Operating System Lab

 Project

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Section V9

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**Report on Bash Script for File and System Management**

**Introduction**

Our Bash script is designed for file and system management, allowing users to perform various actions based on their role of Admin, System Admin, or User. Our script has functions for listing files, creating files, viewing file content, deleting files, and more.

**Script Structure**

The script begins by prompting the user for their name and password. Based on the provided password, the user is identified as Admin, System Admin, or User, leading to different sets of functionalities.

**Admin Functions**

* **List Files:** Displays all files and directories (ls).
* **Create Files:** Allows the creation of files with different extensions (.c, .cpp, .sh, .txt).
* **Delete Files:** Deletes existing files after user input verification.
* **Rename Files:** Renames existing files.
* **Edit File Content:** Opens files for editing using the nano editor.
* **Search Files:** Searches for files in the specified directory.
* **File Details:** Provides detailed information about a specific file.
* **View Content:** Displays the content of a chosen file.
* **Sort Files:** Sorts the content of a file.
* **List Directories:** Displays all directories.
* **List Files with Extension:** Lists files based on the chosen extension.
* **Count Directories:** Counts and displays the total number of directories.
* **Count Files:** Counts and displays the total number of files.
* **Sort All Files:** Sorts all files in the current directory.
* **Create Directory:** Creates a new directory.
* **Delete Directory:** Deletes an existing directory.

**Sysadmin Functions**

* **List Files (Sysadmin View):** Displays all files and directories using the (ranger) file manager.
* **CPU Information:** Provides detailed or simple CPU information
  + **Detailed:** cat /proc/cpuinfo.
  + **Simple:** cpufetch
* **Memory Information:** Displays detailed memory information.
  + **Detailed:** cat /proc/meminfo
* **System Details:** Shows details about the system using bpytop.
* **Show IP:** Displays the system's IP address using ifconfig.
* **Running Processes:** Lists all running processes using the (top) command.
* **Change File Permissions:** Modifies read, write, or executable permissions for a file.
* **Check Internet Speed:** Checks the internet speed using speedtest-cli.
* **Add New Linux User:** Adds a new user to the system.
* **Show User Information:** Displays information about a specific user.
* **Switch User:** Switches to another user.
* **Delete User:** Deletes an existing user.
* **Hacker Mode:** Activates a matrix-style visualization using cmatrix.
* **Exit Sysadmin Mode:** Exits the System Admin mode.

**User Functions**

* **List Files (User View):** Displays all files and directories.
* **Create Files:** Allows the creation of files with different extensions (.c, .cpp, .sh, .txt).
* **Edit File Content:** Opens files for editing using the nano editor.
* **View Content:** Displays the content of a chosen file.
* **List Directories:** Displays all directories.
* **List Files with Extension:** Lists files based on the chosen extension.
* **Create Directory:** Creates a new directory.
* **Exit User Mode:** Exits the User mode.

**Conclusion**

This Bash script provides a comprehensive set of functionalities for file and system management, catering to different user roles. Users can perform a variety of actions such as creating, deleting, and editing files, managing directories, and obtaining system information. The script demonstrates Bash scripting for practical system administration tasks.

**Note:** There are some functions that we need to install for this project to work like ranger, cpufetch, sl, cmatrix, speedtest-cli, ifconfig, bpytop

**To install we use:**

Sudo apt install <name>