**Code:**

# Written by Shreyas Khadapkar

print('Armstrong Number')

num = input('Enter the Number: ')

sum = 0

# num1 = num

# print(num)

# num[0]

for i in range (len(num)):

sum+=int(num[i])\*\*3

# print(sum,i)

if(sum == int(num)):

print('Given Number is Armstrong Number')

else:

print('Given Number is NOT a Armstrong Number')

print()

print('Armstrong in a Range')

print()

# Written by Shreyas Khadapkar

def isArmstrong(n):

sum = 0

for i in range (len(n)):

sum+=int(n[i])\*\*3

if(sum== int(n)):

return 1

else:

return 0

num = int(input('Enter the Range : '))

for i in range(num):

if(isArmstrong(str(i))):

print('{} is an Armstrong Number'.format(i))

print()

print('To check if number is positive or negative')

print()

# Written by Shreyas Khadapkar

num = int(input('Enter the Number: '))

if num>0:

print('Number is Positive')

elif num<0:

print('Number is Negative')

elif num == 0:

print('Number is Zero')

else:

print('Entered Number is Not a valid Number')

print()

print('Prime NUmber')

print()

#written by Shreyas KhadapkaR

import math

num = int(input('Enter the Number : '))

if num > 1:

for i in range(2,int(math.sqrt(num))+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")

num = int(input('Enter the Number'))

fact = 1

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

fact\*=i

print('Factorial of {} is {}'.format(num,fact))

print()

print('Fibonacci Number')

print()

# Written by Shreyas Khadapkar

def fibo(n):

if n==0:

return 0

if n==1:

return 1

else:

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

num = int(input('Enter the Number: '))

print('Fibonacci Series is as follows : ')

for i in range(num):

print(fibo(i))

print()

print('Largest Among 3 numbers')

print()

# Written by Shreyas Khadapkar

n1 = int(input('Enter the first Numbers : '))

n2 = int(input('Enter the Second Numbers : '))

n3 = int(input('Enter the third Numbers : '))

# print(n1,n2,n3)

if(n1>n2 and n1>n3):

print('{} is Largest'.format(n1))

elif(n2>n1 and n2>n3):

print('{} is Largest'.format(n2))

else:

print('{} is Largest'.format(n3))

print()

print('Leap Year')

print()

# Written by Shreyas Khadapkar

year = int(input('Enter the Year: '))

if (year % 4) == 0:

if (year % 100) == 0:

if (year % 400) == 0:

print("{} is a leap year".format(year))

else:

print("{} is not a leap year".format(year))

else:

print("{} is a leap year".format(year))

else:

print("{} is not a leap year".format(year))

print()

print('Multiplication Table')

print()

# Written by Shreyas Khadapkar

num = int(input('Enter the Number : '))

for i in range(1,11):

print('{} \* {} = {} '.format(num,i,num\*i))

print()

print('To check if number is Odd or Even ')

print()

# Written by Shreyas Khadapkar

num = int(input('Enter the Number: '))

if (num%2):

print('Entered Number is Odd')

else:

print('Entered Number is Even')

print()

print('Prime NUmber in range')

print()

#written by Shreyas KhadapkaR

import math

def checkPrime(num):

count = 0

if num > 1:

for i in range(2,num):

if (num % i) == 0:

return 0

else:

return 1

else:

return 0

num = int(input('Enter the Range : '))

for i in range(num+1):

if(checkPrime(i)):

print(i," is Prime Number")

print()

print('To find the roots of the given Equation')

print()

import math

a = int(input('Enter the value of a'))

b = int(input('Enter the value of b'))

c = int(input('Enter the value of c'))

d = (b\*b) - (4\*a\*c)

if d<0:

print('There are no Real Solutions')

else:

r1 = (-b + math.sqrt(d))/(2\*a)

r2 = (-b - math.sqrt(d))/(2\*a)

print('Real roots are {} and {} '.format(r1,r2))

print()

print('Search Algorithms')

print()

def search(list,n):

for i in range(len(list)):

if list[i] == n:

return True

return False

list = [1, 2, 'shreyas', 4,'python', 6]

n = input('Enter the element to be searched: ')

if n.isnumeric():

n = int(n)

if search(list, n):

print("Found")

else:

print("Not Found")

print()

print('Sorting Algorithms')

print()

print('Using Built in .sort() function')

print()

numbers = [1, 3, 4, 2]

numbers.sort()

print(numbers)

decimalnumber = [2.01, 2.00, 3.67, 3.28, 1.68]

decimalnumber.sort()

print(decimalnumber)

words = ["Python", "For", "Shreyas"]

words.sort()

print(words)

print()

print('Using Bubble Sort')

print()

def bubbleSort(arr):

n = len(arr)

for i in range(n):

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

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

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

arr = [68, 34, 22, 12, 33, 11, 99]

bubbleSort(arr)

print ("Sorted array is:")

for i in range(len(arr)):

print (arr[i])

print()

print('Sum of Natural Numbers')

print()

# Written by Shreyas Khadapkar

num = int(input('Enter the Number: '))

sum = 0

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

sum += i

print('The sum of {} natural numbers is {} '.format(num,sum))

print()

print('To count Vowels and Consonants in a string')

print()

# Written by Shreyas Khadapkar

string = input('Enter the string : ')

# print(len(string))

string = string.lower()

vowels,cons = 0,0

# print(vowels,cons)

# print(string)

for i in range(len(string)):

if(string[i].isalpha()):

# print('hi')

if(string[i]=='a' or string[i]=='e' or string[i]=='i' or string[i]=='o' or string[i]=='u'):

vowels+=1

else:

cons+=1

# else:

# print('else')

print('The input string contains {} vowels and {} consonants'.format(vowels,cons))

**Output:**

D:\Work\Python\Sem 4\python-sem4\2.1>python allinone.py

Armstrong Number

Enter the Number: 371

Given Number is Armstrong Number

Armstrong in a Range

Enter the Range : 1000

0 is an Armstrong Number

1 is an Armstrong Number

153 is an Armstrong Number

370 is an Armstrong Number

371 is an Armstrong Number

407 is an Armstrong Number

To check if number is positive or negative

Enter the Number: -87

Number is Negative

Prime NUmber

Enter the Number : 7

7 is a prime number

Enter the Number6

Factorial of 6 is 720

Fibonacci Number

Enter the Number: 9

Fibonacci Series is as follows :

0

1

1

2

3

5

8

13

21

Largest Among 3 numbers

Enter the first Numbers : 45

Enter the Second Numbers : 88

Enter the third Numbers : 10

88 is Largest

Leap Year

Enter the Year: 2004

2004 is a leap year

Multiplication Table

Enter the Number : 8

8 \* 1 = 8

8 \* 2 = 16

8 \* 3 = 24

8 \* 4 = 32

8 \* 5 = 40

8 \* 6 = 48

8 \* 7 = 56

8 \* 8 = 64

8 \* 9 = 72

8 \* 10 = 80

To check if number is Odd or Even

Enter the Number: 47

Entered Number is Odd

Prime NUmber in range

Enter the Range : 58

2 is Prime Number

3 is Prime Number

5 is Prime Number

7 is Prime Number

11 is Prime Number

13 is Prime Number

17 is Prime Number

19 is Prime Number

23 is Prime Number

29 is Prime Number

31 is Prime Number

37 is Prime Number

41 is Prime Number

43 is Prime Number

47 is Prime Number

53 is Prime Number

To find the roots of the given Equation

Enter the value of a5

Enter the value of b8

Enter the value of c2

Real roots are -0.31010205144336445 and -1.2898979485566355

Search Algorithms

Enter the element to be searched: 2

Found

Sorting Algorithms

Using Built in .sort() function

[1, 2, 3, 4]

[1.68, 2.0, 2.01, 3.28, 3.67]

['For', 'Python', 'Shreyas']

Using Bubble Sort

Sorted array is:

11

12

22

33

34

68

99

Sum of Natural Numbers

Enter the Number: 10

The sum of 10 natural numbers is 55

To count Vowels and Consonants in a string

Enter the string : Python is fun to learn

The input string contains 6 vowels and 12 consonants