Red-Black Functional Specification

Write a program that creates a red-black tree.
Write a program that creates a binary tree.

Use two different datasets, (200 items and 1,500 items) to answer the following questions:

- How many transfers are required to insert the items into the tree?
- How much time does it take to build a full tree?
- How much time does it take to traverse the tree?
- How much time does it take to perform a lookup of a specific value?
- What happens when there are two items with the same value?
- What happens if you delete some of the items from the tree? Does it increase speed (time to traverse the tree), does the speed stay the same, or does it decrease speed?

Things to consider:

- Does the type of ‘item’ that you are using matter? Will it make a difference if the item is an integer, or a string, or a complex data type?
- What happens if the dataset is sorted? Does this change the speed of the program?