This project will be utilized to demonstrate your knowledge and understanding of Binary Search Trees. Please ensure all requirements below are followed:

1. Write a program that will automatically generate a balanced binary search tree containing random integers from 1 to 100 based upon the desired size given via user input. The user should be prompted to enter the desired number of nodes in the tree before creation.

*Hint: Creating a balanced binary search tree can be done easily by first randomly generating all desired numbers and storing them within an array. Secondly, sort the array in ascending order using any available sorting pattern. Third, use recursion to parse the array into a balanced binary search tree. A resource for converting the sorted array to a balanced binary search tree can be found here:* [*https://www.geeksforgeeks.org/sorted-array-to-balanced-bst/*](https://www.geeksforgeeks.org/sorted-array-to-balanced-bst/)

1. The program should also prompt the user with a menu that will allow them to perform the following actions on the balanced binary search tree:
2. Find the minimum value
3. Find the maximum value
4. Remove the minimum value
5. Remove the maximum value
6. Determine if the tree contains a value specified by the user
7. Print contents of the tree in ascending order via inorder tree traversal
8. Exit

If any of the options chosen would not work due to the tree being empty, that a message should display.

The user should be allowed to select menu options until they choose to Exit. Validate the user’s input for a menu option. The user should be required to enter a valid menu option before advancing.

*Note: Do NOT utilize the array from step 1 to print the contents of the tree in ascending order. This must be accomplished using inorder tree traversal. Also, your program does not need to rebalance the binary search tree after removing an element.*