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Upcast vs Downcast in dart

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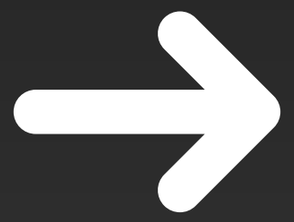
Swipe

Casting refers to the process of converting an object of one type to another type. There are two types of casting in Dart: upcasting and downcasting.

Let’s look into an example.



Upcasting is the process of converting an object from **a derived class to its base class type**. In Dart, upcasting is **implicit**, meaning that you don't need to **explicitly** specify the type conversion.

```dart
//Base class
class Animal {}
//Derived class
class Dog extends Animal {}
//Here an object of type Dog is being assigned to a variable of type Animal.
//ie here object of type Dog is being cast to its base class type Animal.
//This is called upcasting
Animal animal = Dog();
```

Downcasting is the process of converting an object **from its base class type to a derived class type**. **Downcasting** requires an explicit type conversion using the **'as'** operator.

```
//Base class
class Animal {}
//Derived class
class Dog extends Animal {}
//Here an object of type 'Animal' is being cast to type 'Dog'.
//ie the object is being converted from its base class type.
//This is called downcasting.
Animal animal = Dog();
//Downcasted explicitly using 'as' keyword
Dog dog = animal as Dog;
```

Implicit downcasts are not allowed in dart as it is unsafe.It should be explicitly downcasted.

```dart
Animal animal = Dog();
//Compile Error:A value of type 'Animal' can't be assigned to a variable of type 'Dog'.
// Try changing the type of the variable, or casting the right-hand type to 'Dog'.
Dog dog = animal;
```

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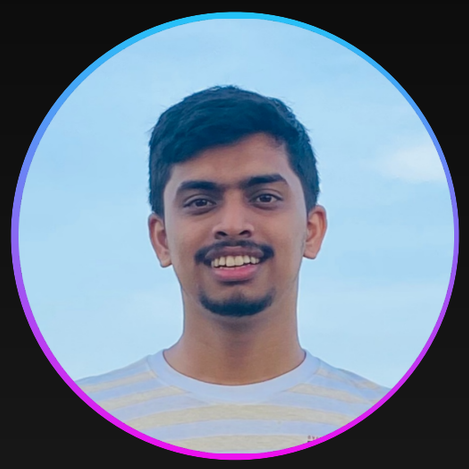

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