Cheat Sheet

Standard Library

Built-in Functions

Built-in functions are Readily available for reuse.

Some of the built Functions are

1. print()

2. max()

3. min()

4. len()   and many more..

Standard Library

Python provides several such useful values (constants), classes and functions.

This collection of predefined utilities is referred as the **Python Standard Library**

All these functionalities are organized into different modules.

- In Python context, any file containing a Python code is called a **module**

- These modules are further organized into folders known as **packages**

Different modules are:

1. collections

2. random

3. datetime

4. math and many more..

Working with Standard Library

To use a functionality defined in a module we need to import that module in our program.

```python
1  import module_name
```

Math Module

math module provides us to access some common *math functions* and *constants*.

Variable / Function / Class
defined in the module

```
math.factorial(5)
```

Module Name

Code

```python
1  import math
2  print(math.factorial(5))
3  print(math.pi)
```

Output

```
120
```

```
3.141592653589793
```

Importing module

Importing a module and giving it a new name (aliasing)

Code

PYTHON

```python
1   import math as m1
2   print(m1.factorial(5))
```

Output

```
120
```

Importing from a Module

We can import just a specific definition from a module.

Code

PYTHON

```python
1   from math import factorial
2   print(factorial(5))
```

Output

```
120
```

Aliasing Imports

We can also import a specific definition from a module and alias it

Code

PYTHON

```python
1  from math import factorial as fact
2  print(fact(5))
```

Output

```
120
```

Random module

Randomness is useful in whenever uncertainty is required.

For example: Rolling a dice, flipping a coin, etc.,

random module provides us utilities to create randomness.

Randint

randint()   is a function in random module which returns a random integer in the given interval.

Code

```python
1  import random
2  random_integer = random.randint(1, 10)
3  print(random_integer)
```

Output

8

Choice

choice()   is a function in random module which returns a random element from the sequence.

Code

```python
1  import random
2  random_ele = random.choice(["A","B","C"])
3  print(random_ele)
```

Output

B

To know more about **Python Standard Library**, go through the authentic python documentation

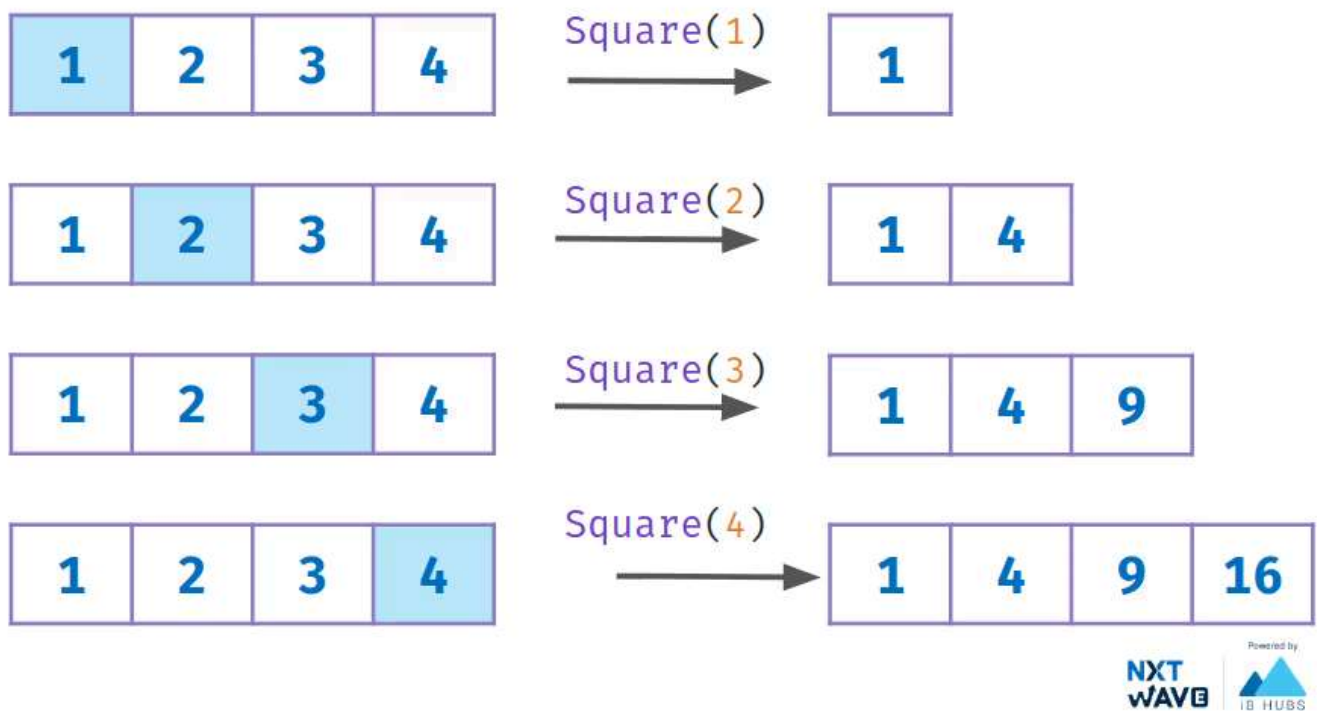- https://docs.python.org/3/library/

Map, Filter and Reduce

We worked with different sequences (list, tuples, etc.)

To simplify working with sequences we can use

 map() , filter() and reduce() functions.

Map

 map() applies a given function to each item of a sequence (list, tuple etc.) and returns a sequence of the results.

Example - 1

Code

PYTHON

```python
1  def square(n):
2      return n * n
3  numbers = [1, 2, 3, 4]
4  result = map(square, numbers)
5  numbers_square = list(result)
6  print(numbers_square)
```

Output

[1, 4, 9, 16]

Example - 2

Code

PYTHON

```python
1  numbers = list(map(int, input().split()))
2  print(numbers)
```
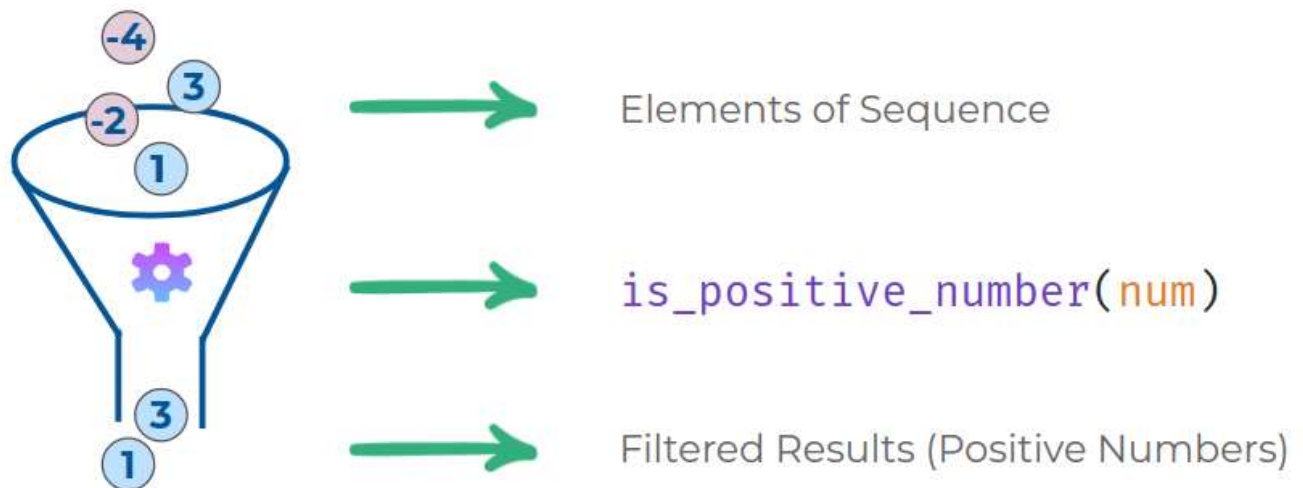
Input

1 2 3 4

Output

[1, 2, 3, 4]

Filter

filter() method filters the elements of a given sequence based on the result of given function.

The function should return True/False

Elements of Sequence

is_positive_number(num)

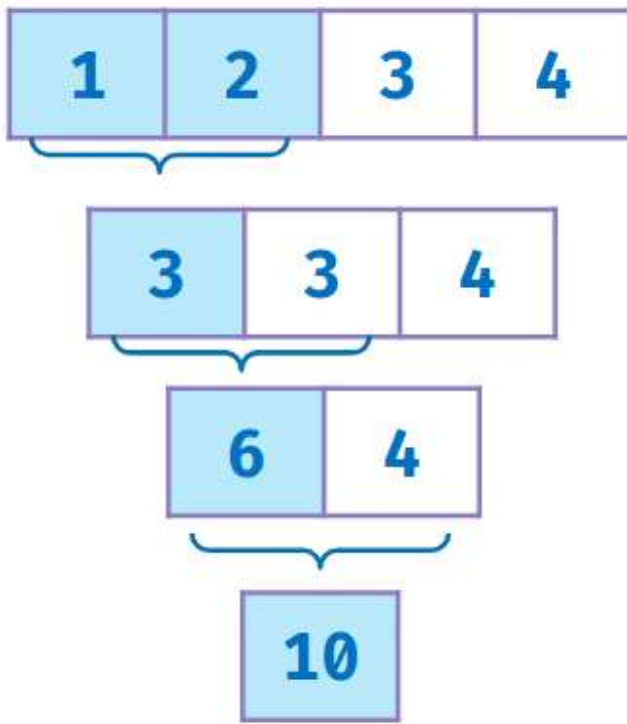Filtered Results (Positive Numbers)

Code

PYTHON

```python
1  def is_positive_number(num):
2      return num > 0
3
4  list_a = [1, -2, 3, -4]
5  positive_nums = filter(is_positive_number, list_a)
6  print(list(positive_nums))
```

Output

[1, 3]

Reduce

reduce()   function is defined in the functools module.

Code

PYTHON

```python
from functools import reduce

def sum_of_num(a, b):
    return a+b

list_a = [1, 2, 3, 4]
sum_of_list = reduce(sum_of_num, list_a)
print(sum_of_list)
```

Output

```
10
```

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