# Programming Assignment 14

Question 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 [1]:

```
n=int(input("Enter any number: "))
def gen7(n):
    lst=[i for i in range(1, n+1) if i % 7 ==0]
    return lst
gen7(n)
```

```
Enter any number: 78
```

Out[1]:

```
[7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77]
```

Question 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 [2]:

```
str='New to Python or choosing between Python 2 3? and Python 3? Read Python 2 or Py
def word_count(sent):
    strings=set(sent.split())
    wordlist=dict()

    for i in strings:
        wordlist[i]=sent.count(i)
        #print(wordlist[i],i)
    return wordlist
word_count(str)
```

Out[2]:

```
{'2': 2,
 'and': 1,
 'between': 1,
 'Python': 5,
 'choosing': 1,
 'or': 2,
 'Read': 1,
 'to': 1,
 'New': 1,
 '3?': 2,
 '3.': 1}
```

Question 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 [3]:

```python
class Person():
    def __init__(self,name):
        self.name=name
        print('Name:  ', self.name)
    def getName():
        return self.name
class Male(Person):
    def __init__(self,name):
        self.Gender='Male'
        super().__init__(name)
        print('Gender:  ', self.Gender)
    def getGender():
        return self.Gender
class Female(Person):
    def __init__(self,name):
        self.Gender='Female'
        super().__init__(name)
        print('Gender:  ', self.Gender)
    def getGender():
        return self.Gender
rajeev = Male('Rajeev')
prema = Female('Prema')
```

```
Name:   Rajeev
Gender:   Male
Name:   Prema
Gender:   Female
```

Question 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 [4]:

```python
import itertools
subject=['I','You']
verb=['Play','Love']
objects=['Hockey','Football']
all_list=[subject,verb,objects]

ss= [[i,j,k] for i in subject for j in verb for k in objects]
for x in ss:
    print(" ".join(x))

for s in subject:
    for v in verb:
        for o in objects:
            print('{} {} {}'.format(s,v,o))

sent = list(itertools.product(*all_list))
```

```
for x in sent:
    print(" ".join(x))
```

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

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

In [5]:

```
import zlib
s = 'hello world!hello world!hello world!hello world!'
y = bytes(s, 'utf-8')

t = zlib.compress(y)
print (t)
print (zlib.decompress(t))
```

```
b'x\x9c\xcbH\xcd\xc9\xc9W(\xcf/\xcaIQ\xcc \x82\r\x00\xbd[\x11\xf5'
b'hello world!hello world!hello world!hello world!'
```

Question 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 [6]:

```
from bisect import bisect_left
def search_left(list, element):
    return bisect_left(list,element)
a=[3,8,9,12,43,99]
element=9
print('Index of {} in {} from left, is {}'.format(element, a, search_left(a,element)
```

```
Index of 9 in [3, 8, 9, 12, 43, 99] from left, is 2
```

In [ ]: