TASK-2: Implement Conditional, Control and looping statements 2.1. Factorial of a number AIM: calculate factorial of a number using while loop. Algorith if numer or num & Droce. Step 1: start i mounted sid lever vadrour alti) doisig step 2: Input the number n step 3: if neo, print "Error: Negative number" and stop Step 4: initialize: i=1 & fact=1 (min) its mi timb mit Steps: while isn. repeat steps 6-7 step 6: fact = fact xi Stip7: 1=i+1 Step 8: print the value of faction I had - light Step 9: stop and place because tell stiple to the alpu TAPUT: Velues () it count ==1) Enter a number to calculate its factorial: Print (f Number of non-repeated digities OUTPUT! ("Filmos - 1 51 00 gor - non) The factorial of 17 is 355687428096000.

RESULT: Thus, the calculating factorial of a number using while loop was Executed Successfully.

the contract of the contract # Factorial wing while loop

input from usen mum = int (input ("Enter a number to calculate its factorial: "))

check, if the number is negative

if num < 0: Print ("Factorial does not exist for negative numbers,") elif num == 0; Aboutling Print ("The factorial of 0 is 1,") 16/2 16 factorial = 1 mating looms else: 2. Try : - 1: broad to septimon of the while ix = num:
factorial = 1 1+=1 1 1 C: 6 williams . " 4 & on re). Print (+ "The factorial of [numy is [factorialy.") realizable formally operation of the display The fact for fact and a second of the second Eles to to to Const system in labels of Total Systems: 150 (3: ovac) 21 cev : 212 E : parmos & freezen de se contra de la proprieta de la proprieta de la contra del la co ore successfully Completed.

2.2 Counting the non repeated digits in a given number AIM: To write a program to find the Count of non-repeated digits in a given number N. The number will be possed to the program as an input of type int.

Algorithm:

stept 1: Start

Stapt 2: Input the Number N

steept 3: Initialize a hash table (or wordy) of size 10, set all values to 0

Stap 4: for each digit in N: Increment the Court; of that digit in the hash table

steps: initialize a voriable, Count =0

step 6: output the values of Count (no. of non-repeated digits)
step 8: Stop

INPUT:

Enter a number (1 to 25000): 17

OUTPUT

Number of non-repeated digits: 2

PROGRAM: #input from wen num = int (input ("Enter a number (1 to 25000):")) #tcheck if input is within the valid mange print ("The number must be between I did 25000.") if num < 1 or num > 25000: adjeit-count = 23ilopola १८ १ वे १ for digit in str (nun): if digit in digit - count: digit-Count[digit]+=1 : 1 digit - Count [digit] = 1 ## count digits that occurred only once non-repeated - count = sum (1 for count in digit - counts

values () if count == 1) values () if Count ==1) Print (f'Number of non-repeated digits: { non-repeated - countz") in Paintie of pride don't

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2.3 Multiplication Table Generator
Alm: To print multiplication table of a number up to 10.
Algorithm .
            and control of the state of allege to
Step.1: Stant
Step 2: Input number n
Step 3: Initialize a Counter vooriable i to 1
Step 4: a product result = n *i

b. print result in format "n xi = result"

C. increment i by 1
                          Mint ("Autorophic")
steps: stop
                         print (" Not Automorphic")
  Input:
      Enter a number: 7
      multiplication table of 7
   Output:
         7 *1 = 7
         7 * 2 = 14
         7 + 3 = 21
        A * 4 = 28
         7 * 5 = 3 [
         7 * 6 = 42
        7 * 7 = 49
         7 * 8 = 56
         7 + 9 = 63
         7 * 10 = 70
 Result: Thus, the printing multiplication table of a number
       up to 10 has been Enecuted successfully.
```

Programming: # multiplication Table Generator # input from user. num = int (input ("Enter a number: ")) # print multiplication table up to 10 Print (+" multiplication table of (num3: "). while just = 10 inso is) alded from soldiers Print (f"{num3 x (;3 = {num # i3") tion to the party of the total (in the second of the second o

there a number (1 to 25000): 17

2.4 Automorphic number

AIM: An automorphic number is a number whose square Ends with the number itself

Algorithm:

step 1: stant

step 2: Input the number n

step 8: calculate the square of n and store it in square

step 4: count the number of digits in n (let's call it count)

step 5: Compute lost digits = Square 1. (10 count) - this extracts the last count digits of the square

Step 6: If lost digits is equal to n, then

print "Automorphic Else" Not Automorphic

stop 7: stop

Input: (spending & bounts) down

output:

Enter a number: 23 putput: Not Automorphic

RESULT: Thus, the an automorphic numbers is a number whose Square Ends with the number itself was verified and Enecuted Succentully.

```
Program:
  Hinput, numbegs
   num=int (input ("Enter a number:"))
   It calculate square of the number
   Square = num + num
  # convert both to string to check ending digits
  num_str = str (num)
  Square - str = str (square)
  # check if square ends with the number
 if square - str. endswith (num -str):
   Print ("Automorphic")
 else:
    print ("Not Automorphic")
                        realization table of T
```

2.5 Counting the number of prime numbers in a specified rarge AM: To write a program to find the count of the number of prime numbers in a specified range Algorithm: on all world traped that a spoon - bee Step 1: stant Step 2: input the stanting numbers start and ending numbers Step 3: initialize count to o (to store the number of primes) step 4: for each number num from start to end (inclusive): a. if num less than 2, skip it Steps: b. check if num is prime
i. For each integer i from 2 to voum: step 5. print the values of count step 6. stop. Input: Enter Starting number of rang (>=2). 7 Enter Ending number of range (<=7919): 99 Number of primes between 7 and 99:22 Result: Thus, the program to find the Court of the number of prime number, in a specified manye has been executed succentually. VELTECH PERFORMANCE (5) RESULT AND ANALYSIS (5) VIVA VOCE (5) RECORD (5)

ANIWITH DATE

```
Program
Start-range: int (input ("Enter the starting number of
         the range:"))
end - range = int (input ("Enter the ending number of the
          range:"))
       if stant - range send - range:
         Print ("Error: The stanteing number Cannot be
       greater than the Ending number. ")
          Prime - Count = 0
          for num in range (stant-range_End_ranget);
         if num < = 1
          Countine.
         is - prime = True
        for in range (2; int (num ** 0,17)+1):
       is - prime = false

if is - prime

if is - prime
     Enpect value error:
       Print ("Involid input please Enter integers
                 for the range")
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(3 - H 1. 1137 43352 3668367

RESULT: Thus the program to find Court of numbers
of prime number in a specified garge has been becaused

De ne centully.

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