**Regular Expressions and File Searching**

Your system administrator has asked you to complete the following tasks on your Linux system using tools for searching and filtering files and content.

**Part 1: Searching Inside File Content with grep**

1. Search for the word secure inside the file /home/ct.txt and display all matching lines.
2. Search for the name Karan in the files /etc/passwd, /etc/group, and /home/ct.txt and show where it appears.
3. Search for the word Linux inside /home/ct.txt without considering case sensitivity.
4. Display the line numbers along with the matching lines when searching for the word Linux inside /etc/passwd.
5. Count how many times the word Linux appears in /home/ct.txt.
6. Display only the filenames that contain the word Karan when searching in /etc/passwd and /etc/group.
7. Display only the filenames that do **not** contain the word Karan when searching in /etc/passwd, /etc/group, and /home/ct.txt.
8. Display all lines from /home/ct.txt that do **not** contain the word secure.
9. Display lines from /home/ct.txt that begin with the word Linux.
10. Display lines from /home/ct.txt that end with the word OS.
11. Search recursively for the word secure inside all files under the /etc directory.
12. Save the results of searching for the word Linux in /home/ct.txt into a file called result.txt. Then append the results of searching for the word Windows in the same file to result.txt.

**Part 2: Locating Files and Directories with find**

1. Find the file named ct.txt under the /home directory and display its full path.
2. List all files and directories under /data that are owned by the user amir.
3. List all files and directories in the entire system that belong to the group TataGroup.
4. Find all files larger than 100 MB under the /usr directory.
5. Find all files between 50 MB and 100 MB in size under the /usr directory.
6. Search the entire system for files that have permission 777.
7. Search the entire system for files with SUID (4755), SGID (2755), or Sticky Bit (1755) permissions.
8. Find all files owned by user amir in /data and delete them in a single command.

**Part 3: Quick File Inspection with head, tail, and wc**

1. Display the first 10 lines of the /etc/passwd file.
2. Display only the first 5 lines of the /etc/passwd file.
3. Display the last 10 lines of the /etc/passwd file.
4. Display only the last 5 lines of the /etc/passwd file.
5. Display the total number of lines, words, and characters in the file /home/ct.txt.
6. Display only the number of lines in the file /home/ct.txt.
7. Display only the number of words in the file /home/ct.txt.
8. Display only the number of characters in the file /home/ct.txt.