EECS 1510: Intro to Object Oriented Development
Project 3: If Statements

130 Points Due: Thursday February 20, 2014

Eliminated the (erroneous) references to C++.

This assignment is designed to sharpen your skills in writing small Java programs using 'if' and "if-else" statements. Please think about the problem before you start to write the program. You should first design the algorithmic strategy then think about how to write the necessary statements in Java.

For the submission of this project, be sure to read the posted file
"Printed Submission of Projects.doc".

Program 1: (20 points) ConvertToUpper.java

Write a Java program that reads in a character, presumably a letter, and prints the uppercase equivalent of the letter. If the character is not a letter, the program simply prints a message indicating this. One sample program run must look as follows:

```
Enter a letter: h
The uppercase equivalent of h is
      H
```

The other sample program run must be as follows:

```
Enter a letter: $
Not a letter.
```

Note that the user input is in bold. Name this program as **ConvertToUpper.java**.

Program 2: (40 points) Circle.java

Do Exercise 3.22 on page 125 of the textbook, writing a simple program to determine if a point lies within a circle of radius 10.0 centered at the origin. For the 2 sample runs, give exactly the same input-output dialog as in the textbook.

Program 3: (30 points) ThreeGuesses.java . Consider the following dialog:

```
Welcome to People's Bank.
Please enter your secret code:      45
Sorry, that is not it.  Try again: 47
Sorry, last chance.  Try again:    51
Fine, go ahead.
```

Here the user gets three (and only three) tries to guess the secret code (here 51). Write a program to give exactly this behavior. Do NOT use loops. For the printout of the 2 sample runs, give one for a correct secret code on the third try (as above), and one for an incorrect code an all three tries.

Program 4: (40 points) Taxes.java

When you fill out one's income tax, you take your income, subtract certain amounts (personal exemption, a standard deduction, gifts to charity, etc), and compute your net taxable income. Given your net income, your tax is computed using the following table (for 2012):

Marginal Tax Rate	Single Filers
10%	Not over $8,700
15%	$8,700 – $35,350
25%	$35,350– $85,650
28%	$85,650 – $178,650
33%	$178,650– $388,350
35%	Over $388,350

For example, if your net income is $22,000, your tax is

10% of 8,700 + 15% of (22,000 – 8,700)

which computes to $2,865.00

Write a Java program that reads in a person's net taxable income, and prints the amount of tax using the above table. A sample program run is as follows:

```
Enter your net taxable income: 22000
Your 2012 tax is $2,865.00
```

The user input above is in bold. Name this program as Taxes.java. For the output of the money amount, you need not put the comma in 2,875.00, just print 2875.00.

Option: You can use

```
DecimalFormat df = new DecimalFormat("$###,###.##");
```

to print the resulting tax in a reasonable notation for money amounts.

Hint: See Listing 3.6 (pages 100-101) in the text by Liang.