

# Full stack web development using python

## range



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# Agenda

- ① What are iterables?
- ② various iterables
- ③ range
- ④ Accessing range elements
- ⑤ Practice

## What are iterables?

An iterable object is something that contains a countable number of values.

You can traverse through all the values from beginning to the end.

Technically, in Python, an iterator is an object, which implements the iterator protocol, which consist of methods `__iter__()` and `__next__()`

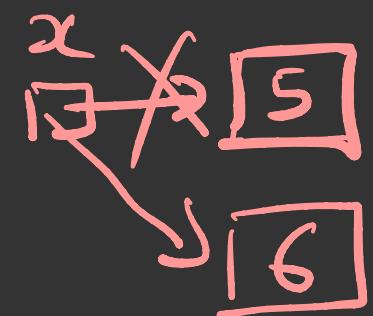
# Various Iterables

- range
- list
- tuple
- str
- bytes
- bytearray
- set
- frozenset
- dict

# range

- range is a class
- range is immutable sequence
- range can contain only int type values
- range contains sequence of integers with common difference (Arithmetic Progression)

$$\begin{aligned}x &= 5 \\x &= 6\end{aligned}$$



## How to create range object?

$r = \text{range}(\text{beg}, \text{end}, \text{step})$

Example

$\text{range}(1, 10, 1)$     1 2 3 4 5 6 7 8 9  
    ↑   ↑            ← common gap  
  inclusive    Exclusive

$\text{range}(2, 8, 2)$     2 4 6

$\text{range}(10, 3, -2)$     10 8 6 4

## Other ways to create range object

$r = \text{range}(\text{beg}, \text{end}, \text{step})$

①  $\text{range}(\text{end})$        $\text{beg} = 0$        $\text{step} = 1$

②  $\text{range}(\text{beg}, \text{end})$        $\text{step} = 1$

## Accessing range elements.

for e in r:

Code

# e is an element of range

Write a program to print first n natural numbers.

```
for a in range(int(input("Enter a num"))):  
    print(a+1, end=' ')
```

Write a program to print  
Squares of first n natural numbers

```
for a in range(int(input("Enter a num"))):  
    print((a+1)**2, end = ' ')
```

Write a program to print  
first n even natural numbers  
in reverse order.

n=5            10 8 6 4 2

for a in range(2\*int(input("Enter a num")), 0, -2)  
    printf(a, end=' ')

Write a program to calculate  
Sum of first n multiples of  
 $x$ .