CS435DE - Lab 6

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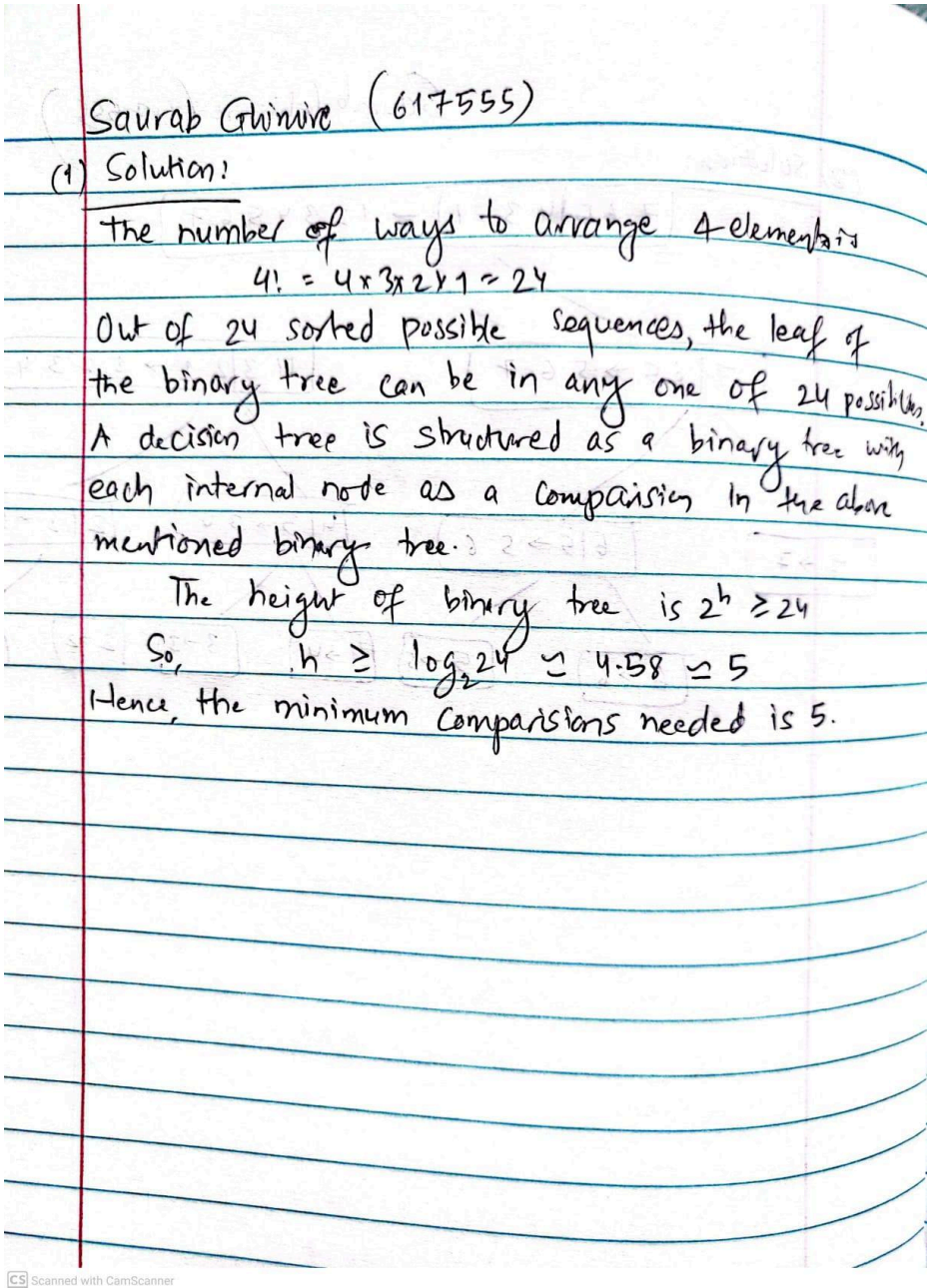
Problem 1: Solution



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(1) Solution:

The number of ways to arrange 4 elements is

$4! = 4 \times 3 \times 2 \times 1 = 24$

Out of 24 sorted possible sequences, the leaf of the binary tree can be in any one of 24 possibles. A decision tree is structured as a binary tree with each internal node as a comparision in the above mentioned binary tree.

The height of binary tree is $2^h \geq 24$

So, $h \geq \log_2 24 \simeq 4.58 \simeq 5$

Hence, the minimum comparisions needed is 5.