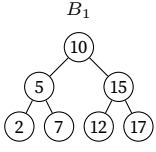
Range in a binary search tree

You are given a binary search tree B and two integers a and b where $a \leq b$. Provide an algorithm that prints the values within the range $[a, b]$ in *sorted* order (ascending). That is, if x is the value of a node, then the node should be printed if and only if $a \leq x \leq b$.

Input: A binary search B and two integers a and b where $a \leq b$
Output: Prints the values within the range $[a, b]$ in order

```
1 Procedure InRange(B, a, b)
  |  // ···
```



For the binary search tree B_1 (shown in the example above), `InRange(`B_1`, 2, 7)` should print 2, 5 and 7, and `InRange(`B_1`, 10, 20)` should print 10, 12, 15 and 17.

(a) Provide your algorithm (with pseudo code). You may make reasonable assumptions regarding the representation of B. A more efficient algorithm gives a higher score. You do not need to consider the formatting of the output.

In the following exercises, assume that B has n nodes, is balanced, and does not contain any duplicates.

(b) Assume that a is the smallest value in B and b is the greatest value in B. Give the run-time complexity of your algorithm with respect to n.

(c) Assume $a = b$. Give the run-time complexity of your algorithm with respect to n.