

## ICS 2305: SYSTEMS PROGRAMMING

**TAKE AWAY CAT (Must be Done by all in the class individually and submit )**

**Done on the Class of 28<sup>th</sup> November 2024 to be submitted via [Jkuatnotes7@gmail.com](mailto:Jkuatnotes7@gmail.com) before midday of 29<sup>th</sup> November 2024. Please do not send after deadline**

**The subject of the Email should be: ICS2305:CAT2:YourStudentNumber: YourName**

**Zip all your .sh Files in one Zipped file**

**But also paste the answers as part of the write up document that has your name and number in the cover letter and well sequenced questions**

### Background

**In the class page Piazza under general resource there are several Linux scripting resources which as earlier advised you have been working on and reading. This assignment is on UNIX /Linux shell scripting**

### Questions

1. Write the shell script that reads any 6 numbers from the keyboard and print their sum, if non numbers are keyed from the keyboard , it throws an alert to key in numbers only
2. Write a Shell script that reads the text in a text file called Angukanayo.txt and outputs number of characters (inclusive of white spaces ) in that textfile  
**2(b)** write the script to report if in the text file called **Angukanayo.txt** has a string **Mpangale** and the line number on which it occurs within file.
3. UNIX allows users to be in groups based on their access levels. Write a shell script that given a person's uid, tells you how many times that person is logged on to the system and the time for login
4. Write a Shell Script that counts the number of empty folders in a directory (with size=0) and outputs the list of those folders and the time created.
5. Write a script that will convert all of the .jpg files in a given directory into .tiff files. The user should be prompted to enter the file path. The output after conversion should give us the number of images converted
6. Nmap is a network mapper software that can show data about network traffic such as showing the IP address of all devices your machine is connected to . This can be done using bash Script as well. Write a bash Script that scan network for hosts attached to an IP address. The script should show if the host is up indicating Yes if up.

7. Department Chairman of Computing has heard about your Unix shell scripting Prowess in creating mail merge service, he wants your services to invite students to a webinar hosted by JhubAfrica . The department wants to send the invitation letter below to a webinar addressed to each student personally.

“Inviting the you as our computing student to our 21st Open Webinar on skills optimization by jhubAfrica scheduled for **Friday, 29th November** from **5:00 P.M.** The Zoom link for joining in on Friday is as given below. We shall also broadcast the webinar on our youtube channel. Youtube link:  
<https://youtu.be/ONVTA7LKMIIs>

The chairman has a text file that contains the names of the persons and the email of persons they want to send to. Implement this mail merge in linux bash and should work with all popular browsers .

8. Write a bash that checks the available disk spaces in your drive C and alert the “the space available is ----Mb”

9.

(a) using the `wget` command , download the following two files

Download an example TXT file

from <https://github.com/yesinteractive/dadjokes/blob/master/controllers/jokes.txt>

Download the example JSON file

from <https://gist.github.com/rominirani/8235702#file-employees-json>

- (b) Write a shell command to list and show lines 2 to 7 of the file **jokes.txt**
- (c) Create an MD5 checksum file MD5SUM for the TXT and JSON files above using a shell script
- (d) Write a shell command to archive (tar gzipped archive ) the two file TXT and JSON as **Johnnie.tar.gz**
- (e) Write the shell command that can delete the two files from the downloaded location in (a)
- (f) Write the shell command to recover or restore the above two files
- (g) Write a shell command to compare the MD5SUM of the recovered files against the deleted ones