



TI DSP, MCU, Xilinx Zynq FPGA Based Programming Expert Program

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Binary Search Tree(BST)

Non-recursive insertion algorithm :

I thought all nodes in the insert path be saved in stack. It was right. But, I can't finish the algorithm until today. I was obsessed with pushing single pointer. Today, I modified push function's second parameter (avl* data -> void* data) and applied type cast(avl**) to void pointer.

But I'm still a little confused why I should use double pointer. So I memorized that code and analyzed it.

```
void avl_ins(avl** root,element data){
    avl** tmp = root;
    stack* top = NULL;
    int chk;
    while(*tmp){
        printf("%d push!!\n",(*tmp)->data);
        push(&top,tmp);
        if(data < (*tmp)->data)
            tmp = &(*tmp)->left;
        else if(data > (*tmp)->data)
            tmp = &(*tmp)->right;
    }
    *tmp = get_avl_node();
    (*tmp)->data = data;
    while(Is_not_empty(&top)){
        avl** t = (avl**)pop(&top);
        (*t)->lev = update_level(*t);

        chk = rot_chk(*t);
        if(abs(chk) > 1){
            (*t) = rotation(*t,kinds_of_rot(*t));
            printf("rotate!!\n");
        }
    }
}
```