Military Institute of Science and Technology, BSc in Computer Science and Engineering
Assignment – 01 (Level 3 Sec A - Spring 2024)
Subject CSE-308: Operating System Sessional

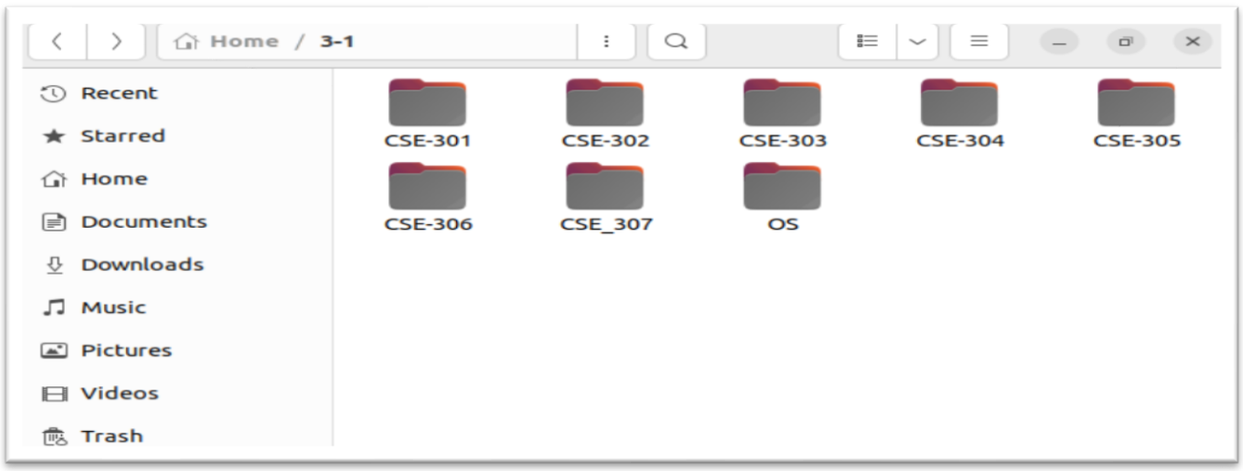
INSTRUCTIONS: Please read the question carefully before answering. You are highly forbidden to copy from others or use AI content. If any two answers slightly match in any way, then surely both parties will get **zero**.

1. The Semester Scramble: Taming the Course Chaos with Shell Power!

This semester is proving to be a real challenge! Between lectures, assignments, and projects, your course materials are scattered across your computer like leaves in a hurricane. To combat the chaos and reclaim your sanity, you've decided to use the power of the Linux shell to organize your course content.

Basic things to do-

a. Suppose, initially your folder looks like this.



b. Inside each folder are two directories named SecA and SecB. Inside, you can keep any materials you like (using terminal ofc, creating text files, shell files, other folders, etc). You must keep something in each folder as you like.
c. Change the permission of some of your folders/ files.
d. Rename the name of the OS folder with the course code.
e. Create a text file listing all the folders and files within the "3-1" directory. This text file should be saved in a separate directory renamed in point 4.
f. Now, copy this file into another directory named “Backup” located in any other directory under Top Level Directory (root), but not under the “Home” directory. (Use relative path to do it)
g. Sort the file contents alphabetically in ascending order and count the lines and words. Save the line and word count in that text file too.
h. Delete the files located in all of your theory course folders.
i. Last but not least, update your file with the **system name**, **your full name, ID, Section,** and **all of your commands used in this assignment.**
j. Rename the text file as “your_student_id_1.txt” and save it.

Additional instructions:

- Use all the commands taught in your class.
- Any customization/addition is highly appreciated.

2. Write a bash script that prompts the user to choose their favourite fruit from a list of options (e.g., apple, banana, mango, etc). Depending on the user's choice, the script should print a corresponding message. Use the case statement to handle multiple options efficiently. Use at least 5 fruits including individual messages.

3. Write a bash script to calculate the factorial of a given number. Implement a function named factorial that takes a single argument and returns the factorial of that number. Then, prompt the user to enter a number, calculate its factorial, and display the result.

4. Write a bash script to perform basic arithmetic operations (addition, subtraction, multiplication, division) on two numbers entered by the user. Define functions for each operation and use a while loop to repeatedly prompt the user for input until they choose to exit.

*Save these 3 files as “your_id_2.sh”, “your_id_3.sh”, “your_id_4.sh”.