

Relationships between Classes

Relationship	Diagram	Code	Explanation
<p>Inheritance</p> <p>D "is-a" B</p>		<pre>public class D : B { ... }</pre>	<p>Derived class D is a specialization of the Base class B. D inherits all the members of B except constructors</p>
<p>Composition</p> <p>Ownership, P is "part-of" C</p>		<pre>public class C { ... private double p = 3.142; }</pre>	<p>Composite class C owns, or contains, a part class P. P is created and destroyed with C. The interface of P is visible only to C, not its clients. Example: P is a value type.</p>
<p>Aggregation</p> <p>Ownership, P is "part-of" A</p>		<pre>public class A { ... private P p = new P(); }</pre>	<p>The Aggregator class A owns a part class P. P is created by a member function of A, and so its lifetime is strictly less than that of A. Example: P is a reference type.</p>
<p>Using</p> <p>Referral: U uses R through a reference</p>		<pre>public class U { ... public void register(R r) // use r } }</pre>	<p>A class U uses instance of class R, to which it holds a reference. R is created by some other entity and a reference to it is passed to some member function of class U.</p>