1. **Factorial Program:**

num = int (input("Enter a number:"))

factorial = 1

if num < 0:

print("The factorial does not exist a negative numbers")

elif num == 0:

print("The factorial of 0 is 1")

else:

for i in range (1,num+1):

factorial = factorial\*i

print("The factorial of",num,"is",factorial)

1. **Fibonacci Program:**

def Fibonacci(n):

if n < 0:

print("Please enter correct input!!")

elif n == 0:

return 0

elif n == 1 or n == 2:

return 1

else:

return Fibonacci(n - 1)+ Fibonacci(n - 2)

n=int(input("Enter The Number: "))

print(Fibonacci(n))

1. **Odd Even Number:**

num = int(input("Enter a number: "))

if(num % 2) == 0:

print("{0} is Even number.".format(num))

else:

print("{0} is Odd number.".format(num))

1. **Prime Number:**

num = int (input("Enter a number:"))

if num > 1:

for i in range (2, int(num/2)+1):

if(num % i) == 0:

print(num,"is not a Prime Number.")

break

else:

print(num, "is a Prime Number.")

else:

print(num, "is not a prime number")

**Palindrome Number:**

num = int(input("Enter a Number:"))

temp = num

rev = 0

while(num>0):

dig = num % 10

rev = rev\* 10 + dig

num = num // 10

if(temp==rev):

print("The number is Palindrome!")

else:

print("Number is Not a Palindrome!!")

1. **Palindrome String:**

def isPalindrome(s):

return s == s[::-1]

s = input("Enter a string: ")

ans=isPalindrome(s)

if ans:

print("The string is Palindrome")

else:

print("Tne string is not Palindrome")

1. **Armstrong Number:**

def is\_armstrong(num):

num\_str = str(num)

n = len(num\_str)

sum = 0

for digit in num\_str:

sum = sum+ int(digit)\*\*n

if sum == num:

return ("The number is Armstrong")

else:

return ("The number is not Armstrong")

num=int(input("Enter the number: "))

print(is\_armstrong(num))

1. **Odd Number Addition(1-N):**

max=int(input("Please enter the maxiumum number:"))

odd=0

for number in range(1,max+1,2):

print("{0}".format(number))

odd += number

print("The sum of Odd Numbers from 1 to {0} = {1}".format(max,odd))

* 1. **Calculate the odd no. of addition 1-100:**

min=int(input("Please enter the minimum number: "))

max=int(input("Please enter the maximum number: "))

odd=0

for number in range(min,max+1):

if(number % 2!=0):

print("{0}".format(number))

odd += number

print("The sum of Odd Numbers from {0} to {1}={2}".format(min, max,odd))

1. **Even Number Addition(1-N):**

max=int(input("Please enter the maximum number: "))

even=0

for number in range(1,max+1):

if(number % 2==0):

print("{0}".format(number))

even += number

print("The sum of Even Numbers from 1 to {0} = {1}".format(max,even))

**9.1. Calculate the even number of Addition(1-100):**

min=int(input("Please enter the minimum number: "))

max=int(input("Please enter the maximum number: "))

even=0

for number in range(min,max+1):

if(number % 2==0):

print("{0}".format(number))

even += number

print("The sum of Even Numbers from {0} to {1} = {2}".format(min,max,even))

1. **Factorial Using Recursion:**

def factorial(n):

if (n == 1 or n == 0):

return 1

else:

return (n \* factorial(n - 1))

num = int(input("Enter the number: "))

print("number : ", num)

print("Factorial : ", factorial(num))

**11 bubbleSort**

def bubbleSort(arr):

n=len(arr)

for i in range(n-1):

for j in range(0,n-i-1):

if arr[j]>arr[j+1]:

arr[j],arr[j+1]=arr[j+1],arr[j]

data=[2,11,5,15,23]

bubbleSort(data)

print("Sorted array is:")

print(data)

**12 selectionSort**

def selectionSort(arr):

n=len(arr)

for i in range(n-1):

min=i

for j in range(i+1,n):

if arr[j]<arr[min]:

min=j

arr[i],arr[min]=arr[min],arr[i]

number=[5,2,10,8,3]

selectionSort(number)

print("Sorted array is:")

print(number)

**13 scoping**

total=0

def sum(arg1,arg2):

total=arg1+arg2;

print("Inside the function local total:",total)

return total;

arg1=int(input("Enter the first number:"))

arg2=int(input('enter the second number'))

sum(arg1,arg2)

print("Outside the function total is",total)

**14 inheritance**

class Animal:#parent class

def speak(self):

print("Animal Speaking")

class Dog(Animal): #child class

def bark(self):

print("Dog barking")

class Cat(Dog):

def eat(self):

print("Eating bread")

c=Cat()

c.speak()

c.bark()

c.eat()

**15 file handeling**

f=open("myfile.txt","w")

f.write("Create a new text file!")

print("Write sucessfully!")

f.close()

f=open("myfile.txt")

f.read()

f=open("myfile.txt",'a')

f.write("Append this text.")

f.close()

**16 exception handeling**

def divide(x,y):

try:

res=x//y

except ZeroDivisionError:

print("can't divide by zero")

else:

print("Yeah! your answer is:",res)

finally:

print("This block always executed")

divide(3,2)

divide(3,0)

**17 linear search**

def linear\_search(arr,target):

for i in range(len(arr)):

if arr[i]==target:

return i

return -1

number=[5,2,10,7,3]

target\_number=10

result=linear\_search(number,target\_number)

if result!=1:

print(f"Target found at index {result}")

else:

print("Target not found")

**18 list**

print("Select your choice")

print("1.List")

print("2.Dictionary")

print("3.Tuple")

choice=int(input())

if(choice==1):

#list

list=['p','r','s','q','a']

print(list)

print(list[1])

print(list[:2])

print(list[2:4])

print(list[:-3])

list.append(7)

print(list)

list.extend([10,20])

print(list)

list.insert(1,3)

print(list)

print(len(list))

list.remove('s')

print(list)

list.pop(0)

print(list)

list.clear()

print(list)

#Dictionary

elif(choice==2):

D={1:'python',2:'java',3:'C++'}

print(D)

D[2]='HTML' #changing element

print(D)

D[4]='ruby'

print(D)

A=D.pop(4)

print(A)

print('Vlaues:',A)

B=D.popitem()

print('Dictionary:',B)

print('Key,Vlaue pair:',D)

print(D[1])

print(D.get(2))

print(D.keys())

print(D.values())

print(D.items())

D.clear()

print(D)

#Tuple

elif(choice==3):

tup=(1,2,3,4,2)

print(tup)

tup1=("java","python","C++")

print(tup1)

#concat

tup2=(tup + tup1)

print(tup2)

#nested

tup3=(tup,tup1)

print(tup3)

tup4=tup\*3

print(tup4)

print(tup[:2])

print(tup[1:3])

print(tup[:-1])

print(tup[1:])

for x in tup:

print(x)

print(tup.count(2))

else:

print("Ok")