Department of Computer Engineering CSE 222/505 - Spring 2020 Homework #4 Report

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1.Detailed system requirements

The heap structure needs to be written. Functions must be overridden by inheriting from the iterator class. It is necessary to use Binnary search Treede. Then we need to use the Heap structure in Binnary Search Trede.

2. Problem Definetion

Use of the Heap Struct structure. Using the heap struct structure in the Binary search tree structure.

3. PROBLEM SOLUTION APPROACH

My Problem solution steps are;

– Specify the problem requirements
– Analyze the problem
– Design an algorithm and Program
– Implement the algorithm
– Test and verify the program
– Maintain and update the program

1) Specify the problem requirements : I understand the problem.

2) Analyze the problem : I identify; – Input data – Output data – Additional requirements and constraints

3) Design an algorithm and Program : I divide the problem into sub-problems. I listed major steps (sub-problems). I break down each step into a more detailed list. To do these We have to divide this big project into small pieces. Implement the algorithm : I wrote the algorithm in Java by converting each step into statements of Java (classes ,methods etc.) Firstly, I wrote the **MinHeap** inner class. In this class I kept data of node, list of children and parent of node.. After that I wrote **BSTHeapTree** class to handle a file system hierarchy in a general tree structure. In this class I kept root of tree and by using this root I did operation of this class.

4)Test and verify the program: To test program I wrote the Driver class in this class in main method I test each method of **BstHeapTree** class by calling the methods and I printed the test results.

5) **Maintain and update the program** : I keep the program up-to-date

4. Class Diagram

Class diagram is in the tar.gz file;

5. Test Case

Program tested in driver class.