In [1]:
```
#Myreduce function bulit

def myreduce(num):
    l=[]
    sum=0
    for i in range(0,num):
            i+=1
            l.append(i)
            sum =sum +i

    return l,sum


print("Input")
num=int(input("Please insert the number"))

output=myreduce(num)

print("list of Natural numbers ->",output[0])
print("Sum for numbers ->",output[1])
```

```
Input
Please insert the number20
list of Natural numbers -> [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 1
8, 19, 20]
Sum for numbers -> 210
```

In [ ]:
```
# Method I
from functools import reduce
def sum(a,b):
    return a+b
list_1=[10,15,25,10,40]
reduce(sum,list_1)
#[out]>> 100
```

In [9]:
```
# Method II
from functools import reduce
list_1=[10,15,25,10,40]
reduce(lambda a,b :a+b,list_1)
#[out]>>100
```

Out[9]: 100

In [54]:
```
print("Input")
num=int(input("Please insert the number"))
l=[]
sum=0
for i in range(0,num):
    i+=1
    l.append(i)
    sum =sum +i

#print(l)
print("list of Natural numbers ->",l)
```

```
print("Sum for numbers ->",sum)
```

```
Input
Please insert the number20
list of Natural numbers -> [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 1
8, 19, 20]
Sum for numbers -> 210
```

In [2]:

```
def myreduce(num):
    l=[]
    sum=0
    for i in range(0,num):
            i+=1
            l.append(i)
            sum =sum +i

    return l,sum


print("Input")
num=int(input("Please insert the number"))

output=myreduce(num)

print("list of Natural numbers ->",output[0])
print("Sum for numbers ->",output[1])
```

```
Input
Please insert the number10
list of Natural numbers -> [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Sum for numbers -> 55
```

In [24]:

```
#filter bulit in function
evn=[]
odd=[]

def myfilter(num):

        for a in range(1,num):
            if a%2==0:
                evn.append(a)
            else:
                odd.append(a)


        return evn,odd


print("Input")
num=int(input("Please insert the number"))

output=myfilter(num)

print("list of Even numbers ->",output[0])
print("list of odd numberss ->",output[1])
```

```
Input
Please insert the number10
```

```
list of Even numbers -> [2, 4, 6, 8]
list of odd numberss -> [1, 3, 5, 7, 9]
```

In [26]:
```
#Implement List comprehensions to produce the following lists.
#Write List comprehensions to produce the following Lists

letters = list('xyz')
pattern = []
for i in range(len(letters)):
       for j in range(1,5):
           pattern.append(letters[i]*j)
pattern = ['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']
```

In [27]:
```
pattern
```

Out[27]:
```
['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']
```

In [46]:
```
word = "ACADGILD"
alphabet_list = [ alphabet for alphabet in word ]
print ("ACADGILD => " + str(alphabet_list))
```

```
ACADGILD => ['A', 'C', 'A', 'D', 'G', 'I', 'L', 'D']
```

In [47]:
```
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))
```

```
[2,3,4] =>[[2], [3], [4], [3], [4], [5], [4], [5], [6]]
```

In [48]:
```
input_list=[1,2,3]
result = [ (b,a) for a in input_list for b in input_list]
print("[1,2,3] =>" +  str(result))
```

```
[1,2,3] =>[(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]
```

In [53]:
```
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))
```

```
[2,3,4,5] =>[[2, 3, 4, 5], [3, 4, 5, 6], [4, 5, 6, 7], [5, 6, 7, 8]]
```

In [ ]:
```

```