Operating Systems

Assignment 2: Basic Shell Programs

1. Write a shell program to find the maximum among the three numbers

Code:

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter first number: " num1
read -p "Enter second number: " num2
read -p "Enter third number: " num3

max=0

if [ $num1 -gt $num2 ] && [ $num1 -gt $num3 ]; then
    max=$num1
elif [ $num2 -gt $num1 ] && [ $num2 -gt $num3 ]; then
    max=$num2
else
    max=$num3
fi

echo "The maximum number is: $max"
```

Output:

```
Enter first number: 32
Enter second number: 67
Enter third number: 11
The maximum number is: 67
```

2. Write a shell program to find the sum of n numbers using for loop

Code:

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter the number of integers you want to add: " n

sum=0

for((i=1;i<=n;i++))
do
    read -p "Enter number $i: " num
    sum=$((sum + num))
done

echo "The sum of the integers is: $sum"
```

Output:

```
Enter the number of integers you want to add: 6
Enter number 1: 22
Enter number 2: 73
Enter number 3: 1
Enter number 4: 97
Enter number 5: 35
Enter number 6: 45
The sum of the integers is: 273
```

3. Write a Shell program to check the given number is even or odd

Code:

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter a number: " num

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

Output:

```
Enter a number: 45
45 is odd.
```

4. Write a Shell program to find the factorial of a number

Code:

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter a number: " num

factorial=1

for((i=1;i<=num;i++))
do
    factorial=$((factorial * i))
done

echo "The factorial of $num is: $factorial"
```

Output:

```
Enter a number: 13
The factorial of 13 is: 6227020800
```

5. Write a Shell program to swap two integers

Code:

```
harshita@HarshitaP:~$ #!/bin/bash

read -p "Enter first number: " num1
read -p "Enter second number: " num2

echo "Before swapping: num1 = $num1, num2 = $num2"

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

echo "After swapping: num1 = $num1, num2 = $num2"
```

Output:

```
Enter first number: 14
Enter second number: 41
Before swapping: num1 = 14, num2 = 41
After swapping: num1 = 41, num2 = 14
```

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