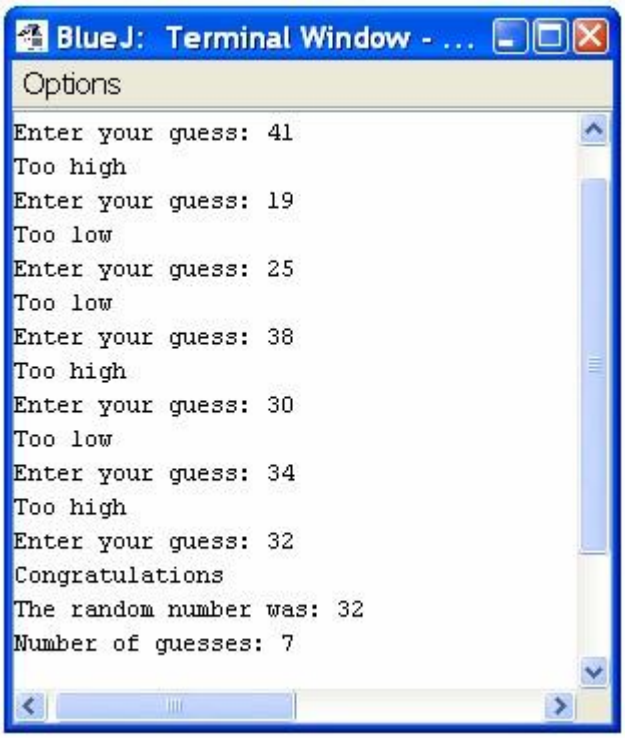
Assessment Instructions – Guessing Game

Instructions: Write a program that allows the user to guess a random number chosen by the computer.

There are two parts to this assessment. If you complete Part 1, you will receive 16 points. You may complete Part 2 to earn 4 extra points.

1. Create a class called GuessingGameV1 in the Unit05 Assessments folder.
2. Have the computer select a random number between 1 and 100.
3. Prompt the user to continue guessing until there is a match with the random number selected by the computer.
4. Tell the user (nicely) if the guess was correct, too high, or too low.
5. Count the number of guesses.

Output from a sample run is shown below.



Output will vary from one run to the next. What is the optimum strategy for guessing the number in the fewest attempts?

For an extra challenge, you may want to try the second part of this assessment. It requires some algorithmic thinking. However, do not get "stuck" on this assessment just to obtain four extra points!

6. Modify the program so that the random number can be chosen between any range of numbers.
7. Be sure to make a copy of the old program and rename it GuessingGameV2.java.
8. This would be like saying, "Guess the number I am thinking of between 125 and 175".
9. Allow the user to pick the range.
10. Then the computer will pick a secret random number in this range.
11. The user should then randomly guess the secret number that was chosen.
12. Prompt the user to continue guessing until there is a match with the random number selected by the computer.
13. Tell the user (nicely) if the guess was correct, too high, or too low.
14. Count the number of guesses required to find a match.
15. Output from a sample run is shown below.

Something to think about: It the **`random()`** method only chooses decimal numbers from 0.0 up to but not including 1.0, how can you choose a random number between some other range of values?

Hint: You need an algorithm that will apply for any range.

1. Pick a random number between 0.0 and 1.0 (but not including 1.0).
2. Pick a high and a low number for the range (e.g. 175 and 124).
3. What is the difference between the high and the low value?
4. What is the product of this difference times the random number?
5. What is the sum of the product and the low value of the range?