Java Guillermo's Guessing Game

Time required: 90 minutes

Please read the directions carefully before beginning the assignment.

- Comment your code as shown in the tutorials and other code examples.
- Follow all directions carefully and accurately.
- Think of the directions as minimum requirements.

Pseudocode or TODO

1. Write pseudocode or TODO for the exercise.
2. Comment your code to show evidence of understanding.

Computer Game History

In 1952, A. S. Douglas wrote his University of Cambridge Ph.D. dissertation on human-computer interaction. He created the first graphical computer game—a version of Tic-Tac-Toe. The game was programmed on an EDSAC vacuum-tube mainframe computer.

The first computer game is generally assumed to be "Spacewar!", developed in 1962 at MIT; the first commercially available video game was "Pong," introduced by Atari in 1973. In 1980, Atari's "Asteroids" and "Lunar Lander" became the first video games to be registered in the U.S. Copyright Office. Throughout the 1980s, players spent hours with games that now seem very simple and unglamorous; do you recall playing "Adventure," "Oregon Trail," "Where in the World Is Carmen Sandiego?," or "Myst"?

Today, commercial computer games are much more complex; they require many programmers, graphic artists, and testers to develop them, and large management and marketing staffs are needed to promote them. A game might cost many millions of dollars to develop and market, but a successful game might earn hundreds of millions of dollars. Obviously, with the brief introduction to programming you have had in this chapter, you cannot create a very sophisticated game. However, you can get started.

For games to hold your interest, they almost always include some random, unpredictable behavior. For example, a game in which you shoot asteroids loses some of its fun if the asteroids follow the same, predictable path each time you play the game. Therefore, generating random values is a key component in creating most interesting computer games.

Generate Random Numbers

The following statements help you generate and use a dialog box that displays a random integer between 1 and 10.

This goes at the top of the program where the other imports are.

```
// Import Java library to generate random integers
import java.util.Random;
```

Create a random number object

```
// TODO: Create random number object
Random random = new Random();
```

The following line creates a random integer between 1 and 10 and assigns it to the randomNumber variable.

```
int randomNumber;
// Generate random integer from 1 - 10
randomNumber = random.nextInt(1, 11);
```

Here's What I Want You to Do

Create a console or JOptionPane program that

- Generates a random number
- Allows the user to guess
- Then displays the correct answer.

Why I Want You to Do It

Demonstrate understanding of:

Random numbers, Classes, Boolean, Variables, Get number input and display text in JOptionPane

Minimum Requirements

Create a Java program named **RandomGuess.java**

You can create a console or a GUI program with JOptionPane. The program selects a random number between 1 and 10 and asks the user to guess the number.

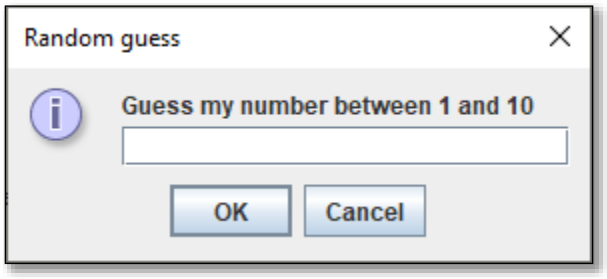
1. Generate a random integer.
2. Get an integer from the user.
3. Compare the random integer with the user's entry. Were they high, low, or did they win.
4. Display the user's guess and the random number.
5. Display a message that indicates whether they were high, low, or won and the difference between the random number and the user's guess.

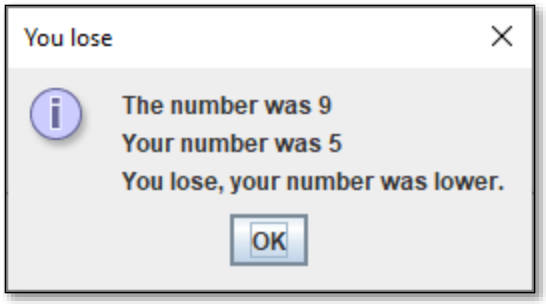
TODO Outline of Program

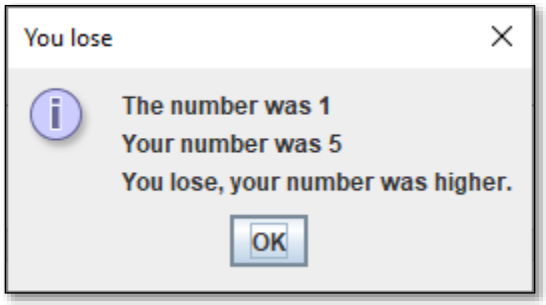
You can use the following TODO outline to get started with your program.

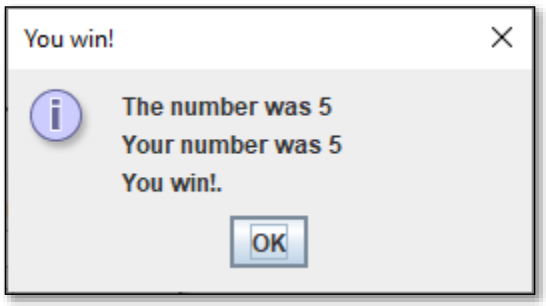
```
/*
 * Filename: RandomGuess.java
 * Written by:
 * Written on:
 * Purpose: Guess a random number from 1-10 generated by the computer,
 * display random number and whether the user won or not
 */
// TODO: Optional GUI version: import JOptionPane and Random libraries

// TODO: Create random number object

// TODO: Create constants for random number range, 1 and 11
// The top number is not included in random number generation
// It must be 1 number higher

// TODO: Declare variables

// TODO: Generate random number from 1-10

// TODO: Get number from user

// TODO: Was the number less than, greater than, or equal to random number
// Display the results

// TODO: If the users number was less than the random number, they lose

// TODO: If the users number was greater than the random number, they lose

// TODO: If the users number was equal to the random number, they win
```

Example run:









Assignment Submission

1. Use pseudocode or TODO.
2. Comment your code to show evidence of understanding.
3. Attach the program files.
4. Attach screenshots showing the successful operation of the program.
5. Submit in Blackboard.