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1: // Recursive C program for level order traversal of Binary T
2: #include <stdio.h>
3: #include <stdlib.h>
4:
5: /* A binary tree node has data,
6: pointer to left child
7: and a pointer to right child */
8: struct node {
9:     int data;
10:    struct node *left, *right;
11: };
12:
13: /* Function to print level order traversal a tree*/
14: void printLevelOrder(struct node* root)
15: {
16:     int h = height(root);
17:     int i;
18:     for (i = 1; i <= h; i++)
19:         printCurrentLevel(root, i);
20: }
21:
22: /* Print nodes at a current level */
23: void printCurrentLevel(struct node* root, int level)
24: {
25:     if (root == NULL)
26:         return;
27:     if (level == 1)
28:         printf("%d ", root->data);
29:     else if (level > 1) {
30:         printCurrentLevel(root->left, level - 1);
31:         printCurrentLevel(root->right, level - 1);
32:     }
33: }
34:
35: /* Compute the "height" of a tree -- the number of
36: nodes along the longest path from the root node
37: down to the farthest leaf node.*/
38: int height(struct node* node)
39: {

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40:     if (node == NULL)
41:         return 0;
42:     else {
43:         /* compute the height of each subtree */
44:         int lheight = height(node->left);
45:         int rheight = height(node->right);
46:
47:         /* use the larger one */
48:         if (lheight > rheight)
49:             return (lheight + 1);
50:         else
51:             return (rheight + 1);
52:     }
53: }
54:
55: /* Helper function that allocates a new node with the
56: given data and NULL left and right pointers. */
57: struct node* newNode(int data)
58: {
59:     struct node* node= (struct node*)malloc(sizeof(struct node));
60:     node->data = data;
61:     node->left = NULL;
62:     node->right = NULL;
63:
64:     return (node);
65: }
66:
67: /* Driver program to test above functions*/
68: int main()
69: {
70:     struct node* root = newNode(1);
71:     root->left = newNode(2);
72:     root->right = newNode(3);
73:     root->left->left = newNode(4);
74:     root->left->right = newNode(5);
75:
76:     printf("Level Order traversal of binary tree is \n");
77:     printLevelOrder(root);
78:

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79:     return 0;  
80: }  
81:
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