P2x: BST (EC)

0 Possible Points

10/31/2023

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Details

Week 5: Algorithm Analysis (https://seattleu.instructure.com/courses/1610311/pages/week-5-synopsis)

ICE8: Big-O (https://seattleu.instructure.com/courses/1610311/assignments/7157057) | P2: BST (https://seattleu.instructure.com/courses/1610311/assignments/7157074) | >>> P2x: BST (EC)

P2x: BST (Extra Credit)

All Projects (P)

> Extra Credit assignments will not be graded unless you receive at least an 85% on the regular assignment.

Instructions:

Write the following member functions (`BSTx.h`):

- `getWidth` - Returns the width of the tree. The width is the largest number of nodes in the same level.
- `getLevelOrder` - Returns a string that results from traversing the BST level by level.
  - In other words,
    - first visit the root on level 0,
    - then all nodes on level 1 (children of the root),
    - then all nodes on level 2,
    - and so on.
  - Nodes on the same level should be visited in order from left to right.
    - *Hint: Write a non-recursive function and use a queue of pointers, you can use STL queue container*.

Test your functions in main (`p2x.cpp`).

Sample output:

For the following BST:

(https://seattleu.instructure.com/courses/1610311/modules/items/17916999) (https://seattleu.instru

```
10    30  50    70

width: 4
level-order: 40 20 60 10 30 50 70
```

Submission:

You must name your files **BSTx.h** and **p2x.cpp**

To submit, type the following command at the prompt in the directory where the P2 files reside:

```
/home/fac/mthayer/submit/23fq5005/script/p2x_runme
```

You have read/write permissions on your submission directory at:

```
/home/fac/mthayer/submit/23fq5005/p2/yourusername
```

View Rubric

BSTx Template

Criteria	Ratings		Pts
Implement getWidth() view longer description	**5 pts** **Full Marks**	**0 pts** **No Marks**	/ 5 pts
Implement getLevelOrder() view longer description	**5 pts** **Full Marks**	**0 pts** **No Marks**	/ 5 pts
			Total Points: 0

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