Inheritance means that a base class is passed into another, allowing the other class to inherit its attributes and methods, but without declaring them in the other class.

Inheritance is beneficial to classes when they share duplicate attributes and serve similar purposes or functions. Without the need to declare the attributes again, it saves a few lines of code in the class. Moreover, when changes are needed to be made, only the base class is needed to be edited, since the base class is passed into the other, what was changed there will automatically be passed into the other classes.

When we create a class:

public class ClassName : BaseClassName {}

This is a class with the concept of inheritance applied. In ClassName, it has every attribute and method that was declared in BaseClassName. For example, a Book class and a PictureBook class. These 2 classes both need a title and an author, and the PictureBook needs an illustrator on top. That being said, we can pass in the Book class into the PictureBook class, allowing the latter to use the title an author declared in the former.

**public** **class** Assignment {

**private** string \_studentName;

**private** string \_topic;

}

**public** **class** MathAssignment : Assignment {

**private** string \_textbookSection;

**private** string \_problems;

}

Above is an excerpt of the code used in this week’s preparation. Although there are only 2 attributes \_textbookSection and \_problems declared in the MathAssignment class, it has 4 in fact. Since it inherits the Assignment class, the attributes declared in the Assignment class are also within the MathAssignment class.