Super Function

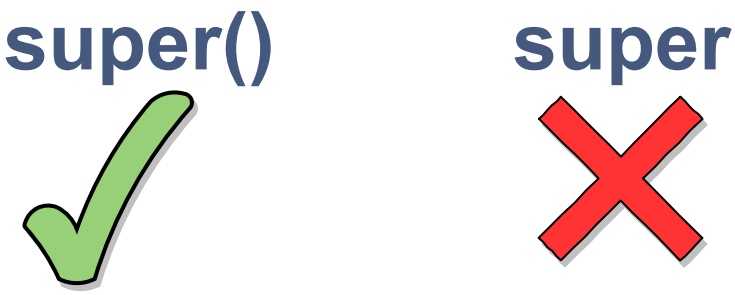
In this lesson, you'll get to know about the uses of the super function in Python.

We'll cover the following

What is the `super()` Function?

The use of `super()` comes into play when we implement inheritance. It is used in a *child class* to **refer** to the *parent class* without explicitly naming it. It makes the code more manageable, and there is no need to know the name of the parent class to access its attributes.

> **Note:** Make sure to add parenthesis at the end to avoid a compilation error.



Use Cases of the `super()` Function

The super function is used in *three* relevant contexts:

Accessing Parent Class Properties

Consider the fields named `fuelCap` defined inside a `Vehicle` class to keep track of the *fuel capacity* of a vehicle. Another class named as `Car` *extends* from this `Vehicle` class. We declare a class property inside the `Car` class with the same name, i.e., `fuelCap` but different value. Now, if we want to refer to the `fuelCap` field of the *parent class* inside the *child class*, we will then have to use the `super()` function.

Let's understand this using the code below:

```
class Vehicle:  # defining the parent class
    fuelCap = 90


class Car(Vehicle):  # defining the child class
    fuelCap = 50

    def display(self):
        # accessing fuelCap from the Vehicle class using super()
        print("Fuel cap from the Vehicle Class:", super().fuelCap)

        # accessing fuelCap from the Vehicle class using self
        print("Fuel cap from the Car Class:", self.fuelCap)


obj1 = Car()  # creating a car object
obj1.display()  # calling the Car class method display()

```

Calling Parent Class Methods

Just like the properties, `super()` is also used with the methods. Whenever a *parent class* and the **immediate** *child class* have any methods with the same name, we use `super()` to access the methods from the parent class inside the child class. Let's go through an example:

```
class Vehicle:  # defining the parent class
    def display(self):  # defining diplay method in the parent class
        print("I am from the Vehicle Class")
```

```
class Car(Vehicle):  # defining the child class
    # defining diplay method in the parent class
    def display(self):

        super().display()
        print("I am from the Car Class")


obj1 = Car()  # creating a car object
obj1.display()  # calling the Car class method printOut()
```

Using with Initializers

Another essential use of the function `super()` is to call the *initializer* of the *parent class* from the inside of the *initializer* of the *child class*.

> **Note:** It is **not** necessary that the call to `super()` in a method or an initializer is made in the first line of the method.

Below is an example of using `super()` in initializer inside the child class.

first second

```
class ParentClass():
    def __init__(self, a, b):
        self.a = a
        self.b = b


class ChildClass(ParentClass):
    def __init__(self, a, b, c):
        super().__init__(a, b)
        self.c = c


obj = ChildClass(1, 2, 3)
print(obj.a)
print(obj.b)
print(obj.c)
```

As you can see in both the code tabs, swapping the order of **line 9** and **line 10** does not change the functionality of the code. This allows the user to manipulate parameters before passing them into the parent class method.

Now let's use the example in the previous lesson and use `super()` to refer to the parent class:

without_super | with_super

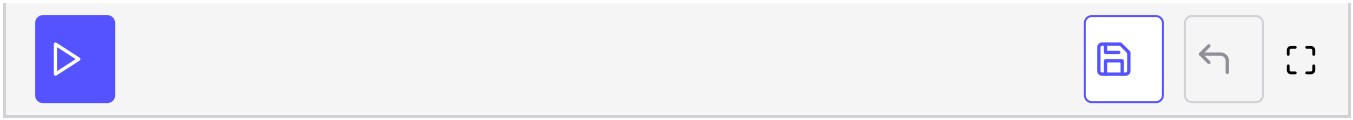
```
class Vehicle:
    def __init__(self, make, color, model):
        self.make = make
        self.color = color
        self.model = model

    def printDetails(self):
        print("Manufacturer:", self.make)
        print("Color:", self.color)
        print("Model:", self.model)


class Car(Vehicle):
    def __init__(self, make, color, model, doors):
        Vehicle.__init__(self, make, color, model)
        self.doors = doors

    def printCarDetails(self):
        self.printDetails()
        print("Name:", self.doors)


obj1 = Car("Suzuki", "Grey", "2015", 4)
obj1.printCarDetails()
```



As you can see in the above codes, **line 15** is interchangeable and produces the same output but using `super()` makes the code more manageable.

So this was pretty much all about the `super()` function. In the next lesson, we will discuss the different types of inheritance.