

Name: *Samuel Sovi*

Assignment: 10

Complete & Correct:	48 / 48
Tests:	0 / 0
Format and Comments:	6 / 6
Writeup:	6 / 6

Total Score:	60 / 60
--------------	-------	---------

Comments:

1. good job!

Unit test output:

```

==783520== Memcheck, a memory error detector
==783520== Copyright (C) 2002-2017, and GNU GPL'd, by Julian Seward et al.
==783520== Using Valgrind-3.15.0 and LibVEX; rerun with -h for copyright info
==783520== Command: ./hw10_test
==783520==
[=====] Running 28 tests from 1 test suite.
[-----] Global test environment set-up.
[-----] 28 tests from BasicBTreeMapTests
[ RUN      ] BasicBTreeMapTests.EmptyCheck
[      OK  ] BasicBTreeMapTests.EmptyCheck (11 ms)
[ RUN      ] BasicBTreeMapTests.InOrderInsertAndContainsCheck
[      OK  ] BasicBTreeMapTests.InOrderInsertAndContainsCheck (21 ms)
[ RUN      ] BasicBTreeMapTests.ReverseOrderInsertAndContainsCheck
[      OK  ] BasicBTreeMapTests.ReverseOrderInsertAndContainsCheck (5 ms)
[ RUN      ] BasicBTreeMapTests.OutOfOrderInsertAndContainsCheck
[      OK  ] BasicBTreeMapTests.OutOfOrderInsertAndContainsCheck (4 ms)
[ RUN      ] BasicBTreeMapTests.RValueAccessCheck
[      OK  ] BasicBTreeMapTests.RValueAccessCheck (5 ms)
[ RUN      ] BasicBTreeMapTests.LValueAccessCheck
[      OK  ] BasicBTreeMapTests.LValueAccessCheck (3 ms)
[ RUN      ] BasicBTreeMapTests.RootEraseTest
[      OK  ] BasicBTreeMapTests.RootEraseTest (4 ms)
[ RUN      ] BasicBTreeMapTests.Case1EraseTest
[      OK  ] BasicBTreeMapTests.Case1EraseTest (10 ms)
[ RUN      ] BasicBTreeMapTests.Case3ALeftHas2BothLeavesEraseTest
[      OK  ] BasicBTreeMapTests.Case3ALeftHas2BothLeavesEraseTest (6 ms)
[ RUN      ] BasicBTreeMapTests.Case3ALeftHas2BothInternalNodesEraseTest
[      OK  ] BasicBTreeMapTests.Case3ALeftHas2BothInternalNodesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3ARightHas2BothLeavesEraseTest
[      OK  ] BasicBTreeMapTests.Case3ARightHas2BothLeavesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3ARightHas2BothInternalNodesEraseTest
[      OK  ] BasicBTreeMapTests.Case3ARightHas2BothInternalNodesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3BRightHas1BothLeavesEraseTest
[      OK  ] BasicBTreeMapTests.Case3BRightHas1BothLeavesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3BRightHas1BothInternalNodesEraseTest
[      OK  ] BasicBTreeMapTests.Case3BRightHas1BothInternalNodesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3BLeftHas1BothLeavesEraseTest
[      OK  ] BasicBTreeMapTests.Case3BLeftHas1BothLeavesEraseTest (5 ms)
[ RUN      ] BasicBTreeMapTests.Case3BLeftHas1BothInternalNodesEraseTest

```



```
300000 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 51.48 110.56 20 17 19
400000 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.00 0.00 71.42 160.52 20 17 19
500000 0.00 0.00 0.00 0.01 0.00 0.00 2.17 3.97 0.00 0.00 89.63 209.18 20 17 19
600000 0.00 0.00 0.00 0.00 0.00 0.00 0.34 0.92 0.00 0.00 112.49 259.06 21 18 20
700000 0.00 0.01 0.00 0.01 0.00 0.00 0.00 0.00 0.00 0.00 137.18 313.82 21 18 20
800000 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 156.74 366.39 21 18 20
900000 0.00 0.00 0.00 0.01 0.00 0.00 3.62 7.16 0.00 0.00 176.01 416.75 21 18 20
1000000 0.00 0.00 0.00 0.01 0.00 0.00 5.90 12.91 0.00 0.00 198.48 472.24 21 18 20
1100000 0.00 0.00 0.00 0.00 0.00 0.00 3.14 7.75 0.00 0.00 232.50 547.97 22 19 21
1200000 0.00 0.01 0.00 0.01 0.00 0.00 0.83 2.46 0.00 0.00 251.67 587.87 22 19 21
1300000 0.00 0.00 0.00 0.00 0.00 0.00 3.88 7.50 0.00 0.00 268.86 653.25 22 19 21
1400000 0.00 0.01 0.00 0.01 0.00 0.00 7.73 16.01 0.00 0.00 295.44 694.75 22 19 21
1500000 0.00 0.01 0.00 0.01 0.00 0.00 10.03 20.37 0.00 0.00 316.15 747.93 22 19 21
1600000 0.00 0.01 0.00 0.01 0.00 0.00 7.18 15.36 0.00 0.00 337.24 798.78 22 19 21
1700000 0.00 0.00 0.00 0.01 0.00 0.00 8.82 17.59 0.00 0.00 355.16 855.49 22 19 21
1800000 0.00 0.01 0.00 0.01 0.00 0.00 11.34 21.03 0.01 0.00 378.60 909.63 22 19 21
1900000 0.00 0.00 0.00 0.01 0.00 0.00 12.59 25.56 0.00 0.00 394.49 963.23 22 19 21
2000000 0.00 0.00 0.00 0.00 0.00 0.00 13.52 28.17 0.00 0.00 420.38 1016.23 22 19 21
100.52user 0.50system 1:41.03elapsed 99%CPU (0avgtext+0avgdata 425912maxresident)k
0inputs+184outputs (0major+246906minor)pagefaults 0swaps
```