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1. List the members of your group below:

2. Depict the binary search tree resulting from the insertion of the following keys, in the order listed, into an empty binary search tree. Label the external nodes  $e_1, e_2, e_3, \ldots$  in preorder.

8, 5, 21, 3, 9, 7, 1, 2, 11, 14

3. Determine the *internal path length* and the *external path length* of the tree of Question 2. How are they related?

4. List the nodes of the tree of Question 2 that are probed when it is searched for each of the following keys. Include probes of external nodes as well as internal nodes.

8, 11, 32, 9, 99, 14

5. Depict the tree resulting from the deletion of each of the following keys from the tree of Question 2.

14, 7, 8, 1

6. Determine the maximum contiguous subsequence of the sequence

-3, 1, 3, 5, -10, 3, 38 - 1, 3, 10

and justify your answer.

7. Provide a linear-time algorithm for the maximum contiguous subsequence problem. Explain why it is correct and why its running time is linear.