INF333 2023-2024 Spring Semester

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Lab I

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Duration: 90 minutes

Suggested Reading

Concepts:

file	An inode with at least one name and parent directory
directory	A special kind of inode that contains a list of named inodes
path	Relative path, absolute path
shebang	To denote the *executer* of an executable
environment	A list of key-value pairs attached to a process
glob	Avoid typing file names one by one
+x file	An executable file
+x dir	A directory whose contents are accessible

Commands:

`man`	The sacred texts
`cd`,`ls`	Navigation
`cp`,`mv`,`ln`	File manipulation
`cat`	Show file contents. See also `head`, `tail`
`touch`,`mkdir`	The maker family
`rm`,`rmdir`	The unlinker family
`chown`,`chmod`	Change the owner and mode bits of a file
`tar`	The archiver

1 Files, Directories, Permissions (100pts)

Lab data is here: https://burakarslan.com/inf333/tp/tp1.tar.gz

Write a bash script that starts with the *correct shebang line* and that does the following, in order:

1.1. Use the `wget` command to download the lab data.

1.2. Create a directory named `tp1`, go in.

1.3. Extract the archive contents in the `tp1` directory.

1.4. Print the list of files in the `tp1` directory. Ensure the output contains at least the following metadata: file permissions, owner, size, and file name.

1.5. What is the total size of the files in the `tp1` directory? Explain your reasoning. Use the `du -b` command to verify your result.

1.6. Create 9 directories named `1` through `9`.

1.7. Move all files that start with `1` to the directory named `1`, all files that start with `2` to the directory named `2`, and so on.

1.8. List the contents of each directory.

1.9. Remove the executable bit from all the directories.

1.10. List the contents of each directory again. Explain the output.

1.11. Add the executable bit back to all the directories

1.12. Move back all the files to the `tp1` directory and delete all the subdirectories created in step 6.

1.13. This time, use the `du` command to show the total size of the files in the `tp1` directory. Is it different from the result in step 5? If yes, explain why.

While writing the above script, take care to:

- Have a comment that indicates each section.
- Your explanations are supposed to appear as comments.

Example script layout:

```
# ...

# 1.3
command 1
command 2

# 1.4
command 3
command 4

# Explanations: here, I ran the command command
# with parameters 3 and 4

# 1.5
command 5
command 6

# ...
```