

**Student Name:**

**Weight: 20%**

**Student ID:**

**Marks: /29**

## **Assignment: Write a Script to Conduct a System Check**

Read the scenario below and complete the instructions that follow.

### **Scenario**

Your boss has just acquired a new client that needs a security audit done on all 50 of their Linux desktop computers. The client doesn't want a script to run on the server. Instead, they want someone to manually assess the security on each individual laptop.

For an experienced technician, it would take 5 minutes to log in, access system files and take notes for each computer (a total of about 4 hours to assess all 50 computers). As a new technician, it will take you twice as long (about 8 hours) to complete the task. Your boss wants you to write two scripts.

### **Instructions**

#### **Part 1 – Write script 1 (named Project\_2\_WriteData.py)**

1. Write a single script that retrieves the following information for each desktop computer:

- Machine name
- List of all users and the group they are associated with, sorted in alphabetical order by name.

Hint: the pwd and grp modules will help

- The following processor information from /proc/cpuinfo:
  - Vendor\_id
  - Model
  - Model name
  - Cache
- The current status of all services being run on the machine.

**Note:** These data need to be collected and written as a JSON file named Project\_2.json. This file will be read by your second script.

#### **Part 2 – Write script 2 (named Project\_2\_PrintData.py)**

1. Make sure script 2 reads the Project\_2.json file correctly and writes the output to the screen.

2. The output should be formatted properly with headings for each section. The headings need to be easily readable.
3. In your demo, show that the Project\_2.json file has been created properly.
  - a. Open this file after running Project\_2\_WriteData.py. The demo also needs to run the script Project\_2\_PrintData.py, proving that the Project\_2.json was correctly parsed and that the output format is correct.

Example of screen output for name, followed by all groups:

```
saned:
    saned
    scanner

speech-dispatcher:
    audio

student:
    student
    adm
    cdrom
    sudo
    dip
    plugdev
    lpadmin|
    sambashare
    MayUser
```

**Figure 1: Example of Screen Output**

Source: Southern Alberta Institute of Technology

## Marking Criteria

Categories	0	1	2	Score
<b>Machine Name</b>	None	Acquired in output		/1
<b>Cpuinfo</b>	None	Acquired but not all	Acquired in output	/2
<b>All services on machine and their current status</b>	None	Acquired but not all	Acquired in output	/2
<b>User Names</b>	None	Acquired but not all	Acquired in output	/2
<b>Names Sorted</b>	None		Sorted	/2
<b>Groups</b>	None	Acquired but not all	Acquired in output	/2
<b>Dictionaries</b>	None	Attempted but contains insufficient amount of useful implementation that streamlines the code structure and code readability	Well executed	/2
<b>Functions</b>	None	Not called or no practical usable code	Well executed	/2
<b>Error Handling</b>	None	Limited (missing error handling techniques when working with resources, casting data types, etc.)	Well executed	/2
<b>Script 1 Ran without Errors</b>	No	Limited (some aspects of the code do not execute in all cases and may produce errors)	Well executed	/2
<b>JSON file created</b>	No	Partial content/not all data written to file	Correct Content	/2
<b>Script 2 Ran without Errors</b>	No	Limited (some aspects of the code do not execute in all cases and may produce errors)	Well executed	/2
<b>Proper Output Formatting</b>	None	Limited (the output file content is difficult to interpret)	Well executed	/2
<b>Demo</b>	None	Limited (problems encountered during the	Well executed	/2

		demo without adequate resolution, does not prove that coding solution works, or is missing code explanation)		
<b>Code Readability</b>	Insufficient (very difficult to follow the coding solution, lacks organization and logical structure)	Limited (missing adequate pseudocode, commenting, or code structure is difficult to follow)	Well executed	<b>/2</b>
<b>Total</b>				<b>/29</b>