

HW 3

1. According to the event table, a trigger is a signal that informs the system that an event has occurred, while a source is an external agent which provides new data to the system.
2. CRC cards are physical cards used to act out various user scenarios to create a well-designed Object Oriented design based on user behavior.
3. The two different kinds of properties are attributes and associations. In UML, attributes are represented as a line of text within in the class box (default example: 'visibility name: type multiplicity = default {property-string}'). Association is represented as a line directed from source to target class. The line also has multiplicity and name of the property. The book recommends to use attributes for small details such as a date or a Boolean type, while the use of the association is recommended for important classes.
4. A multivalued attribute has the implication that the upper bound of the attribute is more than one. In programming sense, a multivalued attribute will be handled by creating the attribute as a data type that can contain multiple types. For example, if attribute 'color' for class 'car' is multivalued, the attribute would be represented as a list of colors, such that many 'color' attributes may be stored.
5. Assertion is a Boolean statement that will be always true and never false, but only false due to things out of unforeseen circumstances (bug in code, etc.). Assertions are valuable as they reduce the possibility of inheritance differing the subclass's functions from the superclass's functions.
6. The three kinds of assertion are post-conditions, pre-conditions, and invariants.
7. Dependency is the relationship between a supplier and a client, where an alteration in the supplier may cause alterations to the client. Generally dependencies are useful, but can be 'bad' if there are too many as it will become very difficult to keep track of all of them.
8. A composition is the relationship between classes where a class may be a component of many classes, but cannot be the component of multiple at a single time (ex: multiple classes 'can' be the owner of a component class, but the component must have only one owner). This relationship can be summed down to "no-sharing".
9. The biggest difference between generalization (type is a subtype of superclass) and classification (object is instance of class type) is that generalization is transitive, and classification is not transitive.

10. By making a class into an Association, multiplicities will be adjusted to deal with differing associations. The benefit you gain from offsetting the extra notation, is that now there is only one instance of association between two classes, making the whole relationship much simpler and easier to digest.