TASK 1 - Report and Commands Explanation

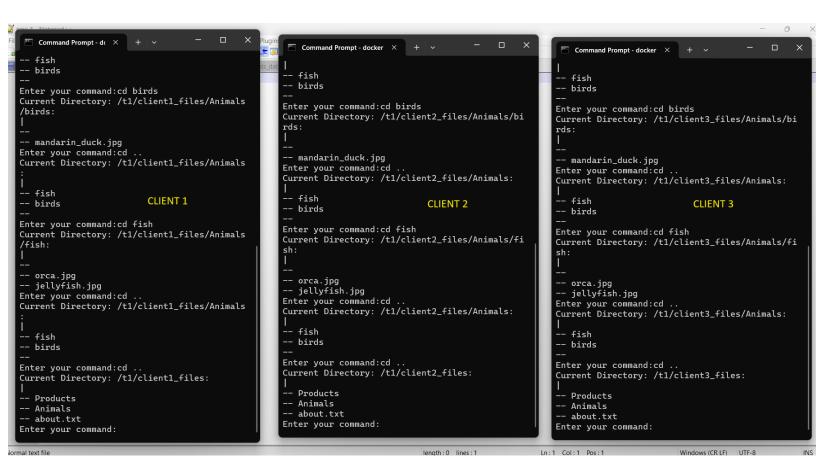
- C). Output from Server and Client Containers:
 - 1. Server Container Shows connection from three client containers and their respective IPs after connection.

```
root@80679d58678a:/t1# python server.py
Server listening on 172.17.0.6:65432
Accepted connection from ('172.17.0.7', 48556)
Connection from : ('172.17.0.7', 48556)
Accepted connection from ('172.17.0.8', 55812)
Connection from : ('172.17.0.8', 55812)
Accepted connection from ('172.17.0.9', 48704)
Connection from : ('172.17.0.9', 48704)
```

2. Client Containers - Displaying all the folder structure created

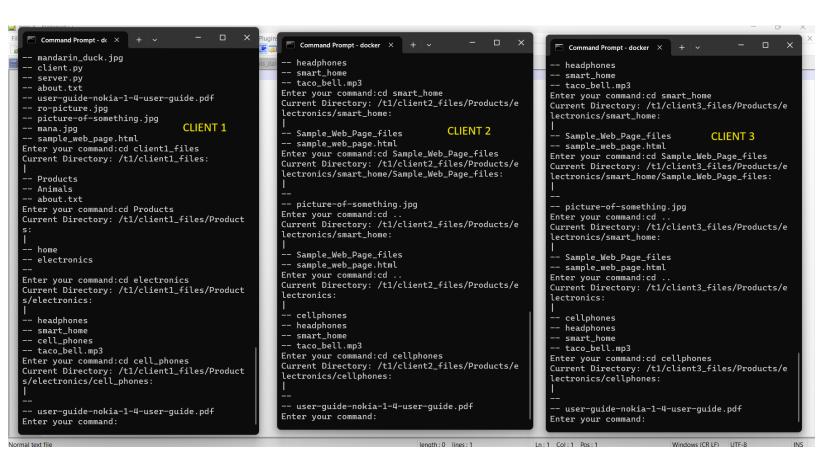
a)

```
Command Prompt - docker × + v
                                                                                                                         Command Prompt - docker X
root@cb2e263ccb24:/# cd t1
                                                          root@9749082bc268:/# cd t1
root@cb2e263ccb24:/t1# python client.py
Connected to server at IP: 172.17.0.6 and Po
                                                                                                                      root@9513742031c2:/# cd t1
                                                         root@9749082bc268:/t1# python client.py
                                                                                                                     root@9513742031c2:/t1# python client.py
Connected to server at IP: 172.17.0.6 and Port:
                                                          Connected to server at IP: 172.17.0.6 and Port:
rt: 65432
                                                          65432
Handshake Done. EOF is: <acebbdb1f>
                                                          Handshake Done. EOF is: <eb927a053>
                                                                                                                      Handshake Done. EOF is: <0c98f2194>
Current Directory: /t1:
                                                          Current Directory: /t1:
                                                                                                                      Current Directory: /t1:
   client1_files
                                                            client1_files
                                                                                                                      -
-- client1_files
-- client2_files
-- client3_files
  client2_files
client3_files
                          CLIENT 1
                                                          -- client2_files
                                                                                                                                                  CLIENT 3
                                                          -- client3_files
                                                                                  CLIENT 2
   ro.txt
                                                          -- ro.txt
  orca.jpg
jellyfish.jpg
                                                                                                                      -- ro.txt
                                                          -- orca.jpg
                                                                                                                       orca.jpg
- jellyfish.jpg
- taco_bell.mp3
- mandarin_duck.jpg
                                                             jellyfish.jpg
   taco_bell.mp3
                                                          -- taco_bell.mp3
   mandarin_duck.jpg
                                                            mandarin_duck.jpg
   client.py
                                                           client.py
                                                                                                                       - client.py
   server.py
                                                            server.py
                                                                                                                        server.py
   about.txt
                                                           - about.txt
                                                                                                                        about.txt
   user-guide-nokia-1-4-user-guide.pdf
                                                            user-guide-nokia-1-4-user-guide.pdf
                                                                                                                        user-guide-nokia-1-4-user-guide.pdf
 -- ro-picture.jpg
                                                            ro-picture.jpg
                                                                                                                         ro-picture.jpg
   picture-of-something.jpg
                                                            picture-of-something.jpg
                                                                                                                         picture-of-something.jpg
   mana.jpg
                                                            mana.jpg
                                                                                                                        mana.jpg
   sample_web_page.html
                                                             sample_web_page.html
                                                                                                                         sample_web_page.html
Enter your command:cd client1_files
                                                         Enter your command:cd client2_files
                                                                                                                     Enter your command:cd client3_files
Current Directory: /t1/client1_files:
                                                          Current Directory: /t1/client2_files:
                                                                                                                     Current Directory: /t1/client3_files:
   Products
                                                          -- Products
                                                                                                                         Products
                                                          -- Animals
                                                                                                                      -- Animals
   about.txt
                                                          -- about.txt
                                                                                                                      -- about.txt
Enter your command:cd Animals
                                                         Enter your command:cd Animals
                                                                                                                     Enter your command:cd Animals
Current Directory: /t1/client1_files/Animals
                                                         Current Directory: /t1/client2_files/Animals:
                                                                                                                      Current Directory: /t1/client3_files/Animals:
                                                            fish
                                                                                                                         fish
   fish
                                                          -- birds
                                                                                                                      -- birds
 - birds
                                                          Enter your command:
                                                                                                                     Enter your command:
Enter your command:
```



c)

```
Command Prompt - dc × + v
                                                                          Command Prompt - docker ×
                                                                                                                                             Command Prompt - docker X
    - Animals
                                                                          Products
                                                                                                                                               Products
    - about.txt
                                                                          Animals
                                                                                                                                            -- Animals
   Enter your command:cd Products
Current Directory: /t1/client1_files/Product
                                                                          about.txt
                                                                                                                                            -- about.txt
                                                                      Enter your command:cd Products
                                                                                                                                           Enter your command:cd Products
                                                                      Current Directory: /t1/client2_files/Products:
                                                                                                                                           Current Directory: /t1/client3_files/Products:
     - home
                                     CLIENT 1
                                                                                                           CLIENT 2
                                                                                                                                               home
                                                                                                                                                                               CLIENT3
   -- electronics
                                                                         electronics
                                                                                                                                            -- electronics
   Enter your command:cd electronics
Current Directory: /t1/client1_files/Product
                                                                      Enter your command:cd electronics
                                                                                                                                           Enter your command:cd electronics
Current Directory: /t1/client3_files/Products/e
                                                                      Current Directory: /t1/client2_files/Products/e
   s/electronics:
                                                                       lectronics:
                                                                                                                                            lectronics:
      headphones
                                                                          cellphones
                                                                                                                                               cellphones
       smart_home
                                                                         headphones
smart_home
                                                                                                                                            -- headphones
    -- cell_phones
                                                                                                                                            -- smart_home
       taco bell.mp3
                                                                          taco_bell.mp3
                                                                                                                                            -- taco_bell.mp3
   Enter your command:cd smart_home
                                                                      Enter your command:cd smart_home
Current Directory: /t1/client2_files/Products/e
lectronics/smart_home:
                                                                                                                                           Enter your command:cd smart_home
Current Directory: /t1/client3_files/Products/e
lectronics/smart_home:
   Current Directory: /t1/client1_files/Product s/electronics/smart_home:
       Sample_Web_Page_files
                                                                          Sample_Web_Page_files
                                                                                                                                               Sample_Web_Page_files
    -- sample_web_page.html
                                                                          sample_web_page.html
                                                                                                                                               sample_web_page.html
   Enter your command:cd Sample_Web_Page_files
Current Directory: /tl/client1_files/Product
s/electronics/smart_home/Sample_Web_Page_fil
                                                                      Enter your command:cd Sample_Web_Page_files
Current Directory: /t1/client2_files/Products/e
                                                                                                                                           Enter your command:cd Sample_Web_Page_files
Current Directory: /t1/client3_files/Products/e
lectronics/smart_home/Sample_Web_Page_files:
                                                                      lectronics/smart_home/Sample_Web_Page_files:
   es:
                                                                         picture-of-something.jpg
                                                                                                                                            -- picture-of-something.jpg
    -- picture-of-something.jpg
                                                                      Enter your command:cd
                                                                                                                                           Enter your command:cd
   Enter your command:cd
   Current Directory: /t1/client1_files/Product
s/electronics/smart_home:
                                                                      Current Directory: /t1/client2_files/Products/e
                                                                                                                                           Current Directory: /t1/client3_files/Products/e
                                                                      lectronics/smart_home:
                                                                                                                                            lectronics/smart_home:
                                                                          Sample_Web_Page_files
                                                                                                                                             Sample_Web_Page_files
       Sample_Web_Page_files
                                                                         sample_web_page.html
                                                                                                                                            -- sample_web_page.html
       sample_web_page.html
                                                                      Enter your command:
                                                                                                                                           Enter your command:
   Enter your command:
Normal text file
                                                                                                                                        Ln:1 Col:1 Pos:1
```



D) List of IP and Ports:



Corresponding ports and IPs can also be seen in the server output

```
root@80679d58678a:/t1# python server.py
Server listening on 172.17.0.6:65432
Accepted connection from ('172.17.0.7', 48556)
Connection from : ('172.17.0.7', 48556)
Accepted connection from ('172.17.0.8', 55812)
Connection from : ('172.17.0.8', 55812)
Accepted connection from ('172.17.0.9', 48704)
Connection from : ('172.17.0.9', 48704)
```

The shared storage path is in the server container and all the three containers are communicating with the server for creating the tree structure. The paths used by client container 1,2 and 3 are t1/client1_files, t1/client2_files, t1/client3 files respectively.

E) List of all commands used and explanation

SERVER:

- 1. docker pull ozxx33/fileserver-base
 - -> gets the base image for the assignment in order to build containers on top of it
- docker run -p 65432:65432 -it --name server_container_t1 ozxx33/fileserver-base
 -> creates and starts a container with the name server_container_t1. It also maps the host port 65432 with the container's post to the public
- 3. docker cp "C:\Users\mihir\Downloads\Docker_T1" server_container_t1:/t1 -> Copies the files from the specified folder inside the container in the location t1
- 4. docker start server container t1
 - -> Starts the specified container
- 5. docker exec -it server_container_t1 bash->Runs the specified container in interactive mode with bash
- 6. docker commit server container t1 client server task t1
 - -> Creates a new intermediate image client server task t1

- 7. docker images
 - -> Displays all available images
- 8. docker exec -it server container t1 bash
 - -> Runs the new container with bash
- 9. cd t1
 - -> Change directory to the folder with code files
- 10. Python sever.py
 - -> Run the server file with socket

CLIENT CONTAINER 1

- 1. docker run -it --name client1 container t1 client server task t1
 - ->Runs the specified container with name client1 container t1 in interactive mode with bash
- 2. cd t1
 - -> Change directory with code files
- 3. python client.py
 - -> Run the client socket for connecting with server
- 4. mkdir client1 files
 - -> Create a new directory for operations at server side
- 5. cd client1 files
 - -> change directory to the new folder at server side

CLIENT CONTAINER 2

- 1. docker run -it --name client2 container t1 client server task t1 -- Client 2 >Runs the specified container with name client2 container t1 in interactive mode with bash
- 2. cd t1
 - -> Change directory with code files
- 3. python client.py
 - -> Run the client socket for connecting with server
- 4. mkdir client2 files
 - -> Create a new directory for operations at server side

- 5. cd client2_files
 - -> change directory to the new folder at server side

CLIENT CONTAINER 3

- 1. docker run -it --name client3_container_t1 client_server_task_t1 >Runs the specified container with name client3_container_t1 in interactive mode with bash
- 2. python client.py
 - -> Run the client socket for connecting with server
- 3. mkdir client3_files
 - ->Create a new directory for operations at server side
- 4. cd client3 files
 - -> change directory to the new folder at server side
- F) Yes I committed an intermediate image after adding all the necessary code files to the container as it will be easy to load new client containers directly from it with all the needed code files.