**Advanced Assignment**

**Name: - Shreyansh Totla**

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**Team: - 1**

1. Write a Python program to find those numbers which are divisible by 7 and multiples of 5, between 1500 and 2700 (both included).

**Code: -**

a=[]

for i in range(1501,2700):

    if(i%7==0 and i%5==0):

        a.append(str(i))

print(','.join(a))

**Output: -**

1505,1540,1575,1610,1645,1680,1715,1750,1785,1820,1855,1890,1925,1960,1995,2030,2065,2100,2135,2170,2205,2240,2275,2310,2345,2380,2415,2450,2485,2520,2555,2590,2625,2660,2695

1. Write a Python program to convert temperatures to and from Celsius and Fahrenheit.

[Formula: c/5 = f-32/9 (where c = temperature in Celsius and f = temperature in Fahrenheit)] Expected Output: 60°C is 140 in Fahrenheit 45°F is 7 in Celsius

**Code: -**

print("Press C/F to give temperature in Celsius/Fahrenheit respectively.")

unit=input("Enter the character[C/F]: ")

temp= float(input("Enter a temperature: "))

if unit.upper()=='F':

   c=5/9 \* (temp-32)

   print("The temperature",temp,"°F in Celsius is ",int(c))

elif unit.upper()=='C':

   f=(9 \* temp/5)+32

   print("The temperature",temp,"°C in Fahrenheit is ",int(f))

else:

   print("Invalid input. Please enter either 'C' or 'F'.")

**Output: -**

Press C/F to give temperature in Celsius/Fahrenheit respectively.

Enter the character[C/F]: C

Enter a temperature: 70

The temperature 70.0 °C in Fahrenheit is 158

1. Write a Python program to guess a number between 1 and 9.

Note: User is prompted to enter a guess. If the user guesses wrong then the prompt appears again until the guess is correct, on successful guess, user will get a "Well guessed!" message, and the program will exit.

**Code: -**

import random

b=random.randint(0,9)

while True:

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

    if(a==b):

        print('"Well guessed!"')

        break

    else:

        if(a>b):

            print("Wrong guess. Try to guess a lower no.")

        else:

            print("Wrong guess. Try to guess a higher no.")

**Output: -**

Enter your number: 6

Wrong guess. Try to guess a higher no.

Enter your number: 9

Wrong guess. Try to guess a lower no.

Enter your number: 8

Wrong guess. Try to guess a lower no.

Enter your number: 7

"Well guessed!"

1. Write a Python program to construct the following pattern, using a nested for loop.

\*

\* \*

\* \* \*

\* \* \* \*

\* \* \* \* \*

\* \* \* \*

\* \* \*

\* \*

\*

**Code: -**

#1 2 3 4 5 4 3 2 1

for i in range(1,7):

  for j in range(1,i):

    print("\*",end=" ")

  print(" ")

for i in range(2,6):

  for j in range(i,6):

      print("\*",end=" ")

  print(" ")

1. Write a Python program that accepts a word from the user and reverses it.

**Code: -**

word = input("Enter a word: ")

reversed\_word = word[::-1]

print("Reversed word:", reversed\_word)

**Output: -**

Enter a word: Shreyansh Totla

Reversed word: altoT hsnayerhS

1. Write a Python program to count the number of even and odd numbers in a series of numbers.

Sample numbers: numbers = (1, 2, 3, 4, 5, 6, 7, 8, 9)

Expected Output:

Number of even numbers: 5

Number of odd numbers: 4

**Code: -**

i=0

j=0

a=input("Enter the numbers in the format (1,2,...):")

a=a.replace('(','').replace(')','')

a=a.split(',')

a=[int(b) for b in a]#list comprehension

for x in a:

    if(x%2==0):

        i=i+1

    else:

        j=j+1

print("The numbers of even numbers:",i)

print("The numbers of odd numbers:",j)

**Output: -**

Enter the numbers in the format (1,2,...):(2,3,27,29,21,89,17,10)

The numbers of even numbers: 2

The numbers of odd numbers: 6

1. Write a Python program that prints each item and its corresponding type from the following list. Sample List: datalist = [1452, 11.23, 1+2j, True, 'w3resource', (0, -1), [5, 12], {"class":'V', "section":'A'}]

**Code: -**

datalist = [1452, 11.23, 1+2j, True, 'w3resource', (0, -1), [5, 12], {"class": 'V', "section": 'A'}]

for i in range(len(datalist)):

    print(datalist[i],":",type(datalist[i]))

**Output: -**

1452 : <class 'int'>

11.23 : <class 'float'>

(1+2j) : <class 'complex'>

True : <class 'bool'>

w3resource : <class 'str'>

(0, -1) : <class 'tuple'>

[5, 12] : <class 'list'>

{'class': 'V', 'section': 'A'} : <class 'dict'>

1. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6. Note: Use 'continue' statement.

Expected Output: 0 1 2 4 5

**Code: -**

for num in range(7):

    if num == 3 or num == 6:

        continue

    print(num, end=' ')

**Output: -**

0 1 2 4 5

1. Write a Python program to get the Fibonacci series between 0 and 50. Note: The Fibonacci Sequence is the series of numbers: 0, 1, 1, 2, 3, 5, 8, 13, 21, .... Every next number is found by adding up the two numbers before it.

Expected Output: 1 1 2 3 5 8 13 21 34

**Code: -**

d=int(input("Enter the last digit till which you want to print Fibonacci series:"))

c=0

a=1

b=1

print(a, b,"",end="")

while(1):

    c=a+b

    if(c<=d):

        b=a

        a=c

    else:

        break

    print(c,end=" ")

**Output: -**

Enter the last digit till which you want to print Fibonacci series:99

1 1 2 3 5 8 13 21 34 55 89

1. Write a Python program that iterates the integers from 1 to 50. For multiples of three print "Fizz" instead of the number and for multiples of five print "Buzz". For numbers that are multiples of three and five, print "FizzBuzz".

Sample Output:

fizzbuzz

1

2

fizz

4

Buzz

**Code: -**

for i in range(51):

   if(i%3==0 and i%5==0):

       print("FizzBuzz")

   elif(i%3==0):

       print("Fizz")

   elif(i%5==0):

       print("Buzz")

   else:

       print(i)

**Output: -**

FizzBuzz

1

2

Fizz

4

Buzz

Fizz

7

8

Fizz

Buzz

11

Fizz

13

14

FizzBuzz

16

17

Fizz

19

Buzz

Fizz

22

23

Fizz

Buzz

26

Fizz

28

29

FizzBuzz

31

32

Fizz

34

Buzz

Fizz

37

38

Fizz

Buzz

41

Fizz

43

44

FizzBuzz

46

47

Fizz

49

Buzz

1. Write a Python program that takes two digits m (row) and n (column) as input and generates a two-dimensional array. The element value in the i-th row and j-th column of the array should be i\*j. Note: i = 0, 1..., m-1. j = 0,1, n-1.

Test Data: Rows = 3, Columns = 4

Expected Result: [[0, 0, 0, 0], [0, 1, 2, 3], [0, 2, 4, 6]]

**Code: -**

b=[]

c=[]

m=int(input("Rows = "))

n=int(input("Columns = "))

for i in range(m):

    for j in range(n):

        a=i\*j

        b.append(a)

    c.append(b)

    b=[]

print(c)

**Output: -**

Rows = 6

Columns = 6

[[0, 0, 0, 0, 0, 0], [0, 1, 2, 3, 4, 5], [0, 2, 4, 6, 8, 10], [0, 3, 6, 9, 12, 15], [0, 4, 8, 12, 16, 20], [0, 5, 10, 15, 20, 25]]

1. rite a Python program that accepts a sequence of lines (blank line to terminate) as input and prints the lines as output (all characters in lower case).

**Code: -**

lines = []

while True:

    line = input("Enter a line (blank line to terminate): ")

    if line=="":

        break

    else:

        lines.append(line.lower())

print("\nOutput:")

for line in lines:

    print(line)

**Output: -**

Enter a line (blank line to terminate): Hello

Enter a line (blank line to terminate): my friends

Enter a line (blank line to terminate): My name is Shreyansh Totla.

Enter a line (blank line to terminate):

Output:

hello

my friends

my name is shreyansh totla.

1. rite a Python program that accepts a sequence of comma separated 4-digit binary numbers as its input. The program will print the numbers that are divisible by 5 in a comma separated sequence.

Sample Data: 0100,0011,1010,1001,1100,1001

Expected Output: 1010

**Code: -**

items = []

num = [x for x in input().split(',')]

for p in num:

    x = int(p, 2)

    if not x%5:

        items.append(p)

print(','.join(items))

**Output: -**

1010,1000,0010,0011

1010

1. Write a Python program that accepts a string and calculates the number of digits and letters.

Sample Data: Python 3.2

Expected Output:

Letters 6

Digits 2

**Code: -**

a=input("Enter the string:")

b=""

c=""

for char in a:

    if char.isalpha():

        b+=char

    elif char.isdigit():

        c+=char

print("Letters",len(b))

print("Digits",len(c))

**Output: -**

Enter the string:Hello123isdearsir

Letters 14

Digits 3

1. Write a Python program to check the validity of passwords input by users. Validation:

• At least 1 letter between [a-z] and 1 letter between [A-Z].

• At least 1 number between [0-9].

• At least 1 character from [$#@].

• Minimum length 6 characters.

• Maximum length 16 characters.

**Code: -**

a="abcdefghijklmnopqrstuvwxyz"

b="0123456789"

e=0

f=0

g=0

h=0

l=input("Enter the password:")

for char in l:

    if(char>=a[0] and char<=a[25]):#lowercase

        e+=1

    elif(char>=a[0].upper() and char<=a[25].upper()):#uppercase

        f+=1

    elif(char>=b[0] and char<=b[9]):#integer

        g+=1

    elif(char=="@" or char=="#" or char=="$"):#@#$

        h+=1

    else:

        print("Not specified symbol:",l)

        break

le=e+f+g+h

if(le>=6 and le<=16 and e>0 and f>0 and g>0 and h>0):

    print("Accepted.")

elif(le>16 or le<6):

    print("Not Accepted. Min=6\_characters,Max=16\_characters")

else:

    print("Not Accepted. All needed characters are not present.")

**Output: -**

Enter the password:Aa#12

Not Accepted. Min=6\_characters,Max=16\_characters

Enter the password:Aaoijdion

Not Accepted. All needed characters are not present.

Enter the password:Z$ij92A

Accepted.

1. Write a Python program to find numbers between 100 and 400 (both included) where each digit of a number is an even number. The numbers obtained should be printed in a comma-separated sequence.

**Code: -**

d=[]

for i in range(100,401):

    c=0

    a=i

    for j in range(3):

        b=a%10

        a=(a-b)//10

        if(b%2==0):

            c+=1

            if(c==3):

                d.append(str(i))

print(','.join(d))

**Output: -**

200,202,204,206,208,220,222,224,226,228,240,242,244,246,248,260,262,264,266,268,280,282,284,286,288,400

1. Write a Python program to print the alphabet pattern 'A'. Expected Output:

**Code: -**

'''print(" ",end="")

for i in range(3):

    print("\*",end="")

print("")

for i in range(2):

    print("\*",end="")

    for i in range(3):

        print(" ",end="")

    print("\*")

for i in range(5):

    print("\*",end="")

print("")

for i in range(2):

    print("\*",end="")

    for i in range(3):

        print(" ",end="")

    print("\*")'''

for i in range(7):

 if(i==0):

    print(" ",end="")

    for i in range(3):

        print("\*",end="")

    print("")

    i=i+1

 elif(i==3):

    for i in range(5):

        print("\*",end="")

    print("")

    i=i+1

 else:

    print("\*",end="")

    for j in range(3):

        print(" ",end="")

    print("\*")

1. Write a Python program to print the alphabet pattern 'D'. Expected Output:

**Code: -**

for i in range(7):

    if(i==0 or i==6):

        for i in range(4):

            print("\*",end="")

        print("")

        i=i+1

    else:

        print("\*",end="")

        for i in range(3):

            print(" ",end="")

1. Write a Python program to print the alphabet pattern 'E'. Expected Output:

**Code: -**

for i in range(7):

    if(i==0 or i==6):

        for i in range(5):

            print("\*",end="")

        print("")

        i=i+1

    elif(i==3):

        for i in range(4):

            print("\*",end="")

        print("")

        i=i+1

    else:

        print("\*")

1. Write a Python program to print the alphabet pattern 'G'. Expected Output:

**Code: -**

print(" ",end="")

for i in range(3):

    print("\*",end="")

print("")

print("\*",end="")

for i in range(3):

    print(" ",end="")

for i in range(2):

    print("\*")

print("\*",end="")

print(end=" ")

for i in range(3):

    print("\*",end="")

print("")

for i in range(2):

    print("\*",end="")

    for i in range(3):

       print(" ",end="")

    print("\*")

print(" ",end="")

for i in range(3):

    print("\*",end="")

1. Write a Python program to print the alphabet pattern 'L'. Expected Output:

**Code: -**

for i in range(6):

    print("\*")

for i in range(5):

    print("\*",end="")

1. Write a Python program to print the alphabet pattern 'M'. Expected Output:

**Code: -**

for i in range(7):

    if(i==2):

        for j in range(1,10):

            if(j%2==0 or j==5):

                print(" ",end="")

            else:

                print("\*",end="")

        print("")

    elif(i==3):

        for j in range(1,10):

            if(j==1 or j==5 or j==9):

                print("\*",end="")

            else:

                print(" ",end="")

        print("")

    else:

        print("\*",end="")

        for j in range(7):

            print(" ",end="")

        print("\*")

1. Write a Python program to print the alphabet pattern 'O'. Expected Output:

**Code: -**

print(" ",end="")

for i in range(3):

    print("\*",end="")

print("")

for i in range(5):

    print("\*   \*")

print(" ",end="")

for i in range(3):

    print("\*",end="")

1. Write a Python program to print the alphabet pattern 'P'. Expected Output:

**Code: -**

for x in range(7):

   if(x==0 or x==3):

      for i in range(4):

         print("\*",end='')

      print("")

   elif(x==1 or x==2):

      print("\*",end='')

      for j in range(3):

         print(" ",end='')

      print("\*")

   else:

      print("\*")

1. Write a Python program to print the alphabet pattern 'L'. Expected Output:

**Code: -**

for i in range(4):

    print("\*",end="")

print("")

for i in range(2):

    print("\*   \*")

for i in range(4):

    print("\*",end="")

print("")

for i in range(1,4):

    print("\* ",end="")

    for j in range(1,i):

        print(" ",end="")

    print("\*")

1. Write a Python program to print the alphabet pattern 'S'. Expected Output:

**Code: -**

print(" ",end="")

for i in range(4):

    print("\*",end="")

print("")

for i in range(2):

    print("\*")

print(" ",end="")

for i in range(3):

    print("\*",end="")

print("")

for i in range(2):

    print("    ",end="")

    print("\*")

for i in range(4):

    print("\*",end="")

1. Write a Python program to print the alphabet pattern 'T’. Expected Output:

**Code: -**

for i in range(5):

    print("\*",end="")

print("")

for i in range(6):

    print("  \*")

1. Write a Python program to print the alphabet pattern 'U'. Expected Output:

**Code: -**

for i in range(6):

    print("\*",end="")

    for j in range(3):

        print(" ",end="")

    print("\*")

print(" ",end="")

for i in range(3):

    print("\*",end="")

1. Write a Python program to print the alphabet pattern 'X'. Expected Output:

**Code: -**

for i in range(2):

    print("\*",end="")

    for j in range(3):

        print(" ",end="")

    print("\*")

print(" \* \*")

print("  \*")

print(" \* \*")

for i in range(2):

    print("\*",end="")

    for j in range(3):

        print(" ",end="")

    print("\*")

1. Write a Python program to print the alphabet pattern 'Z'. Expected Output:

**Code: -**

for i in range(7):

    print("\*",end="")

print("")

for i in range(5):

    for j in range(5-i):

        print(" ",end="")

    print("\*")

for i in range(7):

    print("\*",end="")

1. Write a Python program to calculate a dog's age in dog years. Note: For the first two years, a dog year is equal to 10.5 human years. After that, each dog year equals 4 human years.

Expected Output:

Input a dog's age in human years: 15

The dog's age in dog's years is 73

**Code: -**

a=int(input("Input a dog's age in human years: "))

if(a<0):

    print("Age is always positive.")

elif(a<=2):

    new1=float(a\*10.5)

    print("The dog's age in dog's years is ",new1)

else:

    new=21+(a-2)\*4

    print("The dog's age in dog's years is ",new)

**Output: -**

Input a dog's age in human years: 10

The dog's age in dog's years is 53

1. Write a Python program to check whether an alphabet is a vowel or consonant. Expected Output:

Input a letter of the alphabet: k

k is a consonant.

**Code: -**

arr=[]

arr="a e i o u"

arr=arr.split()

alpha=input("Input a letter of the alphabet: ")

for i in range(5):

    if(alpha.lower()==arr[i]):

        print(alpha.lower(), "is a vowel.")

        break

    else:

        print(alpha.lower(), "is a consonant.")

        break

**Output: -**

1. Input a letter of the alphabet: a

a is a vowel.

1. Input a letter of the alphabet: z

z is a consonant.

1. Write a Python program to convert a month name to a number of days. Expected Output:

List of months: January, February, March, April, May, June, July, August, September, October, November, December

Input the name of Month: February

No. of days: 28/29 days

**Code: -**

a=[]

b=[]

#print("List of months: January, February, March, April, May, June, July, August, September, October, November, December")

a="January March May July August October December"

b="April June September November"

c="February"

a=a.split()

b=b.split()

d=input("Input the name of the Month: ")

if(d==c):

    print("No. of days: 28/29 days")

else:

    for i in range(7):

        if(d==a[i]):

            print("No. of days: 31 days")

        elif(i<=3):

            if(d==b[i]):

                print("No. of days: 30 days")

**Output: -**

1. Input the name of the Month: April

No. of days: 30 days

1. Input the name of the Month: December

No. of days: 31 days

1. Input the name of the Month: February

No. of days: 28/29 days

1. Write a Python program to sum two integers. However, if the sum is between 15 and 20 it will return 20.

**Code: -**

a=int(input("Enter the first integer:"))

b=int(input("Enter the second integer:"))

a=a+b

if(a>15 and a<=20):

    print("The sum is 20.")

else:

    print("The sum is",a)

**Output: -**

1. Enter the first integer:5

Enter the second integer:9

The sum is 14

1. Enter the first integer:10

Enter the second integer:7

The sum is 20.

1. Write a Python program that checks whether a string represents an integer or not. Expected Output:

Input a string: Python

The string is not an integer.

**Code: -**

l=input("Input a string: ")

a=len(l)

while True:

    for char in l:

        if char.isdigit() or char.startswith('-') or char[1:].isdigit():

            a=a-1

        else:

            break

    break

if(a==0):

    print("The string is an integer.")

else:

    print("The string is not an integer.")

**Output: -**

1. Input a string: -123

The string is an integer.

1. Input a string: -19at

The string is not an integer.

1. Write a Python program to check if a triangle is equilateral, isosceles, or scalene. Note: An equilateral triangle is a triangle in which all three sides are equal. A scalene triangle is a triangle that has three unequal sides. An isosceles triangle is a triangle with (at least) two equal sides. Expected Output:

Input lengths of the triangle sides:

x: 6

y: 8

z: 12

Scalene triangle

**Code: -**

print("Input lengths of the triangle sides: ")

x=int(input("x: ")) #Enter the value of first side

y=int(input("y: ")) #Enter the value of second side

z=int(input("z: ")) #Enter the value of third side

if(x==y and y==z):

    print("Equilateral Triangle")

elif(x==y or y==z or x==z):

    print("Isosceles Triangle")

else:

    print("Scalene Triangle")

**Output: -**

Input lengths of the triangle sides:

x: 45

y: 67

z: 36

Scalene Triangle

1. Write a Python program that reads two integers representing a month and day and prints the season for that month and day. Expected Output:

Input the month (e.g., January, February etc.): july

Input the day: 31

Season is autumn

**Code: -**

month=input("Input the month:")

day=int(input("Input the day:"))

a="january,february,march,april,may,june,july,august,september,october,november,december"

a=a.split(',')

month=month.lower()

if((month==a[11] or month==a[0] or month==a[1]) and day<=31):

    print("Season is winter.")

elif((month==a[2] or month==a[3] or month==a[4]) and day<=31):

    print("Season is summer.")

elif((month==a[5] or month==a[6] or month==a[7] or month==a[8]) and day<=31):

    print("Season is rainy(monsoon).")

elif((month==a[9] or month==a[10]) and day<=31):

    print("Season is winter.")

else:

    print("Invalid input.")

**Output: -**

Input the month:December

Input the day:28

Season is winter.

1. Write a Python program to display the astrological sign for a given date of birth. Expected Output:

Input birthday: 15

Input month of birth (e.g., march, july etc): may

Your Astrological sign is: Taurus

**Code: -**

a=int(input("Input the birth date:"))

b=input("Input month of birth:")

b=b.lower()

c="january,february,march,april,may,june,july,august,september,october,november,december"

c=c.split(',')

if((21<=a<=31 and b==c[2]) or (0<a<=19 and b==c[3])):

    print("Your Astrological sign is: Aries")

elif((20<=a<=30 and b==c[3]) or (0<a<=20 and b==c[4])):

    print("Your Astrological sign is: Taurus")

elif((21<=a<=31 and b==c[4]) or (0<a<=20 and b==c[5])):

    print("Your Astrological sign is: Gemini")

elif((21<=a<=30 and b==c[5]) or (0<a<=22 and b==c[6])):

    print("Your Astrological sign is: Cancer")

elif((23<=a<=31 and b==c[6]) or (0<a<=22 and b==c[7])):

    print("Your Astrological sign is: Leo")

elif((23<=a<=31 and b==c[7]) or (0<a<=22 and b==c[8])):

    print("Your Astrological sign is: Virgo")

elif((23<=a<=30 and b==c[8]) or (0<a<=22 and b==c[9])):

    print("Your Astrological sign is: Libra")

elif((23<=a<=31 and b==c[9]) or (0<a<=21 and b==c[10])):

    print("Your Astrological sign is: Scorpio")

elif((22<=a<=30 and b==c[10]) or (0<a<=21 and b==c[11])):

    print("Your Astrological sign is: Sagittarius")

elif((21<=a<=31 and b==c[11]) or (0<a<=20 and b==c[0])):

    print("Your Astrological sign is: Capricorn")

elif((21<=a<=30 and b==c[0]) or (0<a<=18 and b==c[1])):

    print("Your Astrological sign is: Aquarius")

elif((19<=a<=29 and b==c[1]) or (0<a<=20 and b==c[2])):

    print("Your Astrological sign is: Pisces")

else:

    print("Invalid input. Input the value in range.")

**Output: -**

Input the birth date:12

Input month of birth:december

Your Astrological sign is: Sagittarius

1. Write a Python program to display the sign of the Chinese Zodiac for the given year in which you were born. Expected Output:

Input your birth year: 1973

Your Zodiac sign: Ox

**Code: -**

year=int(input("Input your birth year: "))

if((abs(year-1921))%12==0):

    print("Your Zodiac sign: Rooster")

elif((abs(year-1922))%12==0):

    print("Your Zodiac sign: Dog")

elif((abs(year-1923))%12==0):

    print("Your Zodiac sign: Pig")

elif((abs(year-1912))%12==0):

    print("Your Zodiac sign: Rat")

elif((abs(year-1913))%12==0):

    print("Your Zodiac sign: Ox")

elif((abs(year-1914))%12==0):

    print("Your Zodiac sign: Tiger")

elif((abs(year-1915))%12==0):

    print("Your Zodiac sign: Rabbit")

elif((abs(year-1916))%12==0):

    print("Your Zodiac sign: Dragon")

elif((abs(year-1917))%12==0):

    print("Your Zodiac sign: Snake")

elif((abs(year-1918))%12==0):

    print("Your Zodiac sign: Horse")

elif((abs(year-1919))%12==0):

    print("Your Zodiac sign: Sheep")

elif((abs(year-1920))%12==0):

    print("Your Zodiac sign: Monkey")

**Output: -**

Input your birth year: 2010

Your Zodiac sign: Tiger

1. Write a Python program to find the median of three values. Expected Output:

Input first number: 15

Input second number: 26

Input third number: 29

The median is 26.0

**Code: -**

d=[]

a=int(input("Input first number: "))

b=int(input("Input second number: "))

c=int(input("Input third number: "))

d.append(a)

d.append(b)

d.append(c)

d=sorted(d)

print("The median is",d[1])

**Output: -**

Input first number: 29

Input second number: 70

Input third number: 30

The median is 30

1. Write a Python program to get the next day of a given date. Expected Output:

Input a year: 2016

Input a month [1-12]: 08

Input a day [1-31]: 23

The next date is [yyyy-mm-dd] 2016-8-24

**Code: -**

year=int(input("Enter a year:"))

month=int(input("Input a month [1-12]:"))

day=int(input("Input a day [1-31]:"))

a=[]

for i in range(12):

    a.append(int(i+1))

if(year%4==0):

    if(year%100==0):

        if(year%400==0):

            y="leap"

        else:

            y="notleap"

    else:

        y="leap"

else:

    y="notleap"

if(y=="leap"):

    if(month==a[1]):

        dmax=29

    elif(month==a[3] or month==a[5] or month==a[8] or month==a[10]):

        dmax=30

    else:

        dmax=31

elif(month<=12):

    if(month==a[1]):

        dmax=28

    elif(month==a[3] or month==a[5] or month==a[8] or month==a[10]):

        dmax=30

    else:

        dmax=31

else:

    print("Invalid Input.")

if(month==12 and day==dmax):

    year=year+1

    month=1

    day=1

elif(day==dmax):

    month=month+1

    day=1

elif(day<dmax):

    day=day+1

else:

    print("Invalid input.")

if(day<=dmax):

    print("The next date is: {:04d}-{:02d}-{:02d}".format(year,month,day))

else:

    print("The date {:04d}-{:02d}-{:02d}".format(year,month,day),"do not exist.")

**Output: -**

1. Enter a year:2025

Input a month [1-12]:7

Input a day [1-31]:31

The next date is: 2025-08-01

1. Enter a year:2028

Input a month [1-12]:2

Input a day [1-31]:30

Invalid input.

1. The date 2028-02-30 do not exist.

Enter a year:2027

Input a month [1-12]:2

Input a day [1-31]:28

The next date is: 2027-03-01

1. Write a Python program to calculate the sum and average of n integer numbers (input from the user). Input 0 to finish.

**Code: -**

n=0

sum=0

while True:

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

    if(a==0):

        break

    else:

        sum=sum+a

        n=n+1

print("The sum of n integers is",sum)

print("The average of n integers is",sum/n)

**Output: -**

Enter the number: 30

Enter the number: 29

Enter the number: 100

Enter the number: 130

Enter the number: 80

Enter the number: 0

The sum of n integers is 369

The average of n integers is 73.8

1. Write a Python program to create the multiplication table (from 1 to 10) of a number. Expected Output:

Input a number: 6

6 x 1 = 6

6 x 2 = 12

6 x 3 = 18

6 x 4 = 24

6 x 5 = 30

6 x 6 = 36

6 x 7 = 42

6 x 8 = 48

6 x 9 = 54

6 x 10 = 60

**Code: -**

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

if(1<=num and num<=10):

   for i in range(1,11):

       print(num,"X",i,"=",num\*i)

else:

   print("You have entered value out of range")

**Output: -**

4 X 1 = 4

4 X 2 = 8

4 X 3 = 12

4 X 4 = 16

4 X 5 = 20

4 X 6 = 24

4 X 7 = 28

4 X 8 = 32

4 X 9 = 36

4 X 10 = 40

1. Write a Python program to construct the following pattern, using a nested loop number. Expected Output:

1

22

333

4444

55555

666666

7777777

88888888

999999999

**Code: -**

num=int(input("Enter the number present in last row: "))

if(num>0 and num<10):

    for i in range(1,num+1):

        for j in range(1,i+1):

            print(i,end="")

        print("")

else:

    print("You have entered value out of range.")

    print("Enter the value in between 1 to 9")

**Output: -**

Enter the number present in last row: 9

1

22

333

4444

55555

666666

7777777

88888888

999999999