CENG322 Operating Systems
2022-2023 Spring

Assignment #1

Due date: 23.03.2023, 11:55 pm

In this assignment, you will write a **Shell Script** to **recursively** search the content of all files, which are located in a given directory. Before searching, your script will ask the user to enter the name of the **directory** and the **keyword** to be searched. The following steps will be done:

1. Please implement a function that creates a folder named **"Found"** and copies the files containing the searched keyword there.

- **a)** It changes file names to found _<old_file_name> (omit the angle brackets) while copying.
- **b)** If the searched keyword is found, the user must be informed as "`Files were copied to the Found directory!`". In addition, display the files which are in the "Found" directory.
- **c)** If the searched word is not found, the user must be informed as "`Keyword not found in files!`"

2. Please implement another function that displays modification details of the files found in the "Found" directory.

- **a)** It shows the last modified user and modification time details of the files as follows:
  ```
  File 1: found_file4.txt was modified by Huseyin on March 12, 2023 at 21.00.
  File 2: found_file21.txt was modified by Altug on March 16, 2023 at 08.40.
  ```
- **b)** It will create a file named "**modification_details.txt**" in the "**Found**" directory. This file contains the modification details as depicted in **(a).**

Note: The second function only works if the searched keyword is found.

Submission Rules

Important Note: Violation of any rules given below will end up with a point reduction.

- You must **use bash shell** as we explained in the lab sessions!
- Your **code must be working!** If not, your work will be considered a **zero grade.**
- Submit your homework as a **single shell script file (.sh)** through Teams until the due date.
- **Late submissions** will not be allowed.
- The file should be named as **CENG322_hw1_<team_number>.sh** (omit the angle brackets).
- Include your **names and student numbers as a comment block** at the top of the code.
- **Cheating or collaborative work** with other teams will not be tolerated and will be considered a **zero grade**.
- **Black box test** will be used to grade your submission. Therefore, you have to **strictly obey the sample output.**

Grading Policy

1- Implementation and functioning of the first function **(50 pts)**
    Searching the files **(20 pts)**
    Changing file names **(10 pts)**
    Copying the files to the found directory **(10 pts)**
    Display the message **(10 pts)**

2- Implementation and functioning of the second function **50 (50 pts)**
    Displaying the modification details **(35 pts)**
    Writing the output to the file **(15 pts)**

Sample Execution

1- Assume that file4.txt and file21.txt include the word: "*operating*" in the following directory structure.

```
Dir_1
    |
    |
    |
    file1.txt
    file2.txt
    file3.txt
    file4.txt
    file5.txt
    |
    |
    ---Dir_2
     |
     |
     |
     file11.txt
     file21.txt
     file31.txt
     file41.txt
          |
          |
```

2- Your code will ask the user to enter the name of the directory and the keyword to be searched as follow:

```
Enter the name of the directory: Dir_1

Enter the keyword: operating
```

3- The folder named “Found” will include the following files:

```
Found
    |
    |
    |
    |
    |
   found_file1.txt
   found_ file2.txt
   modification_details.txt
    |
    |
```

4- Your code will print the following output:

```
Files were copied to the Found directory!
```

5- Your code will print the file details as follows:

```
File 1: found_file4.txt was modified by Huseyin on March 12,
2023 at 21.00.
File 2: found_file21.txt was modified by Altug on March 16, 2023
at 08.40.
```

6. The file named “modification_details.txt” will include the same details printed in Step 5.