

Python Built-in Classes

Quick Notes for Beginners

1. What Is a Built-in Class in Python?

A built-in class is a class that Python provides for us. We can use these classes directly without defining them ourselves.

```
x = 10
```

- int is a built-in Python class.
- 10 is an object (instance) of the int class.
- x is a name that refers to that object.

2. Built-in Classes vs Data Types

In C, C++, or Java, you may learn types such as int and float as built-in or primitive data types. Python uses a more object-oriented model: commonly used values are objects, and their types are represented by classes.

```
int x = 10;      # C
x = 10           # Python
```

Remember: In Python, you normally do not declare the type of a name before assigning a value.

3. Common Built-in Classes

Python provides many built-in classes. The following are some of the most commonly used ones:

Class	Purpose	Example
int	Integers	10
float	Decimal numbers	3.14
complex	Complex numbers	2 + 3j
bool	True/False values	True
str	Text	"Python"
list	Ordered, changeable collection	[10, 20, 30]
tuple	Ordered, unchangeable collection	(10, 20, 30)
set	Unique elements	{10, 20, 30}
dict	Key-value pairs	{"name": "Ram"}
range	Sequence of integers	range(5)

4. A Simple Comparison with C, C++ and Java

If you have learned C, C++, or Java, you may be familiar with statements such as:

```
int x = 10;
```

Here, int is used as a type and x is an integer variable. In Python, the usual form is:

```
x = 10
```

The object 10 has type int, and the name x refers to that object. Python therefore does not normally require a separate type declaration for the name.

5. Python's Object-Oriented Approach

Python follows an object-oriented approach in which values are represented as objects. Many familiar Python data types are built-in classes.

Built-in Class	Example Object
int	10
float	3.14
str	"Python"
list	[10, 20, 30]
tuple	(10, 20, 30)
dict	{"name": "Ram"}

You can also create your own classes in Python:

```
class Student:  
    pass
```

Then you can create multiple objects from the class:

```
s1 = Student()  
s2 = Student()  
s3 = Student()
```

Remember: A Python class can be used to create many objects, just as a class in C++ or Java can.

6. Quick Revision

- Python provides many built-in classes that can be used directly.
- int represents integer numbers.
- float represents decimal numbers.
- complex represents complex numbers.
- bool represents True and False values.
- str represents text.
- list represents an ordered, changeable collection.
- tuple represents an ordered, unchangeable collection.
- set represents a collection of unique elements.
- dict represents key-value pairs.
- range represents a sequence of integers.
- Values created from these classes are objects.
- Python normally does not require you to declare a name's type before assigning a value.

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