



Python Inheritance

[< Previous](#)[Next >](#)

Python Inheritance

Inheritance allows us to define a class that inherits all the methods and properties from another class.

Parent class is the class being inherited from, also called base class.

Child class is the class that inherits from another class, also called derived class.

Create a Parent Class

Any class can be a parent class, so the syntax is the same as creating any other class:

Example

Create a class named **Person**, with **firstname** and **lastname** properties, and a **printname** method:

```
class Person:
    def __init__(self, fname, lname):
        self.firstname = fname
        self.lastname = lname

    def printname(self):
        print(self.firstname, self.lastname)

#Use the Person class to create an object, and then execute the printname
```

```
method:
```

```
x = Person("John", "Doe")  
x.printname()
```

[Try it Yourself »](#)

Create a Child Class

To create a class that inherits the functionality from another class, send the parent class as a parameter when creating the child class:

Example

Create a class named `Student`, which will inherit the properties and methods from the `Person` class:

```
class Student(Person):  
    pass
```

Note: Use the `pass` keyword when you do not want to add any other properties or methods to the class.

Now the `Student` class has the same properties and methods as the `Person` class.

Example

Use the `Student` class to create an object, and then execute the `printname` method:

```
x = Student("Mike", "Olsen")  
x.printname()
```

[Try it Yourself »](#)

Add the `__init__()` Function

So far we have created a child class that inherits the properties and methods from its parent.

We want to add the `__init__()` function to the child class (instead of the `pass` keyword).

Note: The `__init__()` function is called automatically every time the class is being used to create a new object.

Example

Add the `__init__()` function to the `Student` class:

```
class Student(Person):  
    def __init__(self, fname, lname):  
        #add properties etc.
```

When you add the `__init__()` function, the child class will no longer inherit the parent's `__init__()` function.

Note: The child's `__init__()` function **overrides** the inheritance of the parent's `__init__()` function.

To keep the inheritance of the parent's `__init__()` function, add a call to the parent's `__init__()` function:

Example

```
class Student(Person):  
    def __init__(self, fname, lname):
```

```
Person.__init__(self, fname, lname)
```

[Try it Yourself »](#)

Now we have successfully added the `__init__()` function, and kept the inheritance of the parent class, and we are ready to add functionality in the `__init__()` function.

Use the super() Function

Python also has a `super()` function that will make the child class inherit all the methods and properties from its parent:

Example

```
class Student(Person):  
    def __init__(self, fname, lname):  
        super().__init__(fname, lname)
```

[Try it Yourself »](#)

By using the `super()` function, you do not have to use the name of the parent element, it will automatically inherit the methods and properties from its parent.

Add Properties

Example

Add a property called `graduationyear` to the `Student` class:

```
class Student(Person):  
    def __init__(self, fname, lname):  
        super().__init__(fname, lname)  
        self.graduationyear = 2019
```

[Try it Yourself »](#)

In the example below, the year **2019** should be a variable, and passed into the **Student** class when creating student objects. To do so, add another parameter in the `__init__()` function:

Example

Add a **year** parameter, and pass the correct year when creating objects:

```
class Student(Person):
    def __init__(self, fname, lname, year):
        super().__init__(fname, lname)
        self.graduationyear = year

x = Student("Mike", "Olsen", 2019)
```

[Try it Yourself »](#)

Add Methods

Example

Add a method called **welcome** to the **Student** class:

```
class Student(Person):
    def __init__(self, fname, lname, year):
        super().__init__(fname, lname)
        self.graduationyear = year

    def welcome(self):
        print("Welcome", self.firstname, self.lastname, "to the class of",
              self.graduationyear)
```

[Try it Yourself »](#)

If you add a method in the child class with the same name as a function in the parent class, the inheritance of the parent method will be overridden.

[< Previous](#)[Next >](#)

COLOR PICKER



HOW TO

Tabs
Dropdowns
Accordions
Side Navigation
Top Navigation
Modal Boxes
Progress Bars
Parallax
Login Form
HTML Includes
Google Maps
Range Sliders
Tooltips
Slideshow
Filter List
Sort List

SHARE



CERTIFICATES

HTML
CSS
JavaScript
SQL
Python
PHP
jQuery
Bootstrap
XML

[Read More »](#)

[REPORT ERROR](#)

[PRINT PAGE](#)

[FORUM](#)

[ABOUT](#)

Top Tutorials

HTML Tutorial
CSS Tutorial
JavaScript Tutorial
How To Tutorial
SQL Tutorial
Python Tutorial
W3.CSS Tutorial
Bootstrap Tutorial
PHP Tutorial
jQuery Tutorial
Java Tutorial
C++ Tutorial

Top References

HTML Reference
CSS Reference
JavaScript Reference
SQL Reference
Python Reference
W3.CSS Reference

[Bootstrap Reference](#)[PHP Reference](#)[HTML Colors](#)[jQuery Reference](#)[Java Reference](#)[Angular Reference](#)

Top Examples

[HTML Examples](#)[CSS Examples](#)[JavaScript Examples](#)[How To Examples](#)[SQL Examples](#)[Python Examples](#)[W3.CSS Examples](#)[Bootstrap Examples](#)[PHP Examples](#)[jQuery Examples](#)[Java Examples](#)[XML Examples](#)

Web Certificates

[HTML Certificate](#)[CSS Certificate](#)[JavaScript Certificate](#)[SQL Certificate](#)[Python Certificate](#)[jQuery Certificate](#)[PHP Certificate](#)[Bootstrap Certificate](#)[XML Certificate](#)[Get Certified »](#)

W3Schools is optimized for learning, testing, and training. Examples might be simplified to improve reading and basic understanding. Tutorials, references, and examples are constantly reviewed to avoid errors, but we cannot warrant full correctness of all content. While using this site, you agree to have read and accepted our terms of use, cookie and privacy policy. Copyright 1999-2020 by Refsnes Data. All Rights Reserved.

Powered by W3.CSS.

