

**CS 213: System Software Lab**  
**Autumn 2024, IIT Dharwad**  
**Assignment-1**  
**Linux and Bash**

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1. Write a script to sort the file "/etc/passwd" in ascending order, utilizing the numeric values within the third column for the sorting process. **[1 Mark]**
  
2. Write a script to extract the login shell and username from the file /etc/passwd **[1 Mark]**
  
3. Write a script that sorts the list of the files in the current directory according to their file size. **[1 Mark]**
  
4. Write the scripts to implement the following operations: **[7 Marks]**
  - a. Capture details of all active processes and save them in a file named "result.txt" [Use the ps command for reference].
  - b. Display all lines that do not include the term 'usr'.
  - c. Count the total occurrences of lines containing 'usr'.
  - d. Display all lines which contain 'usr' along with the line numbers.
  - e. Display lines that do not contain 'usr', but only the top 2 lines.
  - f. Display the lines checking for the whole word 'lib'.
  - g. Display the search string 'lib' in a different color from the rest of the text.
  
5. Write a script which counts the number of files of "\*.txt" type in the current directory. **[2 Marks]**
  
6. Write a script to perform the following operations:
  - a. Display the last five lines from three different files. **[1 Mark]**
  - b. Display the lines from third to fifth lines from the file /etc/group. **[2 Mark]**
  - c. Display the lines from 4th to 8th after sorting the file /etc/group. **[2 Marks]**
  - d. Display the lines from 2nd to 4th line in the current directory that starts with name 'script'. **[2 Marks]**
  
7. Write a script to perform the following operations from the file `test.txt`:
  - a. Display the list of surnames in reverse sequence from the above file. **[2 Marks]**
  - b. Display the last five surnames in reverse sequence from the above file and store it in another file. **[3 Marks]**

### Instructions:

- Posted on: 19/08/2024
- Due date: 25th August 2024 (11:59 PM)
- Suggested Input files (.txt) are available in the drive folder and in the moodle.
- The mode of submission is Moodle. Any other kind of submissions are not accepted.
- Save all the scripts as:
  - script1.sh,
  - script2.sh
  - script3\_a.sh, script3\_b.sh, script3\_c.sh .....
  - script4.sh
  - script5.sh
  - script6\_a.sh, script6\_b.sh, script6\_c.sh.....
  - script7\_a.sh, script7\_b.sh
- Please zip all your script files, and submit a single file named "<roll-no>.zip", where <roll-no> should be replaced with your IIT Dharwad roll number.
- If you have violated the naming convention then you will be awarded a **10%** penalty of your secured marks.
- There will be a 100% penalty for plagiarism.
- Introducing irrelevant code is considered as malpractice.
- Late submission files are not considered for evaluation.