CHARUSAT
CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

Chandubhai S Patel Institute of Technology

Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology

Department of Computer Science & Engineering

Date: 08/02/25

Practical 5

Academic Year	:	2023-24	Semester	:	4th
Course code	:	CSE208	Course name	:	Operating System

Perform Linux Commands for the following

Practical 5: Implement Basic Shell Programming Commands.

Write a Shell Program:

```
23cs070@67d5750b12a7dc36e53b4683:~$ nano script.sh
```

Terminal - 23cs070@67d5750b12a7dc36e53b4683: ~

File Edit View Terminal Tabs Help

```
  GNU nano 6.2                          script.sh *
#!/bin/bash

# Function to test file properties
test_file() {
    echo -n "Enter the filename: "
    read filename

    if [ -e "$filename" ]; then
        echo "File exists."
        [ -r "$filename" ] && echo "File is readable." || echo "File is not rea>
        [ -w "$filename" ] && echo "File is writable." || echo "File is not wri>
        if [ -r "$filename" ] && [ -w "$filename" ]; then
            echo "File is both readable and writable."
        fi
    else
        echo "File does not exist."
    fi
}

# Function for file operations

^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line
```

Terminal - 23cs070@67d5750b12a7dc36e53b4683: ~

File Edit View Terminal Tabs Help

GNU nano 6.2 script.sh *

```
# Function for file operations
file_operations() {
    echo -n "Enter the filename: "
    read filename

    echo "Enter 5 names:"
    for i in {1..5}; do
        read name
        echo "$name" >> "$filename"
    done

    echo "Sorting the file..."
    sort "$filename" > sorted_"$filename"

    echo "Unsorted file contents:"
    cat "$filename"

    echo "Sorted file contents:"
    cat sorted_"$filename"
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line

Terminal - 23cs070@67d5750b12a7dc36e53b4683: ~

File Edit View Terminal Tabs Help

GNU nano 6.2 script.sh *

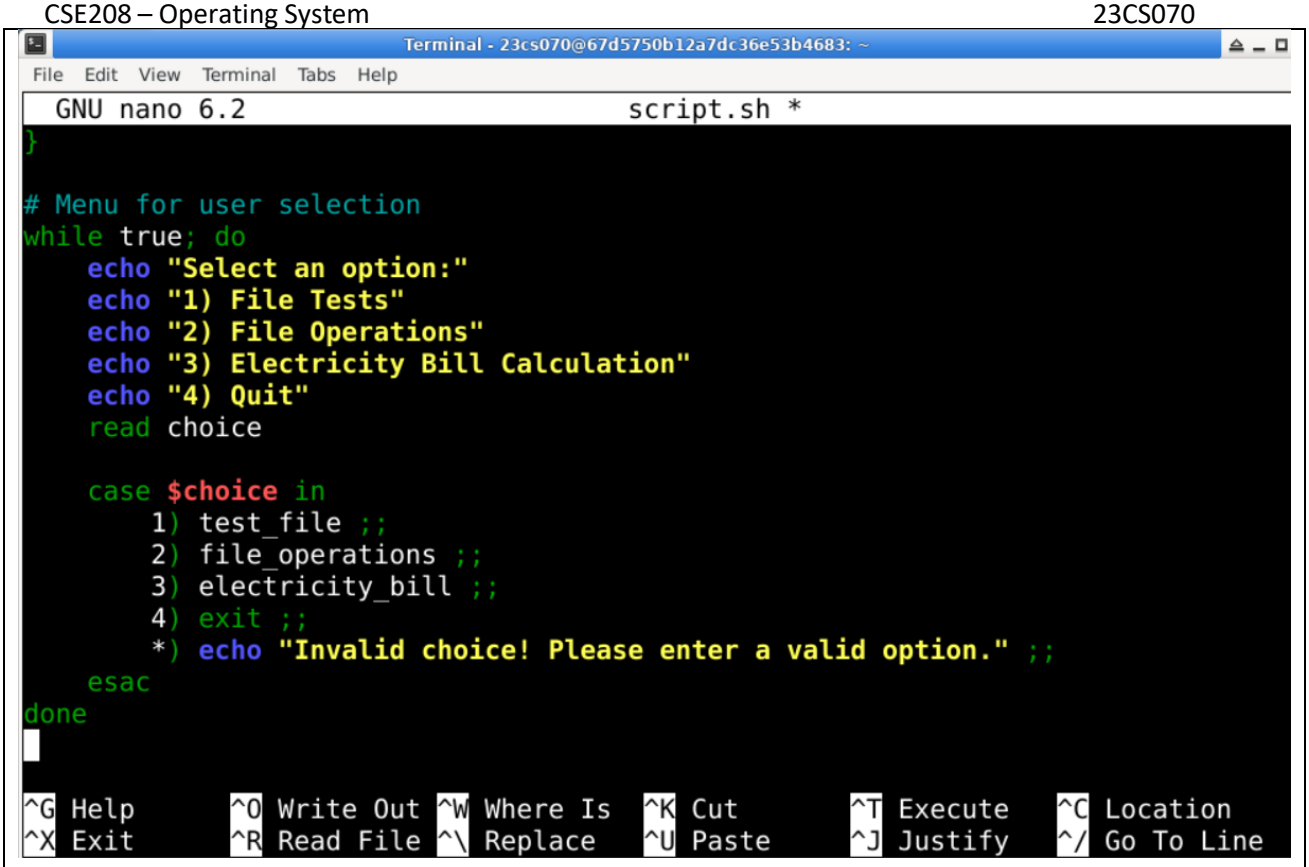
```
    echo "Exiting..."
}

# Function for electricity bill calculation
electricity_bill() {
    echo -n "Enter the number of units consumed: "
    read units

    if [ "$units" -le 100 ]; then
        bill=$(echo "$units * 1" | bc)
    elif [ "$units" -le 200 ]; then
        bill=$(echo "100*1 + ($units - 100) * 2" | bc)
    else
        bill=$(echo "100*1 + 100*2 + ($units - 200) * 3" | bc)
    fi

    echo "Total Electricity Bill: Rs. $bill"
}
```

^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line



i)Accepts the name of a file from the standard input and perform the following tests on it:
a)File Existence
b)File Readable
c)File Writeable
d)Both Readable and writeable

```
23cs070@67d5750b12a7dc36e53b4683:~$ chmod +x script.sh
23cs070@67d5750b12a7dc36e53b4683:~$ ./script.sh
23cs070@67d5750b12a7dc36e53b4683:~$ touch Nisarg_23CS070.txt
23cs070@67d5750b12a7dc36e53b4683:~$ ./script.sh
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
1
Enter the filename: Nisarg_23CS070.txt
File exists.
File is readable.
File is writable.
File is both readable and writable.
```

ii) Accepts the name of a file from the standard input and perform the following operations on it:
a)Enter 5 names in file
b)Sort the names in Existing Files
c)List unsorted and sorted files
d)Quit

```
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
2
Enter the filename: Nisarg_23CS070.txt
Enter 5 names:
Nisarg
Patel
Vadodara
23CS070
CSE
Sorting the file...
Unsorted file contents:
Nisarg
Patel
Vadodara
23CS070
CSE
Sorted file contents:
23CS070
CSE
Nisarg
Patel
Vadodara
Exiting...
```

iii)To Prepare Electricity bill based on the following rules:
a)For first 100 units-Rs. 1.00/unit
b) For next 100 units-Rs. 2.00/unit
c) Above 200 units-Rs. 3.00/unit

```
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
3
Enter the number of units consumed: 5
Total Electricity Bill: ₹5
```

```
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
3
Enter the number of units consumed: 100
Total Electricity Bill: ₹100
```

```
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
3
Enter the number of units consumed: 150
Total Electricity Bill: ₹200
```

```
Select an option:
1) File Tests
2) File Operations
3) Electricity Bill Calculation
4) Quit
3
Enter the number of units consumed: 250
Total Electricity Bill: ₹450
```