

CSC 110: Fundamentals of Programming I

Assignment #4: parameter-passing & returns, Random

Due date

Sunday, February 21st, 2015 at 11:55 pm via submission to connex.

How to hand in your work

Submit the requested file (`NumberGuesser.java`) through the Assignment #4 link on the CSC 110 connex site.

Official Assignment Specification

Your methods must adhere to the [NumberGuesser specification document](#).

Learning outcomes

When you have completed this assignment, you should understand:

- How to program to a specification document.
- How to write and call methods with parameters and return statements.
- How to use the Random object

Part 1 – main method

You may comment out and add print statements to the main method while testing, but upon completion your submitted main method should look **exactly** as follows:

```
public static void main(String[] args) {  
    Scanner userInput = new Scanner(System.in);  
    Random numGenerator = new Random(0);  
    int secret = createSecretNumber(numGenerator, userInput);  
    int numTries = guessTheNumber(userInput, secret);  
    printResults(secret, numTries);  
}
```

The main method creates the Scanner and Random objects that are used throughout the other methods in the program. Notice that these objects only need to be declared in your program once.

You will need to complete the other three methods, createSecretNumber, guessTheNumber, and printResults.

Part 2 - createSecretNumber, guessTheNumber, and printResults methods

Please follow the [specification document](#) to create the remaining methods.

Sample output (text entered by the user underlined in red):

```
C:\WINDOWS\system32\cmd.exe
What is the highest value for the number? 5
What is your guess? 3
Your guess is too high!
What is your guess? 2
Your guess is too high!
What is your guess? 1
You got it!
The secret number was 1
It took you 3 tries to guess the number
```

createSecretNumber method:

Returns a random number between 1 and the value entered by the user (1 to 5 in the top two examples, and 1 and 100 in the third)

```
C:\WINDOWS\system32\cmd.exe
What is the highest value for the number? 5
What is your guess? 3
You got it!
The secret number was 3
Wow, you got it on your first try!
```

guessTheNumber method:

Repeatedly asks user to guess the number, and reports whether the number is too high or too low, until the user guesses correctly

```
C:\WINDOWS\system32\cmd.exe
What is the highest value for the number? 100
What is your guess? 50
Your guess is too low!
What is your guess? 75
Your guess is too high!
What is your guess? 62
Your guess is too low!
What is your guess? 68
Your guess is too high!
What is your guess? 65
You got it!
The secret number was 65
It took you 5 tries to guess the number
```

printResults method:

Prints out the value of the secret number, and how many tries it took to guess correctly (special output if user guesses on very first try)

File to submit: NumberGuesser.java

Marking

Your mark will be based on the following criteria:

- Your code *must compile and run*. It must prompt the user, read text input, and produce the expected output as described and shown above.
- Your code must conform to the requirements of the specification document (i.e., must have the main method shown above, and at least the three methods **createSecretNumber**, **guessTheNumber**, and **printResults** (and their parameters and return types must match the [specification document](#)).
- Your code must follow the guidelines outlined in Style_Guidelines.pdf, found through the Lectures & Stuff link in the Lab Resources folder on connex.