Laboratory 2. Using Random Class

(Due: 3/14, Mon, 6pm)

Spring 2022
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1. Write a Java program which generates and sort random numbers.

- Java provides *Random* class in the *java.util* package.
  - Random generator = new Random( ); // Creates an object, generator
  - Int next = generator.nextInt(10); // public int nextInt (int bound)
    // Returns a random integer between 0 (inclusive) and the specified value (exclusive).
- Write a Java program which performs the following tasks;
  - Ask the user to enter the number of random numbers to create, that is between 10 and 20. If the entered number is invalid, handle the exception.
    Let an integer attribute, *count*, denote the number of random numbers.
  - Ask the user to enter the range of the random numbers; the *lower bound* and the *upper bound*. Define two integer attributes, *lowerBound* and *upperBound*.
  - Define an integer array, *numArray*, for the size *count*.
  - Generate random numbers using the two bounds and store them in the array, *numArray*.
  - Print the content of the current array.
  - Compute the following values using a *for* loop.
    - Largest number in the array
    - Smallest number in the array
    - Average value of the numbers in the array
    - Sum of all the numbers in the array
  - Also, compute the standard deviation of the group of the numbers.
  - Print all the results of the computation, in a readable format.

2. Submission Guidelines

- Submit the followings on the smart campus at ***myclass.ssu.ac.kr***

  Create just **1 PDF file** containing the followings;
  - Source Code of your Program
  - Screenshot showing the program output on your computer
- No Plagiarism
  - The laboratory is an individual exercise. Do not copy others.
  - Submit your original work.

3. Grading Criteria (Total of 10 Points)

- Quality of Program (6)
  - Program Structure (4)
  - Exception Handling (1)
  - Program Comments/Annotation (1)
- Accuracy of Output (4)
  - Correctness of Output Values (3)
  - Comprehensive Output Format (1)