1. System Requirements

Computer with Windows/Linux/Mac OS and PDF Reader

2. Problem Solution Approach

In Question 1.A, we know that depth is equal to height and total depth is sum of each node's depth. We need to find generalized formula and show this.

In Question 1.B, Average comparison is (number of total comparison) / (number of nodes). So I need to find number of total comparison to calculate average comparison.

In Question 1.C, I know that leaf node is node that has no child and full binary tree is binary tree that have 2 or 0 children. I observe that if we add 2 child to a node, number of internal node and number of leaf node number botch increased by 1. I do this part with this informations.

In Question 2, I researched about quadtrees and M-ary tree to Binary Tree conversion. Firstly, I drawed quadtree of problem and create a table of it. Then, I converted it to binary tree as in the lecture book

3. Running Commands And Results

I didn't have time to do questions 3 and 4. To view my work, you just need to open Questions PDF.