

```

1  // Problem: XOR Sum
2
3  struct node{
4      node *nxt[2];
5      node(){
6          nxt[0] = nxt[1] = nullptr;
7      }
8  };
9
10 void dfs_delete(node *nd){
11
12     if(!nd) return;
13
14     dfs_delete(nd->nxt[0]);
15     dfs_delete(nd->nxt[1]);
16     delete nd->nxt[0];
17     delete nd->nxt[1];
18 }
19
20 struct TrieXOR{
21
22     node root;
23
24     ~TrieXOR(){
25         dfs_delete(root.nxt[0]);
26         dfs_delete(root.nxt[1]);
27     }
28
29     void insert(int val){
30
31         node *cur = &root;
32
33         for(int i = 30; i >= 0; i--){
34
35             bool b = (val>>i)&1;
36
37             if(!cur->nxt[b]){
38                 cur->nxt[b] = new node();
39             }
40
41             cur = cur->nxt[b];
42         }
43     }
44
45     int query(int val){
46
47         int ret = 0;
48         node *cur = &root;
49
50         for(int i = 30; i >= 0; i--){
51
52             bool b = (val>>i)&1;
53
54             if(cur->nxt[!b]){
55                 ret ^= (1 << i);
56                 cur = cur->nxt[!b];
57             }
58             else{
59                 cur = cur->nxt[b];
60             }
61         }
62
63         return ret;
64     }
65
66 };

```