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# 1. Class vs. Object:

**a. Explain the difference between a class and an object in Python.**

**b. Provide an example.**

**Class:**

A class is a blueprint or template for creating objects. It defines a set of attributes (data) and methods (functions) that the created objects will have

**Object:**

An object is an instance of a class. When a class is instantiated, an object is created, which contains the attributes and methods defined by the class.

**Examples:**

```
class Dog:
    def __init__(self, name, breed):
        self.name = name
        self.breed = breed

    def bark(self):
        return f"{self.name} says woof!"

dog1 = Dog("Buddy", "Golden Retriever")
dog2 = Dog("Max", "Bulldog")
```

**Accessing attributes and methods of the objects**

print(dog1.bark())

print(dog2.breed())

## Working:

**Class: Dog** is the **class** that serves as a blueprint.

**Objects: dog1** and **dog2** are objects (instances) of the **Dog class**, each with their own attributes and behavior.

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## 2. Constructor Method (__init__) vs __str__() Function:

**a. Explain the difference between them in Python.**

**b. Provide an example**.

### 1) __init__ Method:

This is the constructor method in Python. It is called automatically when an object is created from a class. The primary purpose of the **(__init__)** method is to initialize the object's attributes and set up any necessary state.

**Syntax:** def __init__(self, parameters):

## 2) __str__() Method:

This method is used to define a human-readable string representation of an object. When you use the print() function on an object, Python automatically calls the **(__str__())** method to get the string to display.

**Syntax:** def __str__(self):

## Example:

```
class Book:
    def __init__(self, title, author):
        self.title = title
        self.author = author
    def __str__(self):
        return f"'{self.title}' by {self.author}"
book1 = Book("1984", "George Orwell")
print(book1)
```

## Working:

1).__init__: Initializes the attributes of the Book object when it is created.

2).__str__(): Provides a readable string representation of the Book object, allowing for a more meaningful output when printed.

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