Unified Modeling Language (UML)

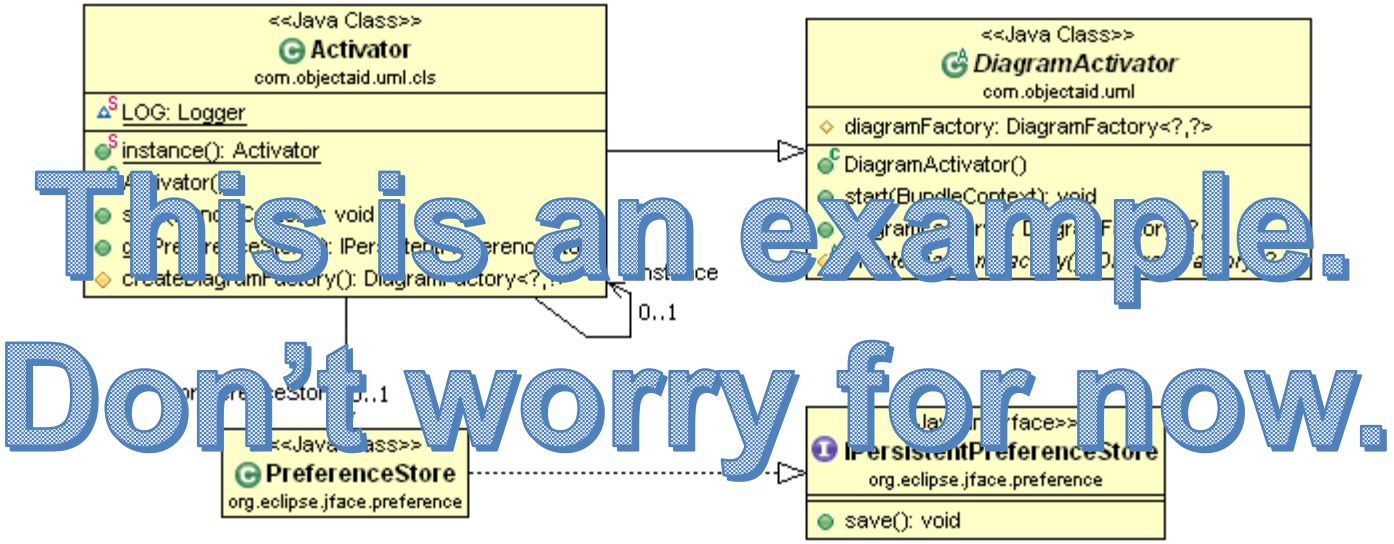
2110215 - Programming Methodology

What is UML?

- UML is a modeling language that was created to standardize ways to visualize the design of the system
- UML has many diagrams to represent various things in the system.
- Class diagram is a UML model that describes the structure of a system by showing the classes attributes and relation between classes or objects.

Class Diagram

- UML provides mechanic to represent class members,such as attributes and methods, and additional information about them

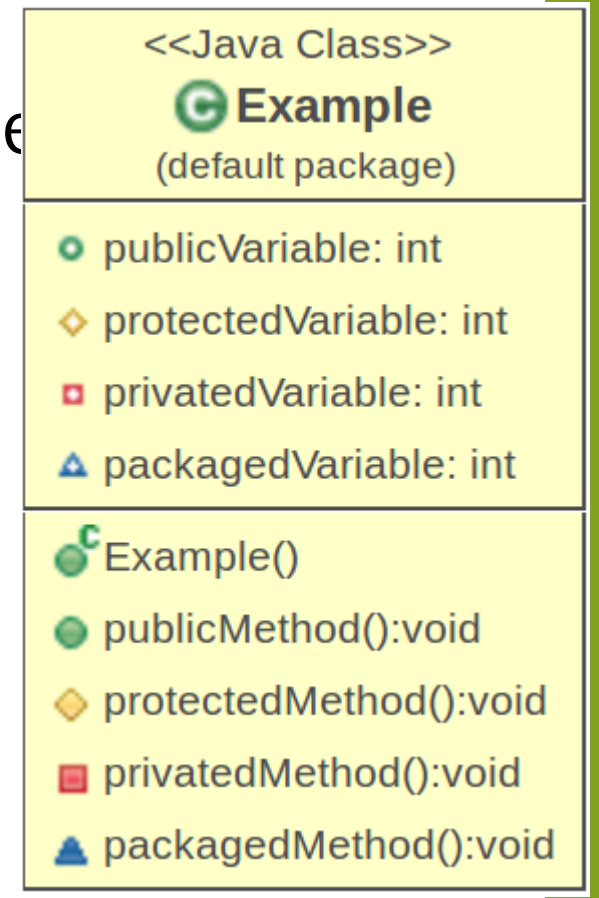


This is an example.
Don't worry for now.

Class Diagram

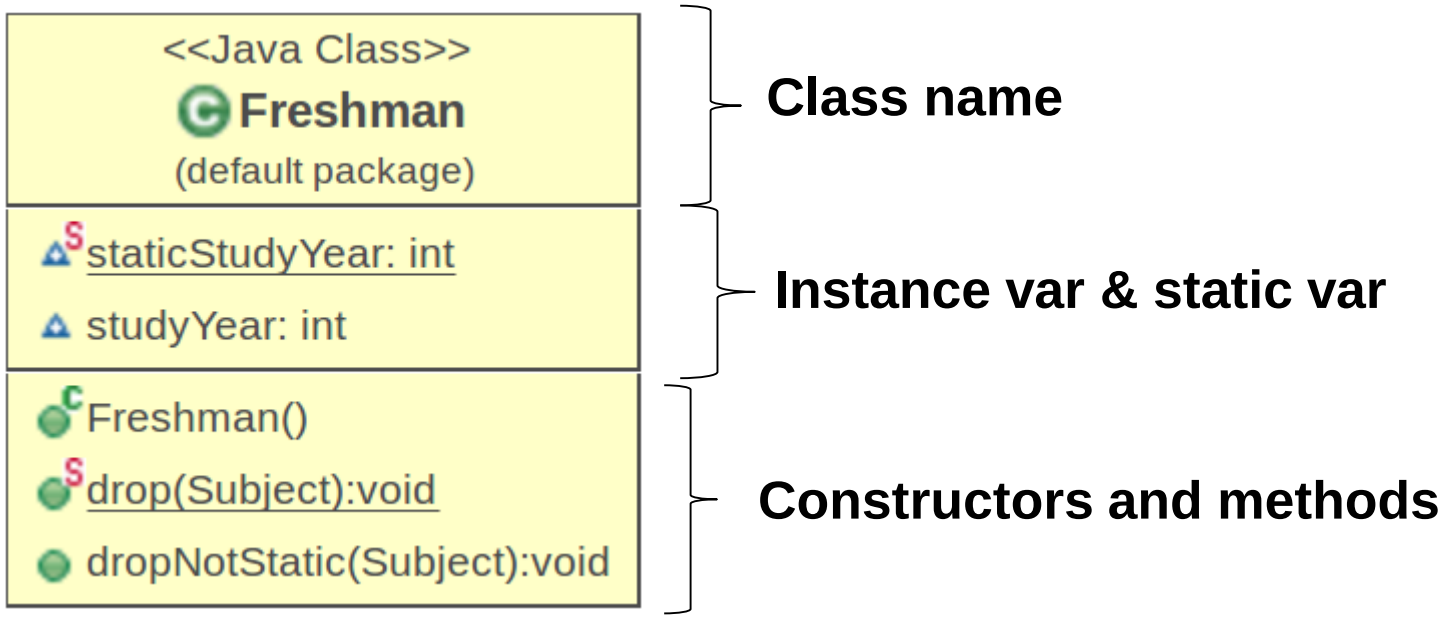
- Visibility - To specify the visibility of a class member (i.e. any attribute or method), these notations must be place before the member's name

Visibility\Can be access by	Same Class	Same Package	Subclass	Different Package
public	Y	Y	Y	Y
protected	Y	Y	Y	N
private	Y	N	N	N
package	Y	Y	N	N



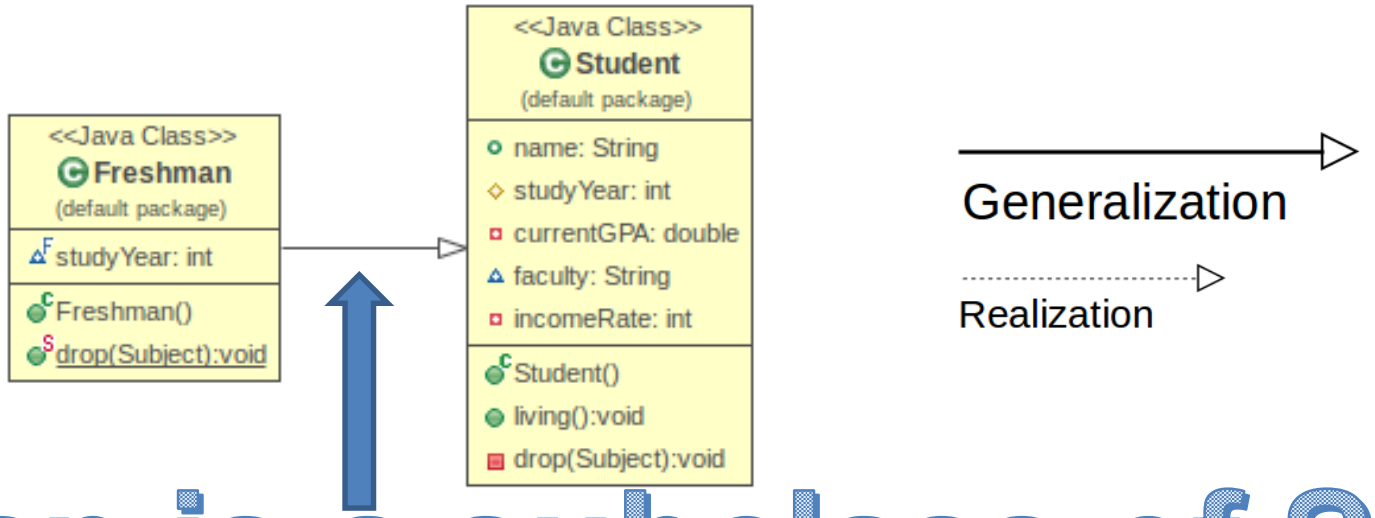
Class Diagram

- Static is a keyword for variable or method. A static variable value will be shared through out all instance of the class. Static method can only access statics variable and call to other static methods only.



Generalization (Lecture 2)

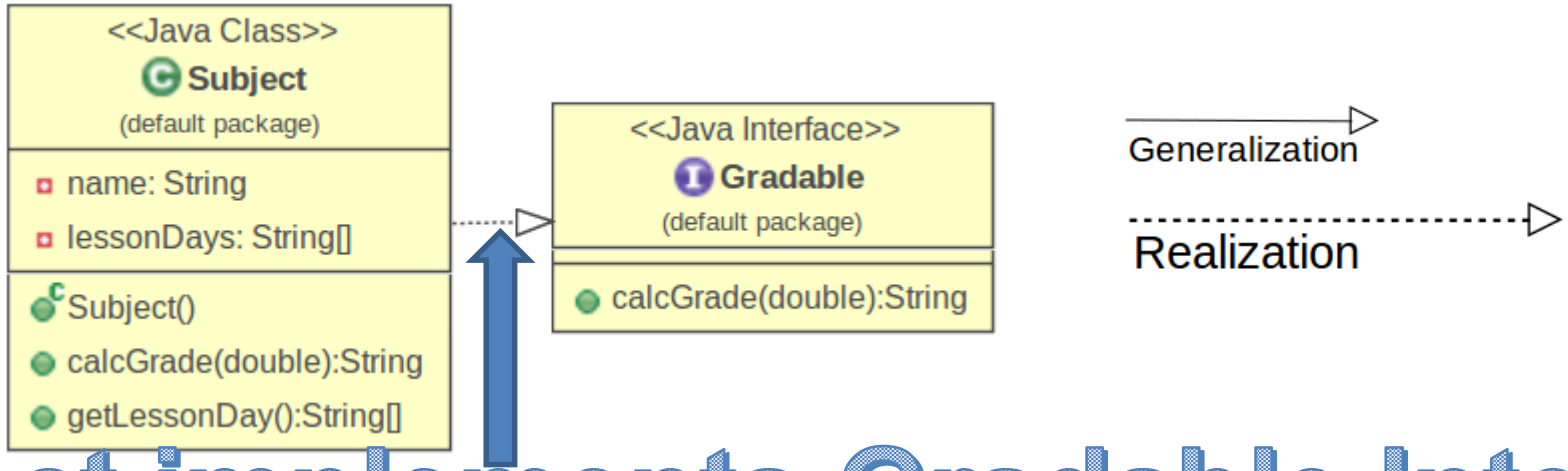
- Generalization is a class relationship that has specialized forms or subclass. It is also known as inheritance relationship



Freshman is a subclass of Student

Realization (Lecture 3)

- Realization is a relationship between models or classes which has one class realized or implemented another class's behaviors or methods

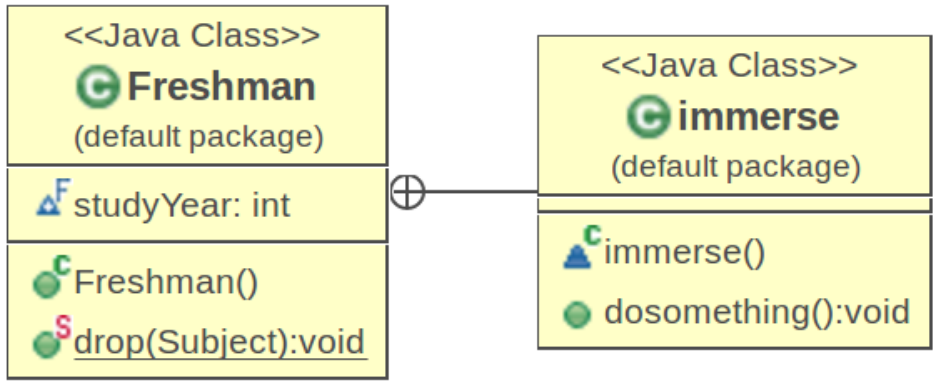


Subject implements Gradable Interface.

We will study this later on.

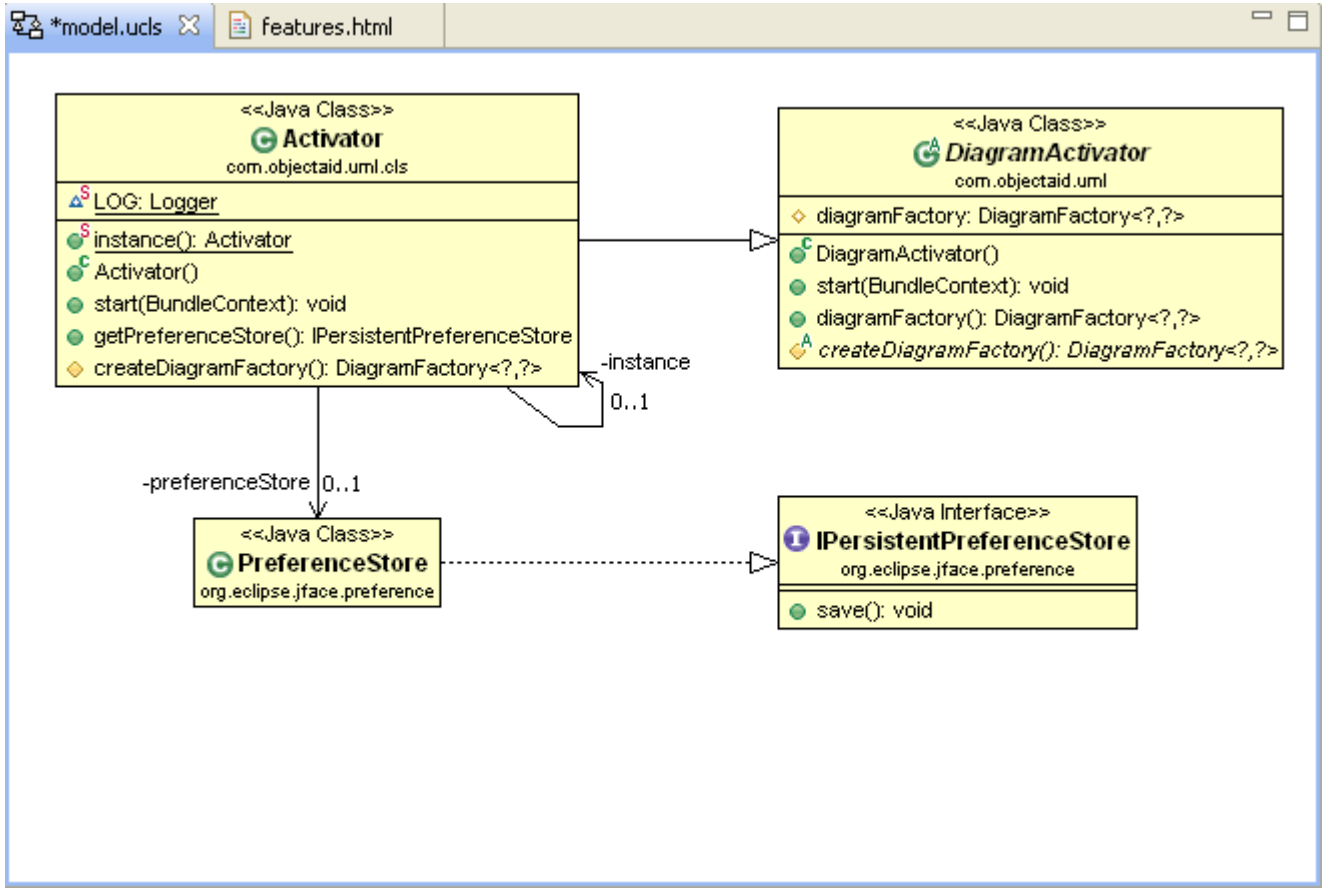
Nesting (Lecture 3)

- Nesting is a relationship where one class is created inside another class (Inner class)



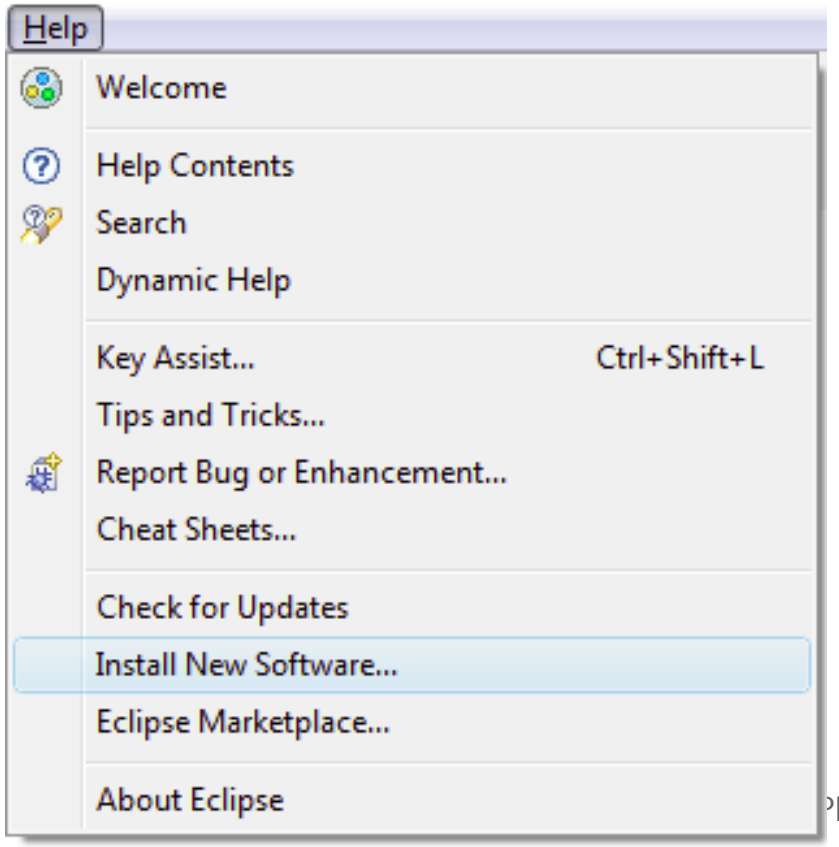

```
public class Freshman extends Student{
    final int studyYear = 1;

    class immerse{
        public void dosomething(){}
    }

    public static void drop(Subject a){

    }
}
```

How to install ObjectAid on Eclipse



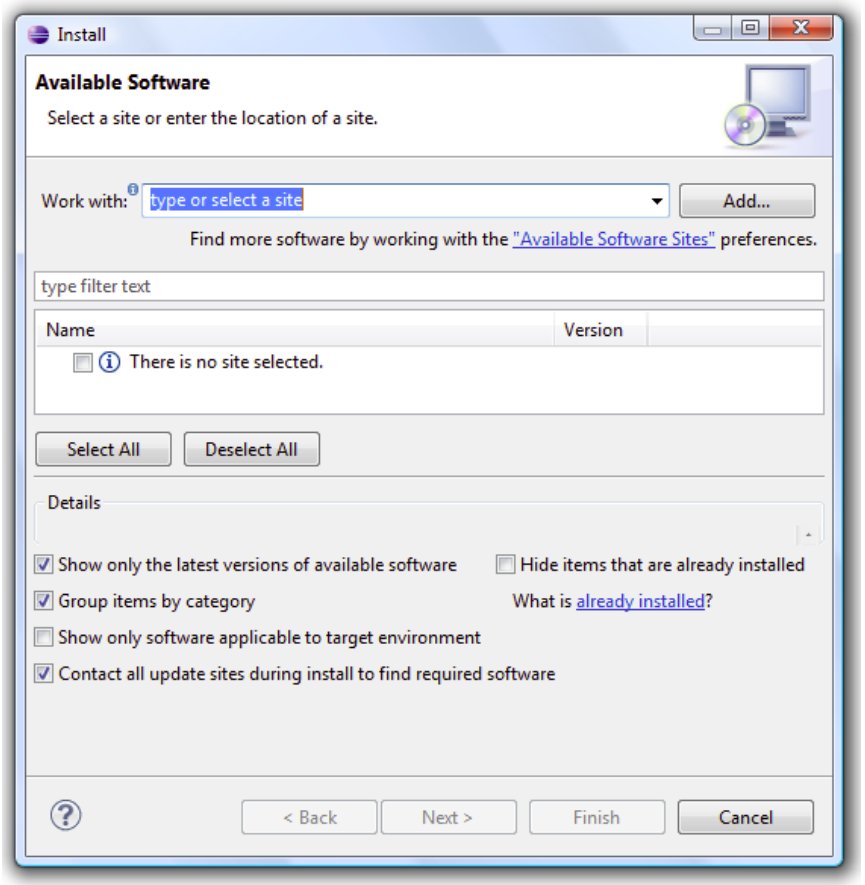
How to install ObjectAid on Eclipse (cont.)

- Open Eclipse IDE
- Select Help→Install New Software…



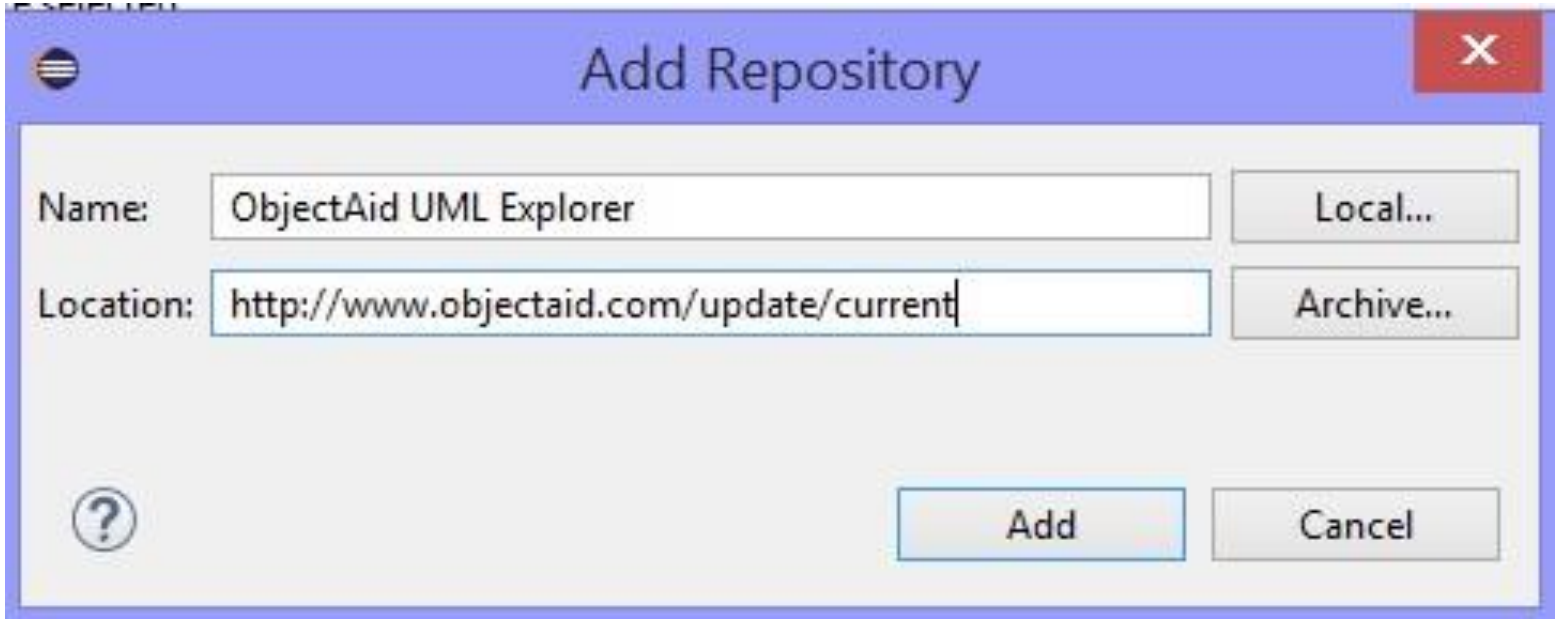
How to install ObjectAid on Eclipse (cont.)

- Click Add to create new source



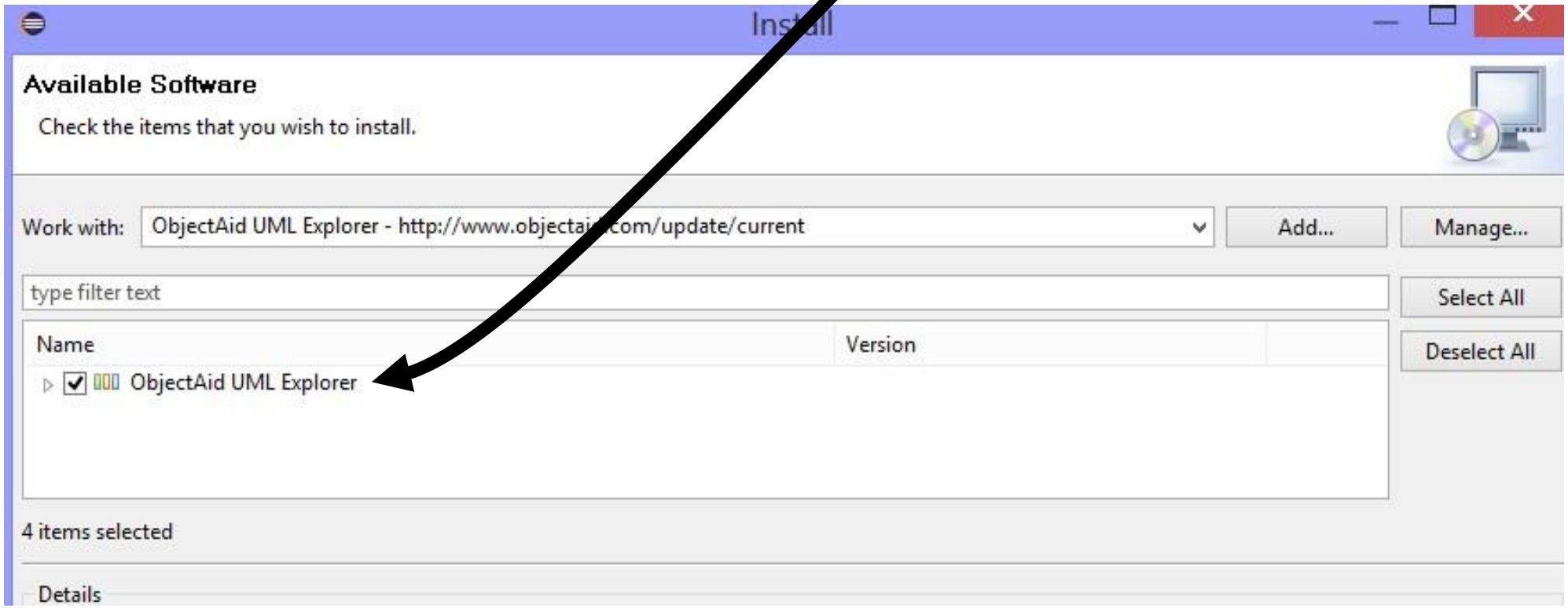
How to install ObjectAid on Eclipse (cont.)

- Type in “ObjectAid UML Explorer”in Name
- Type in http://www.objectaid.com/update/current in Location
- Click Add



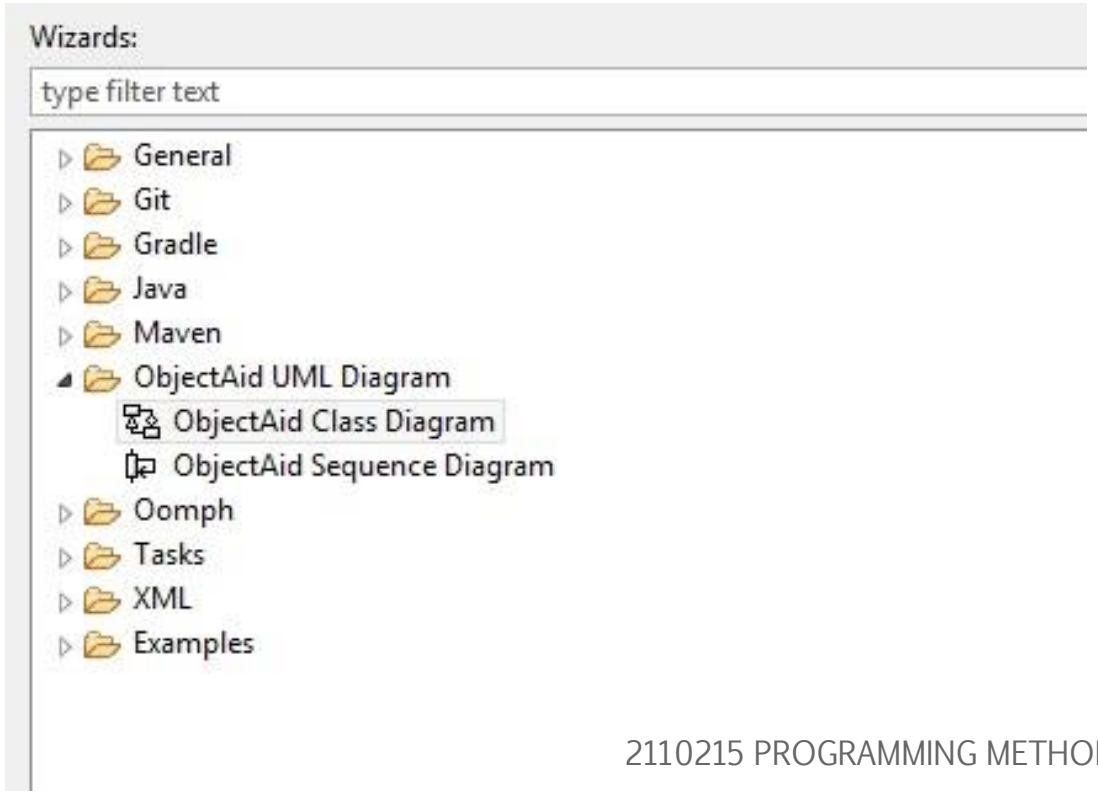
How to install ObjectAid on Eclipse (cont.)

- Tick Object Aid UML Explorer
- Click Next→Next->Finish (accept term if asked for)



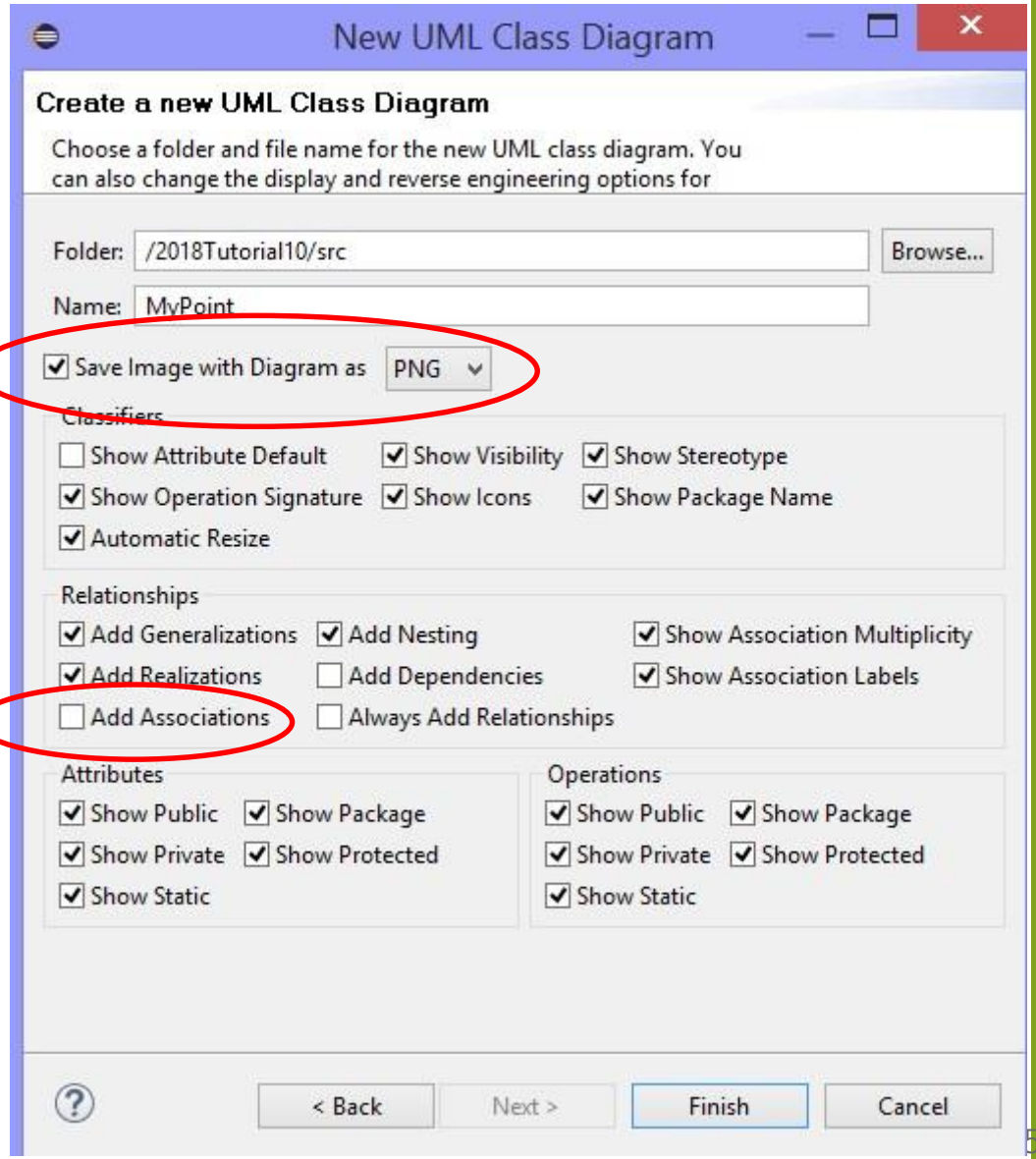
How to create UML Class diagram in Eclipse

- You can create UML diagram in Eclipse by
  - Click File→New→Others→ObjectAid UML Diagram→Class Diagram
  - Click Next



How to create UML Class diagram in Eclipse (cont.)

- Put in UML Class Diagram name then
  - Check **“Save Image with Diagram as PNG”**
  - Uncheck **“Add Associations”**
  - click Finish



How to create UML Class diagram in Eclipse (cont.)

- Drag and drop class(es) from project into UML diagram to add them. More classes can be added to the same ucls.