

Lab Assignment -6

Subject: Operating system concepts using Unix/Linux

1. Write a script to extract and save system information into a file.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n6.sh
{
    echo "System Information"
    echo "-----"
    echo "Hostname: $(hostname)"
    echo "OS: $(uname -o)"
    echo "Kernel Version: $(uname -r)"
    echo "Uptime: $(uptime -p)"
    echo "Memory Usage:"
    free -h
    echo "Disk Usage:"
    df -h
} > system_info.txt

echo "System information saved."

navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n6.sh
System information saved.
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ |
```

2. Write a script creates a directory, navigates into it, generates three test files, lists the files while saving the output to file_list.txt, and counts and displays the number of files.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n7.sh
mkdir test_dir
cd test_dir || exit
touch file1.txt file2.txt file3.txt
ls > file_list.txt
file_count=$(ls | wc -l)
echo "Number of files: $file_count"
echo "File count saved."

navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n7.sh
Number of files: 4
File count saved.
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ |
```

3. Write a script creates a sample log file, counts occurrences of "Error," and then saves and displays the result.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n7.sh
echo -e "Info: System started\nWarning: Low memory\nError: Disk failure\nError: Network issue\nInfo: Update completed" > logfile.log
grep -c "Error" logfile.log > error_count.txt
echo "Error occurrences: $(cat error_count.txt)"

navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n7.sh
Error occurrences: 2
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ |
```

4. Write script verifies if a file exists, displays its content if available, or creates a new file if it is missing.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n7.sh
file="sample.txt"
if [ -f "$file" ]; then
    echo "File exists. Contents:"
    cat "$file"
else
    echo "File not found. Creating a new file..."
    echo "This is a newly created file." > "$file"
fi

navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n7.sh
File not found. Creating a new file...
```

5. The script renames all .txt files in a directory by adding a specified prefix to their filenames.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n8.sh
prefix="new_"
for file in *.txt; do
    mv "$file" "${prefix}${file}"
done
echo "All .txt files renamed with prefix '$prefix'."

navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n8.sh
All .txt files renamed with prefix 'new_'.
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ |
```

6. Write a script that scans the current directory, categorizes files into Documents, Images, Videos, or Others using a case statement based on file extensions, and moves them into their respective folders for better organization.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n9.sh
mkdir -p Documents Images Videos Others

for file in *; do
    case "$file" in
        *.txt) mv "$file" documents/ ;;
        *.sh) mv "$file" script/ ;;
        esac
done
echo "Files categorized and moved."
```

```
navdip@LAPTOP-0N09\ x + v
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n9.sh
Files categorized and moved.
```

7. Write a script that defines an array of names and uses a function to print each name.

```
navdip@LAPTOP-0N09\ x + v
GNU nano 4.8 n10.sh
names=("NAVDIP" "AJAY" "VIJAY" "AKASH")

print_names() {
    for name in "${names[@]"; do
        echo "Name: $name"
    done
}

print_names
```

```
navdip@LAPTOP-0N09VP88:/mnt/c/users/navdip/documents/NAVDIP$ bash n10.sh
Name: NAVDIP
Name: AJAY
Name: VIJAY
Name: AKASH
```