Aad548,

CS-102,

Quiz 1.

1. Inheritance is a concept in OOP, through which one (child) class can “inherit” (access and use) the fields and methods of another (parent) class.
   1. Example is in Ex1.java
2. The difference between the actual type and defined type in Java comes to play during program run-time. Polymorphism means “many forms” and in Java it means that the method that is called on an object during run-time depends on the type of the said object. For example, if you had an Animal class that had a method info() that would print out information about an animal, and two classes Cow and Cat that would inherit from Animal and @Override info(). If you then created instances of Cow and Cat and used a method info() on them, the sounds they would make would be different. The dynamic binding would happen when the compiler sees that an object of type Cat or Cow is created and use the appropriate methods from corresponding classes.
   1. Example is in Ex2.java
3. Defining the following concepts:
   1. Data Structure: is a logical or mathematical model of a particular organization of data in the computer that allows to interact with the data effectively. It is a set of data elements grouped together under one name, for example an list of integers. There are many different types of Data Structures, such as: Linked List, Tree, Queue, Stack, Array and ArrayList.
   2. Polymorphism: means “many forms”. A polymorphic reference is a variable that can refer to different types of objects at different points in time. This ensures that the appropriate method is called for an object of a specific type when an object is disguised as a more general type.
   3. Method Overloading: means that different methods can have the same name as long as they take different parameters. In this way the compiler will still be able to tell them apart based on the parameters they take and preform the correct actions. Example: method(int x){…}, method(String x){…}, would not create and error.
   4. Method Overriding: is a feature that allows a child class to change the way a method inherited from parent class works. When the method in child class has the same name and parameters as the one in the parent class, but preforms different actions, it means the child class overrides the method from the parent class. The example of this can be seen in Ex2.java
4. See Ex4.java, see attached pdf.
5. See attached pdf.
6. See Ex6.java and attached pdf.
7. See Ex7.java and attached pdf.