# CS 157 Lab 9 October 29, 2009
# if -- else and Strings

1. The Java program below determines how many $20 bills two people will need based on the amounts they intend to spend. The code is redundant, basically doing the same thing twice. You will refactor this code to improve its quality a little later. Right now, either type it in and run it a few times or examine it carefully until you understand exactly what it is doing. Here are some questions:
   a) What happens as a result of the cast to "int"?

   b) Explain the "if" statement that appears on the next line (more than "increments numBills if numBills times 20 is less than amount").

```
import java.util.*;

public class Bills {
    public static void main(String[] args) {
        Scanner console = new Scanner(System.in);
        System.out.print("How much will John be spending? ");
        double amount = console.nextDouble();
        System.out.println();
        int numBills1 = (int) (amount / 20.0);
        if (numBills1 * 20.0 < amount) {
            numBills1++;
        }

        System.out.print("How much will Jane be spending? ");
        amount = console.nextDouble();
        System.out.println();
        int numBills2 = (int) (amount / 20.0);
        if (numBills2 * 20.0 < amount) {
            numBills2++;
        }

        System.out.println("John needs " + numBills1 + " bills");
        System.out.println("Jane needs " + numBills2 + " bills");
    }
}
```

2. Write a static method named **`getNumberOfBills`** that accepts a double as a parameter and that returns the number of $20 bills needed. Rewrite the main method so that it uses that method and otherwise produces the same results as the program given above.

3. Write a program in a class called **Lab9** that prompts the user to enter one or more words and prints whether the entered String is a palindrome (reads the same forwards as it does backwards). For example, “abba” and “racecar” are palindromes. To do this, you must have a method called **isPalindrome** that takes a String argument and returns a boolean representing whether the String is a palindrome or not. First get the program to work with simple palindromes like the examples given above. When you get that to work, create a method called **stripString** that takes a String argument and returns a String that contains the argument string converted to lower case AND removes from it any characters that are not letters of the alphabet. To do this, you need to read pages 235-238 of the text. Then your program should be able to work with palindromes such as “Madam, I’m Adam”. Place your completed Lab9.java on the shared drive.