Lab Assignment 3

Aim: To create shell scripts for the following questions

To perform: To code and solve the following

To Submit: Give shell scripts for following:

**1. To find Largest of Three Numbers**

#!/bin/bash

echo "Enter three numbers:"

read a b c

if [ $a -ge $b ] && [ $a -ge $c ]; then

echo "$a is the largest"

elif [ $b -ge $a ] && [ $b -ge $c ]; then

echo "$b is the largest"

else

echo "$c is the largest"

fi

**2. To find a year is leap year or not.**

#!/bin/bash

echo "Enter a year:"

read year

if (( ($year % 4 == 0 && $year % 100 != 0) || ($year % 400 == 0) )); then

echo "$year is a leap year"

else

echo "$year is not a leap year"

fi

**3. To input angles of a triangle and find out whether it is valid triangle or not**

#!/bin/bash

echo "Enter three angles of triangle:"

read a b c

sum=$((a + b + c))

if [ $sum -eq 180 ]; then

echo "Valid Triangle"

else

echo "Invalid Triangle"

fi

**4. To check whether a character is alphabet, digit or special character.**

#!/bin/bash

echo "Enter a character:"

read char

if [[ $char =~ [a-zA-Z] ]]; then

echo "Alphabet"

elif [[ $char =~ [0-9] ]]; then

echo "Digit"

else

echo "Special Character"

fi

**5. To calculate profit or loss**

#!/bin/bash

echo "Enter cost price:"

read cp

echo "Enter selling price:"

read sp

if [ $sp -gt $cp ]; then

profit=$((sp - cp))

echo "Profit: $profit"

elif [ $cp -gt $sp ]; then

loss=$((cp - sp))

echo "Loss: $loss"

else

echo "No Profit No Loss"

fi

**6. To print all even and odd number from 1 to 10**

#!/bin/bash

echo "Even numbers:"

for i in {1..10}

do

if [ $((i%2)) -eq 0 ]; then

echo -n "$i "

fi

done

echo -e "\nOdd numbers:"

for i in {1..10}

do

if [ $((i%2)) -ne 0 ]; then

echo -n "$i "

fi

done

**7. To print table of a given number**

#!/bin/bash

echo "Enter a number:"

read num

for i in {1..10}

do

echo "$num x $i = $((num \* i))"

done

**8. To find factorial of a given integer**

#!/bin/bash

echo "Enter a number:"

read n

fact=1

for ((i=1;i<=n;i++))

do

fact=$((fact \* i))

done

echo "Factorial of $n is $fact"

**9. To print sum of all even numbers from 1 to 10.**

#!/bin/bash

sum=0

for i in {1..10}

do

if [ $((i%2)) -eq 0 ]; then

sum=$((sum + i))

fi

done

echo "Sum of even numbers from 1 to 10 is $sum"

**10. To print sum of digit of any number.**

#!/bin/bash

echo "Enter a number:"

read num

sum=0

while [ $num -ne 0 ]

do

digit=$((num % 10))

sum=$((sum + digit))

num=$((num / 10))

done

echo "Sum of digits is $sum"

**11. To make a basic calculator which performs addition, subtraction, Multiplication,**

**Division**

#!/bin/bash

echo "Enter first number:"

read a

echo "Enter second number:"

read b

echo "Enter operator (+, -, \*, /):"

read op

case $op in

"+") echo "Result: $((a + b))" ;;

"-") echo "Result: $((a - b))" ;;

"\*") echo "Result: $((a \* b))" ;;

"/") echo "Result: $((a / b))" ;;

\*) echo "Invalid operator" ;;

esac

**12. To print days of a week.**

#!/bin/bash

days=("Sunday" "Monday" "Tuesday" "Wednesday" "Thursday" "Friday" "Saturday")

for day in "${days[@]}"

do

echo "$day"

done

**13. To print starting 4 months having 31 days.**

#!/bin/bash

months=("January" "March" "May" "July")

for m in "${months[@]}"

do

echo "$m"

done

**14. Using functions,**

**a. To find given number is Amstrong number or not**

#!/bin/bash

is\_armstrong() {

num=$1

sum=0

temp=$num

while [ $temp -ne 0 ]

do

digit=$((temp % 10))

sum=$((sum + digit \* digit \* digit))

temp=$((temp / 10))

done

if [ $sum -eq $num ]; then

echo "$num is an Armstrong number"

else

echo "$num is not an Armstrong number"

fi

}

echo "Enter number:"

read n

is\_armstrong $n

**b. To find whether a number is palindrome or not**

#!/bin/bash

is\_palindrome() {

num=$1

rev=0

temp=$num

while [ $temp -ne 0 ]

do

digit=$((temp % 10))

rev=$((rev \* 10 + digit))

temp=$((temp / 10))

done

if [ $rev -eq $num ]; then

echo "$num is a palindrome"

else

echo "$num is not a palindrome"

fi

}

echo "Enter number:"

read n

is\_palindrome $n

**c. To print Fibonacci series upto n terms**

#!/bin/bash

fibonacci() {

a=0

b=1

echo -n "$a $b "

for ((i=2;i<$1;i++))

do

fn=$((a + b))

echo -n "$fn "

a=$b

b=$fn

done

}

echo "Enter number of terms:"

read n

fibonacci $n

**d. To find given number is prime or composite**

#!/bin/bash

is\_prime() {

n=$1

if [ $n -le 1 ]; then

echo "$n is neither prime nor composite"

return

fi

for ((i=2;i<=n/2;i++))

do

if [ $((n % i)) -eq 0 ]; then

echo "$n is composite"

return

fi

done

echo "$n is prime"

}

echo "Enter a number:"

read num

is\_prime $num

e. To convert a given decimal number to binary equivalent

#!/bin/bash

dec\_to\_bin() {

num=$1

bin=""

while [ $num -gt 0 ]

do

rem=$((num % 2))

bin="$rem$bin"

num=$((num / 2))

done

echo "Binary equivalent: $bin"

}

echo "Enter a decimal number:"

read dec

dec\_to\_bin $dec