1-5 Data Structures

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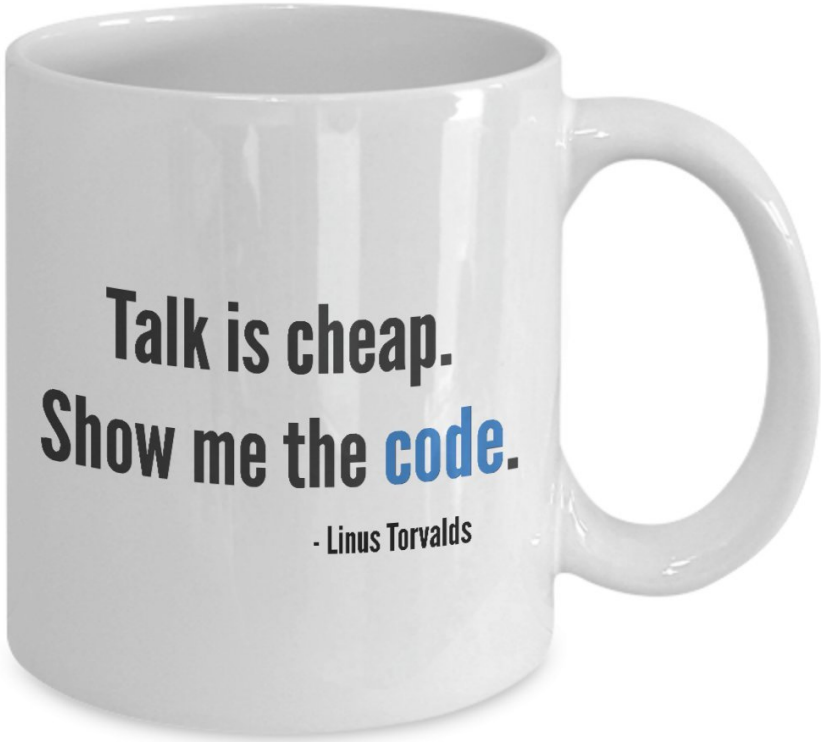
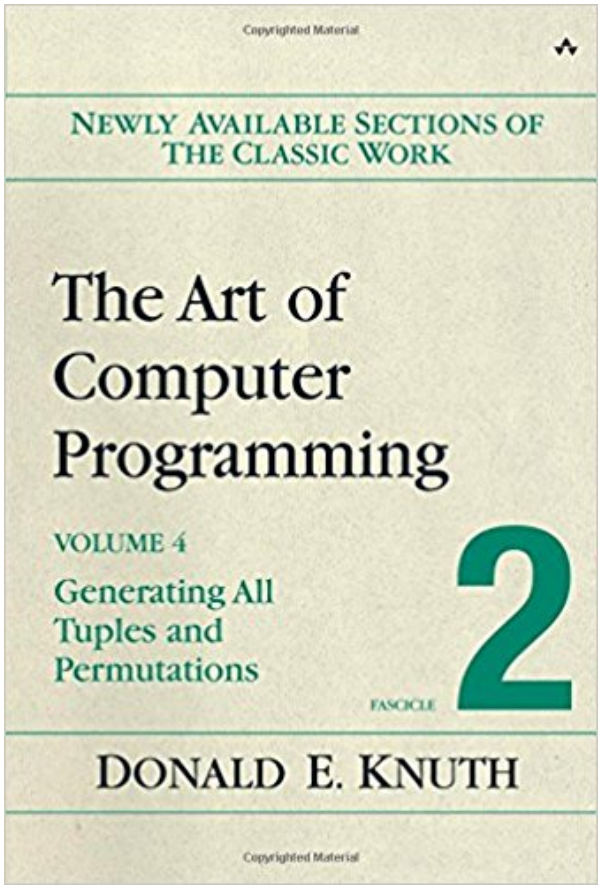
Generating All Permutations

```
1: procedure PERMS(A[], l)
2:     if l = A.size − 1 then
3:         print A
4:     else
5:         for i ← l to A.size − 1 do
6:             SWAP(A[i], A[l])
7:             PERMS(A, l + 1)
8:             SWAP(A[i], A[l])
```

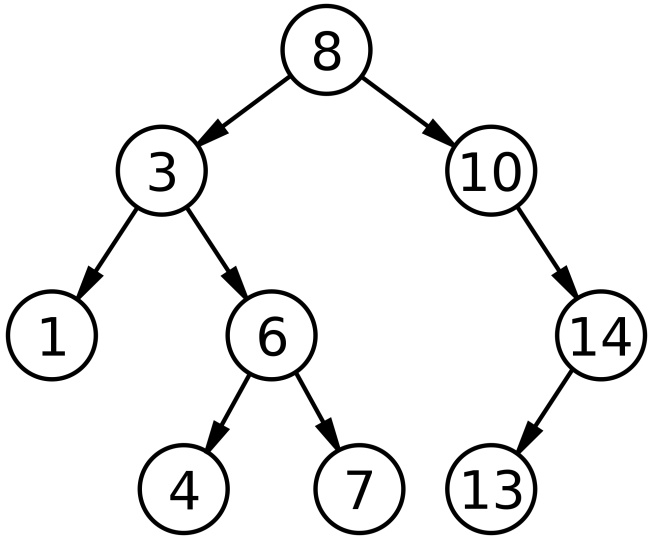

Talk is cheap.
Show me the code.
- Linus Torvalds

Iteration Version of Perms

For more about "Generating All Permutations":



Treesort Algorithm on BST

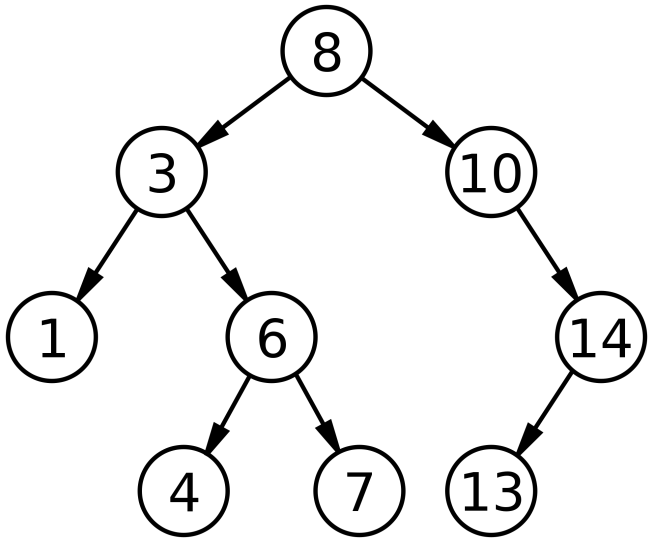


```
1: procedure BuildBST(eles)
2:     Node root(eles[0])
3:     for all e ∈ eles[1...] do
4:         INSERT(root, e)
```

```
1: procedure INSERT(T, e)
2:     if e < T.val then
3:         if T.left = Λ then
4:             T.left = new Node(e)
5:         else
6:             INSERT(T.left, e)
7:     else
8:         if T.right = Λ then
9:             T.right = new Node(e)
10:        else
11:            INSERT(T.right, e)
```

DH 2.16: Treesort

(ii) right; val; left



14, 13, 10, 8, 7, 6, 4, 3, 1


Thank
You!