

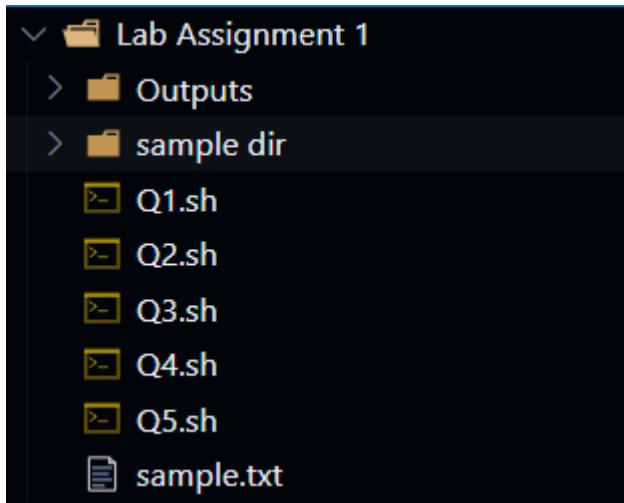
Lab Assignment 1

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The Folder Structure is as follows:



Q1.)

Code:

```
#!/bin/bash

# cat Command - used to display contents of a file(sample.txt)
echo "cat Command - displayed contents of sample.txt"
cat sample.txt

# chmod - used to change the permissions of a file(sample.txt)
echo "chmod Command - changed sample.txt file to readonly"
chmod a=r sample.txt
echo

# cd - used to change the directory
echo "cd Command - changed directory to sample dir"
cd sample\ dir/
pwd
echo
```

```
# cp - used to copy files
echo "cp Command - copied sample.txt to sample dir"
cd ..
cp sample.txt sample\ dir/
ls sample\ dir/
echo

# date - used to display the current date and time
echo "date Command"
date
echo

# echo - used to display a line of text
echo "echo Command"
echo "Hello World"
echo

# ftp - used to transfer files between a client and a server
echo "ftp Command"
ftp -n <<EOF
open test.rebex.net
user demo password
ls
bye
EOF
echo

# grep - used to search for a specific text in a file
echo "grep Command - searched for 'Hello' in sample.txt"
grep "Hello" sample.txt
echo

# head - used to display the first few lines of a file
echo "head Command - displayed first few lines of sample.txt"
head sample.txt
echo

# ls - used to list the files in a directory
echo "ls Command - listed files in sample dir"
ls sample\ dir/
echo
```

```
# lpr - used to print files
echo "lpr Command - printed sample.txt"
lpr sample.txt
echo

# more - used to display the contents of a file one screen at a
time
echo "more Command - displayed contents of sample.txt one screen
at a time"
more sample.txt
echo

# mkdir - used to create a new directory
echo "mkdir Command - created a new directory 'new_dir'"
mkdir new_dir
ls
echo

# mv - used to move files
touch a.txt
echo "mv Command - moved a.txt to new_dir"
mv a.txt new_dir/
ls new_dir/
echo

# ncftp - used to transfer files between a client and a server
echo "ncftp Command"
ncftp -u demo -p password test.rebex.net <<EOF
cd pub
quit
EOF
echo

# print skipped because it is not available in newer versions of
linux

# pwd - used to display the current working directory
echo "pwd Command"
pwd
echo

# rm - used to remove files
```

```
echo "rm Command - removed a.txt"
rm new_dir/a.txt
ls new_dir/
echo

# rmdir - used to remove directories
echo "rmdir Command - removed new_dir"
rmdir new_dir
ls
echo

# rsh skipped because it is not available in newer versions of
linux

# setenv - export is used instead of setenv in newer versions of
linux

# export - used to set environment variables
echo "export Command - set environment variable 'TEST' to 'Hello'"
export TEST=Hello
echo $TEST
echo

# sort - used to sort the contents of a file
echo "sort Command - sorted sample.txt"
sort sample.txt
echo

# tail - used to display the last few lines of a file
echo "tail Command - displayed last few lines of sample.txt"
tail sample.txt
echo

# tar - used to create, maintain, modify, and extract files from
archives
echo "tar Command - created a tar file of sample.txt"
tar -cvf sample.tar sample.txt
ls
echo

# telnet - used to communicate with another host using the TELNET
protocol
```

```
echo "telnet Command"
telnet telehack.com <<EOF
quit
EOF
echo

# wc - used to count the number of lines, words, and characters in
a file
echo "wc Command - counted lines, words, and characters in
sample.txt"
wc sample.txt
echo
```

Output on next page

Output:

```
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignments/Operating-Systems-CS6801_CS5801/Lab Assignment 1$ ./Q1.sh
cat Command - displayed contents of sample.txt
Hello World!
chmod Command - changed sample.txt file to readonly

cd Command - changed directory to sample dir
/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignments/Operating-Systems-CS6801_CS5801/Lab Assignment 1/sample dir

cp Command - copied sample.txt to sample dir
sample.txt

date Command
Wed Jan 15 20:45:50 UTC 2025

echo Command
Hello World

ftp Command
Connected to test.rebex.net.
220-Welcome to test.rebex.net!
See https://test.rebex.net/ for more information and terms of use.
220 If you don't have an account, log in as 'anonymous' or 'ftp'.
331 Anonymous login OK, send your complete email address as your password.
230 User 'demo' logged in.
Remote system type is Win32NT.
229 Extended Passive Mode Entered (|||1030|)
150 Opening 'BINARy' data connection.
drwx--- 2 demo users          0 Mar 31 2023 pub
-rw---- 1 demo users         379 Sep 19 2023 readme.txt
226 Transfer complete.
221 Closing session.

grep Command - searched for 'Hello' in sample.txt
Hello World!

head Command - displayed first few lines of sample.txt
Hello World!

ls Command - listed files in sample dir
sample.txt

lpr Command - printed sample.txt

more Command - displayed contents of sample.txt one screen at a time
Hello World!

mkdir Command - created a new directory 'new_dir'
Outputs Q1.sh new_dir 'sample dir' sample.txt

mv Command - moved a.txt to new_dir
a.txt

ncftp Command
McFTP 3.2.6 (Dec 04, 2016) by Mike Gleason (http://www.NcFTP.com/contact/).
Connecting to 194.108.117.16 ...
Welcome to test.rebex.net!
See https://test.rebex.net/ for more information and terms of use.
If you don't have an account, log in as 'anonymous' or 'ftp'.
Logging in ...
User 'demo' logged in.
Logged in to test.rebex.net.
Directory changed to "/pub".

pwd Command
/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignments/Operating-Systems-CS6801_CS5801/Lab Assignment 1

rm Command - removed a.txt

rmdir Command - removed new_dir
Outputs Q1.sh 'sample dir' sample.txt

export Command - set environment variable 'TEST' to 'Hello'
Hello

sort Command - sorted sample.txt
Hello World!

tail Command - displayed last few lines of sample.txt
Hello World!

tar Command - created a tar file of sample.txt
sample.txt
Outputs Q1.sh 'sample dir' sample.tar sample.txt

telnet Command
Trying 64.13.139.230 ...
Connected to telehack.com.
Escape character is '^].
Connection closed by foreign host.

wc Command - counted lines, words, and characters in sample.txt
1 2 14 sample.txt

manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignments/Operating-Systems-CS6801_CS5801/Lab Assignment 1$ |
```

Q2.)

Code:

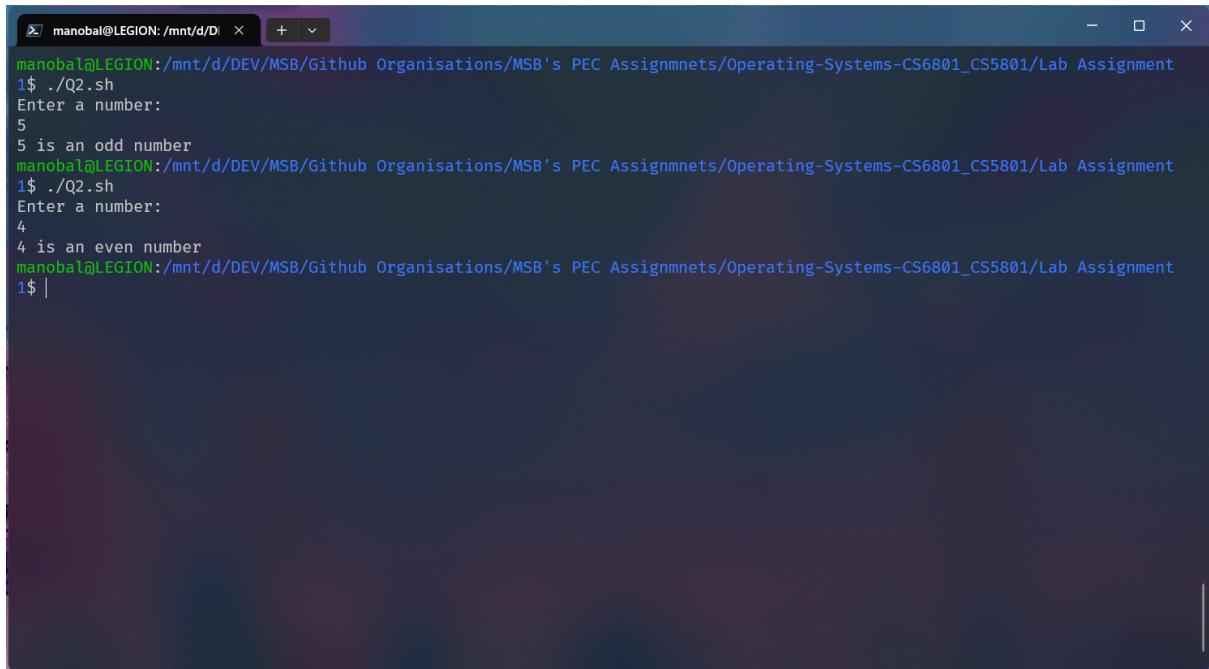
```
#!/bin/bash

# Program to check if a number is even or odd

echo "Enter a number: "
read num

if [ $((num % 2)) -eq 0 ]; then
    echo "$num is an even number"
else
    echo "$num is an odd number"
fi
```

Output:



The screenshot shows a terminal window with a dark blue background. The title bar reads "manobal@LEGION: /mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment". The terminal content is as follows:

```
manobal@LEGION: /mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
1$ ./Q2.sh
Enter a number:
5
5 is an odd number
manobal@LEGION: /mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
1$ ./Q2.sh
Enter a number:
4
4 is an even number
manobal@LEGION: /mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
1$ |
```

Q3.)

Code:

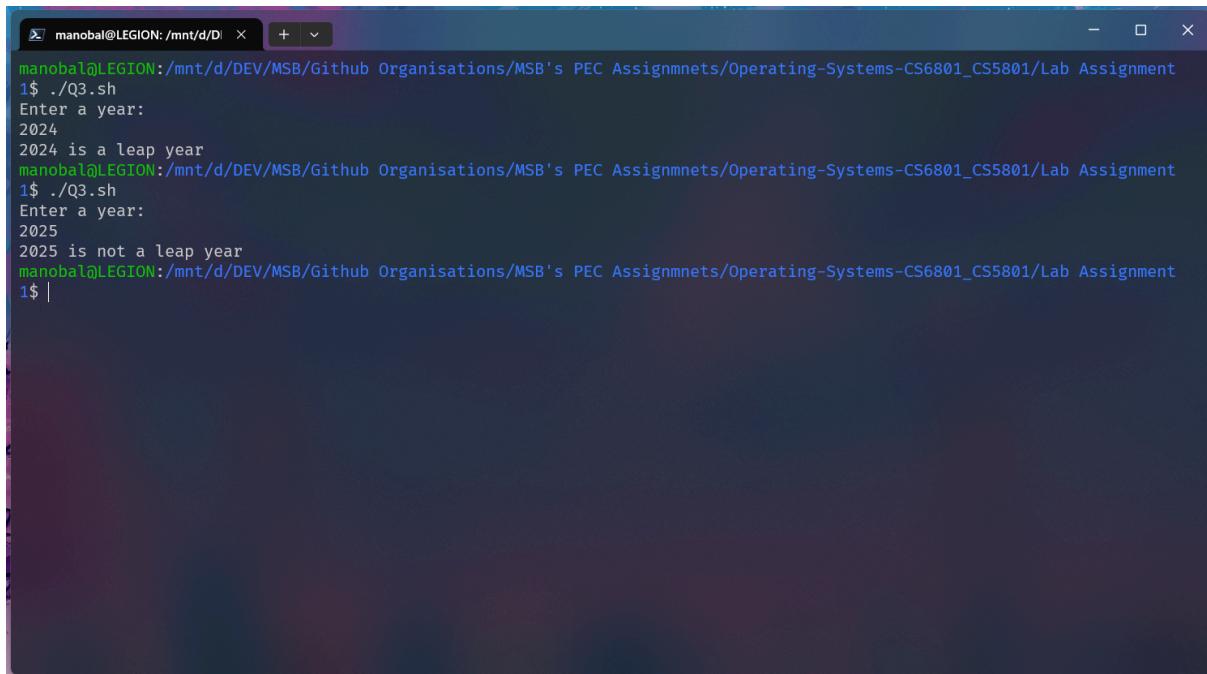
```
#!/bin/bash

# Program to check if a given year is a leap year

echo "Enter a year: "
read year

if [ $((year % 4)) -eq 0 ]; then
    if [ $((year % 100)) -eq 0 ]; then
        if [ $((year % 400)) -eq 0 ]; then
            echo "$year is a leap year"
        else
            echo "$year is not a leap year"
        fi
    else
        echo "$year is a leap year"
    fi
else
    echo "$year is not a leap year"
fi
```

Output:



```
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
$ ./Q3.sh
Enter a year:
2024
2024 is a leap year
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
$ ./Q3.sh
Enter a year:
2025
2025 is not a leap year
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
$ |
```

Q4.)

Code:

```
#!/bin/bash

# Program to swap two integers

echo "Enter the first number: "
read num1

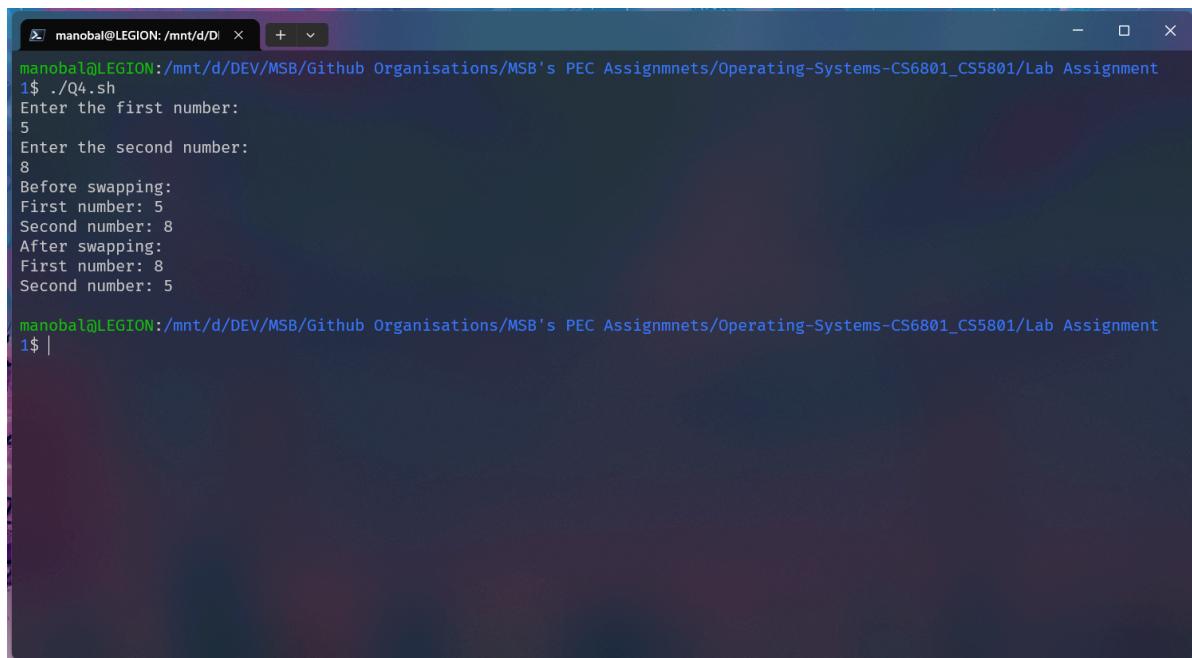
echo "Enter the second number: "
read num2

echo "Before swapping:"
echo "First number: $num1"
echo "Second number: $num2"

temp=$num1
num1=$num2
num2=$temp

echo "After swapping:"
echo "First number: $num1"
echo "Second number: $num2"
echo
```

Output:



```
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment
$ ./Q4.sh
Enter the first number:
5
Enter the second number:
8
Before swapping:
First number: 5
Second number: 8
After swapping:
First number: 8
Second number: 5
```

Q5.)

Code:

```
#!/bin/bash

# Program to calculate the sum of digits

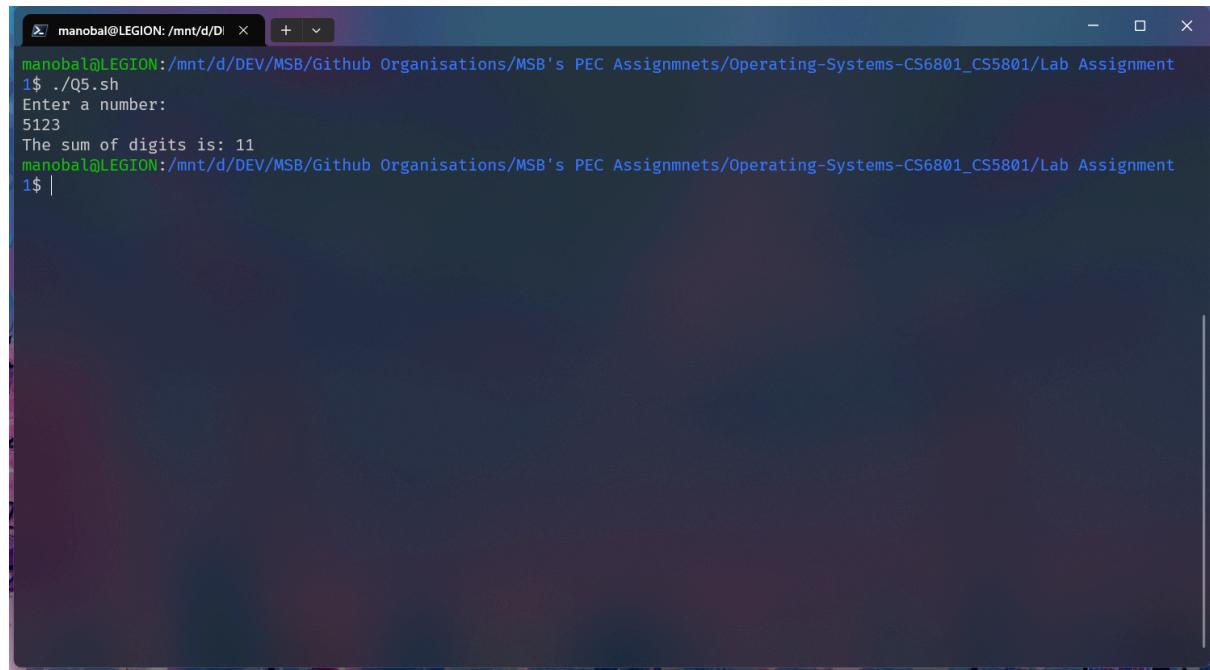
echo "Enter a number: "
read num

sum=0

while [ $num -gt 0 ]; do
    digit=$((num % 10))
    sum=$((sum + digit))
    num=$((num / 10))
done

echo "The sum of digits is: $sum"
```

Output:



The screenshot shows a terminal window with the following session:

```
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment 1$ ./05.sh
Enter a number:
5123
The sum of digits is: 11
manobal@LEGION:/mnt/d/DEV/MSB/Github Organisations/MSB's PEC Assignmnets/Operating-Systems-CS6801_CS5801/Lab Assignment 1$ |
```