Data Structures
Project #1
Report

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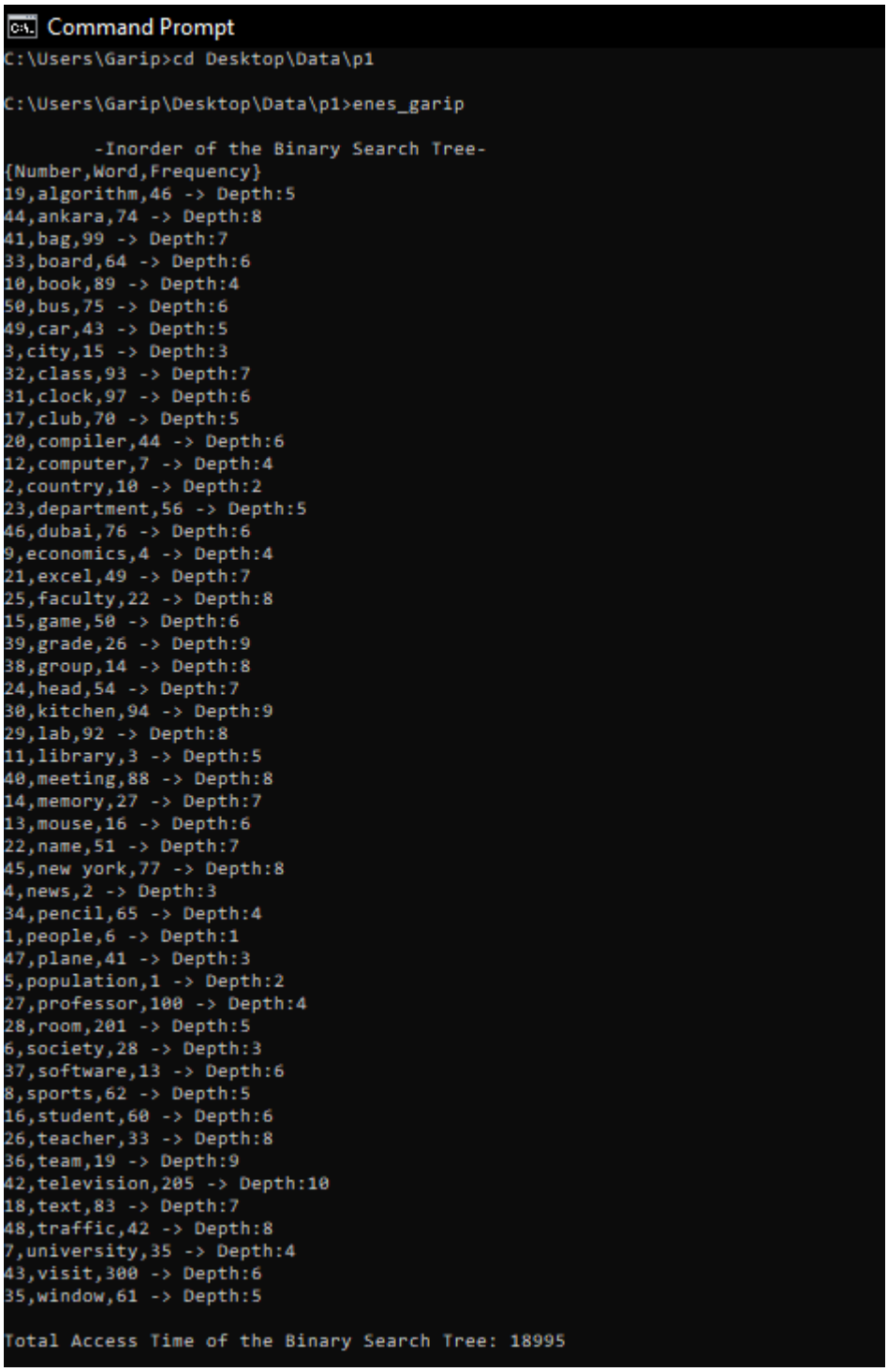
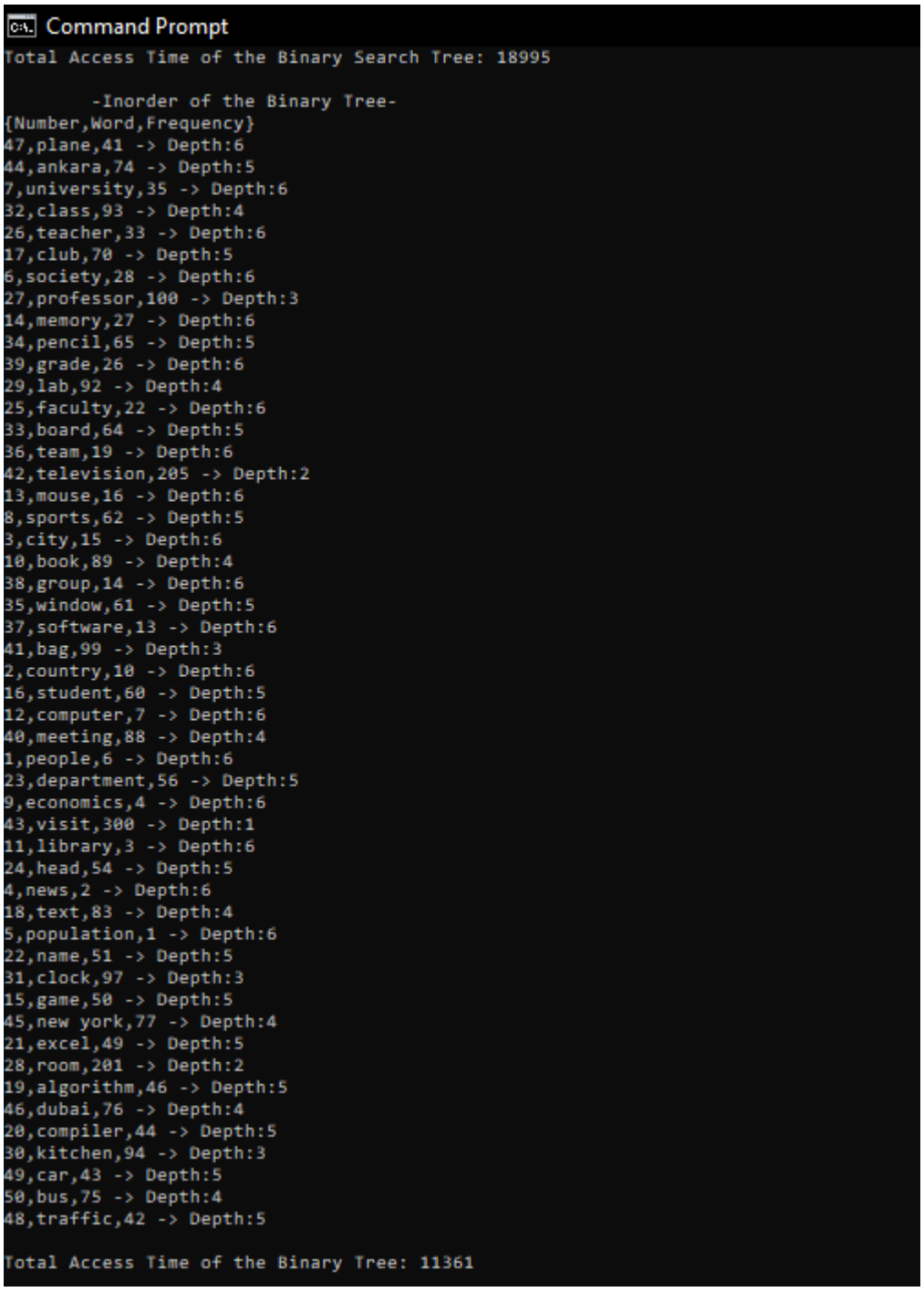
A), B)



The total access time of the tree = ∑(frequency*depth) of all nodes.

C), D)



The total access time of the tree = ∑(frequency*depth) of all nodes.

E)

In (b) part, we create a binary search tree with the key “Word”. So, as a result, the tree builds with alphabetical order. It causes that a node with a greater number of access time located at the deeper levels of the tree. In that case, the total access time of the tree grows.

In (d) part, we create a binary tree with the key of “Frequency”. In here, the root has the greatest frequency number. The formula is (frequency * depth). So, the root affects the total access time with the coefficient of 1. After that, the frequency number decreases at each level, on the other hand, the frequency number increases. In conclusion, we try to keep the multiplication as low as possible so the total access time grows slower than Binary Search Tree.