

Introduction

In this lab you will explore the `find` command. Submit your solutions to the questions below in a text file (e.g. Word document). Name your file in `name_surname.docx` format. Submit your solutions file to Canvas.

Questions

1. Briefly explain what the output of the following contains (i.e. whether it lists files, directories, hidden files etc).

```
find ~
```

2. Give a single line command for listing the regular files only in your home directory (and its subdirectories) using the `find` command.

3. Give a single line command for listing the folders only in your home directory (and its subdirectories) using the `find` command.

4. Give a single line command for finding the number of all files and folders in your home directory (and its subdirectories) using the `find` command and include this number in your report.

5. Give a single line command for finding all the regular files in your home directory (and its subdirectories) whose permission settings is not 0600 as well as all the folders in your home directory (and its subdirectories) whose first letter starts with D. Use logical operators for this purpose.

6. Give a single line command that will find all the regular files in your home directory (and its subdirectories) that end with `.zip` and will delete those files (use `delete` option not the `exec` option). Note that this command can also be used to delete many files when the number of files that need to be deleted is too large and those files cannot be deleted by a regular `rm` command giving “Argument list too long error”.

7. Repeat question 6 this time using the `exec` option together with `rm` instead of the `delete` option.

8. Give a single line command that will find all the regular files in your home directory (and its subdirectories) that end with `.zip` and will list the attributes of those files in detailed format using `ls -al` (use `find` and `xargs` together where the `xargs` is used for constructing an arguments list).

9. Repeat question 8, this time using the `print0` option of `find` and `--null` option of `xargs` to handle the space characters in your search (so that filenames that contain spaces will be treated as single arguments instead of multiple).

10. Use the following commands to generate a `playground` folder with many directories and files as well as a `timestamp` file

```
mkdir -p playground/dir-{001..100}
```

```
touch playground/dir-{001..100}/file-{A..Z}
```

```
touch playground/timestamp
```

Give a single line command that uses the `stat` command to check the status of one of the `file-A`'s in `playground` folder. Which information does the `stat` command show?

COMP 302 System Programming,
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Lab Assignment 5

11. Give a single line command that touches all the file-A's in playground using `find` and `-exec` option.
12. Give a single line command that finds all files under playground that are newer than the timestamp file. Use `find` with `newer` option.
13. Give a single line command that finds all files which do not have permission setting 0600 and changes those settings to 600 using `exec` option and finds all directories which do not have permission setting 0700 and changes those settings to 700 using the `exec` option. Use logical operators and parentheses `\ (\)` to build logical expressions.
14. Give a single line command for listing the regular files only in your home directory (but not its subdirectories) using the `find` command together with the `maxdepth` option.
15. Give a single line command for listing all files in `/usr/bin` that were modified more than 900 days ago. Use the `mtime` option.
16. Give a single line command for listing all files in `/usr/bin` that were modified within 900 days. Use the `mtime` option.
17. Give a single line command for listing all files in your home directory that are smaller than 100 bytes. Use `find` with the `-size` criterion.
18. Give a single line command for listing all files in the `/bin` directory that have the characters `sh` in their names and are symbolic links. Use `find` with the `-name` and `-type` criteria.
19. Use `find` with the `-exec` criterion to run an `ls -l` command on the files returned by the `find` statement in the previous question.
20. Use `find` to list all the files in the `/usr` directory. Send the output through a pipeline to `head` to list only the first 10 files in the list.