Binary Search Tree Implementation with C Programming Language

Commands in the Program

- **CONSTRUCT [value1,value2,value3,…,valueN]:** Creates a binary tree with starting the root.
- **INSERT value:** The command is executed with an integer number. It creates a new node and places the node according to BST rules.
- **LIST**: Performs inorder traversal on the tree and prints all the nodes in the tree.
- **PARENT value**: Searches and prints the parent of the input value provided in the command.

Input/Output examples are as follows for the program:

```
CONSTRUCT [31,65,3,10,5,100,3,12]
INSERT 55
The parent of 55 is 65
LIST
3 3 5 10 12 31 55 65 100
PARENT 12
The parent of 12 is 10
PARENT 31
It is a root node
INSERT 1
The parent of 1 is 3
LIST
1 3 3 5 10 12 31 55 65 100
INSERT 500
The parent of 500 is 100
LIST
1 3 3 5 10 12 31 55 65 100 500
PARENT 5
The parent of 5 is 10
EXIT
```

```
CONSTRUCT [8,3,10,6,1,14,4,13,7]
INSERT 5
The parent of 5 is 4
LIST
1 3 4 5 6 7 8 10 13 14
PARENT 7
The parent of 7 is 6
INSERT 25
The parent of 25 is 14
LIST
1 3 4 5 6 7 8 10 13 14 25
PARENT 8
It is a root node
INSERT 9
The parent of 9 is 10
EXIT
```