iThink360's Java Programming Tutorial Series

Module 2 Challenge

Preface from the Desk of iThink360:

Greetings, fellow Thinker! iThink360 here. Thank you so much for accepting the Module 2 Challenge for my Java Programming Tutorial series!

The idea behind this challenge is to take all of the knowledge and skills you have learned thus far and put your brain to the test! This will help reinforce learning, since practice makes perfect!

This challenge will also contain some preview material for Module 3. This challenge doesn't cover every single nitty-gritty bit of Module 2, but you are more than welcome to use any knowledge you have to try this challenge out.

I strongly encourage you to give this a go. If you are stuck, no worries! I will be dedicating Episode 22 to the solutions for this challenge. As always, stay safe… stay healthy… keep Thinking360… and best of luck, fellow Thinker!

What Resources Do I Have at My Disposal?

1. iThink360's Java Programming Tutorial series: https://youtu.be/v0jsNnCVRq0
2. Java API Documentation: https://docs.oracle.com/en/java/javase/11/docs/api/index.html
3. BlueJ Controls and Debugger

The Setup Directions:

1. Create a new project in BlueJ (or any IDE of your choice).
2. Create a class and call it StatisticianToolbox. All methods will be written there.
3. Begin tackling the challenge below! Label your code segments by phase and mission, using comments as subheadings. Leave some whitespace in between for readability.
4. When finished, tune in to Episode 22 to see the solutions to the challenge!

Notes:

- All methods are declared as public and static unless otherwise indicated.
- There WILL be math errors due to integer division. Disregard them; do not involve doubles.

The Challenge:

Create methods to calculate and return the following for an array of integers:

- Mission 1: Arithmetic mean
- Mission 2: Geometric mean
- Mission 3: Median
- Mission 4: Mode
- Mission 5: Range
- Mission 6: Standard deviation

Bonus (we will learn about this in Module 3):

- Create a new class and call it StatSet. Inside of this class:
    - Create private fields for an array of integers, arithmetic mean, geometric mean, median, mode, range, and standard deviation
    - Create a constructor that accepts an integer array as a parameter. The constructor should initialize the field for an array of integers directly via parameter. The constructor should also use the public static methods declared within the StatisticianToolbox to initialize the rest of the fields
    - Create accessor methods for each of the fields (example: getMedian() returns the median field)
    - Create a printData() method that prints out all of the data in the class in an appropriate format
- Create a new class and call it Main. Inside of this class:
    - Create a main method
    - Create 2 different arrays of integers, and make 2 local instances of StatSet objects with each of these 2 arrays
    - Print out the data for each of these StatSet objects

****** END MODULE 2 CHALLENGE ******

Congratulations, fellow Thinker! You've finished the Module 2 Challenge! Be sure to tune into Episode 22 on the channel to see the solutions.

All the best,

— iThink360, aka iTK

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