

Question:

Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 2000 and 3200 (both included).

The numbers obtained should be printed in a comma-separated sequence on a single line.

```
for i in range(2000, 3201):
    if i%7 == 0 and i%5 != 0:
        print(i, end = ", ")
```

Output:

```
2002, 2009, 2016, 2023, 2037, 2044, 2051, 2058, 2072, 2079, 2086, 2093, 2107, 2114, 2121, 2128, 2142, 2149, 2156, 2163, 2177, 2184, 2191, 2198, 2212, 2219, 2226, 2233,
2247, 2254, 2261, 2268, 2282, 2289, 2296, 2303, 2317, 2324, 2331, 2338, 2352, 2359, 2366, 2373, 2387, 2394, 2401, 2408, 2422, 2429, 2436, 2443, 2457, 2464, 2471, 2478,
2492, 2499, 2506, 2513, 2527, 2534, 2541, 2548, 2562, 2569, 2576, 2583, 2597, 2604, 2611, 2618, 2632, 2639, 2646, 2653, 2667, 2674, 2681, 2688, 2702, 2709, 2716, 2723,
2737, 2744, 2751, 2758, 2772, 2779, 2786, 2793, 2807, 2814, 2821, 2828, 2842, 2849, 2856, 2863, 2877, 2884, 2891, 2898, 2912, 2919, 2926, 2933, 2947, 2954, 2961, 2968,
2982, 2989, 2996, 3003, 3017, 3024, 3031, 3038, 3052, 3059, 3066, 3073, 3087, 3094, 3101, 3108, 3122, 3129, 3136, 3143, 3157, 3164, 3171, 3178, 3192, 3199,
```

Question:

Write a program which can compute the factorial of a given numbers.

The results should be printed in a comma-separated sequence on a single line.

Suppose the following input is supplied to the program:

8

Then, the output should be:

40320

```
n = list(map(int, input().split(" ")))
for i in n:
    sum = 1
    while i>0:
        sum *= i
        i-=1
    print(sum, end=", ")
```

Output:

```
8 9
40320, 362880,
```

Question:

With a given integral number n, write a program to generate a dictionary that contains (i, i*i) such that i is an integral number between 1 and n (both included). and then the program should print the dictionary.

Suppose the following input is supplied to the program:

8

Then, the output should be:

{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}

```
n= int(input())
dic = {}
for i in range(1,n+1):
    dic[i] = i*i
print(dic)
```

Output:

```
8
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64}
```

Question:

Write a program which accepts a sequence of comma-separated numbers from console and generate a list and a tuple which contains every number.

Suppose the following input is supplied to the program:

34,67,55,33,12,98

Then, the output should be:

['34', '67', '55', '33', '12', '98']

('34', '67', '55', '33', '12', '98')

```
n = list(map(int, input().split(",")))
print(n)
print(tuple(n))
```

Output:

```
1,2,3,4
[1, 2, 3, 4]
(1, 2, 3, 4)
```

Write a program that calculates and prints the value according to the given formula:

$Q = \text{Square root of } [(2 * C * D)/H]$

Following are the fixed values of C and H:

C is 50. H is 30.

D is the variable whose values should be input to your program in a comma-separated sequence.

Example

Let us assume the following comma separated input sequence is given to the program:

100,150,180

The output of the program should be:

18,22,24

```
import math
n = list(map(int, input().split(",")))
c = 50
h = 30
for j,i in enumerate(n):
    if j==len(n)-1:
        print(int(math.sqrt((2*c*i)/h)))
        break
    print(int(math.sqrt((2*c*i)/h)), end=",")
```

Output:

```
100,150,180
18,22,24
```

Question:

Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be $i*j$.

Note: $i=0,1,.., X-1$; $j=0,1,i-Y-1$.

Example

Suppose the following inputs are given to the program:

3,5

Then, the output of the program should be:

[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]

```
n = list(map(int, input().split(",")))  
  
l=[]  
  
for i in range(n[0]):  
    a=[]  
    for j in range(n[1]):  
        a.append(i*j)  
    l.append(a)  
print(l)
```

Output:

```
3,5  
[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]
```

Question:

Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.

Suppose the following input is supplied to the program:

without,hello,bag,world

Then, the output should be:

bag,hello,without,world

```
n = list(input().split(","))
n.sort()
for i in range(len(n)):
    if i == len(n)-1:
        print(n[i])
        break
    print(n[i], end=",")
```

Output:

```
without,hello,bag,world
bag,hello,without,world
```

Question£º

Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized.

Suppose the following input is supplied to the program:

Hello world

Practice makes perfect

Then, the output should be:

HELLO WORLD

PRACTICE MAKES PERFECT

```
lines = []
while True:
    line = input()
    if line:
        lines.append(line)
    else:
        break

for line in lines:
    print(line.upper())
```

Output:

```
hello world
practice makes perfect

HELLO WORLD
PRACTICE MAKES PERFECT
```

Question:

Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically.

Suppose the following input is supplied to the program:

hello world and practice makes perfect and hello world again

Then, the output should be:

again and hello makes perfect practice world

Hints:

In case of input data being supplied to the question, it should be assumed to be a console input.

We use set container to remove duplicated data automatically and then use sorted() to sort the data.

```

n = list(input().split(" "))
n = list(set(n))
n.sort()
for i in range(len(n)):
    if i == len(n)-1:
        print(n[i])
        break
    print(n[i], end=" ")

```

Output:

```

hello world and practice makes perfect and hello world again
again and hello makes perfect practice world

```

Question:

Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence.

Example:

0100,0011,1010,1001

Then the output should be:

1010

Notes: Assume the data is input by console.

```

n = list(input().split(","))

for i in range(len(n)):
    if int(n[i],2)%5 == 0:
        if i == len(n)-1:
            print(n[i])
            break
        print(n[i], end=" ")

```

Output:

```
0100,0011,1010,1001
1010
```

Question:

Write a program, which will find all such numbers between 1000 and 3000 (both included) such that each digit of the number is an even number.

The numbers obtained should be printed in a comma-separated sequence on a single line.

Hints:

In case of input data being supplied to the question, it should be assumed to be a console input.

```
for i in range(1000, 3001):
    f = 0
    t = i
    while t>0:
        n = t%10
        if n==0 or n%2==0:
            t//=10
            continue
        f = 1
        break
    if f == 0:
        print(i, end=",")
```

Output:

```
2000,2002,2004,2006,2008,2020,2022,2024,2026,2028,2040,2042,2044,2046,2048,2060,2062,2064,2066,2068,2080,2082,2084,2086,2088,2200,2202,2204,2206,2208,2220,2222,2224,2226,2228,2240,2242,2244,2246,2248,2260,2262,2264,2266,2268,2280,2282,2284,2286,2288,2400,2402,2404,2406,2408,2420,2422,2424,2426,2428,2440,2442,2444,2446,2448,2460,2462,2464,2466,2468,2480,2482,2484,2486,2488,2600,2602,2604,2606,2608,2620,2622,2624,2626,2628,2640,2642,2644,2646,2648,2660,2662,2664,2666,2668,2680,2682,2684,2686,2688,2800,2802,2804,2806,2808,2820,2822,2824,2826,2828,2840,2842,2844,2846,2848,2860,2862,2864,2866,2868,2880,2882,2884,2886,2888,
```

Question:

Write a program that accepts a sentence and calculate the number of letters and digits.

Suppose the following input is supplied to the program:

hello world! 123

Then, the output should be:

LETTERS 10

DIGITS 3

Hints:

In case of input data being supplied to the question, it should be assumed to be a console input.

```
s = input()
l=0
d=0
for i in s:
    if i.isnumeric():
        d+=1
    elif i.isalpha():
        l+=1
print("LETTERS ",l)
print("DIGITS ",d)
```

Output:

```
hello world! 123
LETTERS  10
DIGITS   3
```

Question:

Write a program that accepts a sentence and calculate the number of upper case letters and lower case letters.

Suppose the following input is supplied to the program:

Hello world!

Then, the output should be:

UPPER CASE 1

LOWER CASE 9

```
s = input()
u=0
l=0
for i in s:
    if i.isupper():
        u+=1
    elif i.islower():
        l+=1
print("UPPER CASE ",u)
print("LOWER CASE ",l)
```

Output:

```
Hello world!
UPPER CASE  1
LOWER CASE  9
```

Question:

Write a program that computes the value of $a+aa+aaa+aaaa$ with a given digit as the value of a .

Suppose the following input is supplied to the program:

9

Then, the output should be:

11106

```
n = int(input())
sum = 0
s=n
while s <= 9999:
    sum+=s
    s=(s*10)+n
print(sum)
```

Output:

9

11106