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/**
 * Name: Your Name (CS lab login)
 * Course: CSCI 241 - Computer Science I
 * Section: 001
 * Assignment: 1
 *
 * Project Description: This class creates a guessing game called
 * "High-Low". The player must guess a number between 1 and 100
 * (inclusive). The secret number is picked at random. The player
 * wins if he/she guesses the number within the maximum guesses
 * allowed. The player loses if he/she cannot discover the number
 * by that time.
 *
 * Known Bugs: none
 */
import java.util.*;

public class HighLow
{
//-----
// Data Members
//-----
// class constants
private static final int MAX_GUESSES = 6; // max guesses per game

// class variables
private static Scanner keyboard; // input from keyboard
private static int secretNumber; // number to guess

//-----
// Private methods called from main()
// void start ()
// void describeRules ()
// void generateSecretNumber ( )
// void playGame ()
//-----
/**
 * Top level method that calls other private methods
 * to play the High-Low games.
 */
private static void start ()
{
// tell the player how the game works
describeRules();

// Collect a guess
System.out.print("Ready? Type Y to play, N to quit: ");

String answer = keyboard.next();

// Keep playing as long as the answer begins with a Y
while (answer.charAt(0) == 'Y' || answer.charAt(0) == 'y')
{
System.out.println();

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secretNumber = generateSecretNumber( );
playGame();
System.out.println("Another game?  ");
System.out.print("Type Y to play, N to quit:  ");
answer = keyboard.next();
}
}

/**
 * Provides a brief explanation of the program to the user.
 */
private static void describeRules( )
{
System.out.println("*** WELCOME TO THE HIGH-LOW GAME ***");
System.out.println("The objective of this game is for you ");
System.out.println("to guess the secret number (any ");
System.out.println("integer between 1 and 100) with the ");
System.out.println("least number of tries. The maximum ");
System.out.println("number of tries allowed is six. If ");
System.out.println("your guess is higher than the secret ");
System.out.println("number, the program will reply High. ");
System.out.println("If your guess is lower, the program ");
System.out.println("will reply Low.");
}

/**
 * Generates and returns a random number between 1 and 100, inclusive
 */
private static int generateSecretNumber( )
{
double temp = Math.random();
int num = (int) Math.floor(temp * 100) + 1;
return num;
}

/**
 * Plays one High-Low game.
 */
private static void playGame( )
{
int guessCount = 0; // number of guesses in the current game
int guess;         // number guessed

do {
//get the next guess
guess = getNextGuess();

// increment the count of guesses
guessCount++;

//check the guess
if (guess < secretNumber)
{
System.out.println("Your guess is Low");

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    }
    else if (guess > secretNumber)
    {
        System.out.println("Your guess is High");
    }
    } while (guessCount < MAX_GUESSES && guess != secretNumber);

    //output appropriate message
    if (guess == secretNumber)
    {
        System.out.print("Congratulations! You guessed it in ");
        System.out.println(guessCount + " tries.");
    }
    else // ran out of guesses
    {
        System.out.print("Sorry, the secret number was ");
        System.out.println(secretNumber);
    }
    }

    /**
     * Gets the player's next guess.
     *
     * @return the next guess entered by the player
     */
    private static int getNextGuess( )
    {
        int nextGuess;

        System.out.print("Enter guess between 1 and 100: ");
        nextGuess = keyboard.nextInt();

        // Make sure the guess is in range and if not, ask again.
        // Don't count guesses that are out of range.
        while (nextGuess < 1 || nextGuess > 100)
        {
            System.out.println("Guess must be between 1 and 100");
            System.out.print("Your next guess: ");
            nextGuess = keyboard.nextInt();
        }
        return nextGuess;
    }

    /**
     * main() method: sets up keyboard scanner and starts the game.
     */
    public static void main (String [] args)
    {
        // set up Scanner for keyboard input
        keyboard = new Scanner(System.in);
        start();
    }
}

```