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**Week 1 Assignment 1 Part 4**

There are several things that affect a variable within Java. The book first talks about static variables. By default, variables are set to instances of the class and do not have access to each other. If you want a variable to be a static variable that all instances of the class can access you can declare that outside of the class by adding the static key word to the declaration like so:

public static String name = “Matt”;

If I wanted every class to have access to my name I would declare it as such. Secondly it discusses 2 other key words used for visibility (the third is covered in chapter 11). Public and Private declarations allow you to define what is accessible within the class out outside of the class but within the package. You can import packages into other packages to gain access to public classes like helper classes (a popular one is the creation of a UUID). Private variables are only visible within the class they are defined in. Most of the setters used are set as private variables. Most private variables are things like phone numbers, social security numbers or other PII based information. The class needs access to it and needs to be able to be set, but will not require a get, thus it is made private.

In chapter 10, we learned about the relationship between classes and how they affect each other. The first is association, described as two or more classes having a common class they both use. In the example they used students and teachers’ classes being associated towards each other with the use of a course class. In order for a course class to exist, it requires input from both teacher and student, they are associated with each other in this manner.

Next were aggregation and composition. As described in my W1DQ1 answer for aggregation, “Aggregation is shown as a “Has-A” relationship to other objects. In this, the object has a relationship to another object but can stand alone by itself.” In this, I used the example of a department and an employee. Both the department and employee classes can exist without the need of each other. You will still have departments and employees at CompnayX and they are not reliant on each other to exist. You can exercise the employee class without needing to access the department class.

In continuation of my description of composition from this week’s DQ, “Composition is shown to have a relationship that is a “Part-Of”. In this, the object that is part of another object cannot stand by itself. It has a direct relationship for existence based on another class.” The example used was similar to the one used for association, in that a course cannot exist without students. The students class creates a list within the courses class and can exist without the courses class. The courses class however cannot exist without students.