정보구조 HW4
2014-19498 독어교육과 정은주

Problem 1

```
In [1]:   #problem 1
```

```
In [7]:   class Rectangle():
              def __init__(self, l, w):
                  self.length = l
                  self.width = w
                  self.rectangle_area()
              def rectangle_area(self):
                  return self.length*self.width
```

```
In [8]:   rec1 = Rectangle(10, 4)
```

```
In [9]:   print(rec1.rectangle_area())

          40
```

Problem 2

```
In [14]:  %matplotlib notebook
          from array import array
          from random import random
          import sys
          import matplotlib.pyplot as plt
```
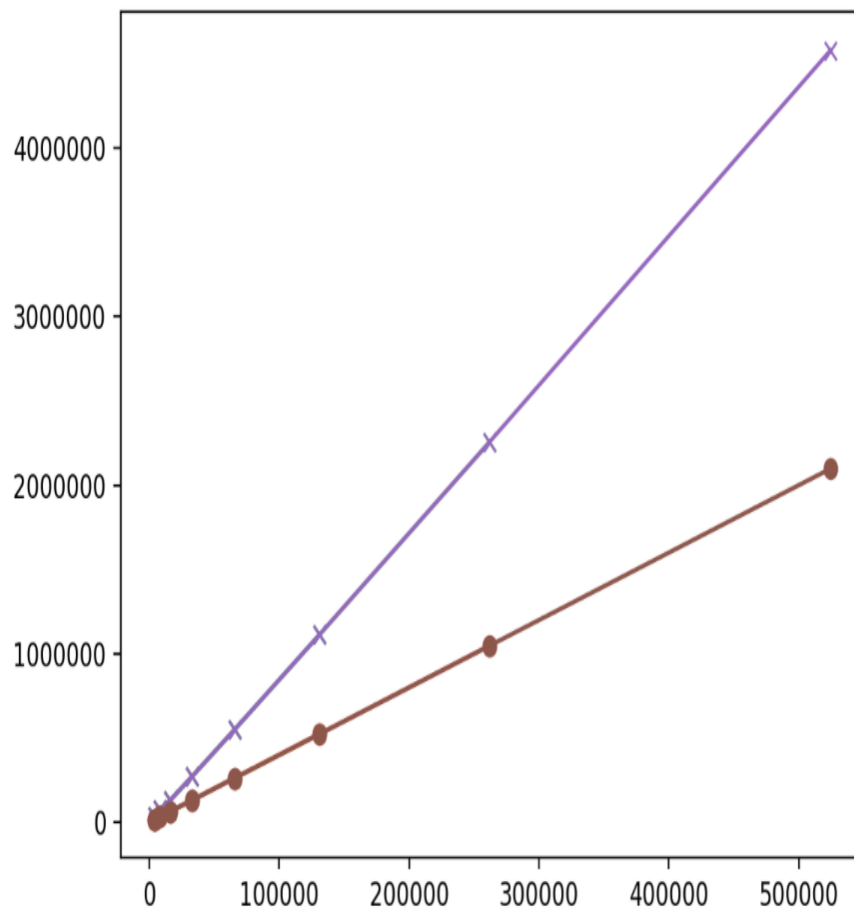
```
In [16]:  n = []
          L_size = []
          A_size = []

          for N in [2**k for k in range(12, 20)]:
              n.append(N)
              L = list(random() for i in range(N))
              A = array('i', list(range(1, N)))
              L_size.append(sys.getsizeof(L))
              A_size.append(sys.getsizeof(A))
              print('N: ', N, 'List size: ', sys.getsizeof(L), 'Array size: ', sys.getsizeof(A))
              plt.plot(n, L_size, 'x-')
              plt.plot(n, A_size, 'o-')

          N:   4096 List size:  36240 Array size:  16444
```

N: 4096 List size: 36240 Array size: 16444

Figure 1

Stop Interaction

N: 8192 List size: 73840 Array size: 32828
N: 16384 List size: 133344 Array size: 65596
N: 32768 List size: 270696 Array size: 131132
N: 65536 List size: 549144 Array size: 262204
N: 131072 List size: 1113640 Array size: 524348
N: 262144 List size: 2258048 Array size: 1048636
N: 524288 List size: 4578096 Array size: 2097212

Problem 3

```
In [10]:  #Problem 3
```

```
In [11]:  myList = [76, 92.3, 'hello', True, 4, 76]
```

```
In [12]:  myList.append('apple')
```

```
In [13]:  myList.append(76)
```

```
In [14]:  print(myList)
```
[76, 92.3, 'hello', True, 4, 76, 'apple', 76]

```
In [15]:  myList.insert(3, 'cat')
```

```
In [16]:  print(myList)
```
[76, 92.3, 'hello', 'cat', True, 4, 76, 'apple', 76]

```
In [18]:  myList.insert(0, 99)
```

```
In [19]:  print(myList)
```
[99, 76, 92.3, 'hello', 'cat', True, 4, 76, 'apple', 76]

```
In [24]:  myList.index('hello')
```
Out[24]: 3

```
In [25]:  myList.count(76)
```
Out[25]: 3

```
In [26]:  myList.pop(5)
```
Out[26]: True

Problem 4

In [28]: #Problem 4

In [37]:
```python
def sublists(r,c,v):
    return [ [v for i in range (c)]  for j in range(r)]
```

In [38]: L1 = sublists(4,2,7)

In [39]: print(L1)

[[7, 7], [7, 7], [7, 7], [7, 7]]

In [40]: L2 = sublists(3, 1, 'hello')

In [41]: print(L2)

[['hello'], ['hello'], ['hello']]