

Yesterday I took code very similar to this and showed the example of how to solve this on the board.....this class is lot easier if you come to class. The TAs in lab will not be repeating my lectures, the TAs are there to help answer questions and grade.

Answer the following reference questions. This is the basis for a lot we do going forward. **YOU HAVE TO GO TO YOUR LAB SECTION AND DO THE WORK IN CLASS WITH A PARTNER.**

Go to lab class Tuesday and find a partner, work on these as a team and work through the output of the following problems. Do it all by hand, make sure you agree on the result.....no compilers or running the programs, just work through it by hand writing the output on a sheet of paper. Don't be shy, pair up with whoever comes into the lab time the same time you do, it will take about an hour to work through this.

After you do the answers by hand, then put the code in a IDE (Netbeans or Eclipse, whichever you choose), get the code to compile and run, just copy and paste the code from this document into the proper file structure. Make sure your hand written answers match the actual answers from the running of the program. If they don't match figure out why you missed it and get the TA, or Consultant, or other students to help if you are completely lost. Each question is based on references in Java, pass by reference vs. value, copy vs alias, etc. etc.

(10 points) Make sure you show your TA (or consultant) that you completed it by hand, and then that you got them to compile in a IDE. You don't lose points for missing any by hand, so don't change your answers to trick your TA, make sure you know why you missed it so you don't do it again. Don't leave until you get checked off by the TA or you will get zero credit.

*These are old test questions and you will have one similar on your exam.*

### **Question one 7 print statements:**

```
public class Driver
{
    public static void main(String [] args)
    {
        Person pOne = new Person("First");
        Person pTwo = new Person("Second");
        int a = 5;
        pOne = pTwo.changeName(pTwo, pOne, a);
        System.out.println(pOne.getName());    //8
        System.out.println(a);                  //9
        System.out.println( pTwo.getName());    //10
    }
}
```

```

/*****
Person class
*****/

public class Person
{
    private String myName;

    public Person(String name)
    {
        myName = name;
    }

    public Person()
    {
    }

    public String getName()
    {
        return myName;
    }

    public void setName(String name)
    {
        myName = name;
    }

    public Person changeName(Person person1, Person person2, int a)
    {
        a = 7;
        person1 = person2;
        person2.setName("Six");
        System.out.println(person1.getName()); //1
        System.out.println(person2.getName()); //2
        System.out.println(a); //3
        person2 = new Person("five");
        System.out.println(person1.getName()); //4
        System.out.println(person2.getName()); //5
        person1.setName("Four");
        System.out.println(person1.getName()); //6
        System.out.println(person2.getName()); //7
        person2.setName("Eight");
        return person1;
    }
}

```

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

**Question TWO 7 print statements:**

//

```
public class Daffy
{
    public static int num = 0;
    private String feature;

    public Daffy()
    {
        feature = "Generic";
        num+=2;
    }

    public Daffy(String in_feature)
    {
        feature = in_feature;
        num = 3;
    }

    public Daffy(String in_feature, int a)
    {
        feature = in_feature;
        num = num + a;
    }
}
```

```

    public String getFeature()
    {
        return feature;
    }

    public void setFeature(String haha)
    {
        feature = haha;
    }

    public Daffy testQuestion(Daffy a, Daffy b, Daffy c)
    {
        a.setFeature("feather");
        b.setFeature(c.getFeature());
        c = this;
        System.out.println(a.getFeature());    //Statement 1
        System.out.println(b.getFeature());    // Statement 2
        System.out.println(c.getFeature());    // Statement 3
        return b;
    }
}

public class Ref
{
    public static void main(String [] args)
    {
        Daffy quack = new Daffy("funny", 6);
        Daffy webbed = new Daffy("silly");
        Daffy beak = quack;

        quack = quack.testQuestion(beak, webbed, new Daffy("tickly", 2));

        System.out.println(quack.getFeature());    // Statement 4
        System.out.println(webbed.getFeature());    // Statement 5
        System.out.println(beak.getFeature());    // Statement 6
        System.out.println(beak.num);    // Statement 7
    }
}

```

- 1.
- 2.
- 3.
- 4.

5.

6.

7

### Question three 12 print statements:

//

```
public class Q1Reference
{
    public static void main(String [] args)
    {
        Car tow = new Car( "Mater");
        Garage radiatorSprings = new Garage(new Car("McQueen"));
        Car lizzie = new Car();

        System.out.println(tow.getName());           //Print statement one
        System.out.println(radiatorSprings.getName()); //print statement two
        System.out.println(lizzie.getName());         //print statement three

        radiatorSprings.setCar(tow.testQuestion(radiatorSprings, new Garage(new Car("Sally")), lizzie));

        System.out.println(tow.getName());           //print statement ten
        System.out.println(radiatorSprings.getName()); //print statement eleven
        System.out.println(lizzie.getName());         //print statement twelve

    }
}

/**
 *
 * the Garage Class
 *
 */
public class Garage
{
    Car vehicle;

    public Garage(Car t)
    {
        vehicle = t;
    }
    public Car getCar()
    {
        return vehicle;
    }
    public String getName()
    {
        return vehicle.getName();
    }
}
```

```

    }
    public void setCar(Car x)
    {   vehicle = x; }
    public void changeName(String x)
    {   vehicle.changeName(x); }
}

/**
 * The Car Class
 *
 */
public class Car
{
    private String name;

    public Car(String n)
    {
        name = n;
    }
    public Car()
    {
        name = "Generic";
    }

    public String getName()
    { return name; }

    public void changeName(String x)
    {   name = x; }

    public Car testQuestion(Garage one, Garage two, Car three)
    {

        Car four = two.getCar();
        four.changeName("Doc");
        one.setCar(four);
        System.out.println(one.getName());    //print statement four
        System.out.println(two.getName());    //print statement five
        System.out.println(four.getName());    //print statement six
        three.changeName("Mack");
        one.setCar(three);
        two = one;
        System.out.println(one.getName());    //print statement seven
        System.out.println(two.getName());    //print statement eight
        System.out.println(four.getName());    //print statement nine

        return two.getCar();
    }
}

```

## Answers:

Print Statement One:

Print Statement seven:

Print Statement Two:

Print Statement eight:

Print Statement Three:

Print Statement four:

Print Statement five:

Print Statement six:

Print Statement nine:

Print Statement ten:

Print Statement eleven:

Print Statement twelve:

#### Question four 15 print statements:

```
/**
 * The Band Class
 */
public class Band
{
    private int albumSales;
    private String album;
    public static int count = 0;

    public Band(String nm, int a)
    {
        albumSales = a;
        album = nm;
    }

    public Band(int n)
    {
        albumSales = n;
        album = "Brainstorming";
        count++;
    }

    public String getAlbum()
    { return album; }

    public void changeAlbum(String x)
    { album = x; }

    public RecordCompany testQuestion(RecordCompany one, RecordCompany two, Band three)
    {

        Band four = one.getBand();
        four.changeAlbum("Motel");
        three = two.getBand();
        System.out.println(one.getAlbum()); //Question 4
        System.out.println(two.getAlbum()); //Question 5
        System.out.println(three.getAlbum()); //Question 6
        System.out.println(four.getAlbum()); //Question 7
        two = one;
        four = this;
        System.out.println(one.getAlbum()); //Question 8
        System.out.println(two.getAlbum()); //Question 9
        System.out.println(three.getAlbum()); //Question 10
        System.out.println(four.getAlbum()); //Question 11
    }
}
```

```

        four.changeAlbum("Devo");
        return two;
    }
}

/*****
 *
 * the Record Company class
 *
 *****/

public class RecordCompany
{
    Band myBand;

    public RecordCompany(Band t)
    {
        myBand = t;
    }
    public Band getBand()
    {
        return myBand;
    }
    public String getAlbum()
    {
        return myBand.getAlbum();
    }
    public void changeAlbum(String x)
    { myBand.changeAlbum(x); }
}

/*****
 *
 * the main method starts in this class
 *
 *****/

public class ReferenceQ
{
    public static void main(String [] args)
    {
        Band frampton = new Band( "Alive", 6000);
        RecordCompany warner = new RecordCompany(new Band("Devo", 1000));
        Band startUp = new Band(30);
        RecordCompany rca = new RecordCompany(warner.getBand());

        System.out.println(frampton.getAlbum());           //Question 1
        System.out.println(warner.getAlbum());              //Question 2
        System.out.println(startUp.getAlbum());             //Question 3

        rca = frampton.testQuestion(warner, new RecordCompany(new Band(9)), rca.getBand());

        System.out.println(frampton.getAlbum());           //Question 12
        System.out.println(warner.getAlbum());             //Question 13
    }
}

```



```
System.out.println(startUp.getAlbum());    //Question 14
System.out.println(warner.getBand().count); //Question 15
```

```
    }
}
```

1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	