@author: @ruhend (Mudigonda Himansh)
Assignment 2

QUESTIONS
Write the shell script for each of these programs and submit the word file with code, input, and output ?

1. x Write a script to find the greatest of three numbers (numbers passed as command line parameters)
2. x Write a script to check whether the given no. is even/odd
3. x Write a script to calculate the average of n numbers.
4. x Write a script to check whether the given number is prime or not.
5. x Write a script to check whether the given input is a number or a string.
6. x Write a script to compute no. of characters and words in each line of a given file.
7. x Write a script to print the Fibonacci series up to n terms
8. x Write a script to calculate the factorial of a given number
9. x Write a script to calculate the sum of digits of the given number
10. x Write a script to check whether the given string is a palindrome

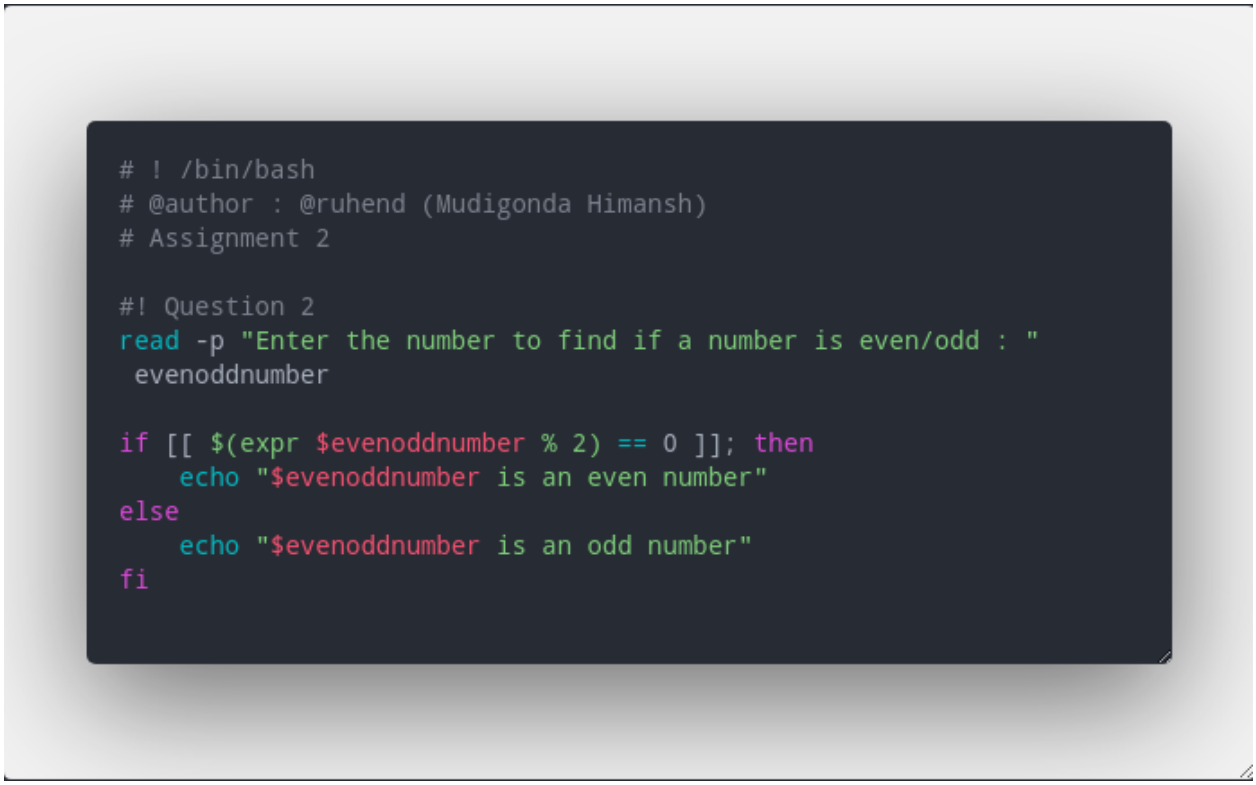
1. CODE:

```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 1
read -p "Enter the three numbers : " number1 number2 number3

if [[ $number1 -ge $number2 && $number1 -ge $number3 ]]; then
    echo "$number1 is the greatest number"
fi

if [[ $number2 -ge $number3 && $number2 -ge $number1 ]]; then
    echo "$number2 is the greatest"
fi

if [[ $number3 -ge $number1 && $number3 -ge $number2 ]]; then
    echo "$number3 is the greatest"
fi
```

I/O:

Enter the three numbers: 15 13 12
15 is the greatest number

2. CODE:



```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 2
read -p "Enter the number to find if a number is even/odd : "
 evenoddnumber

if [[ $(expr $evenoddnumber % 2) == 0 ]]; then
    echo "$evenoddnumber is an even number"
else
    echo "$evenoddnumber is an odd number"
fi
```

I/O:

Enter the number to find if a number is even/odd: 12723
12723 is an odd number

3. CODE:

```
# ! /bin/bash
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# Assignment 2

#! Question 3
echo "Enter Size : "
read N
i=1
sum=0
echo "Enter Numbers : "
while [ $i -le $N ]; do
    read num
    sum=$((sum + num))
    i=$((i + 1))
done
avg=$(echo $sum / $N | bc -l)

echo $avg
```

I/O:

Enter Size :
5
Enter Numbers :
1
2
3
7
4
3.40000000000000000000

4. CODE:

```
# ! /bin/bash
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# Assignment 2

#! Question 4
echo "Enter the number to check if it is prime or not : "
read prime_target

if [[ $prime_target -eq 2 || $prime_target -eq 1 || $prime_target
-eq 0 ]]; then
    echo "Prime"
    exit
fi

if [[ $prime_target%2 -eq 0 ]]; then
    prime_half=$(($prime_target / 2))
else
    # prime_target=$((prime_target + 1))
    prime_half=$(((prime_target + 1) / 2))
fi
i=2
while [ $i -le $prime_half ]; do
    # echo "$prime_half $prime_target $i $(($prime_target % $i))"
    if [[ $(($prime_target % $i)) == 0 ]]; then

# echo "Not Prime $prime_half $prime_target $i $(($prime_target %
$i))"
        echo "Not Prime"
        exit
    fi
    i=$((i + 1))
done
echo "Prime"
```

I/O:
Enter the number to check if it is prime or not :
2342
Not Prime

5. CODE:

```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 5
read -p "Enter Number or String : " numorstring

echo "$numorstring" | grep "^[A-Za-z]*$"
val="$?"

if [[ $val == 0 ]]; then
    echo "String"
    exit
fi

echo "$numorstring" | grep "^[0-9]*$"
val="$?"

if [[ $val == 0 ]]; then
    echo "Number"
    exit
fi
```

I/O:
INPUT 1:

Enter Number or String: himansh
himansh
String

INPUT 2:
Enter Number or String: 12312364534
12312364534
Number

6. CODE:

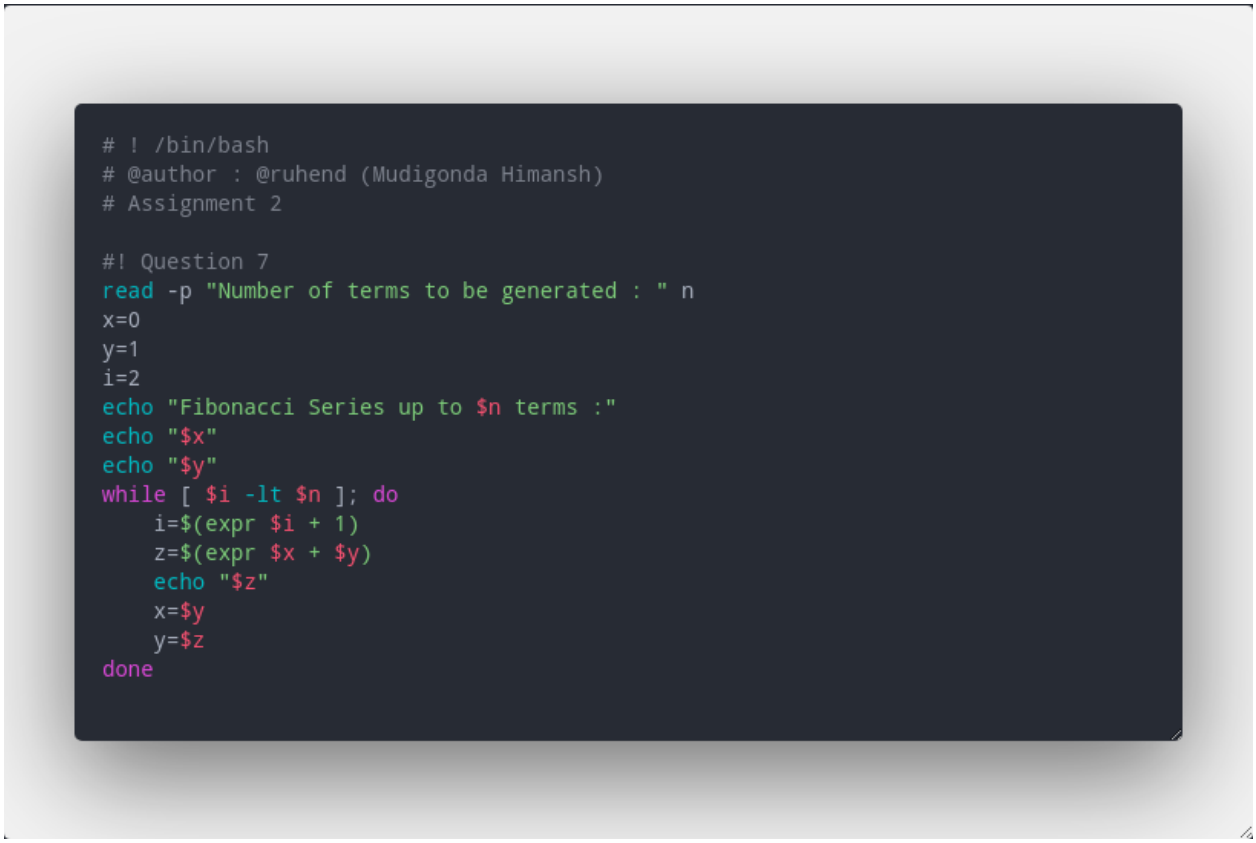
```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 6
file_path=./stats.txt

echo "Words per line"
while read p; do
    wc -w <<<$p
done <$file_path

echo "Chars per line"
while read p; do
    wc -c <<<$p
done <$file_path
```

I/O:
INPUT:
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nulla interdum
sit amet est et mattis. Curabitur sollicitudin nec sem vel ultricies. Lorem
ipsum dolor sit amet, consectetur adipiscing elit. Proin et tortor sed eros
fermentum elementum eget at lorem. Nulla at tincidunt magna. Nunc egestas
dolor ipsum, et iaculis enim malesuada eget.
Morbi varius felis in quam aucto
r, vitae fermentum nisi pellentesque.

Suspendisse massa massa, facilisis vel blandit vitae, pulvinar et metus. Morbi
tristique purus lobortis lacus ornare commodo. Pellentesque malesuada massa et e
ros semper tempor. Sed porttitor imperdiet nisl, nec ornare metus lobortis eget.
Aliquam sed ultricies massa. Sed scelerisque nec erat
eu fringilla. Ut vehicula tincidunt neque, sit amet volutpat ante vestibulum ac.
Orci varius natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

OUTPUT:
Words per line
10
12
12
11
7
6
5
0
11
11
12
8
12
12
Chars per line
72
76
76
74
45
33
38
1
79
81
81
54
81
87

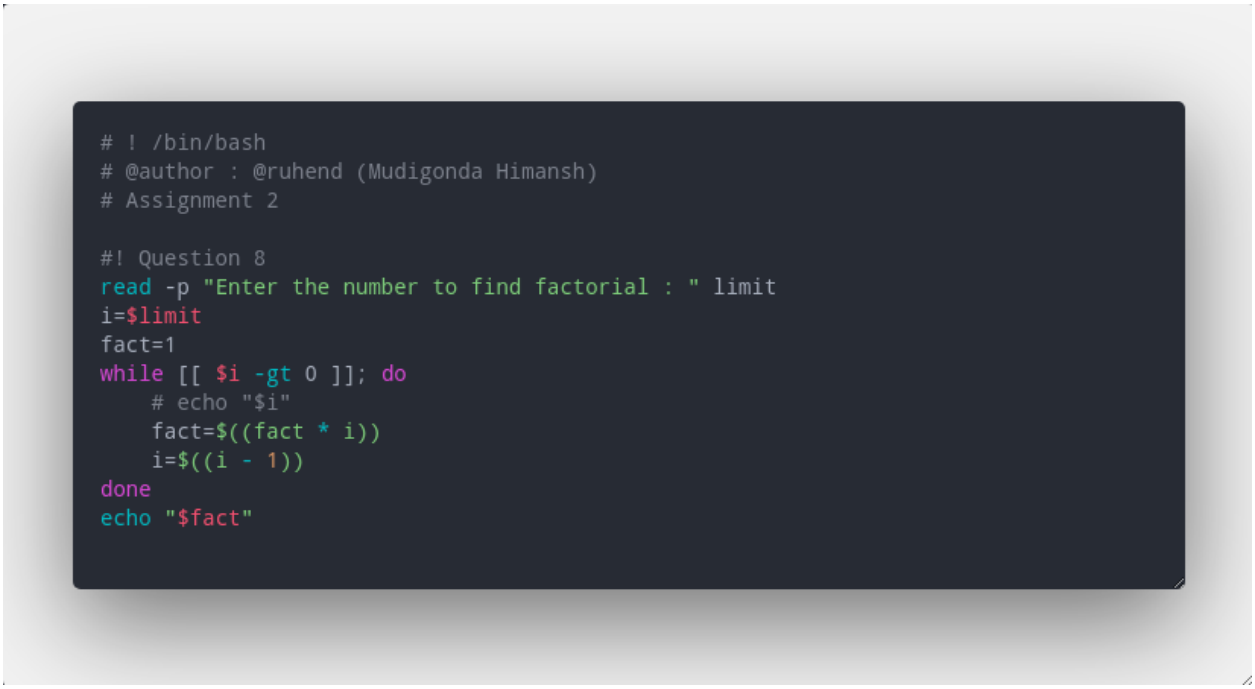
7. CODE:



```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 7
read -p "Number of terms to be generated : " n
x=0
y=1
i=2
echo "Fibonacci Series up to $n terms :"
echo "$x"
echo "$y"
while [ $i -lt $n ]; do
    i=$(expr $i + 1)
    z=$(expr $x + $y)
    echo "$z"
    x=$y
    y=$z
done
```

I/O:
Number of terms to be generated: 6
Fibonacci Series up to 6 terms :
0
1
1
2
3
5

8. CODE:



```
# ! /bin/bash
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# Assignment 2

#! Question 8
read -p "Enter the number to find factorial : " limit
i=$limit
fact=1
while [[ $i -gt 0 ]]; do
    # echo "$i"
    fact=$((fact * i))
    i=$((i - 1))
done
echo "$fact"
```
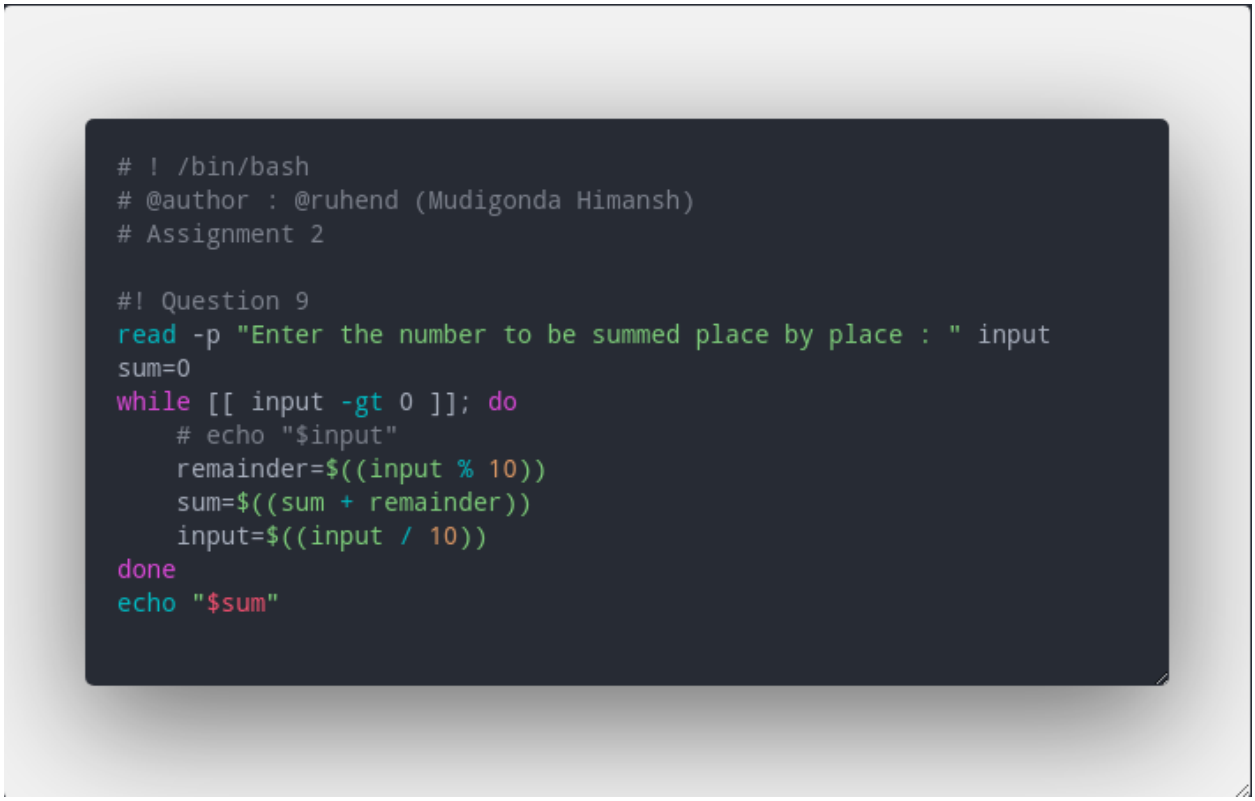

I/O:
Enter the number to find factorial: 6
720

9. CODE:



```
# ! /bin/bash
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# Assignment 2

#! Question 9
read -p "Enter the number to be summed place by place : " input
sum=0
while [[ input -gt 0 ]]; do
    # echo "$input"
    remainder=$((input % 10))
    sum=$((sum + remainder))
    input=$((input / 10))
done
echo "$sum"
```

I/O:
Enter the number to be summed place by place: 43856672
41

10. CODE:

```
# ! /bin/bash
# @author : @ruhend (Mudigonda Himansh)
# Assignment 2

#! Question 10
clear
read -p "Enter a string to be entered : " str
echo
len=$(($(echo $str | wc -c) - 1))
i=1
j=$((len / 2))
while [[ $i -le $j ]]; do
    k=$(echo $str | cut -c $i)
    l=$(echo $str | cut -c $len)
    if test $k != $l; then
        echo "String is not palindrome"
        exit
    fi
    i=$(expr $i + 1)
    len=$(expr $len - 1)
done
echo "String is palindrome"
```

I/O:
TC1:
Enter a string to be entered: hannah

String is palindrome

TC2:
Enter a string to be entered: himansh

The string is not a palindrome