Assignment 2

In [ ]:
```
1.1 Write a Python Program to implement your own myreduce() function which works ex
actly like
Python's built-in function reduce()
```

In [30]:
```
def myreduce(func,my_list):
    result = my_list[0]
    for item in my_list[1:]:
        result = func(result,item)
        return result
```

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

In [31]:
```
def myfilter(func, my_list):
    result = []
    for item in my_list:
        if func(item):
            result.append(item)
            return result
```

1. Implement List comprehensions to produce the following lists. Write List comprehensions to produce the following Lists ['A', 'C', 'A', 'D', 'G', 'I', ’L’, ‘ D’] ['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz'] ['x', 'y', 'z', 'xx', 'yy', 'zz', 'xx', 'yy', 'zz', '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)]

In [32]:
```
word = "ACADGILD"
alphabet_list = [ alphabet for alphabet in word ]
print ("ACADGILD => " + str(alphabet_list))

input_list = ['x','y','z']
result = [ item*num for item in input_list for num in range(1,5)  ]
print("['x','y','z'] => " +   str(result))

input_list = ['x','y','z']
result = [ item*num for num in range(1,5) for item in input_list  ]
print("['x','y','z'] => " +   str(result))

input_list = [2,3,4]
result = [ [item+num] for item in input_list for num in range(0,3)]
print("[2,3,4] =>" +  str(result))

input_list = [2,3,4,5]
result = [ [item+num for item in input_list] for num in range(0,4)  ]
print("[2,3,4,5] =>" +  str(result))

input_list=[1,2,3]
result = [ (b,a) for a in input_list for b in input_list]
print("[1,2,3] =>" +  str(result))
```

```
ACADGILD => ['A', 'C', 'A', 'D', 'G', 'I', 'L', 'D']
['x','y','z'] => ['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz',
'zzz', 'zzzz']
['x','y','z'] => ['x', 'y', 'z', 'xx', 'yy', 'zz', 'xxx', 'yyy', 'zzz', 'xxxx',
'yyyy', 'zzzz']
[2,3,4] =>[[2], [3], [4], [3], [4], [5], [4], [5], [6]]
[2,3,4,5] =>[[2, 3, 4, 5], [3, 4, 5, 6], [4, 5, 6, 7], [5, 6, 7, 8]]
[1,2,3] =>[(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3,
3)]
```

3.Implement a function longestWord() that takes a list of words and returns the longest one.

In [47]:
```
def longestword(words_list):
    word_len = []
    for n in words_list:
        word_len.append((len(n), n))
    word_len.sort()
    return word_len[-1][1]
```

In [50]:
```
longestword(["Debo", "Boses", "Bosejotojhd"])
```

Out[50]:
```
'Bosejotojhd'
```

1.1 Write a Python Program(with class concepts) to find the area of the triangle using the below formula. area = (s*(s-a)*(s-b)*(s-c)) ** 0.5 Function to take the length of the sides of triangle from user should be defined in the parent class and function to calculate the area should be defined in subclass.

In [33]:
```
    class Triangle:

        def __init__(self,a,b,c):
            self.a = float(a)
            self.b = float(b)
            self.c = float(c)

        def area(self):
            s=(self.a + self.b + self.c)/2
            return((s*(s-self.a)*(s-self.b)*(s-self.c))**0.5)

    a=input("Enter the value of a = ")
    b=input("Enter the value of b = ")
    c=input("Enter the value of c = ")
    t = Triangle(a, b, c)
    print("area :{}".format(t.area()))
```

```
Enter the value of a = 7.3
Enter the value of b = 6.7
Enter the value of c = 5.6
area :17.86029115104231
```

1.2 Write a function filter_long_words() that takes a list of words and an integer n and returns the list

of words that are longer than n.

In [32]:
```
def filter_long_words(n, str):
    word_len = []
    txt = str.split(" ")
    for x in txt:
        if len(x) > n:
            word_len.append(x)
    return word_len
print(filter_long_words(3, "India won the world cup"))
```

```
['India', 'world']
```

2.1 Write a Python program using function concept that maps list of words into a list of integers representing the lengths of the corresponding words . Hint: If a list [ab,cde,erty] is passed on to the python function output should come as [2,3,4] Here 2,3 and 4 are the lengths of the words in the list.

In [37]:
```
def map_to_lengths_for(words):
    lengths = []
    for word in words:
        lengths.append(len(word))
    return lengths
```

2.2 Write a Python function which takes a character (i.e. a string of length 1) and returns True if it is a vowel, False otherwise.

In [28]:
```
def is_vowel(char):
    all_vowels = 'aeiou'
    return char in all_vowels
print(is_vowel('f'))
print(is_vowel('e'))
```

```
False
True
```

In [ ]:
```

```