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#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
struct node{
int info; struct node *llink; struct node *rlink; };
typedef struct node *NODE;
NODE getnode() {
Node x; x=(NODE)malloc(sizeof(struct node));
if(x==NULL){
printf("Mem full"); exit(0); } return x; }
void freenode(x) { free(x); }
NODE insert (int item, NODE root){
NODE temp, cur, prev; char dir[10]; int i;
temp = getnode();
temp ->info = item;
temp->llink = NULL; temp->rlink = NULL;
if (root == NULL) return temp;
printf("Direction to insert"); scanf("%s", dir );
prev=NULL; cur = root;
for(i=0; i<strlen(dir) && cur!=NULL; i++){
prev = cur;
if (dir[i]=='l') cur = cur->llink;
else cur = cur->rlink; }
if(cur!=NULL|| i!=strlen(dir)){
printf("Full \n"); freenode(temp); return (root); }
if(cur==NULL){
  if (dir[i-1]=='l') prev->rlink = temp; } return(root) ; }
void preorder(NODE root){
if (root != NULL){ printf(" item %d ", root->info);
preorder(root->llink); preorder(root->rlink); }}
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void inorder(NODE root){
 if(root!=NULL){
   inorder(root->llink);
   Printf(" item %d ", root->info);
   inorder(root->rlink); }}
void postorder(NODE root){
 if(root!=NULL){
 Postorder(root->llink);
 Postorder(root->rlink);
 Printf(" item %d ", root->info); }}
void display(NODE root, int i){
 int j;
  if(root!=NULL){
  display(root->rlink, i+1);
  printf("  ");
  Printf("%d", root->info);
  display(root->llink, i+1); }}
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void main(){
NODE root=NULL; int ch, i, item;
for(;;){
Printf("1. insert 2. preorder 3. inorder 4. postorder 5. Display 6. Exit");
scanf(" %d ", &ch);
switch(ch){
 case 1: printf("Item"); scanf("%d", &item); root = insert(item);
        break;
 case 2: if(root==NULL) printf("Empty");
        else { printf(" tree is "); display (root, 1);
        printf("preorder"); preordr(root); } break;
case 3: if(root==NULL) printf(" Empty");
        else {printf("tree is "); display (root, 1);
       Printf(" ~~Pos~~ inorder "); inorder(root); } break;
Case 4: if(root==NULL) printf(" Empty ");
        else { Printf("tree is"); display (root, 1);
        Printf("Post order "); Postorder(root); } break;
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case 5: display(root,1);
        break;
default: exit(0); }}}
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