

ASSUGNMENT BASIC 2

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

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

print(','.join(l))
```

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.

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

x=int(input())
print(fact(x))
```

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}

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

```
n=int(input())
d=dict()
```

```
for i in range(1,n+1):  
  
    d[i]=i*i  
  
print(d)
```

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

```
values=input()  
l=values.split(",")  
t=tuple(l)  
print(l)  
print(t)
```

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

```
class InputOutString(object):  
  
    def __init__(self):  
        self.s = ""  
  
    def getString(self):  
        self.s = input()  
  
    def printString(self):  
        print(self.s.upper())
```

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

Question: 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

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:

```
import math
c=50
h=30
value = []
items=[x for x in input().split(',')]
for d in items:
    value.append(str(int(round(math.sqrt(2*c*float(d)/h))))))

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

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.

```
input_str = 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£° 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.

```
lines = []  
while True:  
    s = input()  
    if s:  
        lines.append(s.upper())  
    else:  
        break;  
  
for sentence in lines:  
    print(sentence)
```

Question: Write a program that computes the net amount of a bank account based a transaction log from console input. The transaction log format is shown as following: D 100 W 200

```
netAmount = 0
```

```
while True:
    s = input()
    if not s:
        break
    values = s.split(" ")
    operation = values[0]
    amount = int(values[1])
    if operation=="D":
        netAmount+=amount
    elif operation=="W":
        netAmount-=amount
    else:
        pass
print(netAmount)
```

Define a function that can accept two strings as input and print the string with maximum length in console. If two strings have the same length, then the function should print all strings line by line.

```
def printValue(s1,s2):
    len1 = len(s1)
    len2 = len(s2)
    if len1>len2:
        print(s1)
    elif len2>len1:
        print(s2)
    else:
        print(s1)
        print(s2)

printValue("one", "three")
```