

CSP203: Software Tools & Technologies Lab

Lab Exam-1 (Linux Commands)

Date: 30-Aug-2024

Duration: 2 Hours

Instructions:

1. Create a directory in the desktop with a name as your **RollNo_LabExam1**. Create a text file named as **<RollNo>.txt** inside the directory. The file should have linux commands, which correspond to your answers. If you create any additional files, list them in the same directory and write a README file explaining its usage.
2. You should write the question number corresponding to the linux command that you are answering, otherwise the linux command will not be evaluated.
3. At the end of the exam, you should stop using the computer. Make sure you don't delete your solutions. Otherwise, you will not get any points.
4. Your TAs will collect your solution directory in a suitable format.
5. You can refer to manual pages of linux commands to explore the options.
6. Mobile phones and laptops are not allowed. The Internet will be disabled during the exam.

Questions:

1. Write a linux command to print date and time in the below format
DD-MM-YYYY
H:M:S

Example output:

30-08-2024
14:41:58

2. A username starts with any lower/upper alphabet followed by any number of alphabets or digits. Write a linux command that extracts all the usernames in a given file *file.txt*
3. Write a linux command to show 3 recently modified files that have filenames starting with character 'a' and sort the list by their modified date.
4. Consider a file *course.txt* having the following details.
CourseCode, StudentName, Marks.

CourseCode: It has a string of length 5 with the first 2 characters being CS and the rest of the characters are digits.

StudentName: Any string consists of capital/small alphabets.

Marks: Any real number in the range [0,100]

Write linux commands for the following.

- (a) Remove all the lines from the course.txt in the where the marks are negative.
- (b) List all the student names who have score greater than 85
- (c) List all the students who are enrolled in the course CS203
- (d) List all the courses offered (without duplicate) and sort them according to their name.

5. List the process whose pid number is given.
6. Implement du command in C language. Your program output should print the file size in bytes, kilobytes. Your executable should be named as **diskusage**. For example,

```
./diskusage file.txt
```

Output: 1024, 1 KB

7. In C program, you can include the header file with `#include<file.h>` where *file.h* is any header file. Write a command that lists the number of the header files included in the given C program.

8. Write a linux command to list all the txt extension files in the current directory that contain the given string pattern.

9. The diff command in linux takes two files as input and compares the two files line by line and it displays the lines that are not the same. Implement a diff command in C language that lists the different lines along with numbers. Your executable should be named as **diff**.

Example:

The contents of A.txt are

A
BC
DEF
G

The contents of B.txt are

A
BD
DEF
K

The output of ./diff A.txt B.txt should be

Line-2
A.txt BC
B.txt BD

Line-4
A.txt G
B.txt K

10. Write a linux command that shows the history of commands which have a string **grep** in between the last 15 to 20 commands entered.