Interfaces

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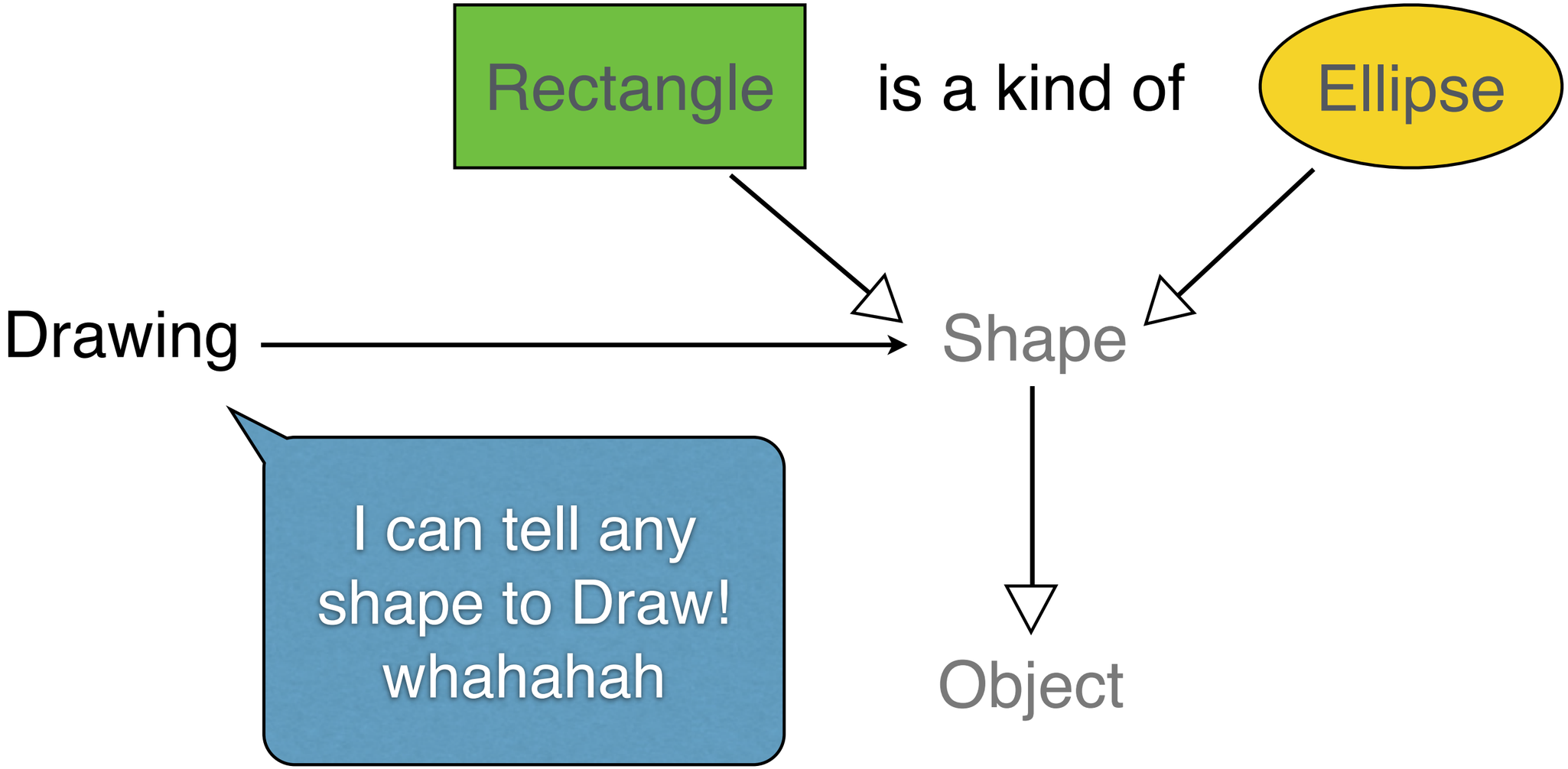
Object oriented programs contain objects that know and can do things

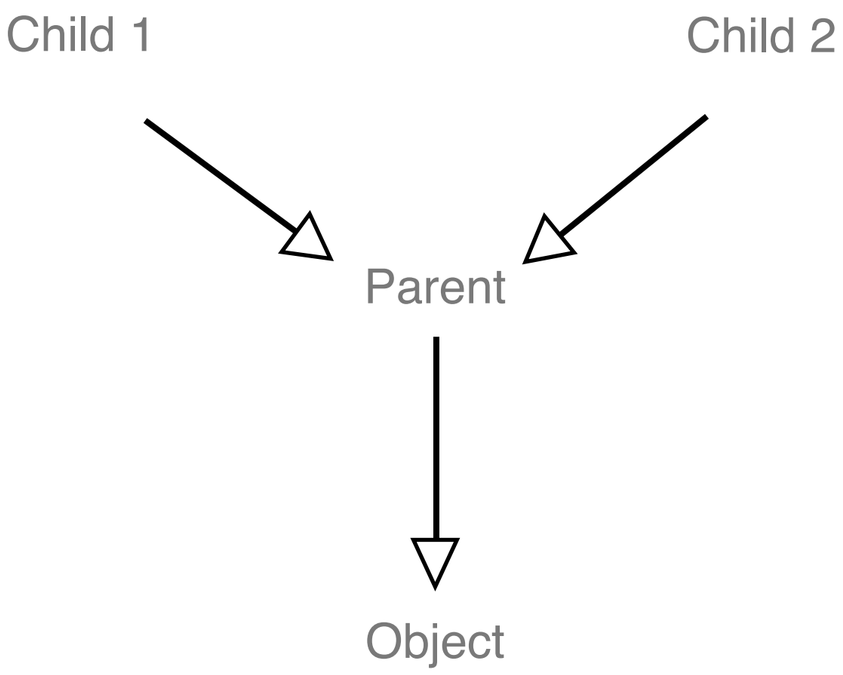
Developers use inheritance to create families of types with common features



What about cases where an object wants to interact, but not with a family of related types

Sorter

I want to sort ... as many kinds as possible...



Ideally the object should be able to say what features they need…

Something Comparable must be able to…

Sorter

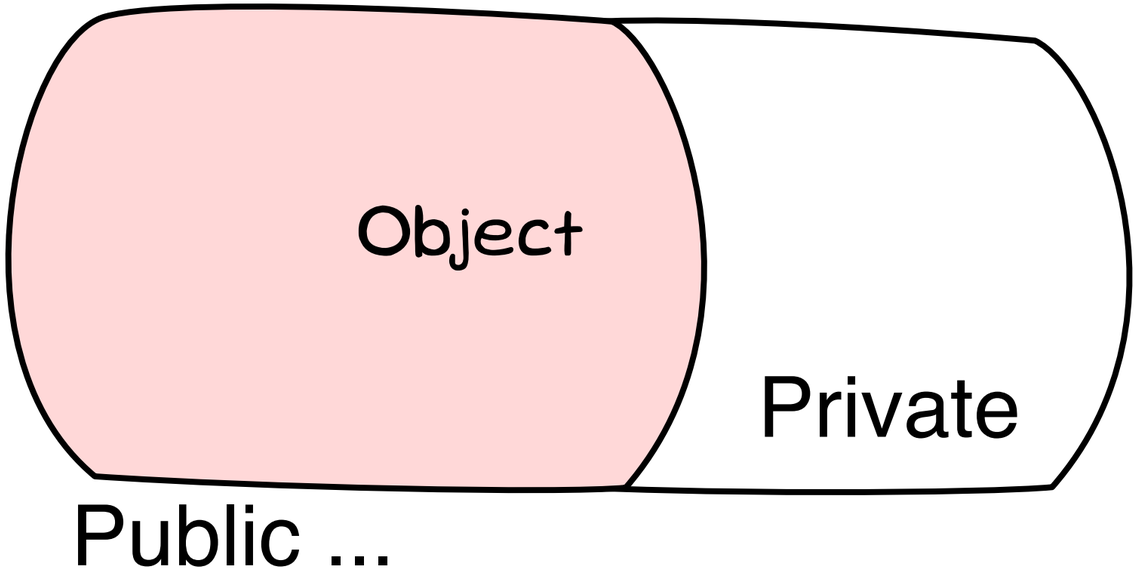
Compare itself **To** another object

I can sort anything with these features (anything

Use an interface to define the features you need

Specify the features that implementing classes must provide

To be Comparable you must have an "int Compare(...)" method...

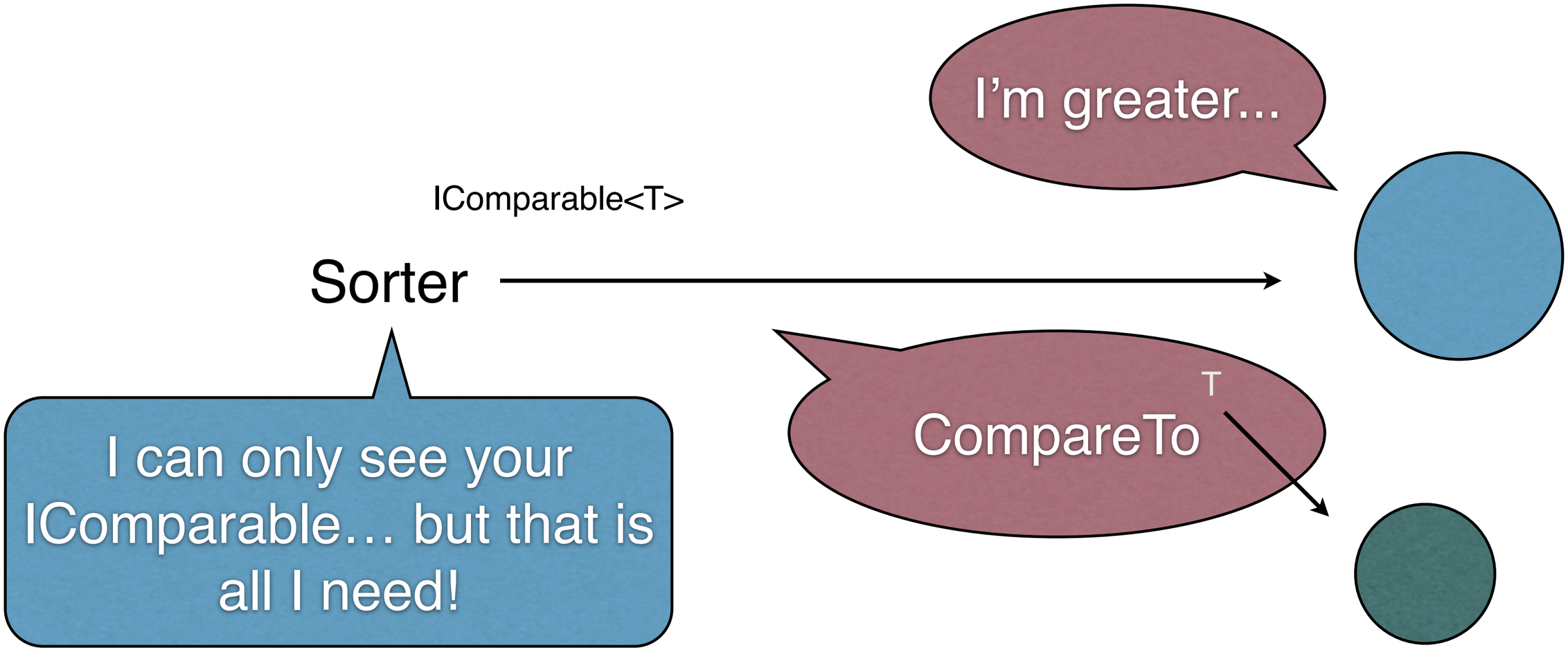


List these required features in the Interface declaration

```
public interface IComparable<in T>
{
    int Compare(T other);
}
```

C# uses an I prefix to interface names.

Use the interface and access these features on whatever is supplied to you!

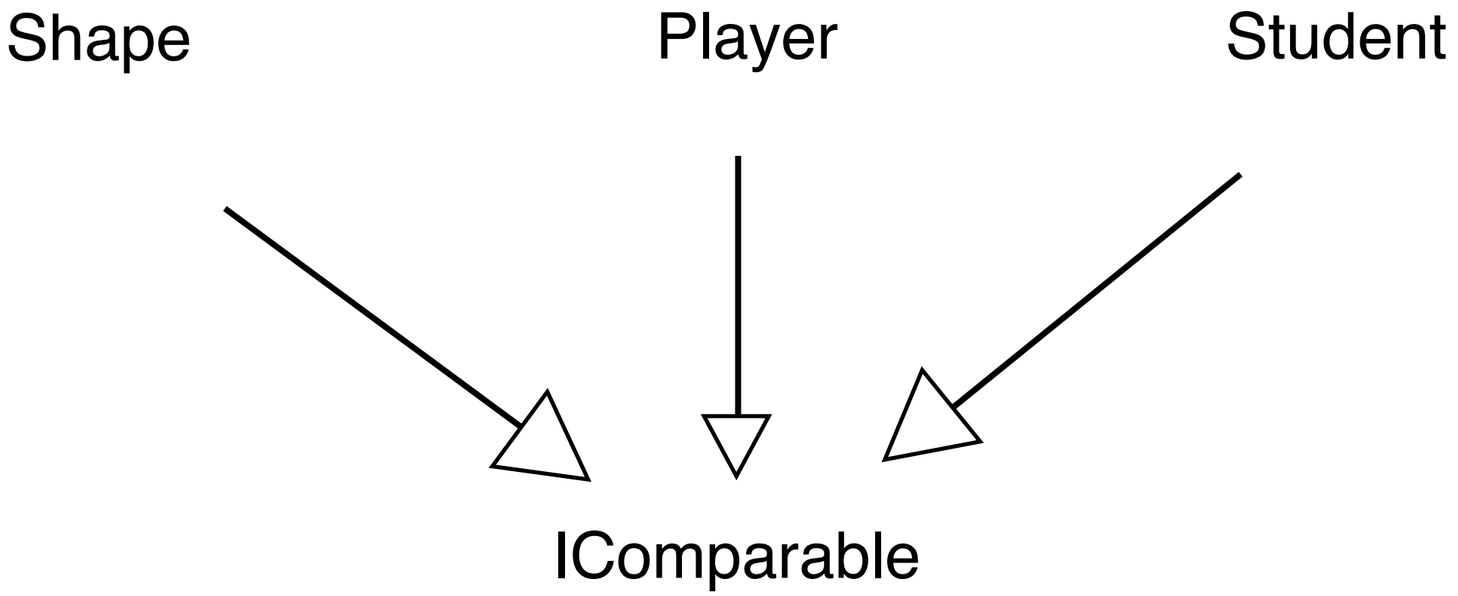


Implement the interface if you want the services provided

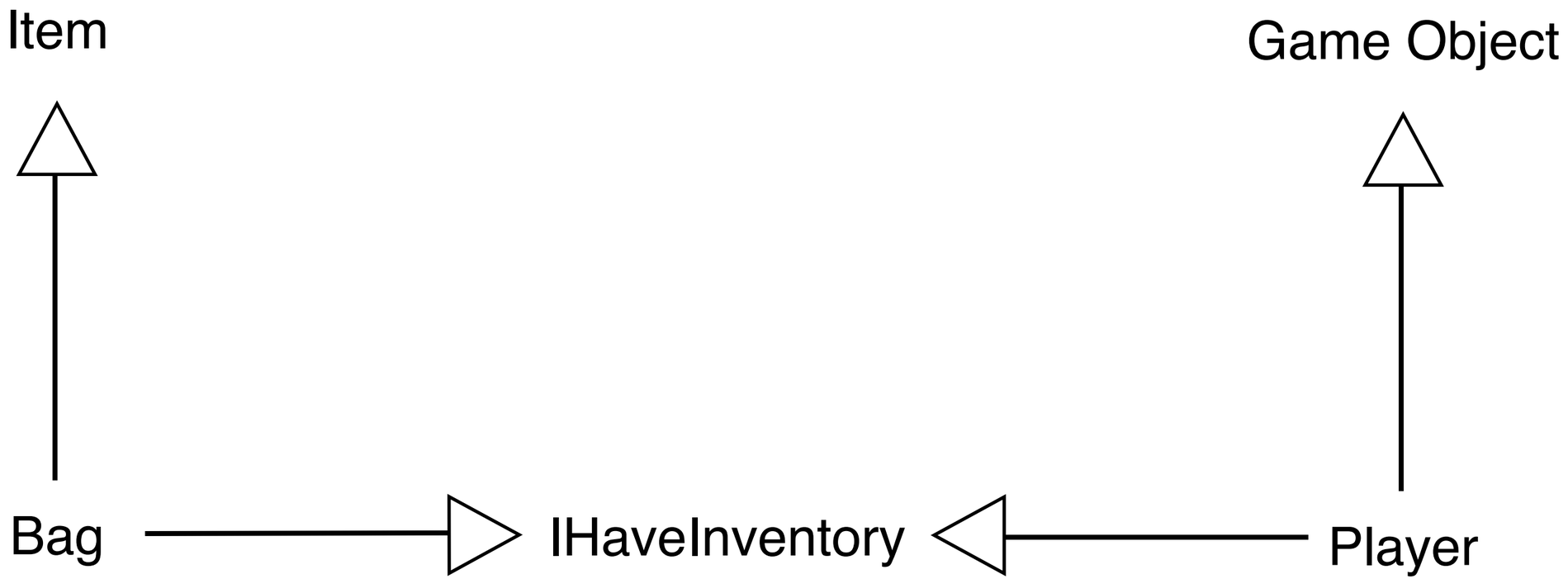
Implement the interface for any role that wants to be used by the other object

```
public class Student : IComparable<Student>
{
    public int Compare(Student other) {...}
}
```

Polymorphism means objects of this type can now be used anywhere the interface is needed



Classes can inherit from **one** class, but can implement **many** interfaces



Standard inheritance needs you to have a family of related types

Use interfaces to define the features you need when a family of types doesn’t make sense

Interfaces allow you to access features in a flexible way