**Topic Name:**

The main aim of this lab session is to provide hands-on experience on

* Explore file structure
* File management commands
* Absolute path and Relative path
* Globbing
* Scripting

File Structure

1. Under the root directory there are many files like

/bin , /boot , /dev , /etc , ….

Find out the importance of those files

Example : /etc is for user account details

|  |  |  |
| --- | --- | --- |
| **S.No** | **Directory** | **Usage** |
| 1 | / | Root directory |
| 2 | /bin | Binary files |
| 3 | /boot | is a critical part of the system, as it contains the files needed to boot the operating system. |
| 4 | /dev | directory in Linux is a special and essential directory that contains device files. |
| 5 | /etc | directory in Linux is a crucial directory that contains system-wide configuration files and shell scripts used to manage the system. |
| 6 | /home | directory in Linux is where the personal directories of all user accounts are stored. |
| 7 | /lib | directory in Linux is a critical system directory that contains essential shared libraries and kernel modules required by the system and applications. |
| 8 | /proc | directory in Linux is a special and dynamic virtual filesystem that provides a mechanism for the kernel to communicate with user space. |
| 9 | /sbin | directory is integral to system administration and maintenance, providing the tools necessary for managing and repairing the system, particularly during boot and recovery operations. |
| 10 | /tmp | directory in Linux is a temporary storage space where programs and users can store transient files that are needed only temporarily. |
| 11 | /var | directory in Linux is a key directory that holds variable data—data that is expected to change frequently during the system's operation. |
| 12 |  |  |
| 13 |  |  |

1. In Linux, there are three different files

Regular file

Directory

Special file

Block file

Character file

Socket file

Pipe file

Fill the below table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| File Type | Represented by (Hint ls ) | Role | How to create | How to check | Location | Screen shot |
| Regular file | - | Stores data such as text images | touch t1 | NA |  |  |
| * Text file | - | Contains plain text | toucht1.txt | NA |  |  |
| * Compressed file | - | Stores data in a compressed format | gzip filename | NA |  |  |
| * Image | - | Stores image data | NA | NA |  |  |
| Directory | d | Contains files and other directories | mkdir filename | NA |  |  |
| Block file | b | Represents a block device | NA | NA |  |  |
| Character file | c | Represents a character device | NA | NA |  |  |
| Socket file | s | Provides interprocess communication(IPC) | NA | NA |  |  |
| pipe file | p | Used for IPC (inter – process communication) | NA | NA |  |  |

1. Globbing
2. Go back to CYS
3. Create multiple subdirectories using single command

LS

Unit1

command

glob

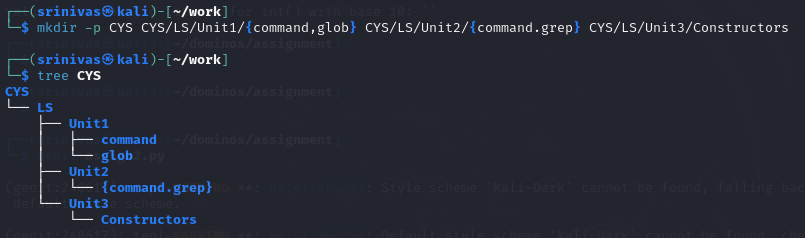
Unit2

command

grep

Unit3

Constructs



A screen shot of a computer

Description automatically generated

1. Navigate to unit1/glob



1. Create the following files :

Commands.txt

Commands1.txt

Commands2.txt

page1.html

page2.html

page3.html

file1

file10

file11

file2

File2

File3

file33

fileAB

filea

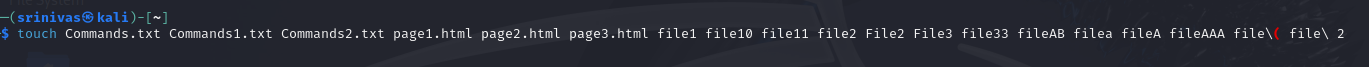
fileA

fileAAA

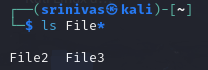
file(

file 2

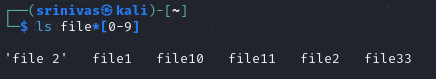
* + 1. List all files starting with file



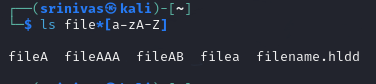
* + 1. List all files starting with File



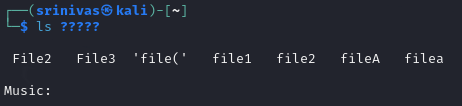
* + 1. List all files starting with file and ending in a number.



* + 1. List all files starting with file and ending with a letter



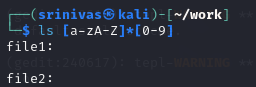
* + 1. List all files starting with File and having a digit as fifth character.



* + 1. List all files starting with File and having a digit as fifth character and nothing else.



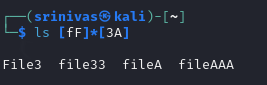
* + 1. List (with ls) all files starting with a letter and ending in a number.



* + 1. List (with ls) all files that have exactly five characters.



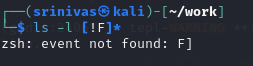
* + 1. List (with ls) all files that start with f or F and end with 3 or A.



* + 1. List (with ls) all files that start with f have i or R as second character and end in a number.



* + 1. List all files that do not start with the letter F.



* + 1. Remove all the \*.html



* + 1. Rename \*.txt to \*.json



1. Absolute path and relative path

Use rm, mv, cp, ls with absolute path and relative path as per your choice.

 Absolute **Path:** Specifies the location of a file or directory from the root directory. It is a complete path.

 Relative **Path:** Specifies the location of a file or directory relative to the current working directory.

1. Wildcards

|  |  |  |  |
| --- | --- | --- | --- |
| Notation | Use | Example | Screenshot |
| \* | One or many | ls \* |  |
| ? | Match only one character | ls file?.txt |  |
| [ ] | Used to match single character from a set of specified characters | ls file[1-3] |  |
| [! ] | Matches any character that is not a member of the set characters | ls file[!1].txt |  |
| { } | Used to generate multiple arguments by separating the values with commas | ls file{1,2}.txt |  |

More on Character class

|  |  |  |  |
| --- | --- | --- | --- |
| Notation | Use | Example | Screenshot |
| [:alnum:] | Matches any alphanumeric character | ls \*[[:alnum:]].txt |  |
| [:alpha:] | Matches any alphabetic character | ls \*[[:alpha:]].txt |  |
| [:digit:] | Matches any numeric digit (0-9). | ls \*[[:digit:]].txt |  |
| [:lower:] | Matches any lowercase alphabetic character | ls \*[[:lower:]].txt |  |
| [:upper:] | Matches any uppercase alphabetic character (A-Z) | ls \*[[:upper:]].txt |  |

4. change permission

1. Change the permission set of /work/readme.txt so that only the user (owner) can read,write, and execute it. Use absolute mode.

A screenshot of a computer program

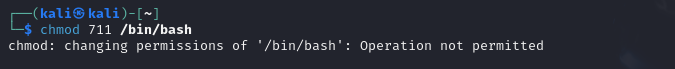
Description automatically generated

1. Change the permission set of /work/readme.txt so that any user can read it, the group can read/write to it and the user (owner) can read/write/execute it. Use absolute mode.

A screenshot of a computer

Description automatically generated

1. Change the permission set of /bin/bash so that only the user (owner) can read/write/ execute, group, and any user can execute it. However, whenever anyone executes it, it should run with the privileges of the owner user. Use absolute mode.



1. Change the permission set of /work/readme.txt so that only the user (owner) can read, write, and execute it. Use relative mode.

A screenshot of a computer program

Description automatically generated

1. Change the permission set of /work/readme.txt so that any user can read it, the group can read/write to it and the user (owner) can read/write/execute it. Use relative mode.

A screenshot of a computer program

Description automatically generated

1. Change the permission set of /work/readme.txt so that only the user (owner) can read/write/ execute, group, and any user can execute it. However, whenever anyone executes it, it should run with the privileges of the group. Use absolute mode.

A screenshot of a computer program

Description automatically generated

1. Change the permission set of /work/readme.txt so that only the owner can rename or delete this file while maintaining the existing permissions. Use absolute mode.tou

A screenshot of a computer program

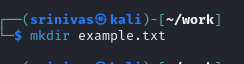
Description automatically generated

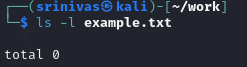
1. What are the default permissions for the new file?

A screen shot of a computer

Description automatically generated

1. What was the command to view the file permissions?





1. Change chmod.exercises permissions to -r--r--r—

A screenshot of a computer screen

Description automatically generated

1. Change the file permissions to Read only for the owner, group and all other users.

A screenshot of a computer code

Description automatically generated

1. What was the command for changing the file permissions to -r--r--r--?

A screenshot of a computer code

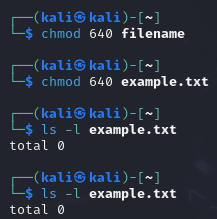
Description automatically generated

1. Change chmod.exercises permissions to -rw-r-----

A screenshot of a computer program

Description automatically generated

1. Change the file permissions to match the following:
   1. owner: Read and Write
   2. group: Read
   3. other: no permissions (None)



1. What was the command for changing the file permissions to -rw-r-----?

A screenshot of a computer code

Description automatically generated

1. Change chmod.exercises permissions to -rwxr-x—x

A screen shot of a computer program

Description automatically generated

1. Change the file permissions to match the following:
   1. owner: Read, Write and Execute
   2. group: Read and Execute
   3. other: Execute

A computer screen shot of text

Description automatically generated

1. What was the command for changing the file permissions to -rwxr-x--x?

A black background with white text and blue letters

Description automatically generated

Evaluation :

Marks : 10 (Deadline : 4 – Originality :3 – Completeness :3 )

Deadline: 06.08.2024

In life there are no shortcuts. All things are connected. For success there is no fast lane. Work hard. Focus your energy, practice, remain honest, Truthful, loyal and committed.

-unknown