Map Filter and Reduce in python

In Python, the map filter and reduce function are built in functions that allow you to apply a function to a sequence of elements and return a new sequence. These function are known as higher order function as they take other function as argument.

Map

The map function applies a function to element in a sequence and returns a new sequence containing the transformed elements. The map function has the following syntax.

```
def cube(x):
    return x*x*x

print(cube(5))

l=[1,2,3,4,5,6]
# newl=[]
# for item in l:
#     newl.append(cube(item))

newl=list(map(cube,l))
print(newl)
```

Filter

The filter function filter's a sequence of elements based on a given predicate (a function that returns Boolean value) and returns a new sequence containing the elements that meet the predicate. The filter function has the following syntax.

```


l2=[1,2,3,4,5,6,10,30,50,100]
def filter_function(a):
```

```
    return a>5

newfilter=list(filter(filter_function,l2))
print(newfilter)
```

Find even number using filter and lambda function.

```
number=[4,5,7,8,22,44,7]
evens=filter(lambda x:x%2==0,number)
print(list(evens))
```

Reduce

The reduce function is a higher order function that applies a function to a sequence and returns a single value. It is a part of the functions module in Python and has the following syntax.

Source Code

```
# def cube(x):
#     return x*x*x

# print(cube(5))

l=[1,2,3,4,5,6,10,30]
# # newl=[]
# # for item in l:
# #     newl.append(cube(item))

# newl=list(map(cube,l))
# print(newl)


# l2=[1,2,3,4,5,6,10,30,50,100]
# def filter_function(a):
#     return a>5
```

```python
# newfilter=list(filter(filter_function,l2))
# print(newfilter)

# number=[4,5,7,8,22,44,7]
# evens=filter(lambda x:x%2==0,number)
# print(list(evens))

from functools import reduce

numbers=[1,2,44,3,1,3]

def sum(x,y):
    return x+y

mysum=reduce(sum,numbers)

print(mysum)
```

Thank You