

Meaning of Polymorphism:

Is Greek word that means to "have many forms" objects can be identified by more than one type. Example a Dog also can call: Canine, Animal, Organism.

Application/Example of Polymorphism

We are going to have a race. We will have a Vehicle Car, Bicycle and Boat objects. Vehicle is the base class also known as parent class and Car, Bicycle and Boat inherit from Vehicle class. We will place these objects in an array. When we try creating an array of vehicle will contain Car, Bicycle and Boat but we will run into error. It will not implicitly convert bicycle into car. We stated that the data type of the array is going to be Car and we can only enter Car object in the array. We cannot enter Bicycle and Boat object in this Car array. One way we can solve this, is by polymorphism. We can find what they all have in common.

They are identified as Vehicle because they all inherit from Vehicle class. Objects are more than one type. Instead of array being an array of Car we can change it to array of Vehicle. If we need to create an array of different types of an object, we should find what they have in common. The we can use that as the data type. Let us now create Go method. To iterate over this Go method, we can use forEach loop, each vehicle can use Go method then will need a Go method within Vehicle class. All the method in Car, Bicycle and Boat classes all are going to be override the Go method found in the class. Let us create a Virtual method. We will not define anything in Virtual method because we are going override the method. By using override modifier. Then when we iterate over this array of Vehicle. Each Vehicle will use it Go method. It as if we like to begin array all of the Vehicle within the array will use the Go method at the same time.

Benefit of Polymorphism

- Programmers code can be reused via Polymorphism.
- Supports a single variable name for multiple data types.
- Reduces coupling between different functionalities.