



How do we represent the tree?

In the above tree, there are nodes with 6 children, with 3 children, with 2 children, with 1 child, and with zero children (leaves). To present this tree we have to consider the worst case (6 children) and allocate that many child pointers for each node. Based on this, the node representation can be given as:

```

struct TreeNode{
    int data;
    struct TreeNode *firstChild;
    struct TreeNode *secondChild;
    struct TreeNode *thirdChild;
    struct TreeNode *fourthChild;
    struct TreeNode *fifthChild;
    struct TreeNode *sixthChild;
};
  
```

Since we are not using all the pointers in all the cases, there is a lot of memory wastage. Another problem is that we do not know the number of children for each node in advance. In order to solve this problem we need a representation that minimizes the wastage and also accepts nodes with any number of children.