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Question 1
Level 1

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.

```
Hints:
Consider use range(#begin, #end) method
```

```python
Solution:
l=[]
for i in range(2000, 3201):
    if (i%7==0) and (i%5!=0):
        l.append(str(i))

print ','.join(l)
```
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#--#
Question 2
Level 1

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

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

```python
Solution:
def fact(x):
```

```
    if x == 0:
        return 1
    return x * fact(x - 1)

x=int(raw_input())
print fact(x)
#----------------------------------------#
```

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Question 3
Level 1

Question:
With a given integral number n, write a program
to generate a dictionary that contains (i, i*i)
such that 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}

```
Hints:
In case of input data being supplied to the question, it should be
assumed to be a console input.
Consider use dict()

Solution:
n=int(raw_input())
d=dict()
for i in range(1,n+1):
    d[i]=i*i

print d
#----------------------------------------#
```

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Question 4
Level 1

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')

```
Hints:
In case of input data being supplied to the question, it should be
assumed to be a console input.
tuple() method can convert list to tuple

Solution:
values=raw_input()
l=values.split(",")
t=tuple(l)
print l
print t
#----------------------------------------#
```

#--#
Question 5
Level 1

Question:
Define a class which has at least two methods:
getString: to get a string from console input
printString: to print the string in upper case.
Also please include simple test function to test
the class methods.

```
Hints:
Use __init__ method to construct some parameters

Solution:
class InputOutString(object):
    def __init__(self):
        self.s = ""

    def getString(self):
        self.s = raw_input()

    def printString(self):
        print self.s.upper()

strObj = InputOutString()
strObj.getString()
```

```
strObj.printString()
#---------------------------------------#
```

Question 6
Level 2

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

```
Hints:
If the output received is in decimal form, it should be rounded off to
its nearest value (for example, if the output received is 26.0, it
should be printed as 26)
In case of input data being supplied to the question, it should be
assumed to be a console input.

Solution:
#!/usr/bin/env python
import math
c=50
h=30
value = []
items=[x for x in raw_input().split(',')]
for d in items:
    value.append(str(int(round(math.sqrt(2*c*float(d)/h)))))

print ','.join(value)
#---------------------------------------#
```

```
#-----------------------------------------#
```

Question 7
Level 2

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,¡-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]]

```
Hints:
Note: In case of input data being supplied to the question, it should
be assumed to be a console input in a comma-separated form.

Solution:
input_str = raw_input()
dimensions=[int(x) for x in input_str.split(',')]
rowNum=dimensions[0]
colNum=dimensions[1]
multilist = [[0 for col in range(colNum)] for row in range(rowNum)]

for row in range(rowNum):
    for col in range(colNum):
        multilist[row][col]= row*col

print multilist
#----------------------------------------#
```

#--#
Question 8
Level 2

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

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

Solution:
items=[x for x in raw_input().split(',')]
items.sort()
print ','.join(items)
#----------------------------------------#
```

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Question 9

Level 2

Question£°

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

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

Solution:
lines = []
while True:
    s = raw_input()
    if s:
        lines.append(s.upper())
    else:
        break;

for sentence in lines:
    print sentence
#----------------------------------------#

#----------------------------------------#
```

Question 10

Level 2

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.

Solution:
s = raw_input()
words = [word for word in s.split(" ")]
print " ".join(sorted(list(set(words))))
#--------------------------------------#
```