**DATA SCEINCE & MACHINE LEARNING**

**LAB**

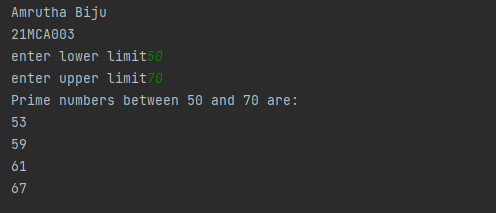
**LAB CYCLE-1**

1. Program to Print all non-Prime Numbers in an Interval

print("Amrutha Biju")  
print("21MCA003")

lower = int(input("enter lower limit"))  
upper = int(input("enter upper limit"))  
  
print("Prime numbers between", lower, "and", upper, "are:")  
  
for num in range(lower, upper + 1):  
  
 if num > 1:  
 for i in range(2, num):  
 if (num % i) == 0:  
 break  
 else:  
 print(num)

**output:**

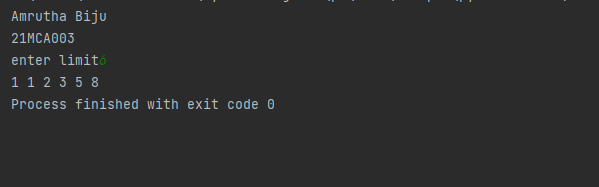


2. Program to print the first N Fibonacci numbers.

print("Amrutha Biju")  
print("21MCA003")

n=int(input("enter limit"))  
f1 = 0  
f2 = 1  
for x in range(0, n):  
 print(f2, end=" ")  
 next = f1 + f2  
 f1 = f2  
 f2 = next

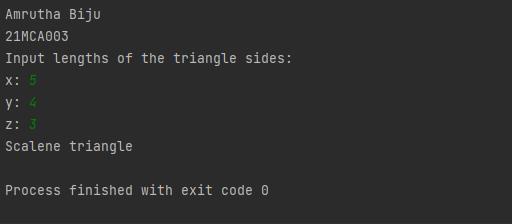
**output:**

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3. Given sides of a triangle, write a program to check whether given triangle is an isosceles, equilateral or scalene.

print("Amrutha Biju")  
print("21MCA003")  
print("Input lengths of the triangle sides: ")  
x = int(input("x: "))  
y = int(input("y: "))  
z = int(input("z: "))  
  
if x == y == z:  
 print("Equilateral triangle")  
elif x==y or y==z or z==x:  
 print("isosceles triangle")  
else:  
 print("Scalene triangle")

**output:**

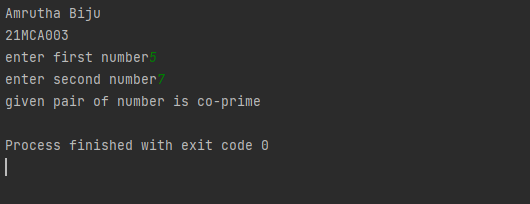


4. Program to check whether given pair of number is coprime

print("Amrutha Biju")  
print("21MCA003")

num1=int(input("enter first number"))  
num2=int(input("enter second number"))  
for i in range(1,num1):  
 if num1%i ==0 and num2%i==0:  
 hcf=i  
if hcf==1:  
 print("given pair of number is co-prime")  
else:  
 print("given pair of number is not co-prime")

**Output:**

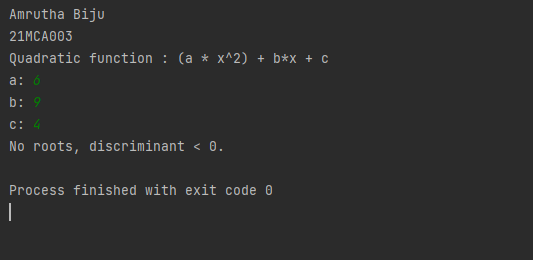
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5. Program to find the roots of a quadratic equation(rounded to 2 decimal places)

print("Amrutha Biju")  
print("21MCA003")

from math import sqrt  
  
print("Quadratic function : (a \* x^2) + b\*x + c")  
a = float(input("a: "))  
b = float(input("b: "))  
c = float(input("c: "))  
  
r = b \*\* 2 - 4 \* a \* c  
  
if r > 0:  
 num\_roots = 2  
 x1 = (((-b) + sqrt(r)) / (2 \* a))  
 x2 = (((-b) - sqrt(r)) / (2 \* a))  
 print("There are 2 roots: %f and %f" % (x1, x2))  
elif r == 0:  
 num\_roots = 1  
 x = (-b) / 2 \* a  
 print("There is one root: ", x)  
else:  
 num\_roots = 0  
 print("No roots, discriminant < 0.")  
 exit()

**output:**

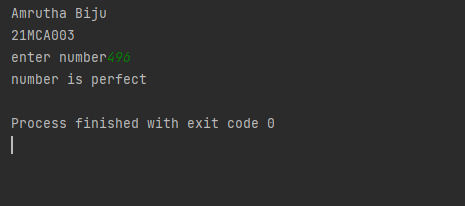
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6. Program to check whether a given number is perfect number or not(sum of factors=number)

print("Amrutha Biju")  
print("21MCA003")

n=int(input("enter number"))  
sum=0  
for i in range(1,n):  
 if n%i==0:  
 sum=sum+i  
if sum==n:  
 print("number is perfect")  
else:  
 print("number is not perfect")

**output:**

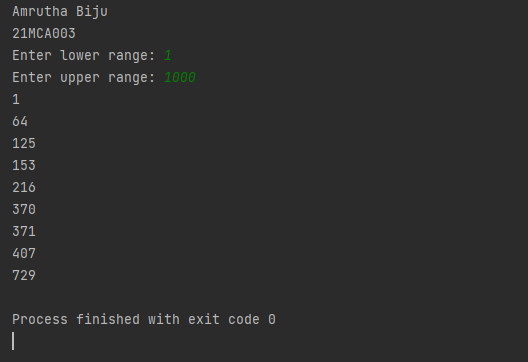
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7. Program to display amstrong numbers upto 1000

print("Amrutha Biju")  
print("21MCA003")

lower = int(input("Enter lower range: "))  
upper = int(input("Enter upper range: "))  
  
for num in range(lower, upper + 1):  
 sum = 0  
 temp = num  
 while temp > 0:  
 digit = temp % 10  
 sum += digit \*\* 3  
 temp //= 10  
 if num == sum:  
 print(num)

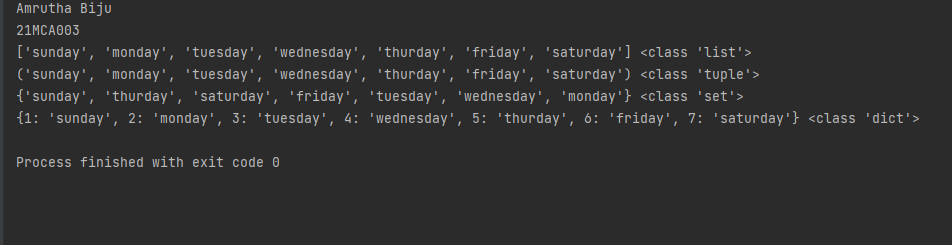
**output:**

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8. Store and display the days of a week as a List, Tuple, Dictionary, Set. Also demonstrate different ways to store values in each of them. Display its type also.

print("Amrutha Biju")  
print("21MCA003")  
  
list1=["sunday","monday","tuesday","wednesday","thurday","friday","saturday"]  
tuple=("sunday","monday","tuesday","wednesday","thurday","friday","saturday")  
set={"sunday","monday","tuesday","wednesday","thurday","friday","saturday"}  
dict={1:"sunday",2:"monday",3:"tuesday",4:"wednesday",5:"thurday",6:"friday",7:"saturday"}  
print(list1,type(list1))  
print(tuple,type(tuple))  
print(set,type(set))  
print(dict,type(dict))

**output:**

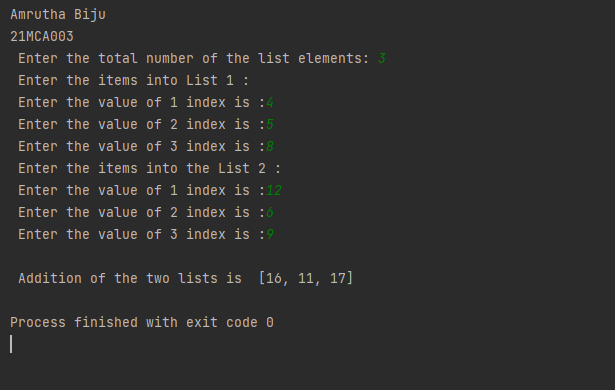


9. Write a program to add elements of given 2 lists

print("Amrutha Biju")  
print("21MCA003")

lt1 = []  
lt2 = []  
lt3 = []  
  
items = int(input(" Enter the total number of the list elements: "))  
  
print(" Enter the items into List 1 : ")  
for i in range(1, items + 1):  
 num = int(input(" Enter the value of %d index is :" % i))  
 lt1.append(num)  
  
print(" Enter the items into the List 2 : ")  
for i in range(1, items + 1):  
 num = int(input(" Enter the value of %d index is :" % i))  
 lt2.append(num)  
  
for j in range(items):  
 lt3.append(lt1[j] + lt2[j])  
print("\n Addition of the two lists is ", lt3)

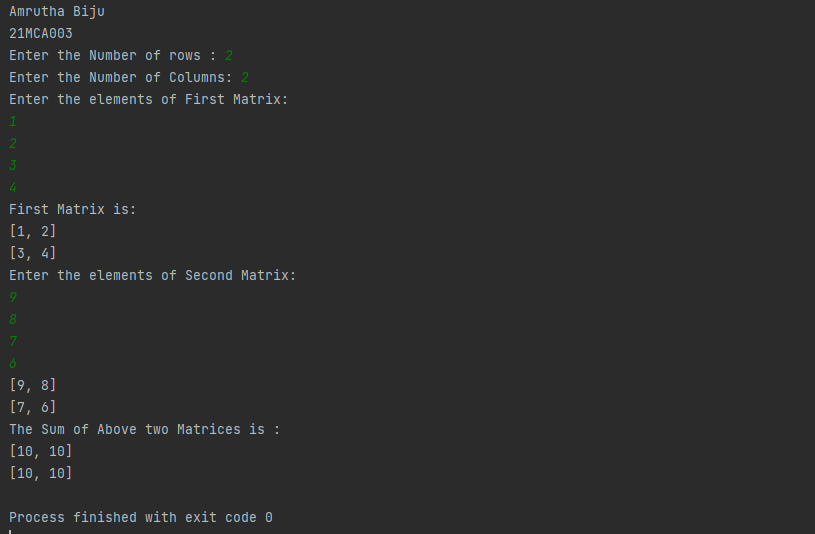
**output:**



10. Write a program to find the sum of 2 matrices using nested List.

print("Amrutha Biju")  
print("21MCA003")  
  
rows = int(input("Enter the Number of rows : "))  
column = int(input("Enter the Number of Columns: "))  
  
print("Enter the elements of First Matrix:")  
matrix\_a = [[int(input()) for i in range(column)] for i in range(rows)]  
print("First Matrix is: ")  
for n in matrix\_a:  
 print(n)  
  
print("Enter the elements of Second Matrix:")  
matrix\_b = [[int(input()) for i in range(column)] for i in range(rows)]  
for n in matrix\_b:  
 print(n)  
  
result = [[0 for i in range(column)] for i in range(rows)]  
  
for i in range(rows):  
 for j in range(column):  
 result[i][j] = matrix\_a[i][j] + matrix\_b[i][j]  
  
print("The Sum of Above two Matrices is : ")  
for r in result:  
 print(r)

**output:**

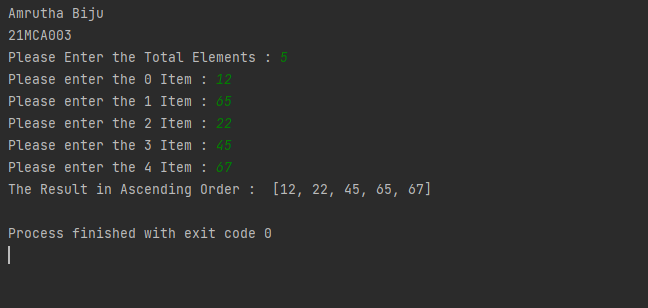


11. Write a program to perform bubble sort on a given set of elements.

print("Amrutha Biju")  
print("21MCA003")

a = []  
number = int(input("Please Enter the Total Elements : "))  
for i in range(number):  
 value = int(input("Please enter the %d Item : " %i))  
 a.append(value)  
  
for i in range(number -1):  
 for j in range(number - i - 1):  
 if(a[j] > a[j + 1]):  
 temp = a[j]  
 a[j] = a[j + 1]  
 a[j + 1] = temp  
  
print("The Result in Ascending Order : ", a)

**output:**

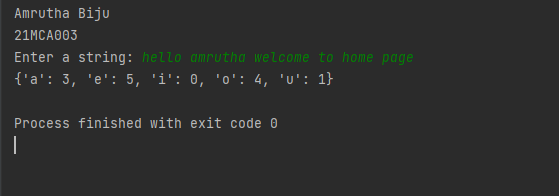


12. Program to find the count of each vowel in a string(use dictionary)

print("Amrutha Biju")  
print("21MCA003")

a = input("Enter a string: ")  
a = a.casefold()  
  
count = {x:sum([1 for char in a if char == x]) for x in 'aeiou'}  
  
print(count)

**output:**



13. Write a Python program that accept a positive number and subtract from this number the sum of its digits and so on. Continues this operation until the number is

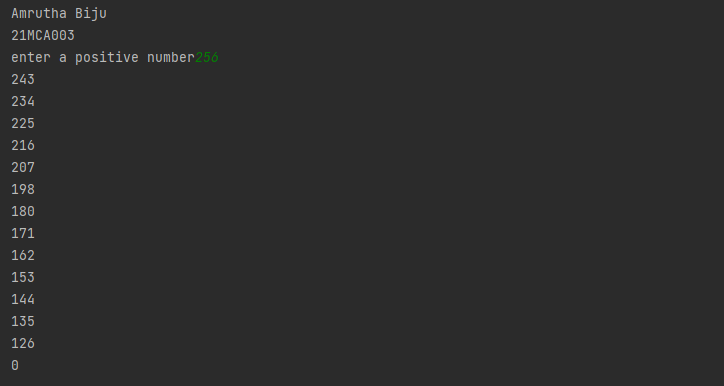
positive(eg: 256-&gt;2+5+6=13

256-13=243

243-9=232……..

print("Amrutha Biju")  
print("21MCA003")  
  
num=int(input("enter a positive number"))  
digsum=0  
new\_num=num  
while new\_num >= digsum:  
 list1 = [int(x) for x in str(new\_num)]  
 for i in list1:  
 digsum=digsum+i  
 new\_num=num-digsum  
  
  
  
 print(new\_num)  
print(new\_num-new\_num)

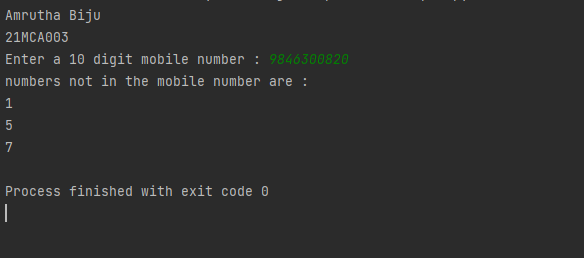
**output:**

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14. Write a Python program that accepts a 10 digit mobile number, and find the digits which are absent in a given mobile number

num = int(input("Enter a 10 digit mobile number : "))  
nums = []  
for i in range(0, 10):  
 n = num % 10  
 nums.append(n)  
 num = num // 10  
print("numbers not in the mobile number are : ")  
for i in range(0, 10):  
 if i not in nums:  
 print(i)

**Output:**

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