OBJECT IN DART

Object In Dart

In object-oriented programming, an object is a self-contained unit of code and data. Objects are created from templates called classes. An object is made up of properties(variables) and methods(functions). An object is an instance of a class.

For example, a bicycle object might have attributes like color, size, and current speed. It might have methods like changeGear, pedalFaster, and brake.

> ### ℹ️ Info
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> **Note**: To create an object, you must create a class first. It's a good practice to declare the object name in lower case.

Instantiation

In object-oriented programming, instantiation is the process of creating an instance of a class. In other words, you can say that instantiation is the process of creating an object of a class. For example, if you have a class called **Bicycle**, then you can create an object of the class called **bicycle**.

Declaring Object In Dart

Once you have created a class, it's time to declare the object. You can declare an object by the following syntax:

Syntax

```
ClassName objectName = ClassName();
```

Example 1: Declaring An Object In Dart

In this example below, there is class **Bycycle** with three properties: **color**, **size**, and **currentSpeed**. The class has two methods. One is **changeGear**, which changes the gear of the bicycle, and **display** method prints out the values of the three properties. We also have an object of the class **Bycycle** called **bicycle**.

```dart
class Bicycle {
  String? color;
  int? size;
  int? currentSpeed;

  void changeGear(int newValue) {
    currentSpeed = newValue;
  }

  void display() {
    print("Color: $color");
    print("Size: $size");
    print("Current Speed: $currentSpeed");
  }
}

void main(){
    // Here bicycle is object of class Bicycle.
    Bicycle bicycle = Bicycle();
    bicycle.color = "Red";
    bicycle.size = 26;
    bicycle.currentSpeed = 0;
    bicycle.changeGear(5);
    bicycle.display();
}
```

> Show Output

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> **ⓘ Info**
>
> **Note**: Once you create an object, you can access the properties and methods of the object using the dot(.) operator.

Example 2: Declaring Animal Class Object In Dart

In this example below there is class **Animal** with three properties: **name**, **numberOfLegs**, and **lifeSpan**. The class also has a method called **display**, which prints out the values of the three properties. We also have an object of the class **Animal** called **animal**.

```dart
class Animal {
    String? name;
    int? numberOfLegs;
    int? lifeSpan;

    void display() {
      print("Animal name: $name.");
      print("Number of Legs: $numberOfLegs.");
      print("Life Span: $lifeSpan.");
    }
  }

  void main(){
      // Here animal is object of class Animal.
      Animal animal = Animal();
      animal.name = "Lion";
      animal.numberOfLegs = 4;
      animal.lifeSpan = 10;
      animal.display();
  }
```

> Show Output

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Example 3: Declaring Car Class Object In Dart

In this example below there is class **Car** with three properties: **name**, **color**, and **numberOfSeats**. The class also has a method called **start**, which prints out the message "Car Started". We also have an object of the class **Car** called **car**.

```dart
class Car {
  String? name;
  String? color;
  int? numberOfSeats;

  void start() {
    print("$name Car Started.");
  }
}

void main(){
    // Here car is object of class Car.
```

```
    Car car = Car();
    car.name = "BMW";
    car.color = "Red";
    car.numberOfSeats = 4;
    car.start();

    // Here car2 is another object of class Car.
    Car car2 = Car();
    car2.name = "Audi";
    car2.color = "Black";
    car2.numberOfSeats = 4;
    car2.start();
}
```

> Show Output

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Key Points

- The main method is the program's entry point, so it is always needed to see the result.
- The **new** keyword can be used to create a new object, but it is unnecessary.

Challenge

Create a class Camera with properties: **name**, **color**, **megapixel**. Create a method called **display** which prints out the values of the three properties. Create two objects of the class Camera and call the method display.

Video

Watch our video on parameterized constructor in Dart.