

# OUTPUT

## Server and client both running on local machine

Docker compose:

```
shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker-compose up
[+] Building 1.3s (28/28) FINISHED
=> [spring23-lab2-677-lab2-front-end internal] load build definition from frontend.Dockerfile
=> => transferring dockerfile: 388B
=> [spring23-lab2-677-lab2-order internal] load build definition from order.Dockerfile
=> => transferring dockerfile: 443B
=> [spring23-lab2-677-lab2-catalog internal] load build definition from catalog.Dockerfile
=> => transferring dockerfile: 468B
=> [spring23-lab2-677-lab2-front-end internal] load .dockerignore
=> => transferring context: 2B
=> [spring23-lab2-677-lab2-order internal] load .dockerignore
=> => transferring context: 2B
=> [spring23-lab2-677-lab2-catalog internal] load .dockerignore
=> => transferring context: 2B
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
60ec02648744	spring23-lab2-677-lab2-front-end	"/bin/sh -c 'python...'"	16 seconds ago	Up 14 seconds	0.0.0.0:4000->4000/tcp	front-end-container
51e0bbb61b9e	spring23-lab2-677-lab2-order	"/bin/sh -c 'python...'"	16 seconds ago	Up 14 seconds		order-container
681296b5332d	spring23-lab2-677-lab2-catalog	"/bin/sh -c 'python...'"	16 seconds ago	Up 14 seconds		catalog-container

```
shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker-compose down
[+] Running 4/4
  # Container front-end-container           Removed
  # Container order-container              Removed
  # Container catalog-container          Removed
  # Network spring23-lab2-677-lab2_default Removed
shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker ps
CONTAINER ID   IMAGE      COMMAND   CREATED     STATUS      PORTS      NAMES
shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 %
```

```

Attaching to catalog-container, front-end-container, order-container
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/MenhirCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/MenhirCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "POST /orders HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/InvalidStockName HTTP/1.1" 404 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "POST /orders HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/InvalidStockName HTTP/1.1" 404 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/MenhirCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "POST /orders HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "POST /orders HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "POST /orders HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:08] "GET /stocks/BoarCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:09] "GET /stocks/FishCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:09] "GET /stocks/MenhirCo HTTP/1.1" 200 -
front-end-container | 172.30.0.1 -- [28/Mar/2023 00:21:09] "POST /orders HTTP/1.1" 200

```

```

[shreyadubey@Shreyas-MacBook-Pro client % python3 client.py "127.0.0.1" 4000 0.6
Client establishing server connection at host: 127.0.0.1 , port: 4000
Sending Lookup request for stockname: MenhirCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'MenhirCo', 'price': 234.3000030517578, 'quantity': 1120}}
Stock Quantity: 1120
Sending Lookup request for stockname: MenhirCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'MenhirCo', 'price': 234.3000030517578, 'quantity': 1120}}
Stock Quantity: 1120
Sending Lookup request for stockname: FishCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'FishCo', 'price': 23.34000015258789, 'quantity': 1003}}
Stock Quantity: 1003
Sending Trade request..
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'transaction_number': 32539}}
Sending Lookup request for stockname: InvalidStockName
response.status, response.reason, response.version :
404 Not Found 11
data:
{'error': {'code': 404, 'message': 'stock not found'}}
Sending Lookup request for stockname: FishCo
response.status, response.reason, response.version :
200 OK 11

```

## Dockerfile:

```
[shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % sh build.sh
[+] Building 0.9s (12/12) FINISHED
=> [internal] load build definition from catalog.Dockerfile
=> => transferring dockerfile: 473B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/python:latest
=> [1/7] FROM docker.io/library/python@sha256:5329e75033c4446dc92d702cf8ebbeb63e549d9b83076a776f6753e10817fc3c
=> [internal] load build context
=> => transferring context: 5.19kB
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
frontend-image	latest	af9156508a6c	About an hour ago	1.45GB
order-image	latest	741ea6fb4003	About an hour ago	1.45GB
catalog-image	latest	e2fcc7d12033	About an hour ago	1.61GB

```
[shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker run -it --name catalog-container --volume `pwd`/src/Part1/data:/root-dir/data catalog-image
3
Catalog service running on:
0.0.0.0:6000
```

```
[shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker run -it --name order-container --env CATALOG_HOST="172.17.0.2" --env CATALOG_PORT=6000 --volume `pwd`/src/Part1/data:/root-dir/data order-image
Running order service on host: 0.0.0.0 , port: 6001
3
Order service running on:
0.0.0.0 6001
```

```
[shreyadubey@Shreyas-MacBook-Pro spring23-lab2-677-lab2 % docker run -it --name frontend-container --env CATALOG_HOST="172.17.0.2" --env CATALOG_PORT=6000 --env ORDER_HOST="172.17.0.3" --env ORDER_PORT=6001 -p 4000:4000 frontend-image
Running Front-End Service on host: 0.0.0.0 , port: 4000
Connecting to catalog service at host:172.17.0.2 ,port: 6000
Connecting to order service at host:172.17.0.3 ,port: 6001
Response received from the back-end Catalog service:
error: NO_ERROR
stockname: "GameStart"
price: 15.99
quantity: 9217

172.17.0.1 - - [28/Mar/2023 00:27:59] "GET /stocks/GameStart HTTP/1.1" 200 -
cur_thread: Thread-1 (process_request_thread)
client address_string: ('172.17.0.1', 57856)
Response received from the back-end Catalog service:
error: NO_ERROR
stockname: "BoarCo"
price: 34.34
quantity: 554

172.17.0.1 - - [28/Mar/2023 00:27:59] "GET /stocks/BoarCo HTTP/1.1" 200 -
cur_thread: Thread-1 (process_request_thread)
client address_string: ('172.17.0.1', 57856)
Response received from the back-end Order service:
error: NO_ERROR
transaction_number: 32544
```

```
[shreyadubey@Shreyas-MacBook-Pro client % python3 client.py "127.0.0.1" 4000 0.5
Client establishing server connection at host: 127.0.0.1 , port: 4000
Sending Lookup request for stockname: GameStart
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'GameStart', 'price': 15.989999771118164, 'quantity': 9217}}
Stock Quantity: 9217
Sending Lookup request for stockname: BoarCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'BoarCo', 'price': 34.34000015258789, 'quantity': 554}}
Stock Quantity: 554
Sending Trade request..
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'transaction_number': 32544}}
Sending Lookup request for stockname: GameStart
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'GameStart', 'price': 15.989999771118164, 'quantity': 9217}}
Stock Quantity: 9217
Sending Trade request..
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'transaction_number': 32545}}
Sending Lookup request for stockname: MenhirCo
```

```
shreyadubey@Shreyas-MacBook-Pro client % docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS          NAMES
0913dfc9aeaa      frontend-image     "/bin/sh -c 'python..."   4 seconds ago    Up 3 seconds       0.0.0.0:4000->4000/tcp   frontend-container
8d1b34d8da9b      order-image       "/bin/sh -c 'python..."   10 seconds ago   Up 9 seconds      order-container
2a346ecd0b7c      catalog-image     "/bin/sh -c 'python..."   14 seconds ago   Up 13 seconds     catalog-container
shreyadubey@Shreyas-MacBook-Pro client %
```

Without Docker, client and server on local machine:

```
[shreyadubey@Shreyas-MacBook-Pro front-end % CATALOG_HOST="0.0.0.0" ORDER_HOST="0.0.0.0" python3 front-end-http-server.py
Running Front-End Service on host: 0.0.0.0 , port:4000
Connecting to catalog service at host:0.0.0.0 ,port: 6000
Connecting to order service at host:0.0.0.0 ,port: 6001
Response received from the back-end Catalog service:
error: NO_ERROR
stockname: "BoarCo"
price: 34.34
quantity: 1000

127.0.0.1 - - [27/Mar/2023 22:56:56] "GET /stocks/BoarCo HTTP/1.1" 200 -
cur_thread: Thread-1
client address_string: ('127.0.0.1', 54037)
Response received from the back-end Order service:
error: NO_ERROR
transaction_number: 32539

127.0.0.1 - - [27/Mar/2023 22:56:56] "POST /orders HTTP/1.1" 200 -
cur_thread: Thread-1
client address_string: ('127.0.0.1', 54037)
Response received from the back-end Catalog service:
error: NO_ERROR
stockname: "FishCo"
price: 23.34
quantity: 1003
```

```
[shreyadubey@Shreyas-MacBook-Pro client % python3 client.py 0.4
Client establishing server connection at host: 127.0.0.1 , port: 4000
Sending Lookup request for stockname: BoarCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'BoarCo', 'price': 34.34000015258789, 'quantity': 1000}}
Stock Quantity: 1000
Sending Trade request..
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'transaction_number': 32539}}
Sending Lookup request for stockname: FishCo
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'FishCo', 'price': 23.34000015258789, 'quantity': 1003}}
Stock Quantity: 1003
Sending Trade request..
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'transaction_number': 32540}}
Sending Lookup request for stockname: GameStart
response.status, response.reason, response.version :
200 OK 11
data:
{'data': {'name': 'GameStart', 'price': 15.989999771118164, 'quantity': 9217}}
```

## Server on Edlab and client on local machine

The screenshot shows a terminal window with several tabs open, illustrating the interaction between a client on a local machine and a server on Edlab.

- python tab:** Contains code snippets for sending lookup and trade requests to the MenhirCo service. It includes responses for valid stock names like MenhirCo and invalid ones like InvalidStockName.
- ssh tab:** Shows logs from the MenhirCo service. It receives a lookup request for MenhirCo and returns a response with transaction number 33467. It also receives a trade request for MenhirCo with quantity 1118 and returns a response with transaction number 33470.
- python tab:** Contains code for sending a trade request to the BoarCo service. The response indicates a successful trade with transaction number 33469.
- ssh tab:** Shows logs from the BoarCo service. It receives a trade request for BoarCo with quantity 556 and returns a response with transaction number 33469.
- python tab:** Contains code for sending a trade request to the GameStart service. The response indicates a successful trade with transaction number 33471.
- ssh tab:** Shows logs from the GameStart service. It receives a trade request for GameStart and returns a response with transaction number 33471.
- python tab:** Contains code for sending a trade request to the FishCo service. The response indicates a successful trade with transaction number 33470.
- ssh tab:** Shows logs from the FishCo service. It receives a trade request for FishCo and returns a response with transaction number 33470.