Homework 8

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due 16 April, 2018, 23:55 hours

Problem 1:

a) Describe all valid red-black trees that store the numbers 1,2,3,4,5.

Solution:

Please check the file *solution_a.txt*. Please note that the solutions where generated using a C++ script which is not uploaded. The way the trees where generated is that, the program generated all the permutations of [1, 2, 3, 4, 5] and inserted them in the tree in that order. The outcome was then printed using preorder traversal.

b) Describe the red-black trees that result after successively inserting the keys [14, 42, 35, 7, 26, 17] into an empty red-black tree. You are required to describe the tree after each insertion, as well as any additional recoloring and balancing.

Solution:

Please check the file *solution_b.txt*. Please note that does not specify to explain **all** possible combinations. Therefore, you will find only one resultant tree.

c) Check *solution_c.pdf*

Probem 2:

Please check files *rbt.cpp* and *rbt.h*. Good luck!