## Lab 3 – Time complexity analysis

The time complexity is the same for BiIterator::operator++ and BiIterator::operator-- .

**Best case:**Best case is constant time O(1) because we are on the correct node immediately.

**Worst case:**The worst case is O(n) because the binary search tree is a sorted list and going through a list requires O(n) time.

**Average case:**  
The average case is O(log n). That is because it is a binary search tree. The time complexity is the same as the height of the tree. The number of nodes is n = 2^h. If you do logarithm on both sides and simplify you get h = log(n) / log(2). And since log(n) is dominant the time complexity is O(log n).