

# Python Notes: filter() and lambda

## What is filter() in Python?

The filter() function is used to filter elements from a collection (like a list), based on a condition.


Think of filter() like a security gate that only allows people who meet certain criteria to pass.

It returns an iterator that includes only the elements where the function returns True.


## What is lambda in Python?

A lambda function is a small, anonymous function in Python. It is used for simple tasks that can be written in one line.

Syntax: lambda arguments: expression

In our gatekeeping example, lambda is the guard's logic deciding who enters.

## Example 1: Filter even numbers


```
nums = [1, 2, 3, 4, 5, 6]
even_nums = list(filter(lambda x: x % 2 == 0, nums))
```

Output: [2, 4, 6]

Here, filter is checking each number, and lambda checks if it's even.



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## Example 2: Filter strings containing 'IT'


```
departments = ['HR', 'IT Support', 'Finance', 'IT Operations']
it_depts = list(filter(lambda x: 'IT' in x, departments))
```

Output: ['IT Support', 'IT Operations']

## Example 3: Advanced - Filter high-priority tasks


```
tasks = [{'task': 'Deploy code', 'priority': 'High'},
         {'task': 'Team lunch', 'priority': 'Low'},
         {'task': 'Bug fix', 'priority': 'High'} ]
high_priority = list(filter(lambda t: t['priority'] == 'High', tasks))
```

Output: [{'task': 'Deploy code', 'priority': 'High'},[{'task': 'Bug fix', 'priority': 'High'}]

## Summary


- Use filter() to screen elements based on logic.
- Use lambda when you need quick, one-line functions.
- Together, they are great for clean, functional-style code.