

Expo:- 2

Date 6/8/25

Task 2:- Implement conditional control and looping statements.

## 2.1 Factorial of a number

Aim

Calculate factorial of a number using while loop.

Algorithm

- step 1: Initialize a variable  $fact = 1$
- step 2: Input a number  $n$
- step 3: set a fact to 1 (to store the result)
- step 4: Repeat for each number  $i$  from 1 to  $n$ :
  - multiply fact by  $i$
  - store the result back in fact
- step 5: After the loop ends, fact contains  $n!$
- step 6: print the output fact.
- step 7: End the program.

## Program

```
# factorial calculation using loop  
# Step 1: Input number  
n = int(input("Enter a number: "))  
# Step 2: Initialize result value as 1  
fact = 1  
# loop to multiply numbers from 1 to n  
for i in range(1, n+1):  
    fact *= i  
# Print output  
print("Factorial of {} is {}".format(n, fact))
```

2.2 counting the non-repeated digits

Ques: Write a program to find the count of non-repeated digits in a given number. The number will be passed to the program as an input of type int.

## Algorithm

Step 1:- Initialize a variable  $n$

Step 2:- read integer  $n$ .

Step 3:- convert the number to a string  
(To check each digit easily)

Step 4:- Initialize count = 0

Step 5:- For each digit  $d$  in the string  
• If frequency of  $d$  in string  $s = 1$   
 $\rightarrow$  Increase count by 1

Step 6:- Stop print the display 'count'

## Program

A program to count non-repeated digits in a given number.

```
N = int(input("Enter a number :"))
```

```
num_str = str(N)
```

```
Count = 0
```

for digit in num\_str:

    if num\_str.count(digit) == 1:

        Count += 1

Print C "Count of non-repeated digits"

## Sample Input

242 242

Sample output  
Count of non-repeated digits : 1

✓ Output is correct

✓ Output is correct

## 2.3 Multiplication Table generator

aim

To print multiplication table of a number up to 100.

### Algorithm

step 1:- Initialize a variable n

step 2:- Read n

step 3:- For i from 1 to 10 :

- calculate result =  $n \times i$

- Display  $n \times i = \text{result}$

step 4:- Print result.

step 5:- Stop the program

program

# multiplication table upto 10

n = int(input("Enter a number:"))  
for i in range(1, 11):  
 print(n, "x", i, "=", n \* i)

Sample Input

Enter a number: 5

sample output

$$5 \times 1 = 5$$

$$5 \times 2 = 10$$

$$5 \times 3 = 15$$

$$5 \times 4 = 20$$

$$5 \times 5 = 25$$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

$$5 \times 8 = 40$$

$$5 \times 9 = 45$$

$$5 \times 10 = 50$$

## 2.4 Automorphic number

Aim

An To print an automorphic number check using python program.

### Algorithm

- Step 1:- Initialize a variable  $n$
- Step 2:- Read integer  $n$
- Step 3:- Compute square =  $n \times n$
- Step 4:- Convert both  $n$  and square to strings
- Step 5:- If square ends with the string of:
  - \* Print "Automorphic"
- Step 6:- Else print "not automorphic"
- Step 7:- End the program.

## Program

```
n = int(input("Enter a number : "))

square = n * n

digits = len(str(n))

last_digits = square % (10 ** digits)

if last_digits == n:
    print("Automorphic")
else:
    print("not Automorphic")
```

sample Input 1 :

5

sample output 1 : 11111  
Automorphic number

sample Input 2 :

3

sample output 2 :

Non automorphic

2. counting the number of prime numbers in a specific range

Aim

Write a program to find the count of the no. of prime numbers in a specific range.

Algorithm

Step 1:- Initialize a variable

Step 2:- Read integers start and end (the range)

Step 3:- Initialize count = 0

Step n:- For each count number n from start to end (inclusive) :

• if  $n \geq 2$ :

    → set is-prime = True

    → For i from 2 to  $\sqrt{n}$ :

        → if n is divisible by i:

            • set is-prime = False and  
            break

Program

start = int(input("Enter start of range"))  
end = int(input("Enter end of range"))

count = 0

for n in range (start, end + 1):

if  $n >= 2$ :

is\_prime = True

for i in range (2, int(n\*\*0.5) + 1)

if  $n \% i == 0$ :

is\_prime = False

break

If is\_prime:

Count += 1

Print f" count of prime numbers in range

the following day

- If is - prime is true, increment count

step 5:- print count.

step 6:- End program

Sample Input

2  
20

sample output

Count of prime no. in range : 8

Result :-

VEL TECH	
EX No.	2
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	15
SIGN WITH DATE	

Implementing conditional, control, looping statement is verified compiled and executed-