

# SCRIPTING AND COMPUTER ENVIRONMENTS

## BASH SCRIPTING ASSIGNMENT 1

**ASSIGNMENT DEADLINE:** 16th September, 2019 11:55 PM (Strict Deadline)

**SUBMISSION FORMAT:** Compress the folder as <rollno>\_assignment1.tar.gz and then upload it to your moodle account.

```
2019202020_assignment1
├─ q1
│   └─ 2019202020_q1.sh
├─ q2
│   └─ 2019202020_q2.sh
├─ q3
│   └─ 2019202020_q3.sh
├─ q4
│   └─ 2019202020_q4.sh
├─ q5
│   ├── 2019202020_q5_start.sh
│   └─ 2019202020_q5_stop.sh
├─ q6
│   ├── 2019202020_q6.sh
│   └─ test_directory
├─ q7
│   └─ 2019202020_q7.sh
```

### HOW TO GET ZERO IN THE ASSIGNMENT?

1. DEVIATING FROM THE UPLOAD FORMAT will get you a straight zero.
2. ANY KIND OF PLAGIARISM will also lead to a straight zero.

### WHERE TO GET HELP?

1. Post your doubts on the Assignment Thread on Moodle.
2. Approach the TAs.

# BASH Scripting Questions

## Question 1. How's The weather

Write a bash script that takes the longitude and latitude of a place as command line arguments and then displays the temperature and weather of that location.

One possible way is to find a suitable website, supply the parameters in the URL, get its source code and use grep/sed to extract out necessary data.

[Bonus : Try if you could do the same by taking just the city name as an input.]

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## Question 2. FileOpener

Write a bash script that takes as a file path as command line argument and then opens it with the default application.

.jpg .png .bmp in an image viewer  
.mp3 .wav .mp4 .flv in VLC or any other  
.html in default browser  
.py .c++ .c .java in some text editor

You are also expected to do efficient error handling and display appropriate error messages.

[Note: types displayed above are just for indicative purpose. You are required to consider as many types as you can.]

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### Question 3. AnyTypeFile Extractor

Write a bash script that takes a file path as command line argument and then extracts the file according to its format.

The file can be of any compressed format like .tar,.tar.gz,.tar.bz2,.bz2,.zip etc.

Input Format : bash 1.sh <Input\_File>

Output : Extract the file according to the compression used.

[ Note : Perform efficient error handling like checking whether it's a compressed/archived file and a file or not and display proper error messages. ]

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### Question 4. Validate Password

Write a script to check and validate passwords. The objective is to flag "weak" for easily guessed password candidates.

A trial password will be input to the script as a command-line parameter. (can use

suppressed input type to hide the password) To be considered acceptable, a password

must meet the following minimum qualifications:

- Minimum length of 8 characters
- Must contain at least one numeric character
- Must contain at least one of the following non-alphabetic characters: @, #, \$, %, &, \*, +, -, =

**[Bonus :** Do a dictionary check on every sequence of at least four consecutive alphabetic characters in the password under test. This will eliminate passwords containing embedded "words" found in a standard dictionary.]

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## Question 5. Getting VPN!

Tarpit went to Haridwar, his native place to spend some time with family. At home he realised that he forgot to cancel his meals on Mess Portal. Now to access the Mess Portal, he has to configure the VPN, start the VPN and then login to Mess portal. That's when Tarpit realises that he has to repeat this tedious process again and again whenever he goes home. So he thought to get help for this work from the Students of Scripting.

You are expected to write a bash script (2019202020\_q5\_start.sh) which can download the vpn certificates, extract them to the relevant directories and then start the VPN.

There should be another bash file (2019202020\_q5\_stop.sh) for stopping the VPN.

Can you guys help Tarpit to write that script?

### **Requirements:**

The bash script (2019202020\_q5\_start.sh) should download the certificates from <https://vpn.iiit.ac.in/> (You are not allowed to store them locally).

It should then place it in appropriate directory and start the VPN. Once the VPN is started, it should print the message "VPN Started" on the terminal.

Later when (2019202020\_q5\_stop.sh) is executed, the VPN should be stopped.

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## Question 6. Directory Cleaner

Since you download lots of things from internet (like notes, games, video lectures :P ), the Downloads directory gets populated with all sorts of files i.e. pdf, mp4, mp3. To keep things more organized you can periodically move these files from Downloads to some other folder.

For e.g. all pdf files would be moved to a folder named pdf.

Now write a bash script that can accomplish the same.

**Input :** 2019202020\_q6.sh <Source\_Directory> <Type\_of\_Files>

<Source_Directory>	The directory where you have to perform the cleaning
<Type_of_Files>	Extensions of the files to be cleared.

Have an **all** option to clean the whole directory.

Example 1 . 2019202020\_q6.sh Desktop/myfolder pdf jpg mp3

Example 2 . 2019202020\_q6.sh Desktop/myfolder all

**Output :** All the files organized into folders with the file extension as the folder names and if there are folders, already present at the location, keep them as it is.

### Expectations :

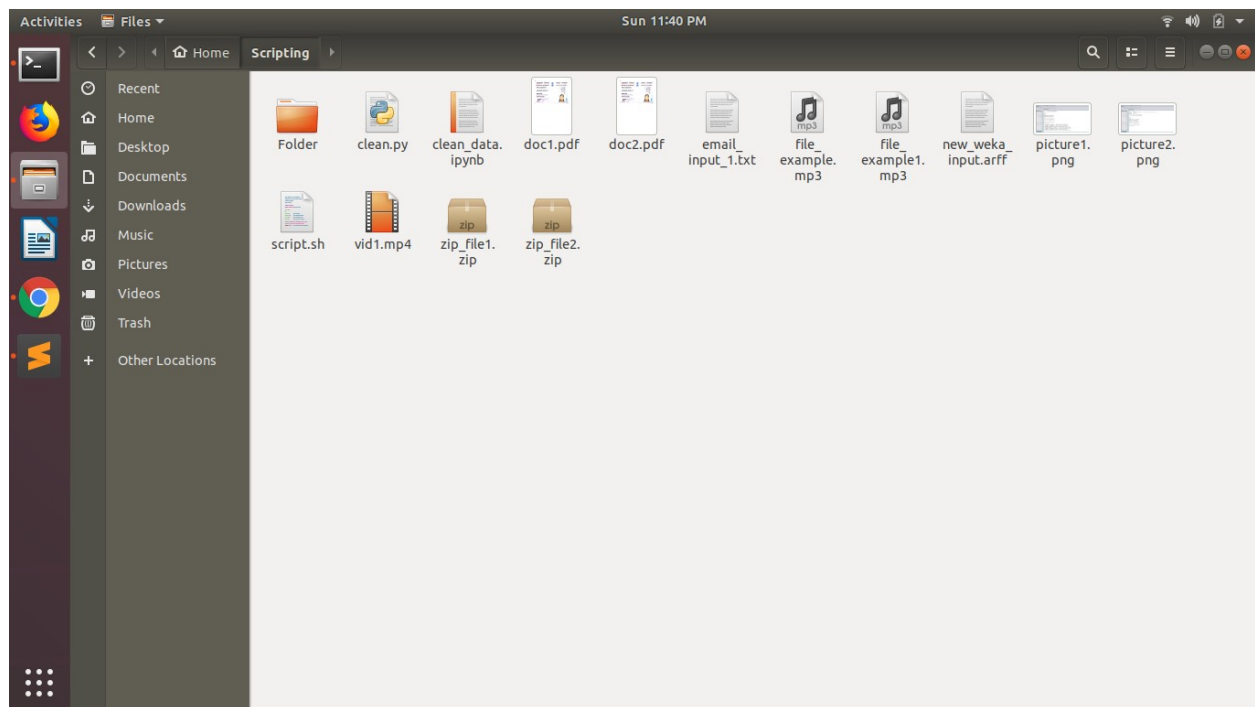
(1) Efficient Error Handling. (Various cases like if the source directory is invalid etc).

(2) Not modifying the existing folders in the directory.

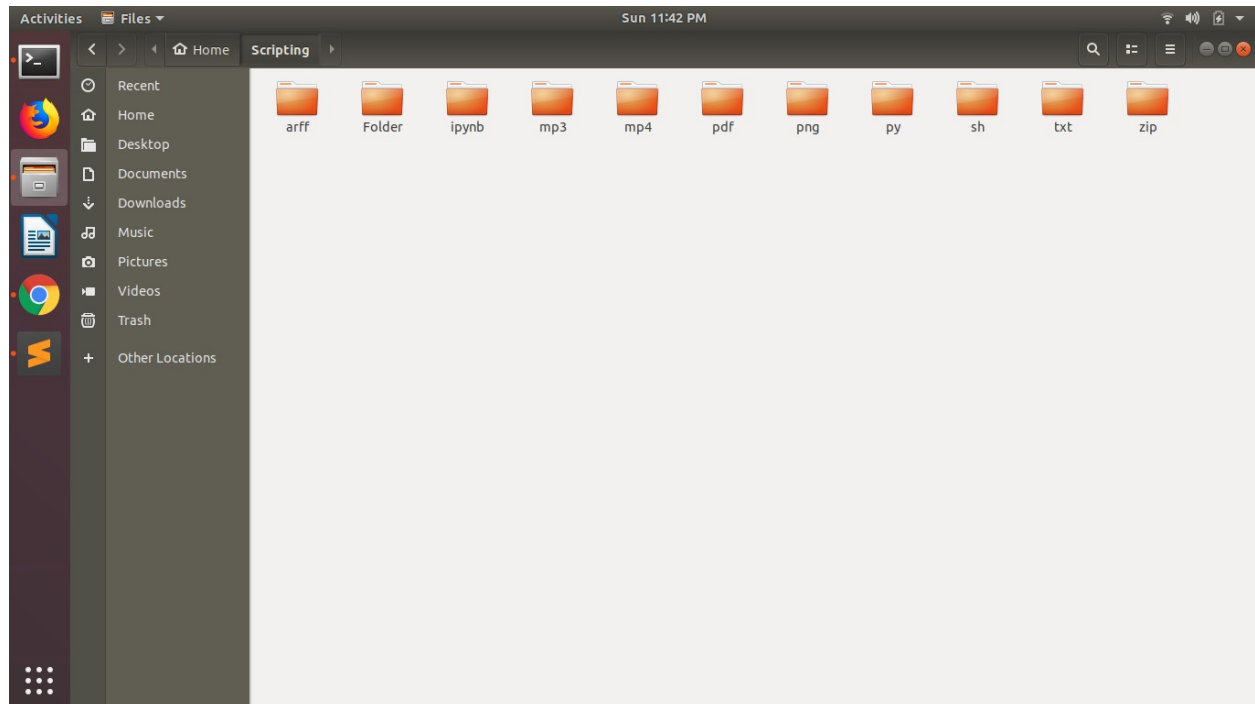
**Warning:** While doing this question, take necessary backups before running the script because you might accidentally lose your progress/data.

**[Bonus :** If you find this question easy, try making this operation recursive.]

## Before



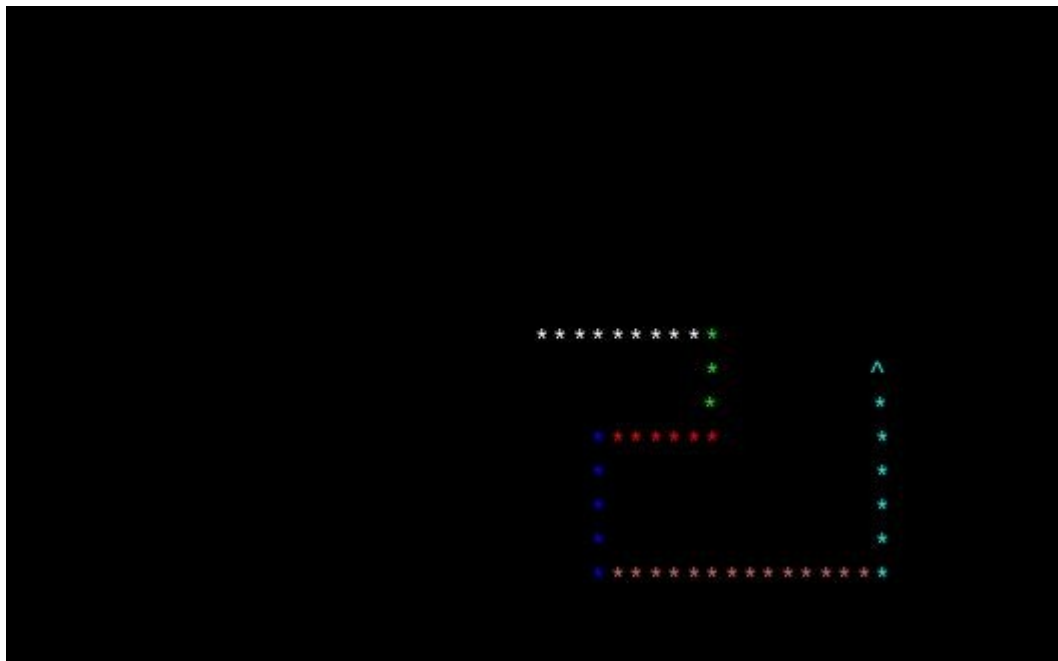
## After



## Question 7. Snake Game

We are the 90's kids so each one of us must have played the SNAKE GAME once in our life. What about making one for yourself. Relax you are not required to make the whole snake game but just a part of it.

- 1) You are required to move the snake in any of the 4 directions using the arrow keys.
- 2) The length of the snake can increase periodically. The rate at which the length of the snake increases can be set by you just make sure it looks fine.
- 3) When the snake reaches the end of any of the four sides of the terminal then It should Restart from middle.
- 4) The colour of the snake should change for every change in direction randomly.



### SOME HINTS :

1. For coloring the text inside the terminal, find out about the `put` command.
2. Find out how to detect arrow keys in bash to make the snake move using arrow keys.

### SOME WARNINGS :

1. It is a tough question, so we will also be judging your creativity with it.
2. Don't copy paste code. Plagiarism detected in this question will lead to zero in the whole assignment.

**Happy Scripting !!**