

Assignment 3

1. Explain polymorphism. *Polymorphism allows class to take many different forms. Children classes inherits from parent class.*
2. What is overloading? *having many methods with same name but different parameters*
3. What is overriding? *Having subclass provide implementation of a method that is different from the parent class.*
4. What does the final mean in this method: `public void doSomething(final Car aCar){}` it means that Car object is immutable in this context, it restricts doSomething method from changing the argument.
5. Suppose in question 4, the Car class has a method `setColor(Color color){...}`, inside doSomething method, Can we call `aCar.setColor(red);`? Yes.
6. Can we declare a static variable inside a method? *No, because anything declared as static belongs to class.*
7. What is the difference between interface and abstract class? *Interface is used to group related methods with empty implementation while abstract can have both methods with and without implementations.*
8. Can an abstract class be defined without any abstract methods? *Yes. Abstract class can be defined without an abstract method.*
9. Since there is no way to create an object of abstract class, what's the point of constructors of abstract class? *To enforce class constraints and minimum fields to set up a class. Also subclasses can call the superclass constructor to initialize the objects.*
10. What is a native method? *Native methods are methods that starts in a language other than java(c and c++).*
11. What is marker interface? *Is an interface that has no methods or constants in it. It provides runtime type information about objects.*
12. Why to override equals and hash Code methods? *It improves the usability of the classes as keys in hash-based collections i.e. HashMap, hash table etc.*
13. What's the difference between int and Integer? *Int is native data type while Integer is wrapper class of integers thus allowing us to use native integers as objects*
14. What is serialization? *Serializing an object means to convert its state to a byte stream.*
15. Create List and Map. List A contains 1,2,3,4,10(integer) . Map B contains ("a","1") ("b","2") ("c","10") (key = string, value = string)
Question: get a list which contains all the elements in list A, but not in map B.
16. Implement a group of classes that have common behavior/state as Shape. Create Circle, Rectangle and Square for now as later on we may need more shapes. They should have the ability to calculate the area. They should be able to compare using area. Please write a program to demonstrate the classes and comparison. You can use either abstract or interface. Comparator or Comparable interface.

Solutions in : <https://github.com/gkiprono/assignment3.git>

