In [38]:
```
# myreduce function
def myreduce(IpFunc,IpRange):
    start = IpRange[0]
    end = IpRange[1]
    out = IpFunc(start,end)
    start=out
    count=0
    for i in IpRange:
        count=count+1
        if count > 2:
            end = i
            out = IpFunc(start,end)
            start=out
    return out

# Arithmetic Functions
def func_Add(n1,n2):
    return n1+n2

def func_Subtract(n1,n2):
    return n1-n2

def func_Multiply(n1,n2):
    return n1*n2

# Call myreduce
IpRange=range(1,5)
print('Input Range: \n\t',IpRange)
print('\nAdd Reduce: \n\t', myreduce(func_Add,IpRange))
print('\nSubtraction Reduce: \n\t', myreduce(func_Substract,IpRange))
print('\nMultiply Reduce: \n\t', myreduce(func_Multiply,IpRange))
```

```
Input Range:
         range(1, 5)

Add Reduce:
         10

Subtraction Reduce:
         -8

Multiply Reduce:
         24
```

In [19]:
```
#myFilter Function
def myfilter(logicFunc,IpRange):
    Out=[]
    for i in IpRange:
        if logicFunc(i)==True:
            Out.append(i)
    return Out

#Logical Functions
def IsEven(intInput):
    if intInput%2==0:
        return True

def IsOdd(intInput):
    if intInput%2!=0:
        return True

def IsPerfectSquare(intInput):
    intTemp = int(pow(intInput, 1/2))
    intTemp = pow(intTemp, 2)
    if intTemp==intInput:
        return True


# Call myfilter
IpRange = range(1,100)
print('Input Range: \n\t',IpRange)
print('\nEven Number from Range: \n\t', myfilter(IsEven,IpRange))
print('\nOdd Number from Range: \n\t', myfilter(IsOdd,IpRange))
print('\nPerfect Square Number from Range: \n\t', myfilter(IsPerfectSquare,IpRange)
)
```

```
Input Range:
         range(1, 100)

Even Number from Range:
         [2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38
, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78
, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98]

Odd Number from Range:
         [1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37,
39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77,
79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99]

Perfect Square Number from Range:
         [1, 4, 9, 16, 25, 36, 49, 64, 81]
```

In [23]:
```
print('\nList1')
strIp = 'ACADGILD'
Out=[Letter for Letter in strIp]
print(Out)

print('\nList2')
strIp = 'x,xx,xxx,xxxx,y,yy,yyy,yyyy,z,zz,zzz,zzzz'
Out=[Letter for Letter in strIp.split(',')]
print(Out)

print('\nList3')
strIp = 'x,y,z,xx,yy,zz,xx,yy,zz,xxxx,yyyy,zzzz'
Out=[Letter for Letter in strIp.split(',')]
print(Out)

print('\nList4')
strIp = '234345456'
Out=[[int(Letter)] for Letter in strIp]
print(Out)

print('\nList5')
strIp = [list(range(2,6)),list(range(3,7)),list(range(4,8)),list(range(5,9))]
Out=[Letter for Letter in strIp]
print(Out)

print('\nList6')
strIp = [(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]
Out=[Letter for Letter in strIp]
print(Out)
```

```
List1
['A', 'C', 'A', 'D', 'G', 'I', 'L', 'D']

List2
['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']

List3
['x', 'y', 'z', 'xx', 'yy', 'zz', 'xx', 'yy', 'zz', 'xxxx', 'yyyy', 'zzzz']

List4
[[2], [3], [4], [3], [4], [5], [4], [5], [6]]

List5
[[2, 3, 4, 5], [3, 4, 5, 6], [4, 5, 6, 7], [5, 6, 7, 8]]

List6
[(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]
```

In [37]:
```
def longestWord(Word):
    longest_Word = ''
    for i in Word:
        if len(longest_Word)<=len(i):
            longest_Word=i
    return longest_Word

#Call the function with a list
strListofWords='India is my country and all Indians are my brothers and sisters'
list_Of_Words=list(strListofWords.split(' '))
print('List of words: \n',lst_Of_Words, '\n')
print('Longest word: \n',longestWord(list_Of_Words))
```

```
List of words:
 ['India', 'is', 'my', 'country', 'and', 'all', 'Indians', 'are', 'my', 'brother
s', 'and', 'sisters']

Longest word:
 brothers
```