Assignment_Week2

The Day Of Revulsion:- A Unix Journey: Ctrl+Alt+Delight

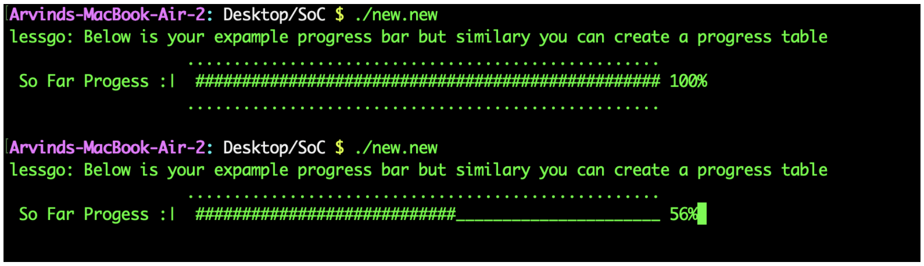
May 2024

1 The Learning Of The Wise

After the responses from the last assignment, we thought to give this time something a bit easier but lengthy excercise. It will be fun to do it in parts, so we will start with building a basic script, and then as we move further, we will build a good-looking script. So that being said, let's start off with very basic ones:

1.1 Why do I play out this sham?

So, to tell the fact, in the last assignment, only one of the responses was correct, and it was very nicely done. We think if you haven't tried that yet or it is not solved as per the question, for this part, you should try it again. But, for this part, it will not be required, as we will use the command for the solution in the second question(A Basic File Manage) uploaded here. You are also free to use your own command. For this part, we need to do some tasks (but we fixed it to a basic file manager one) and then report the live progress to the user using either a progress meter or table mentioning the details. The script for the task and progress bar can be the same script. You are free to use any design and choice you want. An example of this:



```
Arvinds-MacBook-Air-2: Desktop/SoC $ ./new.new
lessgo: Below is your expample progress bar but similary you can create a progress table

                    ..................................................
 So Far Progess :|  ################################################## 100%
                    ..................................................

Arvinds-MacBook-Air-2: Desktop/SoC $ ./new.new
lessgo: Below is your expample progress bar but similary you can create a progress table

                    ..................................................
 So Far Progess :|  ############################______________________ 56%
```

Figure 1: It is just an example; you can customize as you wish

Hint:

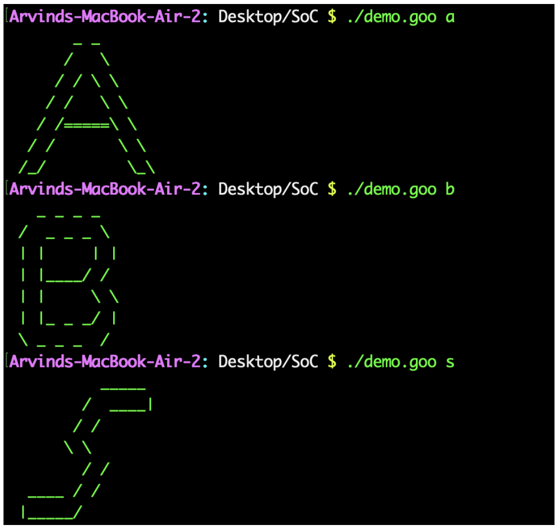
- Well, first, it will be good to write that one-line command into multiple lines using the fact that "`&&`" can be replaced by a new line. Then we need to get enough time to observe the progress bar; you will need to wait after each `for` loop, which can be done using `sleep` command as:

  ```
  sleep 0.1
  ```

  Add this after the beginning or before the end of the `for` loop.
- You can use the "`-n,-r`" option of "`echo`" to print the progress bar.

1.2 Soo-soo-Sook!

This is one of the easiest parts. You are required to make a script that takes an alphabet as an argument and then outputs a styled version of the alphabet(equivalent "`FIGlet`" with some options), which you need to create manually for an alphabet. An example of this will look like this:



```
[Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo a
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[Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo b
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[Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo s
          _____
        /  ____|
       / /
      \ \
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  ____ / /
 |_____/
```
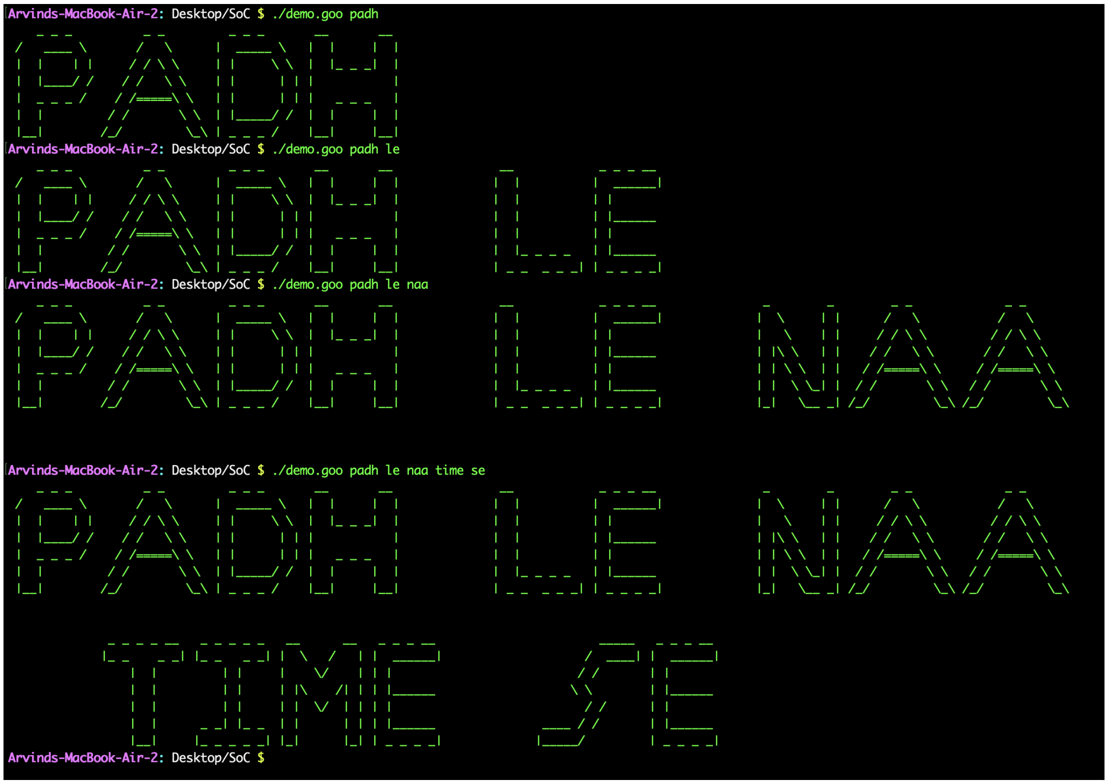

Figure 2: You can follow any design of your choice

Hint: This is just manual work, and you need to "`echo`" the things and handle them using conditionals.

1.3 Maker?

Now, we will use the script from the previous part to make an upgraded script in which we take a sentence as an argument and output it in the same styled manner. Here is the output if we follow the style shown in the last part:



```
Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo padh
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 |  _ _ _ /   / /=====\ \    |  |      | ||   _ _ _   |
 |  |        / /       \ \   |  |_____/ / |  |     |  |
 |__|       /_/         \_\  | _ _ _ /    |__|     |__|
Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo padh le
   _ _ _          _ _         _ _ _       __        __          __          _ _ _ _ __
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Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo padh le naa
   _ _ _          _ _         _ _ _       __        __          __          _ _ _ _ __          _        _        _ _              _ _
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Arvinds-MacBook-Air-2: Desktop/SoC $ ./demo.goo padh le naa time se
   _ _ _          _ _         _ _ _       __        __          __          _ _ _ _ __          _        _        _ _              _ _
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Arvinds-MacBook-Air-2: Desktop/SoC $
```

Figure 3: Just the example of what follows from the last part

Hint: There is nothing much to say for a hint as such, but just be careful to handle these cases:

- The width and height of alphabets. There is a script that prints a number of lines(height) and a number of each character in each line, you can visit this week's repo for this.

  ```
  $ check.he style.sh a
  Number of lines:       7
          14
          15
          14
          16
          12
          14
          14
  ```

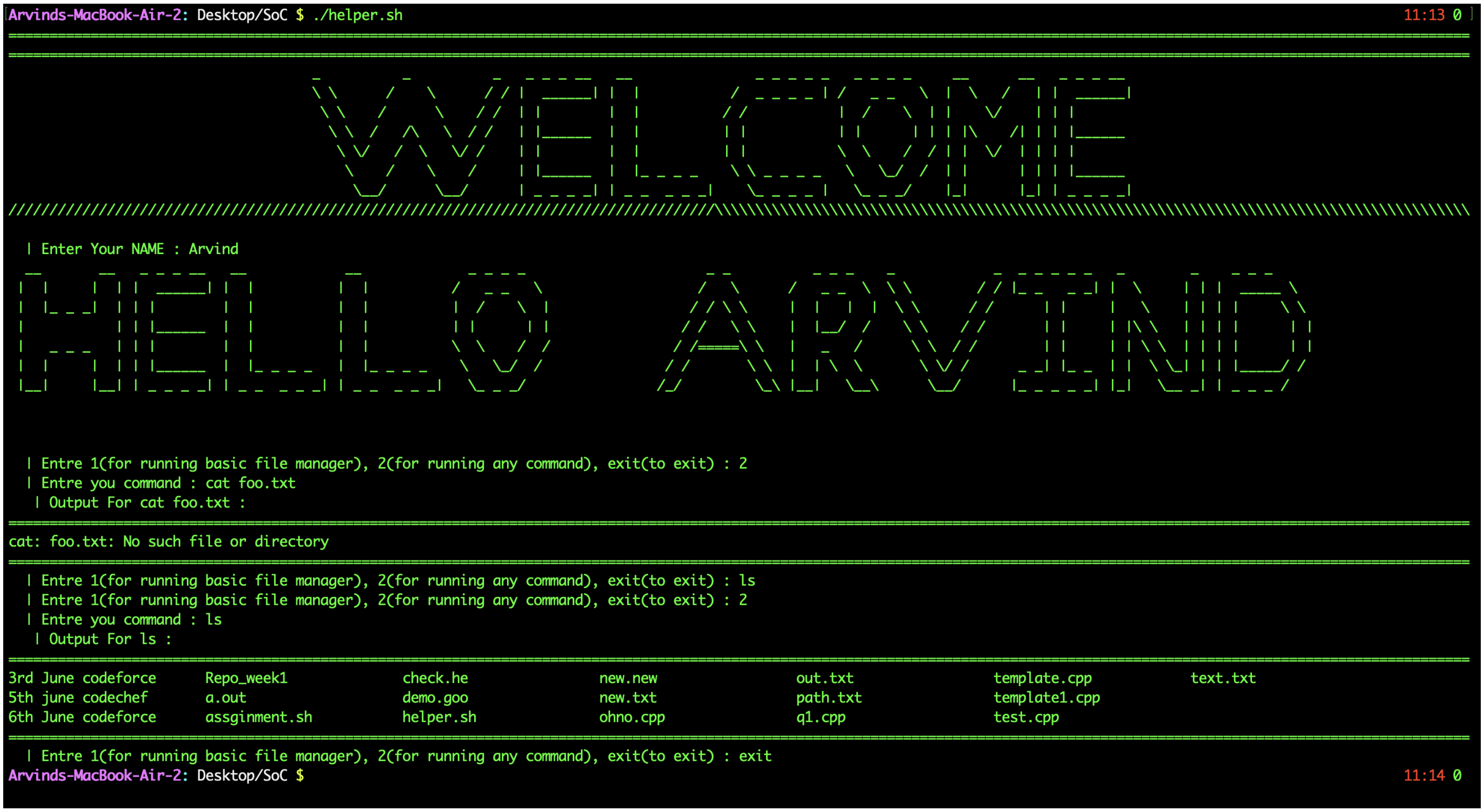
- Need to shift to the next line after reaching the end of the current line.

- you can use the following commands to get the length of input:

  ```
  string="$*"
  len=${#string}
  ```

1.4 The Valor Of The Brave

This will be the final part of this assignment(apart from the bonus). For this part, you need to create another script that uses the script from the previous part to give a helping UI like this :



```
Arvinds-MacBook-Air-2: Desktop/SoC $ ./helper.sh                                                                    11:13 0
==================================================================================================================================
==================================================================================================================================
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                             \ \   /    \   / /  | |      |  |       / /        |  /   \  | |   \/   |  | |
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                                 \_/      \_/    |_ _ _ _||_ _ _ _|   \_ _ _ _|   \_ _ _/   |_|    |_|  |_ _ _ _|
//////////////////////////////////////////////////////////////////\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\

  | Enter Your NAME : Arvind
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  | Entre 1(for running basic file manager), 2(for running any command), exit(to exit) : 2
  | Entre you command : cat foo.txt
   | Output For cat foo.txt :
==================================================================================================================================
cat: foo.txt: No such file or directory
==================================================================================================================================
  | Entre 1(for running basic file manager), 2(for running any command), exit(to exit) : ls
  | Entre 1(for running basic file manager), 2(for running any command), exit(to exit) : 2
  | Entre you command : ls
   | Output For ls :
==================================================================================================================================
3rd June codeforce      Repo_week1              check.he                new.new                 out.txt                 template.cpp            text.txt
5th june codechef       a.out                   demo.goo                new.txt                 path.txt                template1.cpp
6th June codeforce      assginment.sh           helper.sh               ohno.cpp                q1.cpp                  test.cpp
==================================================================================================================================
  | Entre 1(for running basic file manager), 2(for running any command), exit(to exit) : exit
Arvinds-MacBook-Air-2: Desktop/SoC $                                                                                11:14 0
```

Figure 4: Demo(You are required to implement for than this)

You are required to do the following tasks in a script:

- First, you must send a welcome message using the previous script.
- Then, ask the user for the name, then print the name again using the previous script.
    - **Bonus:** You can add an authentication for this, like a password, that will be stored somewhere on the web or locally, and then it checks for a match. Note it would be great to achieve reliable authentication and encryption for this. You might need to use the ”`curl`” command. Here is a video if you’re interested.
- Then, it repetitively asks for tasks once done with previous tasks. You must include at least these three options:
    - To run the basic file manager with the progress bar.

    - To have fun with the previous script, that is, to output a string in styled form(not included in the demo:).
    - To run any desired command.
        - **bonus** Try to run ”`sudo`” commands without promoting the user again for the password; use the password from the previous bonus part.

- **Bonus:** Using the technique like a progress bar, you can try to make this UI live(add action) instead of just remaining static. For example, we can make the welcome message come in sequence from ”_ _ _ _ _ _ _” then just ”`W`” appears, then ”`We`” appears and like-wise for others. You can go beyond this, and try to add more functionality to this.

Hint: To promote the user for input, you can ”`read`” command, here is a reference. Everything is easy, and we would like you to customize it as much as possible and make it unique.

2 Without A Ruler Who Knows The Art Of Ruling

Bonus This is a bonus question, but it doesn’t require heavy work. Well, we want to make your scripts written so far available for other users without manually setting up all the scripts and all. For this, part makes a script named ”`Myinstall.sh`”, which does the following work:

- First, you need to check whether all the scripts are present or not. For this, we assume that if the user had already ”`Myinstall.sh`” that means we have all the scripts and correspondingly aliases for each of them in the ”`.bashrc`” file. If any aliases are missing, do the next step.
- Using ”`curl`” command, download rest of the scripts, from internet(that you need to upload, and get a download link).
- Then it moves each of the files safely into ”`/bin`,” making them executable and changing their name to look more like other command files.
- Then it starts creating aliases for each for the scripting. After that, it removes all the garbage, including itself.
- For user convenience, you need to add man pages or ”`echo`” something to guide them for the correct use of the scripts(which the user will think of as a command). Also, don’t make ”`Myinstall.sh`” a plain script; make it interactive like the previous question, and show some progress bars(try to avoid the outputs of the internal uses of commands).
- It would be very useful if you try to use your own ”`a basic file manager`, script to get these done.

And Bam!! You've created your own package installer for your clients.
Well, not exactly, but the idea is the same: to get some practical use, we need to make it more sophisticated and require more tasks than these. I will leave it up to you to generalize this bonus question somewhat for a package installer(You can try it at your leisure).

3 Submission

Again, the submission will be from Google Forms, or you can mail it to 22b1025iitb.ac.in. For now, the deadline is 23:59, June 10, 2024. There might not be any extension, so do it on time. 2^{nd} question is a bonus question. This is a lengthy exercise rather than being tough, but you should enjoy doing this.
Here is this week's repo. Okay, we will see if we can have more fun with command in-line tools in the last week. From next week, we will start learning stuff related to OS, and in the meanwhile, you can have fun with the tools learned for far