Started on	Wednesday, 11 November 2020, 07:29
State	Finished
Completed on	Wednesday, 11 November 2020, 07:40
Time taken	10 mins 59 secs
Feedback	Your overall score for this part is between 90% and 100%. The exact grade as well as details for each question will be made available as soon as the submission period for the quiz closes.

Question **1**

Complete

Marked out of 1.00

Flag question

Lab3 Part1.2 Question 1:

Codes C and D use...

Select one:

- a. TCP sockets
- b. UDP sockets

If you are not sure of your answer, you should do the Part1.1 of the lab.

Question **2**

Complete

Marked out of 1.00

Flag question

Lab3 Part1.2 Question 2:

How would you change the following line of CodeC to use an IPv6 TCP socket ?

```
sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
```

If you believe CodeC already uses an IPv6 socket, COPY and PASTE the above line on the following field.

If you believe CodeC is not using an IPv6 socket, COPY, PASTE the above line on the following field and MAKE the necessary CHANGES before submitting. Do not change CodeC.

Answer: sock = socket.socket(socket.AF_INET6, socket.SOCK_STREAM)

You have several ways to find your answer, here is a list:

- [Beginner, lazy-student level] Google it ! Something like "How do I use Ipv6 sockets in Python ?" would do the trick.
- [Good student level] Check the lecture !

- [Advanced level] CodeC imports the module "socket". You can check thePython3 documentation for the "socket" module.
- [Pro level] Socket functions are system calls: they ask the OS to do something. System calls are documented in the "Programmer's Manual" of your OS and most languages keep the same syntax. You can check the socket system-call documentation by typing

  ```
  man socket
  ```

  in a terminal (Or "man 2 socket", "man 2" specifically asks to look in section 2 of the manual, that regroups system calls. For more information about man and manual sections, see Wikipedia.) Once you're in the manual page, use up/down arrows to navigate and press q to exit the manual.

Question **3**

Complete

Marked out of 2.00

Flag question

Lab3 Part1.2 Question 3:

Explain the output of the command by completing the following text:

The prompted table contains

1

row(s). The first row indicates that a TCP socket is waiting for connection request(s) on port

5002

.

To be sure that you have the right amount of line(s), we advise you to wait at least 30 seconds between any previous manipulation and the moment when you launch the command.

For all the other answers, check the lecture.

Question **4**

Complete

Marked out of 3.00

Flag question

Lab3 Part1.2 Question 4:

Explain the output of the command by completing the following text. In the following, the symbol

<port>

represents a port number that depends on your computer. And

<status>

represents the status of the socket.

The prompted table contains

3

row(s).

Take a look at the following lines:

Line A:

- Linux: tcp <status> 0 0 127.0.0.1:5002 127.0.0.1:<port>
- Windows: TCP 127.0.0.1:5002 127.0.0.1:<port> <status>
- MacOs: tcp 0 0 127.0.0.1:5002 127.0.0.1:<port> <status>

Line B:

- Linux: tcp <status> 0 0 127.0.0.1:<port> 127.0.0.1:5002
- Windows: TCP 127.0.0.1:<port> 127.0.0.1:5002 <status>
- MacOs: tcp 0 0 127.0.0.1:<port> 127.0.0.1:5002 <status>

Line C:

- Linux: tcp <status> 0 1 127.0.0.1:5002 0.0.0.0:*
- Windows: TCP 127.0.0.1:5002 0.0.0.0:0 <status>
- MacOs: tcp 0 0 127.0.0.1:5002 0.0.0.0:* <status>

Line A gives the status of the server socket. It indicates that the socket has a/an queued connection with a remote end-point.

The remote end-point is running on the same computer, its socket's status is given by line B.

The remaining line indicates that the server is still listening for other incoming connection requests.

Remember:

- That TCP sockets are bi-directional (full-duplex), once the connection is set, the same socket is used to receive/send data.
- That the client and the server are running in this case on the same computer. System commands such as netstat will provide information for both the client's and the server's perspective.

Question **5**

Complete

Marked out of 1.00

Flag question

Lab3 Part1.2 Question5:

Once you launch CodeD, in how many lines does the SERVER print the received message ?

3

What line of the SERVER code can you change to manage the number of lines on the server's output ?
COPY and PASTE the unmodified corresponding line in the following field:

data=connection.recv(16).decode()

For the number of prompted lines:

- Be sure to use python3
- We only count the lines that start with a "received:" preamble

For the second part of the question: try the combo: TEST + DOC

- Test the server script by changing some of the values that appear
- Read the documentation of some of the most important functions in the script (man + <function>)

Question **6**

Complete

Marked out of 2.00

Flag question

Lab3 Part1.2 Question 6:

When you launch CodeD, the following line of CodeC:

```
print("No more data from", addr) &lt;br&gt;
```

is not executed . Indeed, to access that part of the IF THEN ELSE structure, function recv() must return false .

This happens

- only when the recv() call has been waiting for more than 15minutes
- only when an error occurs
- only when an error occurs OR the connection is terminated OR the program receives a packet without any payload
- only when the connection is orderly terminated OR the program receives a packet without any payload
- only when the connection is orderly terminated OR the requested number of bytes to receive from the stream socket was 0
- only if the client sends a packet with the SESSION_TERMINATED payload
- whenever there is no more byte to read from the buffer

.

In our situation, recv() blocks

"The manual is your friend !" (also known as "RTFM !"). Open a terminal and type:

```
man 2 recv
```

Then take a look at the "RETURN VALUE" section...

Remember that in almost all programing languages, 0 is interpreted as "False" and any other value including floating-point numbers, negative numbers, strings, ... are interpreted as "True"

Question **7**

Complete

Marked out of 1.00

Flag question

Lab3 Part1.2 Question7:

The server sends and receives data to/from the client on the same socket it is listening on.

Select one:

- True
- False

Check the lecture:

"Listen" in the above question has the same meaning as the one of the LISTENING status of a socket or the listen() system call.

Question **8**

Complete

Marked out of 2.00

Flag question

Lab3 Part.2 Question 8:

When you terminate CodeD (CTRL+C), the line

```
print("No more data from", addr)
```

is executed. Indeed, CTRL+C raises a KeyboardInterrupt interruption in CodeD, making it terminates. As a consequence, the socket is closed and the connection is orderly closed.

For the first part, read carefully what happens in the terminal when you press CTRL+C.

Do not use the integrated launch command of your IDE, run your python script from the terminal with ```python3 CodeD/C.py``` and press CTRL+C in the terminal.

For the second part, just compare what happens with your answers on question 6.

Finish review

◄ [Not graded] Lab - Part 1.1

Jump to...

[Graded] Lab3 - Part 2 ►

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