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Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

B.Tech. Winter Semester 2023-24
School Of Computer Science and Engineering (SCOPE)

Digital Assignment - I

Operating System Lab

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1. Questions

Problem 1.1.
Create a shell script program to determine whether or not an input number is a palindrome.

```
college/os/ass1
❯ who; date now;
apurva           console      Jul 20 08:25
apurva           ttys000      Aug  2 13:58
Fri, 2 Aug 2024 14:02:13 +0530 (now)

college/os/ass1
❯ cat q1.sh
#!/bin/bash

is_palindrome() {
  num=$1
  reversed=$(echo $num | rev)

  if [ "$num" -eq "$reversed" ]; then
    echo "The number $num is a palindrome"
  else
    echo "The number $num is not a palindrome"
  fi
}

read -p "Enter a number: " num

is_palindrome $num

college/os/ass1
❯ sh q1.sh
Enter a number: 434
The number 434 is a palindrome

college/os/ass1 took 5s
❯ sh q1.sh
Enter a number: 4546
The number 4546 is not a palindrome

college/os/ass1 took 8s
❯ sh q1.sh
Enter a number: 999676999
The number 999676999 is a palindrome
```

```bash
#!/bin/bash

is_palindrome() {
  num=$1
  reversed=$(echo $num | rev)

  if [ "$num" -eq "$reversed" ]; then
    echo "The number $num is a palindrome"
  else
    echo "The number $num is not a palindrome"
  fi
}

read -p "Enter a number: " num

is_palindrome $num
```

Problem 1.2.
Create a shell script program to determine whether or not an input number is a palindrome.

```
college/os/ass1
❯ who; date now;
apurva           console      Jul 20 08:25
apurva           ttys000      Aug  2 13:58
Fri, 2 Aug 2024 14:02:13 +0530 (now)

college/os/ass1
❯ cat q1.sh
#!/bin/bash

is_palindrome() {
  num=$1
  reversed=$(echo $num | rev)

  if [ "$num" -eq "$reversed" ]; then
    echo "The number $num is a palindrome"
  else
    echo "The number $num is not a palindrome"
  fi
}

read -p "Enter a number: " num

is_palindrome $num

college/os/ass1
❯ sh q1.sh
Enter a number: 434
The number 434 is a palindrome

college/os/ass1 took 5s
❯ sh q1.sh
Enter a number: 4546
The number 4546 is not a palindrome

college/os/ass1 took 8s
❯ sh q1.sh
Enter a number: 999676999
The number 999676999 is a palindrome
```

Problem 1.3.
Create a shell script program to add n numbers.

```
college/os/ass1
❯ who; date now;
apurva           console      Jul 20 08:25
apurva           ttys000      Aug  2 13:58
Fri, 2 Aug 2024 14:53:43 +0530 (now)

college/os/ass1
❯ cat q2.sh
#!/bin/bash

sum=0
echo "Number of numbers to add:"
read n

echo "Enter the numbers:"

for ((i=1; i<=n; i++))
do
  read num
  sum=$((sum + num))
done

echo "The sum is: $sum"

college/os/ass1
❯ sh q2.sh
Number of numbers to add:
2
Enter the numbers:
3
4
The sum is: 7

college/os/ass1 took 3s
❯ sh q2.sh
Number of numbers to add:
4
Enter the numbers:
2
3
4
5
The sum is: 14
```

```bash
#!/bin/bash

sum=0
echo "Number of numbers to add:"
read n

echo "Enter the numbers:"

for ((i=1; i<=n; i++))
do
  read num
  sum=$((sum + num))
done

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

Problem 1.4.
Create a shell script program to add array elements.

```
college/os/ass1
❯ who; date now;
apurva           console      Jul 20 08:25
apurva           ttys000      Aug  2 13:58
Fri, 2 Aug 2024 14:56:00 +0530 (now)

college/os/ass1
❯ cat q3.sh
#!/bin/bash

declare -a array

echo "Enter the number of elements:"
read n

echo "Enter the elements:"

for ((i=0; i<n; i++))
do
  read num
  array[i]=$num
done

sum=0

for i in "${array[@]}"
do
  sum=$((sum + i))
done

echo "The sum of array elements is: $sum"

college/os/ass1
❯ sh q3.sh
Enter the number of elements:
3
Enter the elements:
3
7
8
The sum of array elements is: 18
```