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10.	gcd and lcm counter				

### Output:

```
<class 'int'>
<class 'float'>
<class 'complex'>
```

```
(25+15j)
```

```
10
```

```
5
```

```
<class 'bool'>
```

```
2
```

```
0
```

```
1
```

```
True
```

Expt. No. 1

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Python script to understand the functioning  
of fundamental data types.

# int, float, str, bool, complex writing

a = 10

type(a)

b = 10.87

type(b)

c = 10 + 5j

type(c)

d = 15 + 10j

c+d

c.real

c+1mag

e = True

type(e)

True + True

True - True

True - False

a = 10

b = 20

c = a < b

print(c)

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Output 1:

```
Ans:- Enter x1 : 6  
Enter x2 : 7  
Enter y1 : 2  
Enter y2 : 8  
6.082
```

Output 2:

```
Python3 C:/python/add.py 23 45  
Sum = 68
```

Expt. No. 02

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2.A:- program to compute distance b/w 2 points, taking input from user.

```
import math  
x1 = int(input("Enter x1 : "))  
x2 = int(input("Enter x2 : "))  
y1 = int(input("Enter y1 : "))  
y2 = int(input("Enter y2 : "))  
d = ((x2-x1)**2 + (y2-y1)**2)**0.5  
print("math.sqrt(d))")
```

(2.B) write a add.py that takes 2 numbers as command line and prints it's sum

```
import sys  
x = int(sys.argv[1])  
y = int(sys.argv[2])  
sum = x+y  
print("Sum = ", sum)
```

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Teacher's Signature :

**Output:**

```
Enter any integer: 10
1/2 ((18 * 10) // 2) + (10 // 2)
1/3 ((18 * 10) // 3) + (10 // 3)
1/4 ((18 * 10) // 4) + (10 // 4)
1/5 ((18 * 10) // 5) + (10 // 5)
1/6 ((18 * 10) // 6) + (10 // 6)
1/7 ((18 * 10) // 7) + (10 // 7)
1/8 ((18 * 10) // 8) + (10 // 8)
1/9 ((18 * 10) // 9) + (10 // 9)
1/10 ((18 * 10) // 10) + (10 // 10)
```

```
(18*10//2) + (10//2)
(18*10//3) + (10//3)
(18*10//4) + (10//4)
(18*10//5) + (10//5)
(18*10//6) + (10//6)
(18*10//7) + (10//7)
(18*10//8) + (10//8)
(18*10//9) + (10//9)
(18*10//10) + (10//10)
```

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3.9:- To check whether the given number is an even or not.

```
a = int(input("Enter any integer"))
if a%2 == 0:
    print(a, "is even no.")
else:
    print(a, "is odd no.")
```

3.6:- Using for loop, write python program that prints out the decimal equivalents of  $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots, \frac{1}{10}$ .

```
for i in range(2, 11):
    print(1/i, "", end="")
```

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### Output

```
<class 'list'>
```

Accessing list elements by index  
using the `index` operator

```
10
```

```
40
```

Index error

```
[3, 5, 7]  
[5, 7, 9]  
[4, 5, 6, 7]  
[3, 7, 5]  
[5, 6, 7, 8, 9, 10]
```

```
10
```

```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]  
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
```

: (1, 2) error in index

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To demonstrate list and tuple in python

```
list1 = [10, 20, 30, 40, 'Anurag', 10+5j] # list  
type(list1)
```

```
list2 = [10, 20, 30, 40]
```

# accessing list element using index

```
print(list2[0]) # 10  
print(list2[1]) # 20 < length address  
print(list2[10]) # index error or  
# 11
```

# using slice operator : regular slicing

```
n = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10] # list  
print(n[2:7:2]) # 3, 5, 7, 9  
print(n[4::2]) # 2, 4, 6, 8  
print(n[3:7]) # 4, 5, 6, 7  
print(n[8:2:-2])  
print(n[4:100])
```

# important functions of list

```
print(len(n))  
n.append(11)  
print(n)  
n.append(12)  
print(n)
```

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$C_{1,2,3,4,15,6,7,18,13,10,11}$   
 $C_{1,2,3,4,9,5,10,6,7,8,19,10,2}$

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13] = 144  
[3, 8, 7, 6, 5, 4, 3, 2, 1] = 144

[C] [On 102, 06/01] > Stock  
for type schools banks drawings tools 122200

class 'tuple'  $\rightarrow$   $([0] \& \text{False})$  being  
10  $\rightarrow$   $([1] \& \text{False})$  being  
60  $\rightarrow$   $([0] \& [1])$  being

Index Error! types index out of range with  
(30, 40, 50)  
(30, 40, 50, 60)  
(10, 30, 50)

4. All the following techniques  
(a) nasal (b)  
(c) buzzed (d)  
(e) twang (f)  
(g) purged (h)

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n. remove(12)	8
print(n)	9
n.pop()	10
print(n)	11
n.pop()	12
print(n)	13
n.append()	14
print(n)	15
n.clear()	16
print(n)	17
Print (" for type")	18
t = (10, 20, 30, 40, 50, 60)	19
print(type(t))	20
# Accessing elements using index	
print(t[0])	
print(t[-1])	
print(t[100])	
# Using slice operator	
print(t[2:5])	
print(t[2:100])	
print(t[::2])	

4  
 3  
 0  
 10  
 40  
 0  
 1  
 2  
 3  
 4  
 5  
 6  
 7  
 8  
 9

ValueError: type.index(x) : x not in (40, 10, 30, 20)  
 t = (10, 20, 30, 40)  
 print(t)  
 t = (10, 20, 10, 10, 20)  
 print(t.count(10))  
 t = (10, 20, 10, 10, 20)  
 print(t.index(10))  
 print(t.index(30))

(except: not in)  
 (empty set)

0.0, 0.2, 0.4, 0.5, 0.1, 0.3  
 0.1, 0.3, 0.5, 0.2, 0.4, 0.6  
 0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6  
 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7  
 0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8

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# important type functions	7
t = (10, 20, 30, 40)	2
print(t)	3
t = (10, 20, 10, 10, 20)	1
print(t.count(10))	0
t = (10, 20, 10, 10, 20)	2
print(t.index(10))	3
print(t.index(30))	4
t = (40, 10, 30, 20)	1
print(min(t))	2
print(max(t))	3
4.b:- using a for loop	4
n = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]	5
for x in n:	6
print(x)	7
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	500

AJAYA

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Output:

Enter the number 5  
5  
4  
3  
2  
1  
0  
Finish

Goal not a given add  
E.g. 5, 4, 3, 2, 1, 0, Finish

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Q.C:- Using a while loop that loops over a sequence for a num, and prints countdown to 0

```
num = input('Enter the number')  
while (num >= 0):  
    print(num)  
    num -= 1  
print("Finish")
```

Ajaya

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Output = 142913828922

equal starts with digits 142913828922  
Ending point must be 142913828922  
Output = 5202886

Conditions 2nd, third & fourth = n<sup>2</sup>  
 $(n \leq 6 \text{ max})$  2nd, 3rd, 4th  
(n+3) + (n+2)

$n^2 + 3n + 2$

Expt. No. 05

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Find the sum of all primes below 2M

a = []

for n in range (2, 2000000):

Count = 0

for i in range (2, int(n\*\*0.5)+1):

if (n % i == 0):

Count = Count + 1

break

if (Count == 0 and n != 1):

a.append(n)

print (sum(a))

5.b by considering the terms in the fibonacci sequence where values do not exceed 4M, write a program to find the sum of even value terms.

odd, even = 0, 1

total = 0

while True:

odd = odd + even

even = odd + even

if even < 4000000:

total += even

else:

break

print total

Ajay

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output:  
 Enter Dob  
 1985-06-12  
 06  
 12  
 1985-06-12  
 16 times = times  
 output 2  
 :((1=16 times 0=2 times))  
 Enter any string: YYYY MM DD  
 Y= 1 Times  
 a= 2 Times  
 1.0 = nsns, bbs  
 nsns + bbs = bbs  
 nsns + bbs = nsns  
 nsns + nsns = nsns  
 nsns = nsns

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Q. WAP to split and join methods in the string and trace a birthday of a person with dictionary data structure

```

a = input("Enter Dob: ")
s = a.split("-")
for i in s:
  print(i)
d = {} "bird": 93
if "bird" in d:
  print(d['bird'])
  
```

Q. WAP to count the number of char in the string and store them in dictionary D's

```

a = input("Enter any string")
d = {}
for x in a:
  if x in d.keys():
    d[x] = d[x] + 1
  else:
    d[x] = 1
  
```

```

for k, v in d.items():
  print(" {} = {} Times".format(k, v))
  
```

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Yash test  
Hello, my name is Yash Kumar Kymawat  
I am 10 years old and I study in grade 5  
in a government school in Mumbai.

Enter file name : Yash.txt  
Enter the frequency of elements in the file  
It's a text file  
Count: 5 times  
File Read : 10 times  
([file]) + freq

("private property") rights are  
 to be guaranteed and will create "true justice" as  
 well as economic development.

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WAP do count frequency of characters in a given file. You can use frequency to tell whether the given file is a py, txt, or text file

```

e = input("Enter file name:")
txt = e.split(".")
if txt[-1] == "txt":
    print("It's text file")
elif txt[-1] == "py":
    print("It's python file")
elif txt[-1] == "c":
    print("It's c file")
else:
    print("Don't know")
f = open(e, "r")
a = input("Enter the Frequency element: ")
count = 0
for line in f:
    for char in line:
        if char == a:
            count += 1
print(a, "Count: ", count, "times")
f.close()

```

**Ajay**

Enter character = a

The character a is found 5 times in the file yash.txt

(char == ch) if true  
else  
    line += ch

    if line[-1] == '\n':  
        line = line[:-1]

    print(line)

    if ch == '\n':  
        count += 1

    if ch == 'a':  
        count += 1

    print("The character 'a' is found", count, "times")

    file.close()

    print("File closed")

    print("Program finished")

    print("Program finished")

    print("Program finished")

    print("Program finished")

    print("Program finished")

    print("Program finished")

    print("Program finished")

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Count = 0

char = input("Enter character: ")  
file = open("yash.txt", "r")

for line in file:

    for c in line:

        if c == char:  
            count += 1

print("The character", char, "is found", count, "times")

file.close()

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Ajaya

Enter file name: qb.txt

Hello

What is your name

Hemanth Kumar

("What is your name") input as long  
("Hello", "What is your name") output as string

✓ (qb.txt) is created with  
content as given

Content is as follows

qb.txt content as given above  
(Hemanth Kumar)

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Write a program to print each line of  
a file in reverse order.

with open ("qb.txt", "r") as f:

f.write ("Hemanth Kumar")

f.write ("What is your name")

f.write ("Hello")

filename = input ("Enter file name")  
for line in reversed (list(open (filename))):

print (line.rstrip ())

AJAYA

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yash.txt

Hello, my name is Yash Kumar Kumarwali.  
My name is Yash Kumar Kumarwali  
A cybersecurity student

Output: (Input: yash.txt) (Output: 1 character count:  
filecontent from file "yash.txt" is:  
Character count: 16, word count: 3, line count: 1)

Enter file name: yash.txt

Character Count: 16,68 ) Input: = yash.txt  
Word Count: 10, ) Line Count: 3, Line Count: 1  
Line Count: 3 (Input: yash.txt) Output:

Expt. No. R.2

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WAP to count char, words, lines, and characters  
import os, sys  
fname = input("Enter file name: ")  
f = open(fname, "r")  
lcount = wcount = ccount = 0  
for line in f:  
 lcount = lcount + 1  
 ccount += 1  
 words = line.split()  
 wcount = wcount + len(words)  
  
print("Character Count:", ccount)  
print("Word Count:", wcount)  
print("Line Count:", lcount)

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Output:

```

Enter string 1 : Hello
Enter String 2 : Yeah
True
    (from 0 to len(a) - 1)
        if a[i] == b[i]: i += 1
    else: break
    if i == len(b):
        print("True")
        break
    else:
        print("False")

```

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<p>write a function nearequal to test whether 2 strings are nearly equal. Two strings <math>a</math> and <math>b</math> are nearly equal when <math>a</math> can be generated by a single mutation.</p> <pre> from difflib import SequenceMatcher def longestSubstring(str1, str2):     seqmatch = SequenceMatcher(None, str1, str2)     match = seqmatch.find_longest_match(0, len(str1),  0, len(str2))     if match.size != 0:         print("True")     else:         print("False")     </pre> <p><math>a = \text{input}("Enter string 1:")</math>  <math>b = \text{input}("Enter string 2:")</math>  <math>\text{longestSubstring}(a,b)</math></p>	
Teacher's Signature : _____	

Output:

Enter 1st no.: 66 without a new line  
Enter 2nd no.: 356 and without a new line  
GCD of 2 numbers is 117 and LCM is 117 \* 48 = 5616.

(66, 356) = (2, 117)  
 $\text{GCD} = \frac{66 \times 356}{2} = 117$   
 $\text{LCM} = \frac{66 \times 356}{117} = 5616$

a = int(input("Enter 1st no.:"))  
b = int(input("Enter 2nd no.:"))  
def gcd(a,b):  
 if a == 0:  
 return b  
 return gcd(b%a, a)

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Write function to compute gcd & lcm of 2 numbers. Each function shouldn't exceed one line.

a = int(input("Enter 1st no.:"))  
b = int(input("Enter 2nd no.:"))  
def gcd(a,b):  
 if a == 0:  
 return b  
 return gcd(b%a, a)

def lcm(a,b):  
 return (a/gcd(a,b))\*b

c = gcd(a,b)  
d = int(lcm(a,b))  
print(c)  
print(d)

b  
31(1/2)

Abhay

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