Lab Activity 2

Software System Development - Monsoon 2024

Due Date: 21 August 2024, 05:30 pm

Instructions:

1. Deadline mentioned during the Lab is strictly immutable. **No extensions will be given.**
2. Any naming convention mentioned in the lab activity must be followed strictly or marks may be deducted for the same.
3. Any plagiarized content will fetch zero marks for the current lab and will be followed by strict action against the students involved. However, discussion of ideas is allowed.
4. Use of any LLMs is strictly prohibited and would fetch zero marks for the lab if found. This is a learning activity, and academic integrity is taken seriously.
5. Please ensure this is submitted on time to avoid any penalties for late submission as this is **Graded Activity**.

Submission Criteria:

➢ For Example:

```
2021101132.zip
        |_____2021101132
                |_____2021101132_q1.sh
                |_____2021101132_q2a.sh
                |_____2021101132_q2b.sh
                |_____README.md
```

➢ README.md should contain steps for execution of your script and any extra information that you want the evaluator to know before running your script, such as dependencies on some external tools or libraries.

Note : Please take care of the directory structure and naming convention because the lab will be graded via automated scripts and any lack of adherence will be your own responsibility.

Question 1 (10 points):

After the submission of an assignment, you find that your friend has made a mistake. With the hacker skills you have, you have successfully SSH-ed into the professor's computer's filesystem. Now you want to find the file submitted by your friend and print out the first 4 lines in the file.

But you can only write commands **from the root directory** and cannot navigate inside (you can't do cd). You cannot list the files in a particular directory using ls. Also, you have very little time to find your friend's file, since the professor may realize that he is on an unsecured network very soon.

Write a shell script that finds the file location and prints the first 4 lines of the file.

Example Scenario:

Let's say your friend's file contains their name (e.g., john_doe_assignment.txt), and you know that all student assignments are stored in a directory like /home/assignments.

Task:

Write a shell script that will:

- Search the filesystem starting from the root /.
- Locate the file containing john_doe.
- Print the first 4 lines of this file.

Question 2

a: **Fibonacci Sequence in Bash (5 points)**

Task:

Write a Bash script that generates the Fibonacci sequence up to a specified number of terms. The number of terms, n, should be provided as a command-line argument.

Input:

Command-Line Argument: A single integer n representing the number of terms in the Fibonacci sequence to generate.

Output:

The script will print the first n terms of the Fibonacci sequence.

Input: 10
Output: 0 1 1 2 3 5 8 13 21 34

b: **Adding two numbers (5 points)**

Write a Bash script that adds two numbers, but with the following constraints:

- The numbers should **not** be passed as command-line arguments to the script.
- The numbers should **not** be entered using the read function.
- The values of the numbers should **not** be hardcoded anywhere in the script.

Hint: Use environment variables to define the two numbers (A and B)