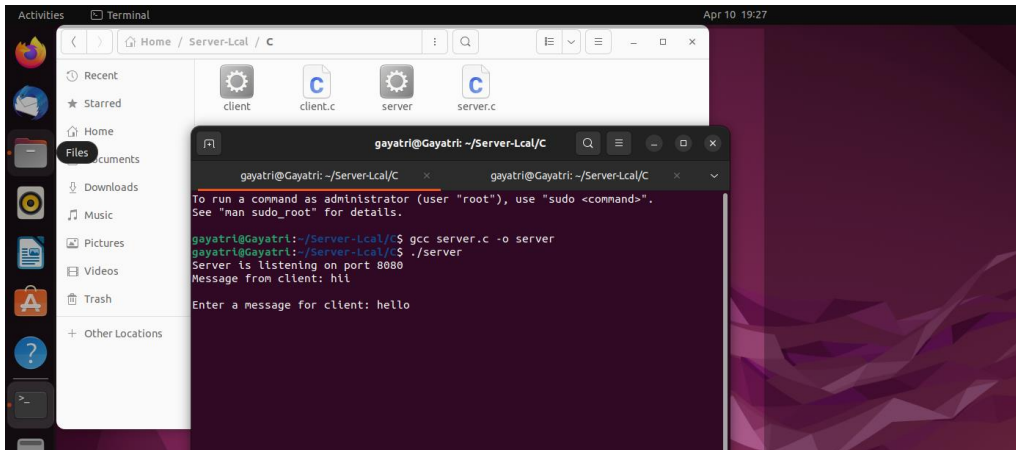
Name : Gayatri Sahu

Regd. No: 2141019146

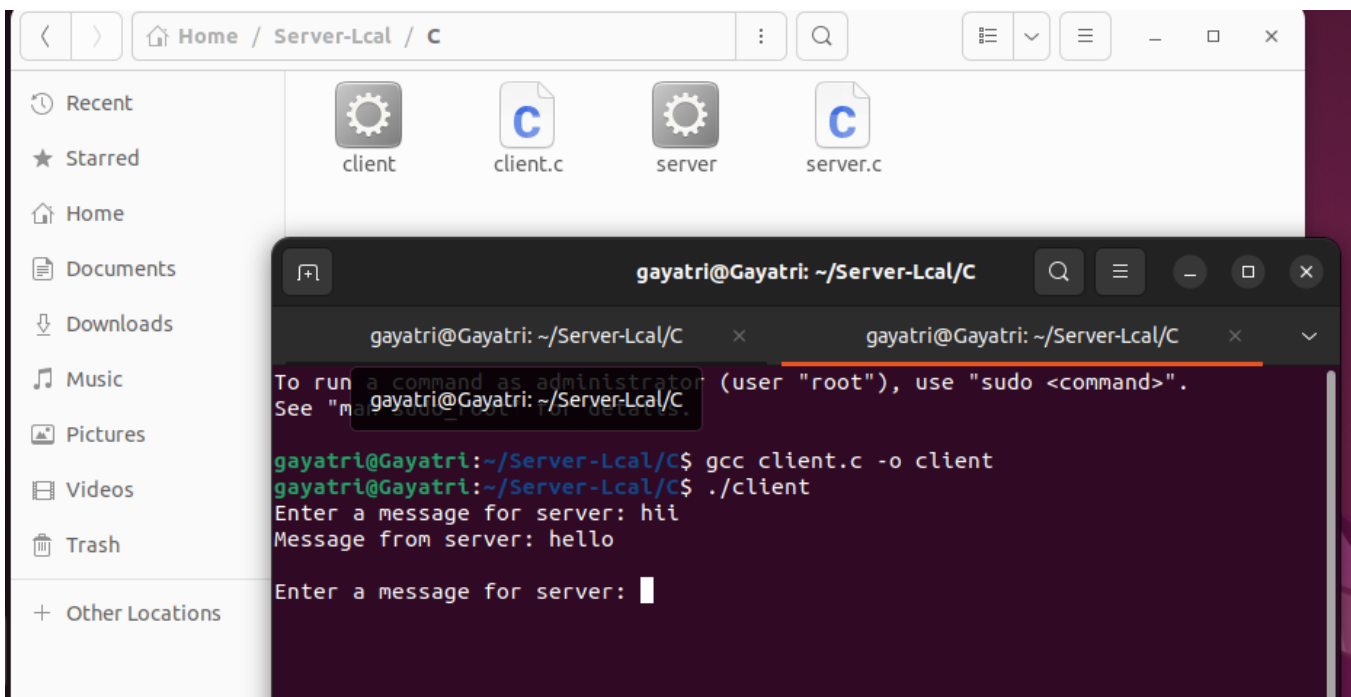
Using c :

c-local:

server.c:



client.c:



c-Docker:

Command Prompt

=> CACHED [client 4/6] COPY client.c .0.0s

=> CACHED [client 5/6] RUN gcc -o server server.c0.0s

=> CACHED [client 6/6] RUN gcc -o client client.c0.0s

=> [client] exporting to image0.0s

=> => exporting layers0.1s

=> => exporting manifest sha256:1685eb580c0265bd738468f8e93bed3846ca0bb676940576fae34c3eca1957650.0s

=> => exporting config sha256:3a63037dbd4ab3d907072939a79f58dd5f0de327070ea9c55de30f8f58c4a32a0.0s

=> => exporting attestation manifest sha256:c253056e70bae87620d58eef9a62dae537bac37cb77a315584b40acd6dc438960.0s

=> => exporting manifest list sha256:88635384dc4dc25f396a354075765da8a2b1854bf259c7b6b5758793fae2d200.0s

=> => naming to docker.io/library/c-client:latest0.0s

=> => unpacking to docker.io/library/c-client:latest0.0s

=> [client] resolving provenance for metadata file0.0s

[+] Building 2/2

✓client Built0.0s

✓server Built0.0s

C:\Users\gayat\Downloads\Socket-Docker\C>

Windows PowerShell

PS C:\Users\gayat\Downloads\Socket-Docker\C> docker-compose run client

time="2025-04-10T12:57:16+05:30" level=warning msg="C:\\Users\\g
ayat\\Downloads\\Socket-Docker\\C\\docker-compose.yml: the attri
bute 'version' is obsolete, it will be ignored, please remove it
to avoid potential confusion"

[+] Creating 2/2

✓Network c_chatnet Created0.0s

✓Container chat_server Created0.1s

[+] Running 1/1

✓Container chat_server Started0.3s

Connected to server!

Client: hi

Windows PowerShell

Install the latest PowerShell for new features and improvements!
https://aka.ms/PSWindows

PS C:\Users\gayat> cd C:\Users\gayat\Downloads\Socket-Docker\C

PS C:\Users\gayat\Downloads\Socket-Docker\C> docker-compose run server

time="2025-04-10T12:58:05+05:30" level=warning msg="C:\\Users\\g
ayat\\Downloads\\Socket-Docker\\C\\docker-compose.yml: the attri
bute 'version' is obsolete, it will be ignored, please remove it
to avoid potential confusion"

Server waiting for connection...

hello

hello

Docker image c:

docker:desktop PERSONAL

Search

Ctrl+K

?

1

?

⚙

☰

G

—

□

×

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Images

Give feedback

View and manage your local and Docker Hub images. Learn more

Local Docker Hub repositories

1.57 GB / 0 Bytes in use 6 images

Last refresh: 21 hours ago

Search

	Name	Tag	Image ID	Created	Size	Actions
<input type="checkbox"/>	hello-world	latest	fc08e727181e	3 months ago	20.4 KB	<a>▶ <a>⋮ <a>🗑
<input type="checkbox"/>	python	latest	1f7ef1e8f35b	2 days ago	1.47 GB	<a>▶ <a>⋮ <a>🗑
<input type="checkbox"/>	python-server	latest	7e01235a63bd	1 hour ago	1.45 GB	<a>▶ <a>⋮ <a>🗑
<input type="checkbox"/>	python-client	latest	cb2de40e93fa	1 hour ago	1.45 GB	<a>▶ <a>⋮ <a>🗑
<input type="checkbox"/>	c-server	latest	4e9d0ffed41	12 minutes ag	2 GB	<a>▶ <a>⋮ <a>🗑

Showing 6 items

Engine running || : RAM 1.39 GB CPU 0.75% Disk: 3.22 GB used (limit 1006.85 GB)

Terminal v4.40.0

Docker container c:

docker.desktopPERSONAL

Search

Ctrl+K

1

G

Ask GordonBETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Containers

Give feedback

View all your running containers and applications. Learn more

Container CPU usage0.00% / 800% (8 CPUs available)

Container memory usage16.61MB / 7.43GB

Show charts

Search

Only show running containers

	Name	Container ID	Image	Port(s)	CPU (%)	Last st	Actions
<input type="checkbox"/>	client-run-d398t	1a085e233005	c-client		0%	11 min	<div></div> <div></div> <div></div>
<input type="checkbox"/>	server-run-21b2	f69299a60f2e	c-server		0%	10 min	<div></div> <div></div> <div></div>
<input type="checkbox"/>	python	-	-	-	0%	1 hour	<div></div> <div></div> <div></div>
<input type="checkbox"/>	c	-	-	-	0%	11 min	<div></div> <div></div> <div></div>

Showing 4 items

Walkthroughs

Engine runningRAM 1.37 GB CPU 0.37% Disk: 3.22 GB used (limit 1006.85 GB)Terminalv4.40.0

docker.desktopPERSONAL

Search

Ctrl+K

1

G

Ask GordonBETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

<

c

C:\Users\gayat\Downloads\Socket-Docker\C

View configurations

serverc-server

clientc-client

serverc-server

2025-04-10 12:57:17 chat_server | Server waiting for connection...

2025-04-10 12:57:17 chat_server | Client connected!

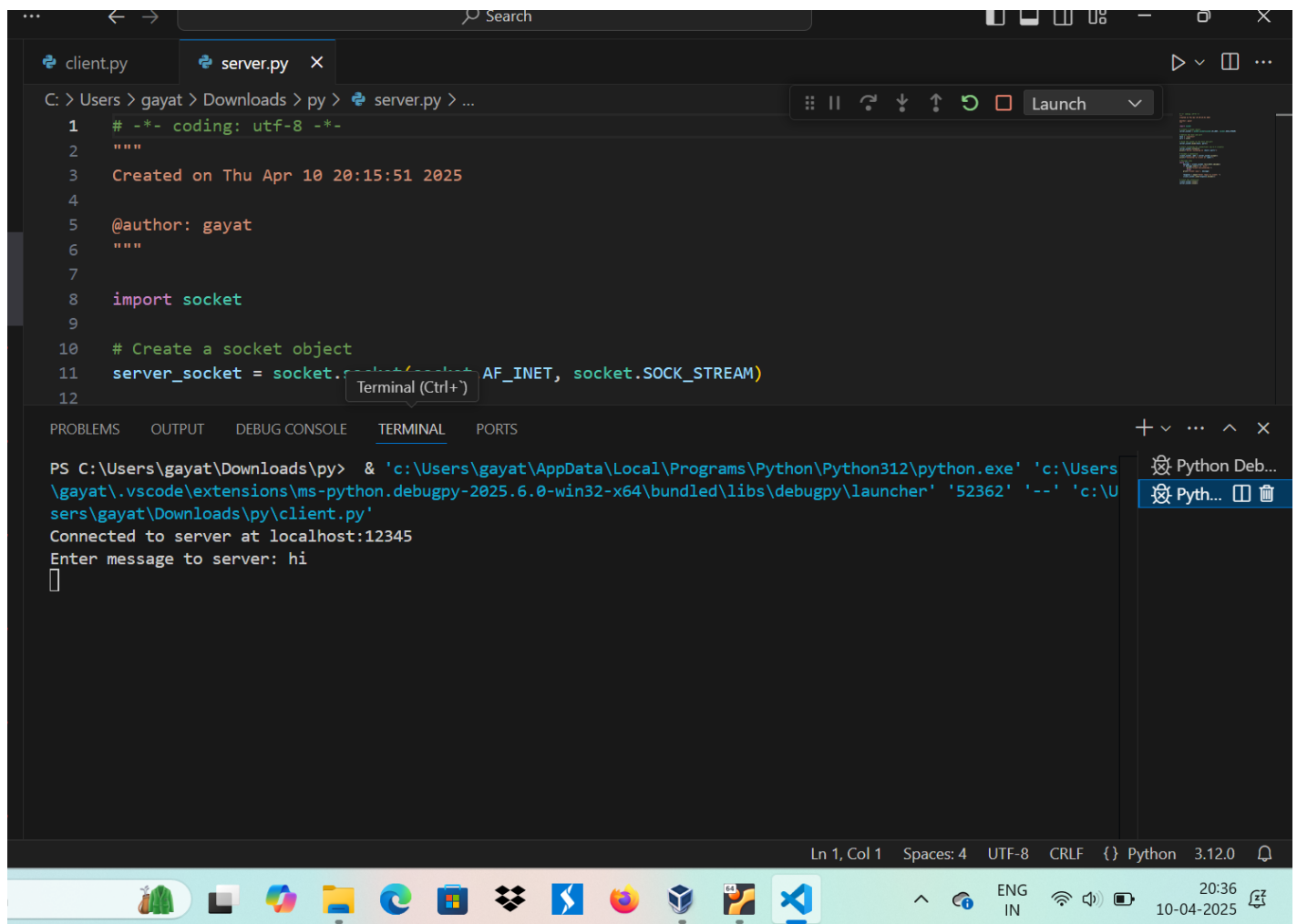
2025-04-10 12:58:32 chat_server | Client: hi

Engine runningRAM 1.39 GB CPU 0.37% Disk: 3.22 GB used (limit 1006.85 GB)Terminalv4.40.0

Using Python:

Python-local:

Client.py:



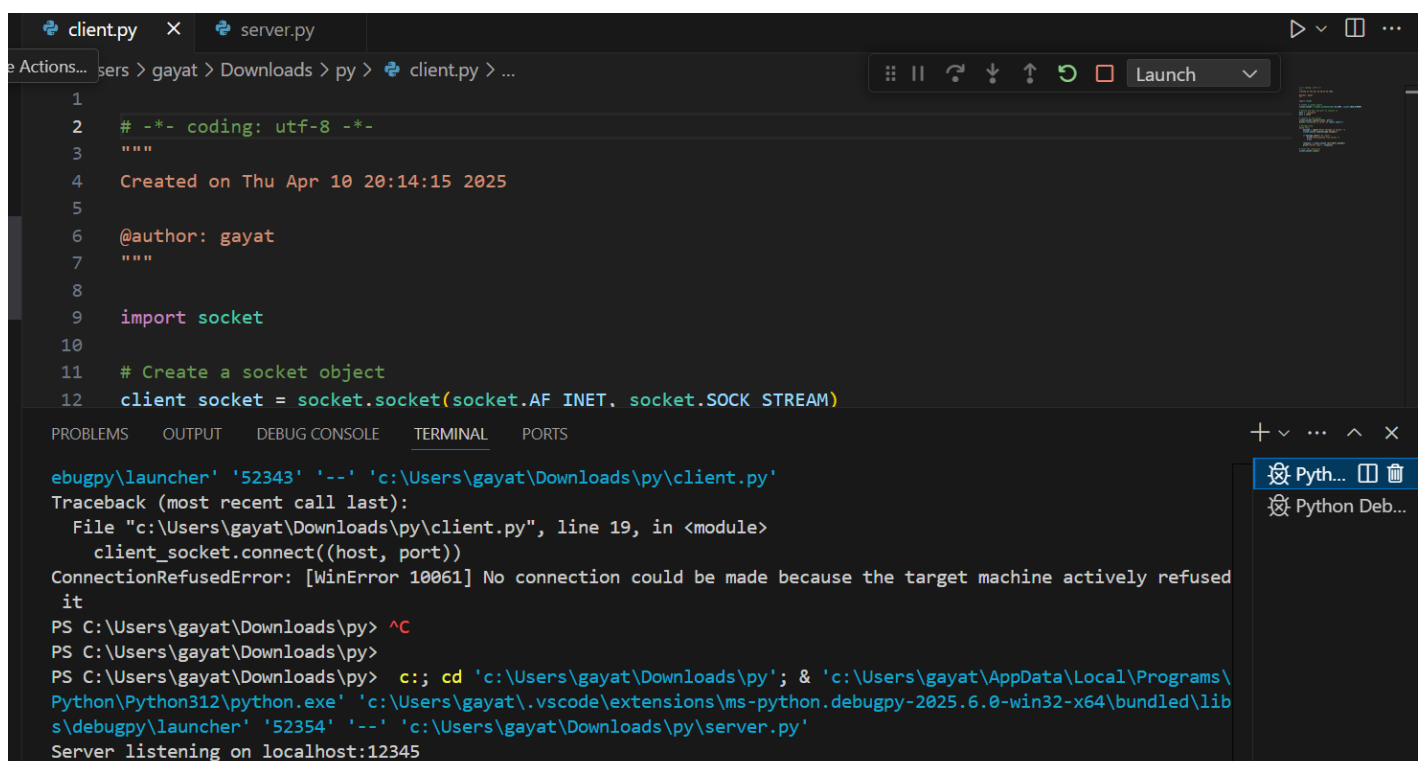
The screenshot shows the VS Code editor with a file named `client.py` open. The code is a Python script that creates a socket and connects to a server at `localhost:12345`. The terminal output shows the command to run the script and the successful connection to the server. The user enters the message "hi" in the terminal.

```
1  # -*- coding: utf-8 -*-
2  """
3  Created on Thu Apr 10 20:15:51 2025
4
5  @author: gayat
6  """
7
8  import socket
9
10 # Create a socket object
11 server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
12
```

Terminal (Ctrl+`):

```
PS C:\Users\gayat\Downloads\py> & 'c:\Users\gayat\AppData\Local\Programs\Python\Python312\python.exe' 'c:\Users\
\gayat\.vscode\extensions\ms-python.debugpy-2025.6.0-win32-x64\bundle\libs\debugpy\launcher' '52362' '--' 'c:\U
sers\gayat\Downloads\py\client.py'
Connected to server at localhost:12345
Enter message to server: hi
█
```

Server.py:



The screenshot shows the VS Code editor with a file named `server.py` open. The code is a Python script that creates a socket and listens for connections on `localhost:12345`. The terminal output shows the command to run the script and the successful connection to the server. The user enters the message "hi" in the terminal.

```
1  # -*- coding: utf-8 -*-
2  """
3  Created on Thu Apr 10 20:14:15 2025
4
5  @author: gayat
6  """
7
8  import socket
9
10 # Create a socket object
11 client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
12
```

Terminal (Ctrl+`):

```
PS C:\Users\gayat\Downloads\py> & 'c:\Users\gayat\AppData\Local\Programs\Python\Python312\python.exe' 'c:\Users\
\gayat\.vscode\extensions\ms-python.debugpy-2025.6.0-win32-x64\bundle\libs\debugpy\launcher' '52354' '--' 'c:\U
sers\gayat\Downloads\py\server.py'
Server listening on localhost:12345
```

Python-docker:

Command Prompt - docker-c

0.0s

=> [client] resolving provenance for metadata file

0.0s

[+] Running 5/5

✓client

Built

0.0s

✓server

Built

0.0s

✓Network python_default

Created

0.1s

✓Container python_socket_server

Created

0.2s

✓Container python_socket_client

Created

0.2s

Attaching to python_socket_client, python_socket_server

python_socket_server | [SERVER] Listening on 0.0.0.0:12345...

python_socket_server | [SERVER] Connected to client at ('172.18.0.3', 43878)

python_socket_client | [CLIENT] Connected to server at server:12345

python_socket_client | [YOU] Enter message: hii

python_socket_server | [CLIENT] hii

View in Docker Desktop

View Config

Enable Watch

Windows PowerShell

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements!
<https://aka.ms/PSWindows>

PS C:\Users\gayat> docker attach python_socket_server
[CLIENT] hii
[YOU] Enter response:

Windows PowerShell

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements!
<https://aka.ms/PSWindows>

PS C:\Users\gayat> docker attach python_socket_client
hii

Docker image python:

docker.desktop

PERSONAL

Search

Ctrl+K

?

1

G

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Images

[Give feedback](#)

View and manage your local and Docker Hub images. [Learn more](#)

Local Docker Hub repositories

1.07 GB / 0 Bytes in use 4 images

Last refresh: 20 hours ago

Search

	Name	Tag	Image ID	Created	Size	Actions
<input type="checkbox"/>	hello-world	latest	fc08e727181e	3 months ago	20.4 KB	▶ ⋮ 🗑
<input type="checkbox"/>	python	latest	1f7ef1e8f35b	2 days ago	1.47 GB	▶ ⋮ 🗑
<input type="checkbox"/>	python-server	latest	7e01235a63bd	27 minutes ag	1.45 GB	▶ ⋮ 🗑
<input type="checkbox"/>	python-client	latest	cb2de40e93fa	27 minutes ag	1.45 GB	▶ ⋮ 🗑

Showing 4 items

Docker container python:

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

Containers Give feedback

View all your running containers and applications. [Learn more](#)

Container CPU usage

0.00% / 800% (8 CPUs available)

Container memory usage

13.59MB / 7.43GB

Show charts

Search

Only show running containers

	Name	Container ID	Image	Port(s)	CPU (%)	Last st	Actions
<input type="checkbox"/>	python	-	-	-	0%	28 min	<div></div> <div></div> <div></div>

Showing 1 item

Walkthroughs

Engine running

RAM 1.40 GB CPU 0.00% Disk: 2.61 GB used (limit 1006.85 GB)

Terminal v4.40.0

Ask Gordon BETA

Containers

Images

Volumes

Builds

Docker Hub

Docker Scout

Extensions

python

C:\Users\gayat\Downloads\Socket-Docker\Python

View configurations

server

python-server

12345:12345

client

python-client

2025-04-10 12:05:55 python_socket_server | [SERVER] Listening on 0.0.0.0:12345...

2025-04-10 12:05:55 python_socket_server | [SERVER] Connected to client at ('172.18.0.3', 43878)

2025-04-10 12:08:43 python_socket_server | [CLIENT] hii

2025-04-10 12:05:55 python_socket_client | [CLIENT] Connected to server at server:12345

2025-04-10 12:08:43 python_socket_client | [YOU] Enter message: hii

