

Is-A and Has-A Relationship:

An IS-A relationship is inheritance. The classes which inherit are known as sub-classes or child classes. On the other hand, the HAS-A relationship is composition.

In OOP, the IS-A relationship is completely inherited. This means, that the child class is a type of parent class. For example, an apple is a fruit. So, you will extend fruit to get an apple.

On the other hand, composition means creating instances that have references to other objects. For example, a room has a table. So, you will create a classroom and then in that class create an instance of a type of table.

A HAS-A relationship is a dynamic (run time) binding while inheritance is a static (compile time) binding. If you just want to reuse the code and you know that the two are not of the same kind use composition. For example, you cannot inherit an oven from a kitchen. A kitchen HAS-A oven. When you feel there is a natural relationship like Apple is a Fruit use inheritance.