ADS Project Report

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I have implemented risingCity project for this assignment. It was implemented using Red Black Trees and MinHeap data structures. Structure of the project is based on a driver class named as risingCity.java. Data is taken as input from a text file and output is also written to the text file. Input file data has commands according to which actions are performed on the minheap and rbltree. For rbl tree implemented operations are insert and delete and for minheap implemented operations are insert and extract min. Checks are placed to ensure the sanctity of the data structure remains after each and every step.

Complexity of the operations is as folows :

Print Building takes O(log n) time for a single node where n is the total number of buildings
Printing Building Range takes time O(log n + S) where n is the total number of buildings and S is buildings printed.
All of the other operations work in O(log n) time.

I've tested the code for sample inputs and it works exactly the same as the output for sample 1 provided by the TA's however it works differently for second sample case. This happens because different building is extracted from the heap to perform work for 5 days and hence the data differs from the output provided on canvas.

Major functions implemented for RBL Tree are

1. Insert
2. Delete

Major functions implemented for Min Heap are

1. Insert
2. Extract Min