**CMSC203 Assignment 2 Implementation (Documentation)**

Class: CMSC203 CRN 21754

 Program: Assignment #2

Instructor: Professor Grinberg

 Summary of Description: A random number is created from 0 to 100 and the user has 7 tries to guess the right number.

 Due Date: 9/19/22

 Integrity Pledge: I pledge that I have completed the programming assignment independently.

 I have not copied the code from a student or any source.

Majd Haddad

**Part1: Pseudo Code:** Here is a pseudo code for Assignment 2 program:

**INSTANTIATE input to class Scanner**

**SET maximumNumber equal to 100**

**SET minimumNumber equal to 0**

**SET maximumAttempts equal to 7**

**DECLARE integer randomGeneratedNum**

**SET numberGuessed equal to 0**

**SET count equal to 0**

**SET userRepeat equal to “yes”**

**DISPLAY “This application generates a random integer between 0 and 100 and asks the user to guess repeatedly until they guess correctly.”**

**REPEAT-UNTIL userRepeat is not equal to “yes”**

**SET minimumNumber equal to 0**

**SET maximumNumber equal to 100**

**SET count equal to 0**

**SET randomGeneratedNum equal to the call of the method rand() from RNG class**

**DISPLAY “Random number is “ displaying randomGeneratedNum**

**DISPLAY “Enter your first guess: “**

**SET numberGuessed equal to the call of the object input to read the next number.**

**SET count equal to count plus 1**

**WHILE numberGuessed is not equal to randomGeneratedNum**

**IF count is equal to 7**

**DISPLAY “You have exceeded the maximum number of guesses, 7. Try again.”**

**EXIT out of the while loop using break**

**IF numberGuessed is less than randomGeneratedNum THEN**

**SET minimumNumber equal to numberGuessed**

**DISPLAY “Your guess is too low”**

**IF numberGuessed is greater than randomGeneratedNum THEN**

**SET maximumNumber equal to numberGuessed**

**DISPLAY “Your guess is too high”**

**DISPLAY “Number of guesses is: “ displaying variable count**

**DISPLAY “Enter your next guess between “ displaying minimumNumber and maximumNumber**

**SET numberGuessed equal to the Scanner object input reading the next integer**

**WHILE numberGuessed is less than or equal to minimumNumber OR numberGuessed is greater than or equal to maximumNumber**

**DECLARE method inputValidation from class RNG using parameters numberGuessed, minimumNumber, and maximumNumber**

**SET numberGuessed equal to object input reading the next integer**

**SET count equal to count plus 1**

**IF numberGuessed is equal to randomGeneratedNum THEN**

**DISPLAY “Congratulations, you guessed correctly”**

**READ next line for object input**

**DISPLAY “Try again? (yes or no)”**

**GET userRepeat**

**DISPLAY “Programmer: Majd Haddad”**

**Part2: Comprehensive Test Plan**

A good test plan should be comprehensive. This means you should have a few test cases that test when the input is in and out of range, division by 0, incorrect Data type, etc. (Provide valid and invalid input)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cases | Input | Expected Output | Actual Output | Did Test Pass? |
| Case 1 | 47  32  15  24  27  29  28  no | Enter your guess between x and y  Congratulations, you guessed correctly | This application generates a random integer between 0 and 100 and asks the user to guess repeatedly until they guess correctly.  Enter your first guess:  47  Your guess is too high  Number of guesses is: 1  Enter your next guess between 0 and 47  32  Your guess is too high  Number of guesses is: 2  Enter your next guess between 0 and 32  15  Your guess is too low  Number of guesses is: 3  Enter your next guess between 15 and 32  24  Your guess is too low  Number of guesses is: 4  Enter your next guess between 24 and 32  27  Your guess is too low  Number of guesses is: 5  Enter your next guess between 27 and 32  29  Your guess is too high  Number of guesses is: 6  Enter your next guess between 27 and 29  28  Congratulations, you guessed correctly  Try again? (yes or no)  no  Programmer: Majd Haddad | YES |
| Case 2 | 31  60  45  39  37  35  Yes  65  35  15  27  22  24  25  no | Number of attempts resets.  Play again is in action.  Gets correct guess | This application generates a random integer between 0 and 100 and asks the user to guess repeatedly until they guess correctly.  Enter your first guess:  31  Your guess is too low  Number of guesses is: 1  Enter your next guess between 31 and 100  60  Your guess is too high  Number of guesses is: 2  Enter your next guess between 31 and 60  45  Your guess is too high  Number of guesses is: 3  Enter your next guess between 31 and 45  39  Your guess is too high  Number of guesses is: 4  Enter your next guess between 31 and 39  37  Your guess is too high  Number of guesses is: 5  Enter your next guess between 31 and 37  35  Congratulations, you guessed correctly  Try again? (yes or no)  yes  Enter your first guess:  65  Your guess is too high  Number of guesses is: 1  Enter your next guess between 0 and 65  35  Your guess is too high  Number of guesses is: 2  Enter your next guess between 0 and 35  15  Your guess is too low  Number of guesses is: 3  Enter your next guess between 15 and 35  27  Your guess is too high  Number of guesses is: 4  Enter your next guess between 15 and 27  22  Your guess is too low  Number of guesses is: 5  Enter your next guess between 22 and 27  24  Your guess is too low  Number of guesses is: 6  Enter your next guess between 24 and 27  25  Congratulations, you guessed correctly  Try again? (yes or no)  no  Programmer: Majd Haddad | YES |
| Case 3 | 60  35  48  57  59  Yes  70  95  65  79  97  98  86  90  93  No | Guess must be between x and y. Try again.  Congratulations, you guessed correctly | This application generates a random integer between 0 and 100 and asks the user to guess repeatedly until they guess correctly.  Enter your first guess:  60  Your guess is too high  Number of guesses is: 1  Enter your next guess between 0 and 60  35  Your guess is too low  Number of guesses is: 2  Enter your next guess between 35 and 60  48  Your guess is too low  Number of guesses is: 3  Enter your next guess between 48 and 60  57  Your guess is too low  Number of guesses is: 4  Enter your next guess between 57 and 60  59  Congratulations, you guessed correctly  Try again? (yes or no)  yes  Enter your first guess:  70  Your guess is too low  Number of guesses is: 1  Enter your next guess between 70 and 100  95  Your guess is too high  Number of guesses is: 2  Enter your next guess between 70 and 95  65  >>> Guess must be between 70 and 95. Try again  79  Your guess is too low  Number of guesses is: 3  Enter your next guess between 79 and 95  97  >>> Guess must be between 79 and 95. Try again  98  >>> Guess must be between 79 and 95. Try again  86  Your guess is too low  Number of guesses is: 4  Enter your next guess between 86 and 95  90  Your guess is too low  Number of guesses is: 5  Enter your next guess between 90 and 95  93  Congratulations, you guessed correctly  Try again? (yes or no)  no  Programmer: Majd Haddad | YES |
| Case 4 | 107  50  85  99  93  87  89  no | Error! Enter your number between 0 and 100.  Congratulations, you guessed correctly. | This application generates a random integer between 0 and 100 and asks the user to guess repeatedly until they guess correctly.  Enter your first guess:  107  Error! Enter your number between 0 and 100.  50  Your guess is too low  Number of guesses is: 1  Enter your next guess between 50 and 100  85  Your guess is too low  Number of guesses is: 2  Enter your next guess between 85 and 100  99  Your guess is too high  Number of guesses is: 3  Enter your next guess between 85 and 99  93  Your guess is too high  Number of guesses is: 4  Enter your next guess between 85 and 93  87  Your guess is too low  Number of guesses is: 5  Enter your next guess between 87 and 93  89  Congratulations, you guessed correctly  Try again? (yes or no)  no  Programmer: Majd Haddad | YES |

**Part3: Screenshots related to the Test Plan:**

**Case 1 Text

Description automatically generated**

**Case 2**

**Text

Description automatically generated**

**Text

Description automatically generated**

**Case 3**

**Text

Description automatically generated**

**Text

Description automatically generated**

**Case 4**

Text

Description automatically generated

**Github Screenshot**

**Lessons Learned** <Provide answers to the questions listed above>**:**

Write about your Learning Experience, highlighting your lessons learned and learning experience from working on this project.

What have you learned? I learned how to access from another class by instantiating an object. I also learned how to use methods from the RNG class by using the object I created and then access the method by it’s name.

What did you struggle with? I had no syntax errors or any runtime errors. But I struggled with a very big logical error where my minimum number and maximum number range kept resetting to 0 to 100. The way I fixed this error was by redoing the code since I spent several hours trying to locate my error by using System.out.println() but it did not work at all. After an hour, I finished the code very easily.

What would you do differently on your next project? Next time, I would probably sketch what my code would look like on paper and instantly code right away since the pseudocode sort of messed me up.

What parts of this assignment were you successful with, and what parts (if any) were you not successful with?

I was successful with the right path to the code however I was not successful with getting the right logical output. I kept getting several logical errors that messed me up.

Provide any additional resources/links/videos you used to while working on this assignment/project.

**Check List:** <Provide answers to the column Y/N or N/A >**:**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** |  | **Y/N** | **Comments** |
|  | **Assignment files:** |  |  |
|  | * FirstInitialLastName\_ Assignment#\_Moss.zip | **Yes or No** |  |
|  | * FirstInitialLastName\_Assignment#.docx/.pdf | **Yes or No** |  |
|  | * Source java files | **Yes or No** |  |
|  | **Program compiles** | **Yes or No** |  |
|  | **Program runs with desired outputs related to a Test Plan** | **Yes or No** |  |
|  | **Documentation file:** |  |  |
|  | * Comprehensive Test Plan | **Yes or No** |  |
|  | * Screenshots related to the Test Plan | **Yes or No** |  |
|  | * Screenshots of your GitHub account with submitted Assignment# (if required) | **Yes or No or N/A** |  |
|  | * UML Diagram (if required) | **Yes or No or N/A** |  |
|  | * Algorithms/Pseudocode (if required) | **Yes or No or N/A** |  |
|  | * Flowchart (if required) | **Yes or No or N/A** |  |
|  | * Lessons Learned | **Yes or No** |  |
|  | * Checklist is completed and included in the Documentation | **Yes or No** |  |