

9.1.1

In Java, all classes can inherit attributes (instance variables) and behaviors (methods) from another class. The class that is being inherited is the parent class or Super class. The class which is inheriting is called the child class or subclass.

The child class can be seen as the same "thing" as the parent.

9.1.2

In order to make the child class inherit the parent class, the Java keyword `extends` must be used.

Ex: `public class Car extends Vehicle`
`public class Motorcycle extends Vehicle`

A Java class can only inherit from one parent class. Without the `extends` keyword the child class will inherit from the `Object` class.

9.1.3

Generalization - Making a parent class where two or more classes share the same data or behavior.

Specialization - Having the behaviors of the parent class but the child contains one unique behavior or data.

9.1.4

Has-a relationship - Contains an attribute or reference to one or more classes.

Ex:

Course

`+ title: String`
`+ roster: ArrayList<Student>`

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AQ Course

`AQ Exam date: String`

Student

`name: String`
`ID: Int`

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