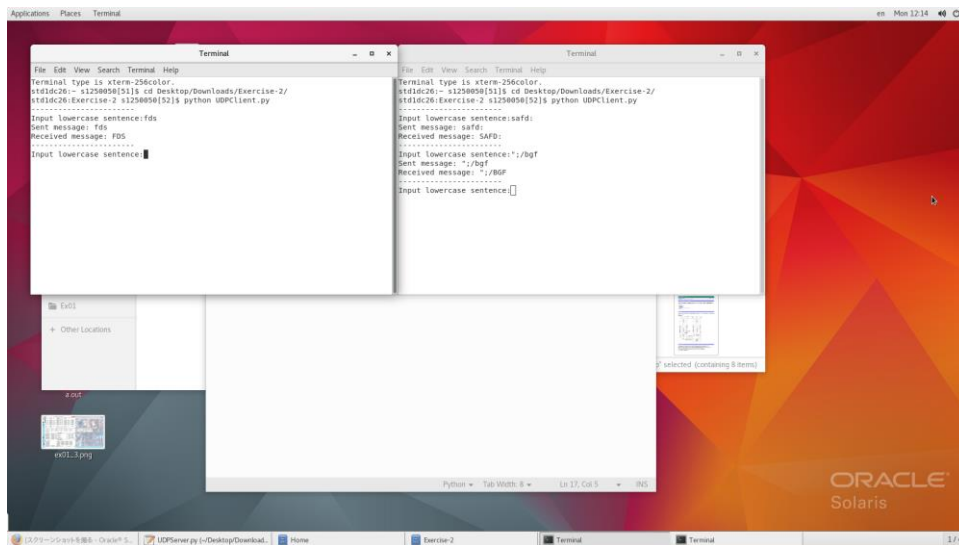
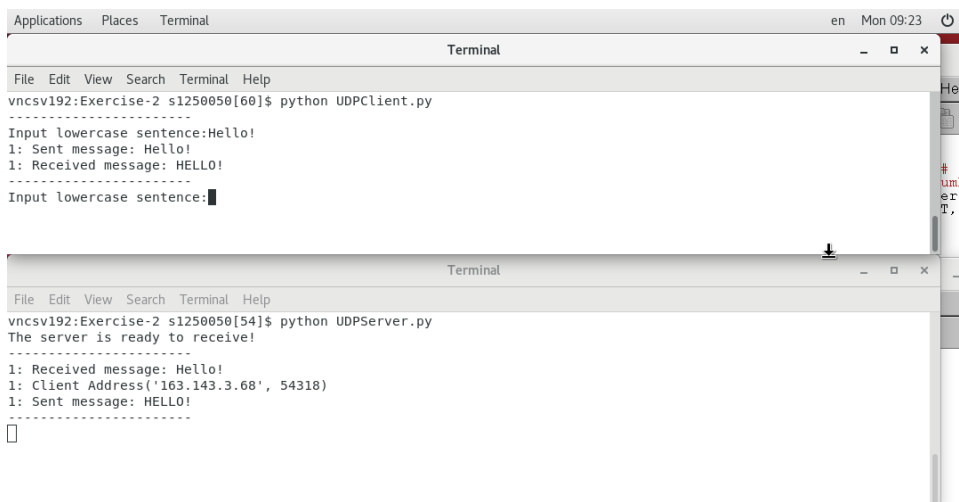


Ex02 Ans s1250050 Tsuyoshi Kumamoto

Q1



Q2&Q3



Q4

```
Applications  Places  Terminal  en  Mon 09:28
Terminal
File Edit View Search Terminal Help
vncsv192:Exercise-2 s1250050[60]$
vncsv192:Exercise-2 s1250050[60]$ python UDPClient.py
-----
Input lowercase sentence:Hello!
1: Sent message: Hello!
1: Received message: HELLO!
-----
Input lowercase sentence:Konnichiwa
2: Sent message: Konnichiwa
2: Received message: KONNICHIWA
-----
Input lowercase sentence:Wait...
vncsv192:Exercise-2 s1250050[54]$ python UDPServer.py
The server is ready to receive!
-----
1: Received message: Hello!
1: Client Address('163.143.3.68', 54318)
1: Sent message: HELLO!
-----
2: Received message: Konnichiwa
2: Client Address('163.143.3.68', 54318)
2: Sent message: KONNICHIWA
-----
```

Q5

```
Applications  Places  Terminal  en  Mon 09:32
Terminal
File Edit View Search Terminal Help
File "UDPClient.py", line 17, in <module>
    receivedMessage, serverAddress = clientSocket.recvfrom(2048)
KeyboardInterrupt
vncsv192:Exercise-2 s1250050[60]$
vncsv192:Exercise-2 s1250050[60]$ python UDPClient.py
-----
Input lowercase sentence:Hello!
1: Sent message: Hello!
1: Received message: HELLO!
-----
Input lowercase sentence:Konnichiwa
2: Sent message: Konnichiwa
2: Received message: KONNICHIWA
-----
Input lowercase sentence:Wait...
3: Sent message: Wait...
3: Received message: WAIT...
-----
Input lowercase sentence:Number4
4: Sent message: Number4
4: Received message: NUMBER4
-----
Input lowercase sentence:I am Client.
5: Sent message: I am Client.
5: Received message: I AM CLIENT.
-----
Input lowercase sentence:hoge
6: Sent message: hoge
6: Received message: HOGHE
-----
Input lowercase sentence:fuga
7: Sent message: fuga
7: Received message: FUGA
-----
Input lowercase sentence:hogehoge
8: Sent message: hogehoge
8: Received message: HOGHEHOGHE
-----
Input lowercase sentence:fugafuga
9: Sent message: fugafuga
9: Received message: FUGAFUGA
Over 9 time! Broken!
```

Homework Question

Homework questions (each question = 5points)

Please answer the following questions:

1. How is the source port number of the client program assigned?

The OS specifies the port number.

2. How is the source port number of the server program assigned?

Assigned by the programmer.

3. Is it possible to use `clientSocket.bind()` method in the client program? Please explain.

Can be used. By using it, a specific port number can be assigned (bind).

4. What are multiplexing and demultiplexing?

Multiplexing allows multiple different clients to query the same server for different content. Demultiplexing means that different information can be sent from one server to different clients without interference as in this example.

5. Describe the possible techniques to provide reliable service over UDP.

In order to provide a highly reliable service using UDP, it is necessary to improve the reliability of the service itself by implementing adding acknowledgment, sequence #, and retransmission.

6. What is a subnet?

A subnet is a network composed of small clients in a huge network. The purpose is to divide the network and make it easier to manage.

7. What are the difference between IPv4 and IPv6?

IPv4 is a version of the conventional IP address and is an address represented by a 32-bit number. IPv6 is the next generation IP address and is expressed in hexadecimal with 128 bits.

8. What is the relation of UDP & RTP? Please explain the fields provided by RTP.

Sorry, No idea.

