Create a folder named using your registration number and section, then navigate into that folder. For example, if your registration number is 241100123 and your section is AIDS-A, the folder name should be: *241100123_AIDS-A*. Create *random_file_gen.sh* script using *gedit* and paste the content of *random_file_gen.sh* from the last page of this assignment. Make the script executable and run it. Once random_file_gen.sh is executed successfully (without any error), use the terminal to complete the tasks described below:

Use the terminal to complete the following:

Part A: Directory & File Exploration

1. **List all files** in your lab_random_*.
   Command: ls -a
2. **List all files** in all sub directory inside lab_random_*.
   Command: ls -a
3. Use wc to count **lines, words, and characters** in any text file.
   Command: wc filename
4. Use grep to find lines containing the word **"home"** in a .txt file.
   Command: grep main <filename.txt>
5. Sort a list of numbers saved in a file <filename.txt>.
   Command: sort -n <filename.txt>
6. Use a **pipe** to show how many users are currently logged in.
   Command: who | wc -l

Part B: Directory & File Exploration

1. 1. Navigate into the generated directory:
   cd lab_random_*
2. Count number of directories and files:
   find . -type d | wc -l
   find . -type f | wc -l
3. List all files with full paths and sizes:
   find . -type f -exec ls -lh {} \;
4. Display all files ending with .txt:
   find . -name "*.txt"

Part C: Content Inspection

1. Find all files containing the word 'RANDOM':
   grep -ril "RANDOM" .
2. Extract and print the random string from all files:
   grep "RANDOM STRING:" ./*/*

3. Print the output of 'who' from any file:
   cat dir_xxx/file_yyy.txt

4. Use head and tail on any file and write your observation.

Part D: File Permissions

1. List all file permissions:
   find . -type f -exec ls -l {} \;
2. Find files with 777 permission:
   find . -type f -perm 0777
3. Change permissions of all .txt files to 644:
   find . -name "*.txt" -exec chmod 644 {} \;
4. Verify permissions again.

The content inside random_file_gen.sh is :

```
#!/bin/bash

# Number of folders and files to create (adjust as needed)
NUM_DIRS=$((RANDOM % 5 + 3))     # 3 to 7 directories
NUM_FILES=$((RANDOM % 10 + 5))   # 5 to 14 files

# Base directory
BASE_DIR="./lab_random_$(date +%s)"
mkdir "$BASE_DIR"
cd "$BASE_DIR" || exit

echo "Creating $NUM_DIRS directories inside $BASE_DIR..."

# Generate random directories
for ((i = 1; i <= NUM_DIRS; i++)); do
    DIR="dir_$RANDOM"
    mkdir "$DIR"
done

echo "Creating $NUM_FILES random files..."

# Random strings
random_string() {
    tr -dc A-Za-z0-9 </dev/urandom | head -c 12
}

# Get list of created directories
DIRS=($(ls -d */))
```

```
# Create random files and insert content
for ((j = 1; j <= NUM_FILES; j++)); do
    RAND_DIR=${DIRS[$((RANDOM % NUM_DIRS))]}
    FILENAME="file_$RANDOM.txt"
    FULL_PATH="${RAND_DIR}${FILENAME}"

    echo "Creating file: $FULL_PATH"
    {
        echo "PWD: $(pwd)/$RAND_DIR"
        echo "WHO:"
        who
        echo "DATE: $(date)"
        echo "RANDOM STRING: $(random_string)"
    } > "$FULL_PATH"

    # Apply random chmod (e.g., 644, 600, 755, 777)
    MODES=("600" "644" "755" "777" "700")
    MODE=${MODES[$((RANDOM % ${#MODES[@]}))]}
    chmod "$MODE" "$FULL_PATH"
    echo "Applied chmod $MODE to $FULL_PATH"
done

echo "All done. Explore: $BASE_DIR"
```