**Administrative**

**Today’s session**

Homework 4 key

Object class

Polymorphism

**Session Topics**

**Homework 4 key**

● The Homework 4 key is available on Blackboard.

**Object class**

● The **Object class** is the top of the Java class hierarchy.

● Every class, except the Object class, has exactly one superclass.

● A superclass may have one or more subclasses.

● Several methods are available in class Object so every other class inherits them:

|  |  |
| --- | --- |
| Method | Purpose |
| equals | Compare two objects for equality. By default, it compares the memory addresses of the two objects. |
| hashCode | Return an integer to be used to store the object in a hashtable data structure. |
| toString | Return a string containing information about the object. By default, it returns <class-name>@<hash-code-in-hex>. |
| getClass | Return the name of the class that the object was created from. |
| clone | Copy the instance variables (primitives only) from one object to another. |

● See **Object class** sample application on Blackboard.

**Polymorphism**

● **Polymorphism** enables one method call to invoke multiple variations of the method.

● The method call is in the parent class but runs code in a child class.

● For polymorphism to work, there must be a method in the parent class that is overridden in child classes.

● When the method is called in the parent object, the Java Virtual Machine runs the method corresponding to the child object.

● Polymorphismenables child classes to be easily added to an application.

● **Binding** is the connection of code in a method to a method call.

● **Early binding** means the connection is made when the code is compiled.

● **Late binding** means the connection is made when the code is run.

● Methods declared with the private, static, and/or final modifiers use early binding. All others use late binding.

● See **Polymorphism** sample application on Blackboard.