```
Python 3.14.0 (tags/v3.14.0:ebf955d, Oct  7 2025, 10:15:03) [MSC v.1944 64 bit
(AMD64)] on win32
Enter "help" below or click "Help" above for more information.
>>> #-----------SYNTAX OF CLASS FILTER----------------
>>>
>>>
>>> # F = filter(functionObject, Iteratble)
>>>
>>> Comment = '''You can observe that the syntax of filter() is identical with that
of map()
... Both classes require two things for initialization:
... 1) Function object
... 2) Iterable object.
...
... But there is one small difference.
...
... function object required by map() usually has a following requirement:
...
... It takes one object as input and produces one of object of any type as output.
...
... Function object required by filter() has a more specific requirement:
...
... It takes one object as input and returns BOOLEAN (True or False) as output.
...
... Therefore, the function object used to create a filter class must return
True/False
... '''
>>>
>>> # Concrete Example
>>> def is_even(n):
...     return n%2 == 0
...
>>> # is_even() function accepts one integer object and returns True/False
depending on
>>> # whether the input integer is even or not.
>>> # So this function fits in the requirement of function object of filter class
>>>
>>> # Lets create one iterable
>>> L = [1,2,3,4,5,6,7,8,9,10]
F = filter(is_even, L)
print(F)
<filter object at 0x0000021C4076D600>
for x in F:
    print(x)


2
4
6
8
```

```
10
for x in filter(lambda n : n % 2 == 0, list(range(1, 11))):
    print(x)


2
4
6
8
10
# More examples: vowels
(lambda c : c in 'aeiou

SyntaxError: unterminated string literal (detected at line 1)
(lambda c : c in 'aeiou')('x')

False
(lambda c : c in 'aeiou')('e')

True
)
SyntaxError: unmatched ')'
for vowel in filter(lambda c : c in 'aeiou', "YogeshwarShukla"):
    print(voewel)


Traceback (most recent call last):
  File "<pyshell#49>", line 2, in <module>
    print(voewel)
NameError: name 'voewel' is not defined. Did you mean: 'vowel'?
for vowel in filter(lambda c : c in 'aeiou', "YogeshwarShukla"):
    print(vowel)


o
e
a
u
a
# map(functionObject, iterable)
# filter(functionObjec, iterable)
# Create a object containing squares of all even numbers between 1 to 10
# Step by Step : Functional programming approach
def is_even(n):
    return n % 2 == 0

R = range(1, 11)
F = filter(is_even, R)
def make_square(m):
    return m**2
```

```
M = map(make_square, F)
for x in M:
    print(x)



4
16
36
64
100
# SINGLE LINE
for x in map(lambda n : n ** 2, filter(lambda n : n % 2 == 0, range(1, 11))):
    print(x)


4
16
36
64
100
```