OS LAB 3

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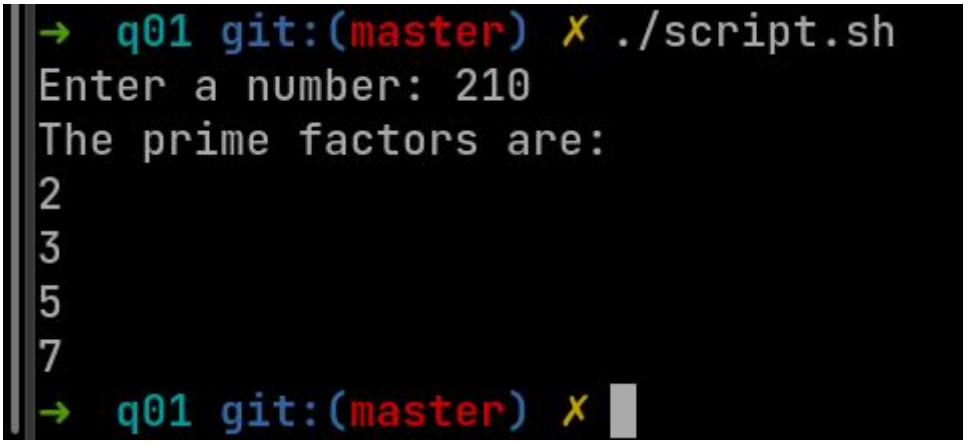
1. Write a shell script, which finds the prime factors of a given number

```
printf "Enter a number: "
read num

echo "The prime factors are:"
for ((i = 2; i <= $num; i++)); do
 while [ $((num % $i)) == 0 ]; do
   echo $i
   num=$((num / $i))
 done
done
```



2. Write a shell script that accepts a positive integer value from the user, say 34, and prints out all the divisors of 34 as a list:

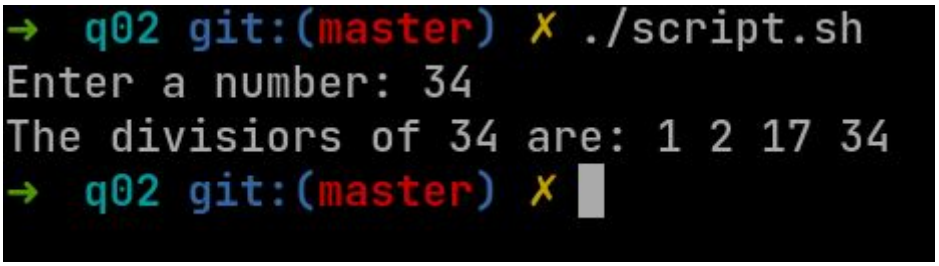
Enter a positive integer: 34

The divisors of 34 are: 1, 2, 17, and 34

```
read -p "Enter a number: " num

if [ $num -lt 1 ]; then
  echo "not allowed!"
  exit 1
fi
```

```
i=1
printf "The divisors of $num are: "
for ((i; i <= $num; )); do
  if [ $(expr $num % $i) -eq 0 ]; then
    echo -n "$i "
  fi
  i=$(expr $i + 1)
done
echo ""
```



3. Write a shell script, which prints good morning or good evening depending on the login time of the user.

```
hour=$(date +%H)

if [ $hour -lt 12 ]; then
  echo Good morning
elif [ $hour -lt 18 ]; then
  echo Good afternoon
else
  echo Good evening
fi
```

```
→  q03 git:(master) ✗ ./script.sh
Good afternoon
→  q03 git:(master) ✗ date
Tue 02 Feb 2021 04:48:59 PM IST
→  q03 git:(master) ✗
```

4. A shell script, which takes as command line input a number n, and a word. It then prints the word n times, once on each line.

```
if [ $# -ne 2 ]; then
  echo "2 command line arguments are required"
  exit 1
fi

word=$1
num=$2

i=0
for ((i; i < $num; )); do
  echo "$word"
  i=$(expr $i + 1)
done
```

```
→  q04 git:(master) ✗ ./script.sh sahil 4
sahil
sahil
sahil
sahil
→  q04 git:(master) ✗
```

5. Write a shell script, which finds the total number of blank lines in the given file

```
read -p "Enter a filename: " file
echo "Number of blank space in $file is: "

grep -c "^$" $file
```

```
→  q05 git:(master) ✗ ./script.sh
Enter a file name: script.sh
Number of blank space in script.sh is:
1
→  q05 git:(master) ✗
```

6. A shell script, which reports the names and sizes of all the files in a directory whose size exceeds 1000 bytes, in descending order of their sizes and the total number of such files.

```
echo "Files greater than 1000 bytes:"
find . -type f -size +1000c -ls | sort -r -n -k7
echo "Number of files:"
find . -type f -size +1000c -ls | sort -r -n -k7 | wc -l
```

```
→  q06 git:(master) ✗ ./script.sh
Files greater than 1000 bytes:
  1459839     36 -rw-r--r--   1 sahil    sahil       35810 Feb  2 17:18 ./file
  1459844      4 -rw-r--r--   1 sahil    sahil        2029 Feb  2 17:18 ./file2
Number of files:
2
→  q06 git:(master) ✗
```