

1. What is the concept of an abstract superclass?

An abstract superclass is a class that cannot be instantiated directly but serves as a blueprint for its subclasses. It defines common attributes and behaviors that its subclasses can inherit. The purpose of an abstract superclass is to provide a common interface and ensure consistent behavior across its subclasses.

2. What happens when a class statement's top level contains a basic assignment statement?

When a class statement's top level contains a basic assignment statement, it creates a class attribute. This attribute is shared by all instances of the class and can be accessed using the class name or instance name. It is available to all methods and instances of the class.

3. Why does a class need to manually call a superclass's `__init__` method?

A class needs to manually call a superclass's `__init__` method to ensure proper initialization of inherited attributes and to execute any initialization code defined in the superclass. By calling the superclass's `__init__` method, the subclass can inherit and initialize the attributes defined in the superclass, providing a complete initialization process.

4. How can you augment, instead of completely replacing, an inherited method?

To augment an inherited method, you can override the method in the subclass and call the superclass's version of the method using the `super()` function. By calling `super().method()`, you can execute the original behavior defined in the superclass and then add additional functionality specific to the subclass. This way, you can extend or modify the behavior of the inherited method without completely replacing it.

5. How is the local scope of a class different from that of a function?

The local scope of a class refers to the namespace within the class definition. It includes the attributes and methods defined within the class. This scope is accessible by all methods within the class and can be accessed using the `self` parameter. In contrast, the local scope of a function refers to the namespace within the function definition. It includes the variables and parameters defined within the function and is only accessible within that specific function.