Lab 8

Question 1:

Suppose that you have the following class:

```
public class classA
{
    private int x;                          //Line 1
    protected void setX(int a)              //Line 2
    {                                       //Line 3
        x = a;                              //Line 4
    }
}
```

What is wrong with the following code?

```
public class Exercise10                     //Line 5
{
    public static void main(String[] args) //Line 6
    {
        classA aObject;                     //Line 7

        aObject.setX(4);                    //Line 8
    }
}
```

Question 2:

1. What is the output of the following programs:

```
public class Constructor7 {

 Constructor7(int a) {
    System.out.println("Book=" + a);
 }
Constructor7(float a) {
    System.out.println("Pen="+ a );
}
public static void main(String[] args){
        Constructor7 con = new Constructor7(50.5f);
    }
}
```

2.

```
class Furniture {
    void show() {
        System.out.println("Made of Wood. ");
    }
}
class Sofa extends Furniture {
    void addCushion() {
        System.out.println("Added. ");
    }
}
public class Inheritance6 {
    public static void main(String[] args) {
        Furniture fur = new Sofa();
        fur.addCushion();
        }
}
```

3.

```
1
2  class A {
3      public int i;
4      public int j;
5      A() {
6      i = 1;
7      j = 2;
8      }
9  }
10
11 class B extends A {
12     int a;
13     B() {
14     super();
15     }
16 }
17 class super_use {
18 public static void main(String args[]) {
19     B obj = new B();
20     System.out.println(obj.i + " " + obj.j)
21         }
22 }
23
24 class A {
25     public int i;
26     public int j;
27     A() {
28         i = 1;
29         j = 2;
30     }
31 }
32 class B extends A {
33     int a;
34     B() {
35     super();
36     }
37 }
38 class super_use {
39 public static void main(String args[]) {
40 B obj = new B();
41 System.out.println(obj.i + " " + obj.j)
42     }
43 }
```

Question 2:

1. Design a **Student class** that the following members:

    a. Protected data fields id,name,age,address and phone number.
    b. A constructor and appropriate accessors and mutators.
    c. Abstract getFees() method.
    d. A print() method to print student data.

2. Design a **freshman** class that is a special kind of student**:**

    a. A **freshman** pays basic fees of **300** pounds**.**
    b. The class should contain the following:
        i. A **constructor**.
        ii. getFees() method.
        iii. A **print()** method that overrides the **print() method** in the **Student** class to print the fees.

3. Design a **senior** class that is a special kind of student**:**

    a. A **senior** pays an additional **20% of the basic fees.**
    b. The class should contain the following:
        i. A **constructor** that inherits from a class student.
        ii. getFees() method.
        iii. A **print()** method that overrides the **print() method** in the **Student** class to print the fees.

4. Design a **junior** class that is a special kind of student**:**

    a. A **junior** pays an additional **30% of the basic fees.**
    b. The class should contain the following:
        i. A **constructor** that inherits from a class student.
        ii. getFees() method.
        iii. A **print()** method that overrides the **print() method** in the **Student** class to print the fees.

5. Write a test program to test the previous classes.

Question 3:

1. Write an **interface** named **BankAccountSpecification** that contains the following methods:

    a. public void deposit(int amount).
    b. public boolean withdraw(int amount).

2. Write a class named **BankAccount** that implements the previous **interface**, this class has only one data member named balance.