A05 Kd-Trees - Part 2   (MISSING) 50 Possible Points

| 11/14/2022

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Assignment: Kd-Trees - Part 2

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L e a r n i n g   O b j e c t i v e s

- Use Java generics and create generic classes.
- Implement two versions of the same API and analyze the performance of the different versions.

👀

O v e r v i e w

In this second part of the assignment, you will write an efficient implementation of a symbol table data type whose keys are two-dimensional points.

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implements the same API as class PointST. However, this time you will use a 2d-tree, which provides a much more efficient implementation.

Assignment Instructions:

The assignment instructions are based on an assignment of Princeton's algorithm course. **http://www.cs.princeton.edu/courses/archive/fall14/cos226/assignments/kdtree.html** ⤷ **(http://www.cs.princeton.edu/courses/archive/fall14/cos226/assignments/kdtree.html)**

Caveat: Class KdTreeST is difficult to debug.
I strongly recommend working through the worksheet with your partner and writing pseudo code together before starting the implementation. After writing the pseudocode (e.g., for the put method), create a small KD-tree by following your pseudocode's instructions. Verify that it works as expected. If that is not the case, fix the pseudocode. Do something similar for other methods.

You can find JUnit tests for class KdTreeST on CodePost. Again, you can submit as often as you like but only up until the deadline. Before you submit via Canvas, create a screenshot as described before. Ensure that it shows your bruinmail, the class that is tested, and the number of passing/failing tests

JUnit tests on CodePost are only a subset of the tests that are used for grading. It is the responsibility of you and your partner to complete the testing and to ensure that all requirements are met.

(http://www.cs.princeton.edu/courses/archive/fall14/cos226/assignments/8puzzle.html)

Additional Resources:

This time, there are multiple videos.They can be a great help in clarifying how KD trees work, in pointing out areas that need special attention, and in showing a way how to prepare before starting to code. Most of the information in the resources is directly applicable to the instructions, but not necessarily everything. Whenever the resources differ from the instructions, follow the instructions.

Checklist:

Here is a checklist that includes frequently asked questions, visualizers that help with testing

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the pebble distribution is not 50/50, include a description that explains the difference.

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Criteria	**Ratings**	**Pts**
JUnit tests for class KdTreeST view longer description		/ 30 pts
Functional and Performance Requirements view longer description		/ 15 pts
Style | Best Practices view longer description		/ 5 pts
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