Lab #11 2007-11-16 15:20-16:50(90min)

OO Programming (Covers Chapters 6, 7, and 8)

SOFT130001 Programming Language (Using Java) Software School of Fudan University

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This lab consists of 15 separate problems. For each, submit the answer before the end of this lab.

Part I:Explain why the underlined code is wrong.

1. (Syntax errors)

```
public class Test {
  private int x;

  public static void main(String[] args) {
    new Test();
  }

  public Test(int x) {
    this.x = x;
  }
}
```

2. (Syntax errors)

```
public class Test {
  public static void main(String[] args) {
    A a = new A(5.5);
    System.out.println(a.x);
  }
}

public class A {
  private x;

  public void A(double x) {
    this.x = x;
  }
}
```

3. (Syntax errors)

```
public class A{
  String[] myStrings = new String[2];
  myStrings[0] = new String("A");
```

```
public A( ){
}
}
```

4. (Runtime error)

```
public class Test {
  public static void main(String[] args) {
    Object object = new Fruit();
    Object object1 = (Apple)object;
  }
}

class Apple extends Fruit {
}

class Fruit {
}
```

Part II: Show the printout of the following code:

5.

```
public class Test {
  public static void main(String[] args) {
    T t = new T();
    swap(t);
    System.out.println("e1 = " + t.e1 + " e2 = " + t.e2);
  }

  public static void swap(T t) {
    int temp = t.e1;
    t.e1 = t.e2;
    t.e2 = temp;
  }
}

class T {
  int e1 = 1;
  int e2 = 2;
}
```

6.

```
public class Test {
  public static void main(String[] args) {
    T t1 = new T();
```

```
        T t2 = new T();
        System.out.println("t1's i=" + t1.i + " and j=" + t1.j);
        System.out.println("t2's i=" + t2.i + " and j=" + t2.j);
    }
}

class T {
    static int i = 0;    // Please note that i is static
    int j = 0;

    T() {
        i++;
        j++;
    }
}
```

7.

```
import java.util.*;

public class Test {
    public static void main(String[] args) {

        Date date = new Date();
        Object o = date;
        Date d = (Date)o;

        System.out.println(date == o);
        System.out.println(date == d);
    }
}
```

8.

```
class Test {
    public static void main(String[] args) {
        Count myCount = new Count();
        int times = 0;

        for (int i = 0; i < 10; i++)
            increment(myCount, times);

        System.out.println(
            "myCount.count =      " + myCount.count);
        System.out.println("times = " + times);
```

```
    }

    public static void increment(Count c, int times) {
      c.count++;
      times++;
    }
  }

  class Count {
    int count;

    Count(int c) {
      count = c;
    }

    Count() {
      count = 1;
    }
  }
```

9.

```
  class A {
    public A() {
      System.out.println(
        "The default constructor of A is invoked");
    }
  }

  class B extends A {
    public B(String s) {
      System.out.println(s);
    }
  }

  public class C {
    public static void main(String[] args) {
      B b = new B("The constructor of B is invoked");
    }
  }
```

10. .

```
  public class C {
    public static void main(String[] args) {
      Object[] o = {new A(), new B()};
      System.out.print(o[0]);
```

```
        System.out.print(o[1]);
      }
    }

    class A extends B {
      public String toString() {
        return "A";
      }
    }

    class B {
      public String toString() {
        return "B";
      }
    }
```

Part-III What is wrong in the following code?

11.

```
    public class Foo {
      public static void main(String[] args) {
        method1();
      }

      public void method1() {
        method2();
      }

      public void method2() {
        System.out.println("What is radius " + c.getRadius());
      }

      Circle c = new Circle();
    }
```

12.

```
     public class Foo {
       public void method1() {
         Circle c;
         System.out.println("What is radius " + c.getRadius());
         c = new Circle();
       }
     }
```

13.

```
     class Test {
       public static void main(String[] args) {
```

```
        C c = new C(5.0);
        System.out.println(c.value);
    }
}

class C {
    int value = 2;
}
```

14.

```
class Test {
    public static void main(String[] args) {
        double radius = 5;
        final static double PI = 3.15169;
        double area = radius * radius * PI;
        System.out.println("Area is " + area);
    }
}
```

15.

```
class Test {
    public static void main(String[] args) {
        A a = new A("test");
        a.print();
    }
}

class A {
    String s;

    A(String s) {
        this.s = s;
    }

    private void print() {
        System.out.println(s);
    }
}
```