Discussion Topic 1

For the following problem, describe your solution on how to solve the following problem. Provide the *algorithm* (not C source code) and the *data structure* that you will use to solve the problem. Analyze the running time of your algorithm. Your solution must be different from the ones that have already been posted.

Race your classmates as you hitchhike your way through the galaxy in a spaceship powered by an infinite improbability drive. Only one obstacle remains in your quest to find the answer to the ultimate question of life, the universe and everything: you must first determine the nearest galactic neighbor, then visit it. Luckily, you have the right tool for it - a supercomputer named Deep Thought. Plug your program into this machine, and it may just yield the answer you're looking for.
For your convenience, the galactic coordinates have been converted to ordinary cartesian coordinates (x, y, z) and are stored in the file (Galaxies.txt) provided to you in the following format:

name of galaxy 1
x-coordinate, y-coordinate, z-coordinate
name of galaxy 2
x-coordinate, y-coordinate, z-coordinate

Write a program to read these records from the file into a data structure, and find the neighbor that is nearest your current coordinate of (x, y, z). To store the records, choose a data structure that is implemented using any one of the following: linked list, array, binary search tree. The data structure should support insertion and deletion of records. In addition, it should support an operation to print the record that is the nearest neighbor. Your program should read print out the total execution time of your program to print out the solution.