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Question 1 (2 points)

Match each command with its usage

apt

ssh

scp

top

1. useful for inquiring about the IP address
2. useful for updating system packages
3. useful for transferring data from a local machine to a remote server
4. useful for connecting to a remote server's terminal
5. useful for showing current cpu utilization rate
6. useful for running a process in the background

Question 2 (2 points)

Choose true or false.

☐

Bash scripting is generally more challenging than Python scripting

☐

Post and Get http requests can be both used to upload data to the server from the client

1. True

☐

In Linux, when you execute a python script, a process is created.

2. False

☐

In this course, we learned how to develop scripts for Linux because we do not need to develop scripts for Windows.

Question 3 (2 points)

Match each python library with its usage

☐

sys

1. useful for executing an external Java program

☐

BeautifulSoup

2. useful for parsing XML files

☐

Subprocess

3. useful for retrieving the hostname

☐

requests

4. useful for fetching HTML pages from the internet

5. useful for generating plots

6. useful for reading command-line arguments

Question 4 (2 points)

Assume you have the following text file: marks.txt

Ahmad 90

Alia 34

Bilal 54

Aya 61

Kareem 61

Akram 18

Write down a **Linux command** that prints the names of all students who have a mark more than 60 in a sorted alphabetical order, and stores this output in a file called output.txt? You may use pipelining and redirection, if needed.

Question 5 (4 points)

You are given the following file: page.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>Exam</title>
  </head>
  <body>
    <div>
      <h1>Question 1</h1>
      <div class="question">
        What is the inverse of high?
      </div>
    </div>
    <div>
      <h1>Question 2</h1>
      <div class="question">
        What is the inverse of big?
      </div>
    </div>
    <div>
      <h1>Question 3</h1>
      <div class="question">
        What is the inverse of tall?
      </div>
    </div>
  </body>
</html>
```

Write a Python script that **reads** page.html file, then **parses** this file and **prints** the questions inside this html page on the screen. In other words, your script should scrap the questions and print them on the screen, like this:

What is the inverse of high?

What is the inverse of big?

What is the inverse of tall?

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Question 6 (3.5 points)

Assume we want to implement a simple client-server socket-based application in Python. In below, I already wrote the server program, which will send a 'Hello' message to the client. Your task is to write the client program. Note that the client should receive the message from the server and print it on the screen.

```
# server.py
import socket
server_socket = socket.socket()
server_socket.bind(("127.0.0.1",23000))
server_socket.listen()
conn, addr = server_socket.accept()

msg = "Hello"
conn.send(msg.encode())
conn.close()
```

Question 7 (3.5 points)

You are given the following CSV file: marks.csv

Name	Email	Mark
Mark	mark@rit.edu	90
Noora	noora@gmail.com	80
Lara	lara@rit.edu	65
Ahmad	ahmad@gmail.com	74
Terry	terry@rit.edu	62
Fred	fred@rit.edu	91
Susie	susie@gmail.com	64

As you can see, we have three columns: student names, emails, and marks. Write a **Python** script that will print the names of all students who have gmail accounts (which are Noora, Ahmad and Susie).

Hint: use pandas module.

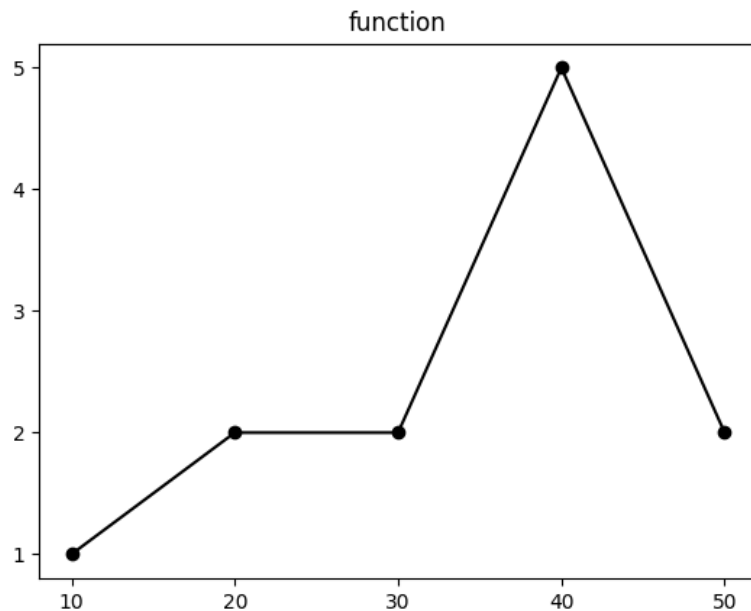
Question 8 (3.5 points)

Assume you are given the following xpoints and ypoints:

```
xpoints = np.array([10,20,30,40,50])
```

```
ypoints = np.array([1,2,2,5,2])
```

Write a python script that will generate the below plot:



I already wrote part of the code. Your job is to complete the code.

```
import numpy as np
import matplotlib.pyplot as plt
xpoints = np.array([10,20,30,40,50])
ypoints = np.array([1,2,2,5,2])
// student code starts here
```

Question 9 (1 point)

System configuration files are usually stored in which folder in linux?

- ☐ /etc
- ☐ /opt
- ☐ /var
- ☐ /dev

Question 10 (1.5 points)

Assume the below Bash script is called script.sh

```
#!/bin/bash
k=$#
for i in $*
do
    k=$((k-1))
    a[$k]=$i
done
echo ${a[*]}
```

What is the output of the below command?

\$ bash script.sh 8 0 9

- ☐ 8 8 8
- ☐ 9
- ☐ 8
- ☐ 9 0 8
- ☐ 8 0 9
- ☐ 9 9 9

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Question 11 (1 point)

You are given the following CSV file: marks.txt

Ahmad 90

Alia 34

Bilal 54

Aya 61

Kareem 61

Akram 18

What is the output of the below Linux command?

```
grep '^A' marks.txt | wc -l
```

☐ 4☐ 6☐ 0☐ 7☐ 1☐ 2☐ 5☐ 3**Question 12** (2 points)

What is the output of the following Bash script?

```
#!/bin/bash
function1() {
    return $(( $1 + $2 ))
}

function2() {
    return $(( $1 - $2 ))
}

function1 9 1
x=$?
function2 9 1
y=$?

echo $x $y
```

- ☐ 0 10
- ☐ 10 10
- ☐ 3 -1
- ☐ 10 8
- ☐ 1 1
- ☐ 9 9
- ☐ 9 1
- ☐ 1 9
- ☐ 8 8

Question 13 (1 point)

What is the output of the following Python script?

```
import numpy as np

a = np.array([ [6, 8, 4], [3, 1, 7], [2, 0, 5] ])

print(a[1])
```

- ☐ [1]
- ☐ [0]
- ☐ [2, 0, 5]
- ☐ [6, 8, 4]
- ☐ [8]
- ☐ [3, 1, 7]

Question 14 (1 point)

Which statement in below is correct about the course project?

- ☐ We used XML to represent the query sent from the client to the server
- ☐ We used XML to represent the response sent from the server to the client
- ☐ Both

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