Tutorial Week 2

Our readings (lecture notes and video lecture) this week discuss about **Review of Inheritance and Polymorphism**. Write the answers for all questions in the table according to your understanding. **PLEASE USE YOUR OWN WORDS. DO NOT COPY FROM THE WEB.**

Question	Answer
1. There are three classes: **Laptop, DellLaptop, and HPLaptop**. What are the likely relationships between these classes?	

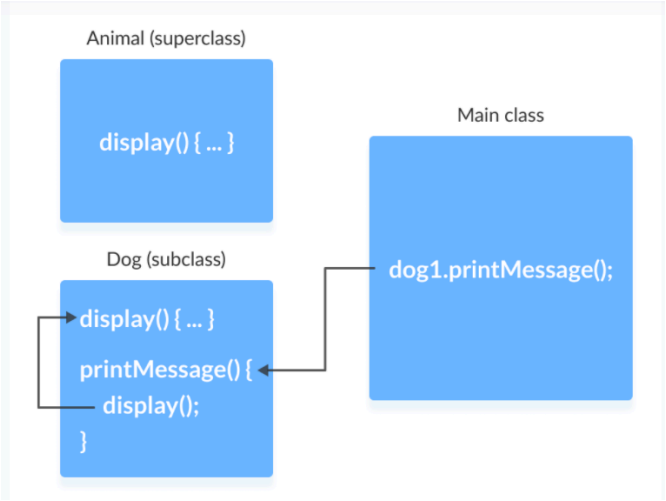
2. What is the output of the following program?
 	
`public class Animal {`
`  public static void testClassMethod() {`
`  System.out.println("The class method in Animal.");`
`  }`
`  public void testInstanceMethod() {`
`  System.out.println("The instance method in Animal.");`
`  }`
`}`
 	
`public class Cat extends Animal {`
`  public static void testClassMethod() {`
`  System.out.println("The class method in Cat.");`
`  }`
`  public void testInstanceMethod() {`
`  System.out.println("The instance method in Cat.");`
`  }`
 	
`  public static void main(String[] args) {`
`  Cat myCat = new Cat();`
`  Animal myAnimal = myCat;`
`  Animal.testClassMethod();`
`  myAnimal.testInstanceMethod();`
`  }`
`}`	

3. Can an object of a child type be assigned to a variable of the parent type? For example,
 	
`GreetingCard card;`
`BirthDay bd = new BirthDay("Peter");`
 	
`card = bd;  // is this correct?`	

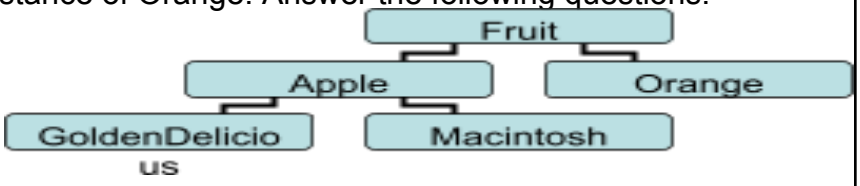
4. What is the output for the following program?

```
class Animal {

 String color = "white";
}

class Cat extends Animal {

 String color = "black";

 void printColor() {
  System.out.println(color);
  System.out.println(super.color);
 }
}

class TestApp {

 public static void main(String args[]) {
  Cat c = new Cat();
  c.printColor();
 }
}
```

5. Consider the following:



What if the overridden method of the superclass has to be called?

6. Can a class implement more than one interface? How? Show the syntax.	
7. Suppose that Fruit, Apple, Orange, GoldenDelicious Apple and Macintosh Apple are declared as shown below. Assume that fruit is an instance of GoldenDelicious and orange is an instance of Orange. Answer the following questions:  a) Is fruit instanceof Orange? b) Is fruit instanceof Apple? c) Is fruit instanceof Macintosh? d) Is orange instanceof Fruit? e) Is orange instanceof Apple? f) Suppose the method makeApple() is defined in Apple class. Can fruit invoke this method? Can orange invoke this method? g) Suppose the method makeOrangeJuice() is defined in Orange class. Can orange invoke this method? Can fruit invoke this method?	
8. What modifier should you use on a class so that a class in the same package can access it, but a class in a different package cannot access it?	