**Assignment 3**

1. Explain polymorphism.
2. What is overloading?
3. What is overriding?
4. What does the final mean in this method: public void doSomething(**final** Car aCar){}
5. Suppose in question 4, the Car class has a method setColor(Color color){…}, inside doSomething method, Can we call aCar.setColor(red);?
6. Can we declare a static variable inside a method?
7. What is the difference between interface and abstract class?
8. Can an abstract class be defined without any abstract methods?
9. Since there is no way to create an object of abstract class, what’s the point of constructors of abstract class?
10. What is a native method?
11. What is marker interface?
12. Why to override equals and hashCode methods?
13. What’s the difference beween int and Integer?
14. What is serialization?
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.

1. 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.