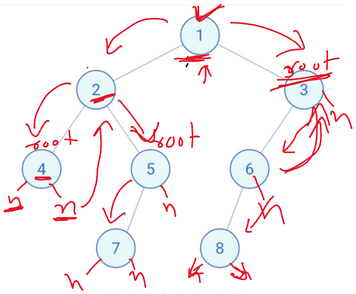
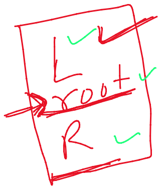
Day 27 - Binary Tree

13 September 2022 23:21

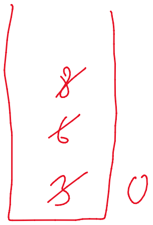


[4, 2, 7, 5, 1, 8, 6, 3]

root = 2



root
1
2
4
n
n
5
7
n
n
n
3
6
8
n
n
n
n

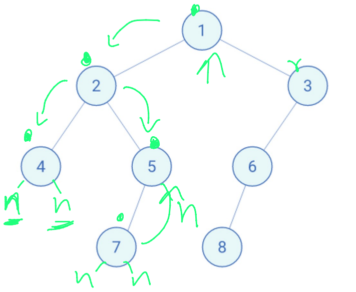


```
stack < Node*> s
vector<int> v

root = 1
↓ root != nullptr
while (!s.empty() || !root) {
    while (root != null) {
left →      s.push(root);
            root = root->left;
    }
root
right →  v.push_back (s.top())
    →  root = s.top() -> right;
    →  s.pop();

}
```

4 2 7 5 1 8 6 3

↑

Pre Order



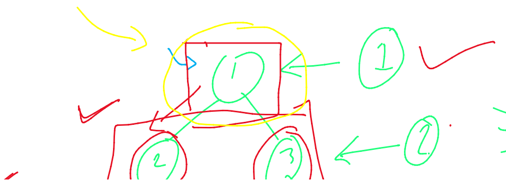
[1, 2, 4, 5, 7, 3, 6, 8]

1	2	4	5	7	3	6	8

root
1
2
4
n
n
5
7
n
n
n
3

```
stack <Node*> s;
while (!s.empty || root ) {
    while (root) {
root →      v.push_back(root);
            s.push(root)
left  →     root = root->left;
    }
right →  root = s.top()->right;
    →  s.pop();
}
```

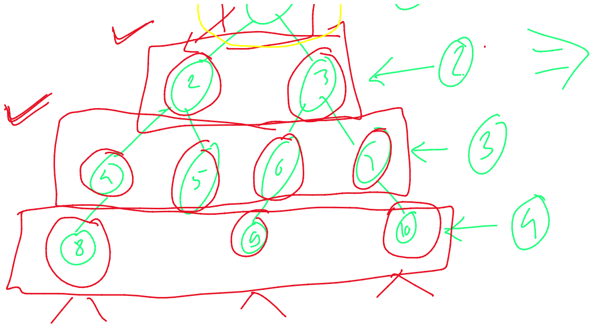
↓ ☰



=> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

DFS

Stack

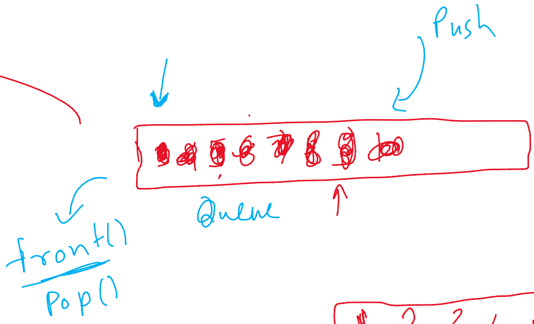


⇒ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

DFS
Stack

BFS
Queue

```
↳ n = ~~1~~ ~~4~~ ~~5~~ 6
Print (n → data)
↳ if(n.left)
      Q.push(left);
↳ if(n.right)
      Q.push(right);
```



Stack

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

false ✓

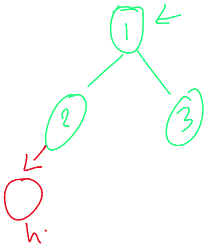
Bool (T/F)

Values struct

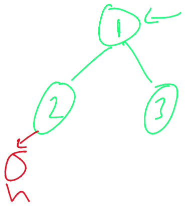
==

root 1

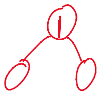
root 2



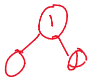
=



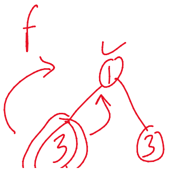
null != 1

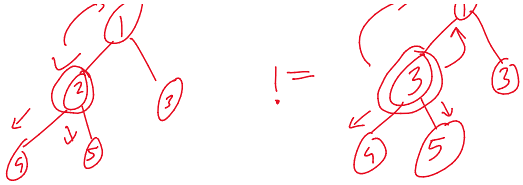


≠



!=





1 != 1

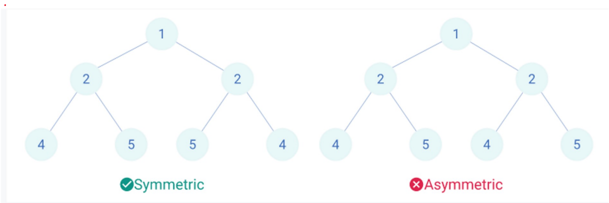
n && n

n 0

||

0 n

T/F



✓Symmetric

✗Asymmetric