Assignment 3

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1.1 Write a Python Program to implement your own myreduce() function which works exactly like Python's built-in function reduce()

```
In [11]: def myreduce(func, list):
             if len(list) == 0:
                 return None
             final = list[0]
             for i in range(1,len(list)):
                 final = func(final,list[i])
             return final
```

```
In [15]: r1 = myreduce(lambda x,y: x+y,[1])
         r2 = myreduce(lambda x,y: x+y,[1,2,3,4,0])
         print(r1)
         print(r2)

         1
         10
```

1.2 Write a Python program to implement your own myfilter() function which works exactly like Python's built-in function filter()

```
In [11]: #filter function implementation whihc will filter even numbers
         def myfilter(func,sequence):
             final=[]
             for variable in sequence :
                 if func(variable):
                     final.append(variable)
             return final

         def is_even(num):
             if num%2==0 :
                 return True
             else :
                 return False
```

```
In [12]: seq=[1,2,3,4,5,6,7,8,9,10]
         print(my_filter(is_even,seq))

         [2, 4, 6, 8, 10]
```

2. Implement List comprehensions to produce the following lists.

Write List comprehensions to produce the following Lists

['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']

['x', 'y', 'z', 'xx', 'yy', 'zz', 'xxx', 'yyy', 'zzz', 'xxxx', 'yyyy', 'zzzz']

[[2], [3], [4], [3], [4], [5], [4], [5], [6]] [[2, 3, 4, 5], [3, 4, 5, 6],

[4, 5, 6, 7], [5, 6, 7, 8]]

[(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]

```
text =['x','y','z']
[i*j for i in text for j in range(1,5)]
```

['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']

```
In [84]: text =['x','y','z']
         [i*j for j in range(1,5) for i in text ]
```

Out[84]: ['x', 'y', 'z', 'xx', 'yy', 'zz', 'xxx', 'yyy', 'zzz', 'xxxx', 'yyyy', 'zzzz']

```
In [15]: numbers = [2,3,4]
         [[i+j] for i in numbers for j in range(0,3) ]
```

Out[15]: [[2], [3], [4], [3], [4], [5], [4], [5], [6]]

```
In [16]: numbers = [2,3,4,5]
         [[i+j for i in numbers] for j in range(0,4)]
```

Out[16]: [[2, 3, 4, 5], [3, 4, 5, 6], [4, 5, 6, 7], [5, 6, 7, 8]]

```
In [97]: numbers = [1,2,3]
         [(j,i)for i in numbers for j in numbers]

Out[97]: [(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]

In [ ]:
```