AlgoExpert

Quad Layout | C++ | 12px | Sublime | Monok

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Solution 1 | Solution 2 | Solution 3

```cpp
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using namespace std;

class BST {
public:
  int value;
  BST *left;
  BST *right;

  BST(int value) {
    this->value = value;
    left = NULL;
    right = NULL;
  }

  // We don't use this method for this solution.
  void insert(int value) {
    if (value < this->value) {
      if (left == NULL) {
        left = new BST(value);
      } else {
        left->insert(value);
      }
    } else {
      if (right == NULL) {
        right = new BST(value);
      } else {
        right->insert(value);
      }
    }
  }
};

BST *constructMinHeightBst(vector<int> array, int startIdx, int endIdx);

// O(n) time | O(n) space - where n is the length of the array
BST *minHeightBst(vector<int> array) {
  return constructMinHeightBst(array, 0, array.size() - 1);
}

BST *constructMinHeightBst(vector<int> array, int startIdx, int endIdx) {
  if (endIdx < startIdx)
    return NULL;
  int midIdx = (startIdx + endIdx) / 2;
  BST *bst = new BST(array[midIdx]);
  bst->left = constructMinHeightBst(array, startIdx, midIdx - 1);
  bst->right = constructMinHeightBst(array, midIdx + 1, endIdx);
  return bst;
}

```