Interfaces

1. Define an interface **Printable** which provides a void print() method.

Write the code for two classes **Letter**, **Student** which implement interface Printable.

Class Letter contains a String text field, while class Student has a String field corresponding to the name of a student, and an array of five String elements corresponding to the grades of the student.

Both Letter and Student should implement the print() method of the Printable interface, so that it prints all the relevant details for an object of the corresponding class (i.e. field text for Letter, and fields name, grades for Student).

1. What is wrong with the following program? Justify why you get the specific compilation errors.

public interface Equation {

int numberOfVariables = 1;

private double solve();

public void printFormula() {

System.out.println("x^2 + 3x + 1");

}

}

public class LinearEquation implements Equation {

public double solve() {

numberOfVariables = 2; // ... details omitted

}

}

public class Test {

public static void main(String[] args) {

}

}

Hint: What kind of fields and methods can exist in an interface?

1. The Comparable Interface

The Comparable interface is a commonly used interface in Java. The interface defines how objects of a class which implement the interface are ordered.

Look up the Comparable interface in the Java API documentation.

The compareTo method of the Comparable interface compares two parameters, the implicit and explicit parameter.

The call a.compareTo(b) returns: 1, if a is larger than b -1, if a is smaller than b 0, if a and b are the same

Implement the compareTo method of an Account class (which we did earlier classes) which implements the Comparable interface, so that it compares the balances of the accounts. Some of the code is provided to you:

public class Account implements Comparable {

//

//

private double balance; . . .

/\* Compares two bank accounts. @param other the other Account @return 1 if this

bank account has a greater balance than the other one, -1 if this bank account is has a

smaller balance than the other one, and 0 if both bank accounts have the same balance

\*/

public int compareTo(Account other) { . . . }

}