

# Assignment 14 Solutions

**1. Define a class with a generator which can iterate the numbers, which are divisible by 7, between a given range 0 and n. ?**

In [2]:

```
1 def putNumbers(n):
2     i = 0
3     while i < n:
4         j = i
5         i += 1
6         if j % 7 == 0:
7             yield j
8 n = int(input('enter n : '))
9 for i in putNumbers(n):
10     print(i)
```

enter n : 98

0  
7  
14  
21  
28  
35  
42  
49  
56  
63  
70  
77  
84  
91

**2. Write a program to compute the frequency of the words from the input. The output should output after sorting the key alphanumerically.**

Suppose the following input is supplied to the program:

New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3.

Then, the output should be:

2:2 3.:1 3?:1 New:1 Python:5 Read:1 and:1 between:1 choosing:1 or:2 to:1

In [3]:

```
1 string = input('Enter the string ').split()
2 word = sorted(set(string))
3
4 for i in word:
5     print("{0}:{1}".format(i,string.count(i)))
```

Enter the string New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3

```
2:2
3:1
3?:1
New:1
Python:5
Read:1
and:1
between:1
choosing:1
or:2
to:1
```

**3. Define a class Person and its two child classes: Male and Female. All classes have a method "getGender" which can print "Male" for Male class and "Female" for Female class. ?**

In [5]:

```
1 class Person():
2     def getGender():
3         pass
4
5 class Male(Person):
6     def getGender():
7         print("Male")
8
9 class Female(Person):
10    def getGender():
11        print("Female")
12
13 Male.getGender()
14 Female.getGender()
```

```
Male
Female
```

**4. Please write a program to generate all sentences where subject is in ["I", "You"] and verb is in ["Play", "Love"] and the object is in ["Hockey", "Football"] ?**

In [6]:

```
1 def generateSentences():
2     subject = ['I', 'You']
3     verb = ['Play', 'Love']
4     object = ['Hockey', 'Football']
5     for s in subject:
6         for v in verb:
7             for o in object:
8                 print(f'{s} {v} {o}')
9
10 generateSentences()
```

```
I Play Hockey
I Play Football
I Love Hockey
I Love Football
You Play Hockey
You Play Football
You Love Hockey
You Love Football
```

**5. Please write a program to compress and decompress the string "hello world!hello world!hello world!hello world!" ?**

In [10]:

```
1 def compress(in_string):
2     output = in_string[0]
3     count = 1
4     for ele in range(len(in_string)-1):
5         if in_string[ele] == in_string[ele+1]:
6             count +=1
7         else:
8             if count > 1:
9                 output += str(count)
10                output += in_string[ele+1]
11                count = 1
12    if count > 1:
13        output += str(count)
14    print(output)
15
16
17 def decompress(in_string):
18     output = ''
19     for ele in range(len(in_string)):
20         if in_string[ele].isdigit():
21             output += output[-1]*(int(in_string[ele])-1)
22         else:
23             output += in_string[ele]
24     print(output)
25
26
27 compress("hello world!hello world!hello world!hello world!")
28 decompress("hel2o world!hel2o world!hel2o world!hel2o world!")
29
30 compress('ineuron full stack datascience')
31 decompress('ineuron ful2 stack datascience')
```

```
hel2o world!hel2o world!hel2o world!hel2o world!
hello world!hello world!hello world!hello world!
ineuron ful2 stack datascience
ineuron full stack datascience
```

**6.Please write a binary search function which searches an item in a sorted list. The function should return the index of element to be searched in the list ?**

In [9]:

```
1 from bisect import bisect_left
2
3 def BinarySearch(a, x):
4     i = bisect_left(a, x)
5     if i != len(a) and a[i] == x:
6         return i
7     else:
8         return -1
9
10 a = [3, 4, 8, 8, 7]
11 x = int(8)
12 res = BinarySearch(a, x)
13 if res == -1:
14     print(x, "is absent")
15 else:
16     print("First occurrence of", x, "is present at", res)
```

First occurrence of 8 is present at 2