**LAB ASSIGNMENT-3**

**1. Largest of Three Numbers:**

bash

#!/bin/bash

echo "Enter three numbers:"

read a b c

**if** [ $a -gt $b ] && [ $a -gt $c ]; then

echo "$a is the largest number"

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

echo "$b is the largest number"

else

echo "$c is the largest number"

fi

**2. Check Leap Year**

bash

#!/bin/bash

echo -n "Enter year (YYYY): "

read year

if [ $((year % 400)) -eq 0 ]; then

echo "$year is a leap year"

elif [ $((year % 100)) -eq 0 ]; then

echo "$year is not a leap year"

elif [ $((year % 4)) -eq 0 ]; then

echo "$year is a leap year"

else

echo "$year is not a leap year"

fi

**3. Valid Triangle from Angles**

bash

#!/bin/bash

echo "Enter the three angles of the triangle:"

read a1 a2 a3

sum=$((a1 + a2 + a3))

if [ $sum -eq 180 ]; then

echo "Valid triangle"

else

echo "Invalid triangle"

fi

**4. Character: Alphabet, Digit, or Special Character**

bash

#!/bin/bash

echo "Enter a character:"

read ch

if [[ $ch =~ [A-Za-z] ]]; then

echo "Alphabet"

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

echo "Digit"

else

echo "Special character"

fi

**5. Calculate Profit or Loss**

bash

#!/bin/bash

echo "Enter Cost Price:"

read cp

echo "Enter Selling Price:"

read sp

if [ $sp -eq $cp ]; then

echo "No profit or loss."

elif [ $sp -gt $cp ]; then

profit=$((sp - cp))

echo "Profit of Rs. $profit"

else

loss=$((cp - sp))

echo "Loss of Rs. $loss"

fi

**6. Print Even and Odd Numbers from 1 to 10**

bash

#!/bin/bash

echo "Even numbers from 1 to 10:"

for i in {1..10}; do

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

echo $i

fi

done

echo "Odd numbers from 1 to 10:"

for i in {1..10}; do

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

echo $i

fi

done

**7. Print Table of a Given Number**

bash

#!/bin/bash

echo -n "Enter a number: "

read num

echo "Multiplication table for $num:"

for i in {1..10}; do

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

done

**8. Factorial of a Given Integer**

bash

#!/bin/bash

echo "Enter a number:"

read num

fact=1

for ((i=2; i<=num; i++)); do

fact=$((fact \* i))

done

echo "Factorial of $num is $fact"

9. Sum of All Even Numbers from 1 to 10

bash

#!/bin/bash

sum=0

for i in {1..10}; do

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

sum=$((sum + i))

fi

done

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

**10. Sum of Digits of Any Number**

bash

#!/bin/bash

echo "Enter a number:"

read num

sum=0

while [ $num -gt 0 ]; do

digit=$((num % 10))

sum=$((sum + digit))

num=$((num / 10))

done

echo "Sum of digits: $sum"

**11. Basic Calculator (Addition, Subtraction, Multiplication, Division)**

bash

#!/bin/bash

echo "Enter first number:"

read a

echo "Enter second number:"

read b

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

read op

case $op in

+) res=$((a + b));;

-) res=$((a - b));;

\\*) res=$((a \* b));;

/) res=$((a / b));;

\*) echo "Invalid operation"; exit 1;;

esac

echo "Result: $res"

**12. Print Days of a Week**

bash

#!/bin/bash

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

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

echo "$day"

done

**13. Print Starting 4 Months Having 31 Days**

bash

#!/bin/bash

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

for month in "${months[@]}"; do

echo "$month"

done

**14. Using Functions**

**a. Armstrong Number**

bash

#!/bin/bash

is\_armstrong() {

num=$1

sum=0

n=$num

while [ $n -gt 0 ]; do

digit=$((n % 10))

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

n=$((n / 10))

done

if [ $sum -eq $num ]; then

echo "$num is an Armstrong number"

else

echo "$num is not an Armstrong number"

fi

}

echo "Enter a number:"

read num

is\_armstrong $num

**b. Palindrome Number**

bash

#!/bin/bash

is\_palindrome() {

num=$1

rev=0

n=$num

while [ $n -gt 0 ]; do

digit=$((n % 10))

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

n=$((n / 10))

done

if [ $rev -eq $num ]; then

echo "$num is a palindrome"

else

echo "$num is not a palindrome"

fi

}

echo "Enter a number:"

read num

is\_palindrome $num

**c. Fibonacci Series up to n Terms**

bash

#!/bin/bash

fibonacci() {

n=$1

a=0

b=1

for ((i=0; i<n; i++)); do

echo -n "$a "

fn=$((a + b))

a=$b

b=$fn

done

echo

}

echo "Enter number of terms:"

read n

fibonacci $n

**d. Prime or Composite**

bash

#!/bin/bash

is\_prime() {

n=$1

if [ $n -le 1 ]; then

echo "$n is not prime"

return

fi

for ((i=2; i\*i<=n; i++)); do

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

echo "$n is composite"

return

fi

done

echo "$n is prime"

}

echo "Enter a number:"

read n

is\_prime $n

**e. Decimal to Binary Conversion**

bash

#!/bin/bash

dec\_to\_bin() {

n=$1

bin=""

if [ $n -eq 0 ]; then

bin="0"

else

while [ $n -gt 0 ]; do

bin="$((n % 2))$bin"

n=$((n / 2))

done

fi

echo "Binary: $bin"

}

echo "Enter a decimal number:"

read n

dec\_to\_bin $n