CS6.201 Introduction to Software Systems

Practice Questions

January 19, 2025

Bash and Shell

Instructions

- Only use shell commands to solve the questions.
- Make it fun and interactive for better understanding.

Questions List

1. Directory and File Setup

1. Create a directory structure like this:

```
assignment
    dir1
        file1.txt
        rename.txt
        file2.txt
    dir2
         subdir1
             file3.txt
         subdir2
```

   Find the command to create directories and files.

2. Create a hidden file named `.hidden.txt` inside `dir1`.
3. Rename `rename.txt` to `file4.txt`.
4. Remove the `file4.txt` file.

2. Listing and Viewing Files

1. List all the files in the `assignment` directory in a **long list format**.
2. List all files in the `assignment` directory in a **long list format** including hidden files.
3. List the contents of the directory **recursively**.
4. Display hidden files in `dir1`.
5. Display the size of each file in the `assignment` directory.
6. Find all files in `assignment` modified in the last 2 days.

3. Adding and Viewing Content

1. Write the following text into `file1.txt`:

   ```
   This is the first file. Linux is amazing!
   ```

2. Add this text to `file3.txt`:

   ```
   This is 3rd file.Learning Linux is fun!
   ```

3. Add this text 100 times to a new file `multiple.txt`:

   ```
   This is a random file. ISS is the best course!
   ```

4. Append the current date and time to `file2.txt`.
5. Merge the contents of `file1.txt` and `file3.txt` into a new file `merged.txt`.

4. Input and Redirection

1. Prompt the user for input and save the input to `file2.txt`.
2. Redirect the output of the `ls` command to a file named `listing.txt`.
3. Redirect both standard output and error of a command to a single file.
4. Count the number of lines, words and characters in `file3.txt` and save the output to `wordcount.txt`.

5. File Permissions and Ownership

1. Change the permissions of `file3.txt` to make it **read-only** for everyone.
2. Try editing `file3.txt` after changing its permissions. Record your observations.
3. Change the owner of `file1.txt` to another user `testuser`.
4. Set `dir2` to have **default permissions** for newly created files as read-only for others.
5. Make `file1.txt` executable.

6. Visualisation of the Directory Structure

1. Display the entire `assignment` directory structure in a **tree format**.
2. Save the output of the directory structure to a file `structure.txt` inside the `assignment` directory.
3. Display the disk usage of the `assignment` directory.
4. Count the number of files and subdirectories in `dir2`.

7. Archiving and Compression

1. Archive the `assignment` directory into a `tar` file named `assignment.tar`.
2. Compress `assignment.tar` using `gzip` to create `assignment.tar.gz`.