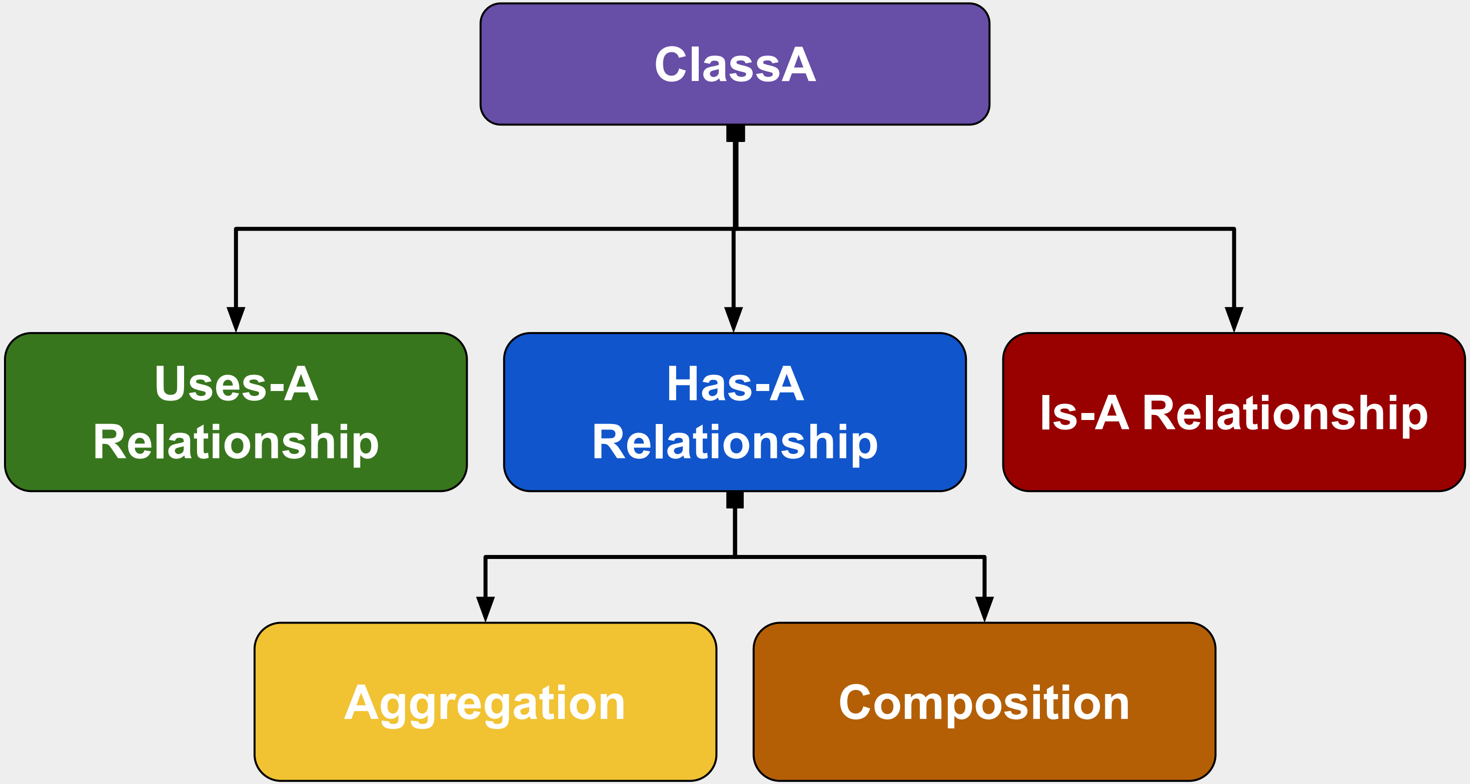
Relationships

Relationships between Classes

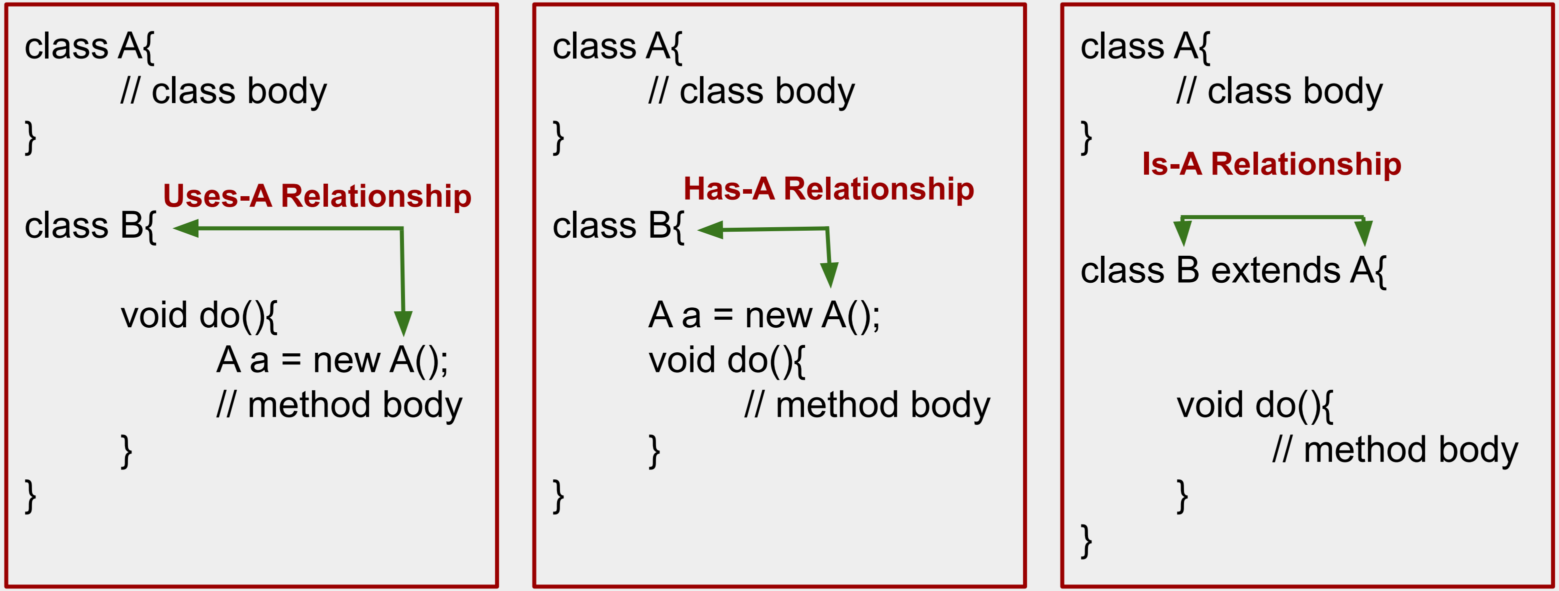


Relationships between Classes

Class relationships in Java define the special relationships among different kinds of classes. There is a different kind of relationship among classes Shape, Circle, Rectangle, and Square. A Circle is a type of Shape. A Rectangle is a type of Shape. When we design a major application or program, we need to explore the relationships among classes.

- Dependence (“Uses-A”)
- Association (“Has-A”)
- Inheritance (“Is-A”)

Relationships between Classes



Uses-A Relationship

```
class A{
        // class body
}

class B{

        void do(){
                A a = new A();
                // method body
        }
}
```

Has-A Relationship

```
class A{
        // class body
}

class B{

        A a = new A();
        void do(){
                // method body
        }
}
```

Is-A Relationship

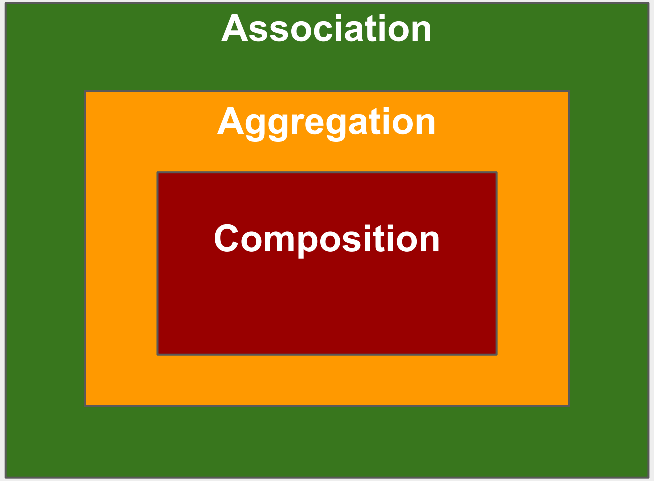
```
class A{
        // class body
}


class B extends A{


        void do(){
                // method body
        }
}
```

Association, Aggregation vs Composition

The similarity among Association, aggregation, and composition are that they are core concepts of OOPs and represent Has-A relationship between two classes.



Difference between Association, Aggregation, and Composition

Association	Aggregation	Composition
Association established the relation between two classes that is independent of each other.	1. Aggregation defines a special form of unidirectional association between two classes.	Composition represents a special and more restrictive form of aggregation where an object cannot exist on its own.
In association, there is no owner relationship.	In aggregation, one of the objects is the owner of the Has-A relationship.	In composition, both the entities are associated with each other and cannot exist on their own.
Association defines the relationships as one-to-one, one-to-many, many-to-one, and many-to-many.	It defines only a unidirectional relationship.	It represents an exclusive whole-part relationship.

Interview Questions