Homework 2 (15 points)

This assignment is based on problems 2.13 and 2.14 in chapter 2 of the Horstmann text. An enterprising student might find valuable shortcuts for completing this assignment by cruising over to the textbook web site and perusing the Student Solutions Manual.

1. Draw a sequence diagram depicting the method calls in the main method shown below:

```java
import java.util.*;

public class Tester {
    public static void main (String [] args) {
        boolean isFloat = false;
        Scanner kb = new Scanner(System.in);
        int choice;
        String input;
        int iNum = 0;
        double dNum = 0;
        SafeInput.printMenu();
        input = kb.nextLine();
        choice = input.charAt(0);
        if (choice == '1') // read an integer
            { System.out.print("Enter a number: ");
              input = kb.nextLine();
              iNum = SafeInput.readInt(input);
              System.out.println("int value was " + iNum);
            }
        else if (choice == '2') // read a double
            { System.out.print("Enter a number: ");
              input = kb.nextLine();
              dNum = SafeInput.readDouble(input);
              System.out.println("double value was " + dNum);
            }
        else
            System.out.println("Follow directions much?");
    }
}
```

2. (Note: this is 2.14 verbatim. This one isn’t in the solutions manual.) Consider a program that plays TicTacToe (or XO, or noughts and crosses) with a human user. A class TicTacToeBoard stores the game board. A random number generator is used to choose who begins and to generate random legal moves when it’s the computer’s turn. When it’s the human’s turn, the move is read from a Scanner, and the program checks that it is legal. After every move, the program checks whether the game is over. Draw a sequence diagram that shows a scenario in which the game starts, the computer gets the first turn, and the human gets the second turn. Stop the diagram after the second turn.
3. Revise the state diagram below to reflect what happens in the first ATM example when the user enters the wrong PIN code twice: