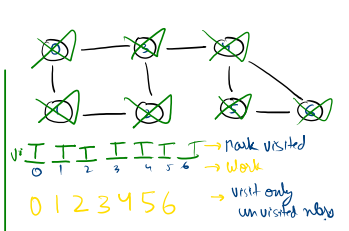




DFS → Recursion
BFS → Q

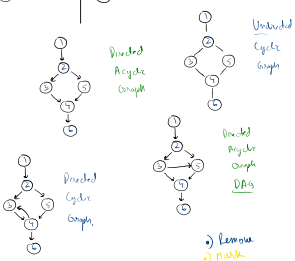
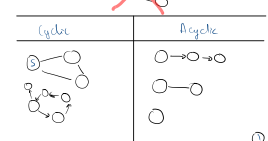
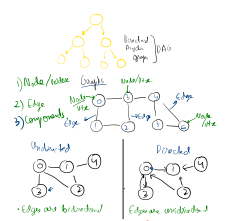
```
dfs(graph, vis, node) {
  vis[node] = true;
  System.out.println(node);
  for (int nbr : graph.get(node)) {
    if (!vis[nbr]) dfs(graph, vis, nbr);
  }
}
```



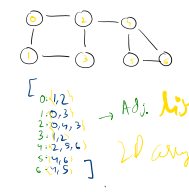
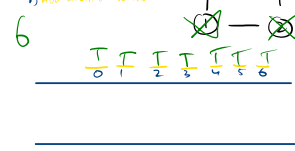
①

n=5
e=4
[0, 1]
[1, 2]
[2, 3]
[3, 4]

```
for (int i = 0; i < n; i++) {
  for (int j = 0; j < n; j++) {
    if (i < j) {
      // edge from i to j
    }
  }
}
```

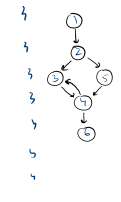


1) Remove
2) Mark
3) Add unvisited nodes

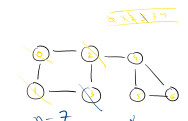


n=6
e=7

1 2
2 3
2 5
3 4
3 5
4 5
5 6



[(1, 2)
(2, 3)
(2, 5)]



n=7
e=8

0 1 2 3 4 5 6
1 2 3 4 5 6

1 2 3 4 5 6

edges
1 2
2 3
2 5
3 4
4 5
5 6

```
for (List<Integer> edge : edges) {
  int u = edge.get(0);
  int v = edge.get(1);
  // add edge from u to v
}
```

1 2 3 4 5 6

Cycle
directed
undirected

BFS

graph -
graph[unvisitedNode]
10 ArrayList

[
0: 2 5
1: 2 4
2: 2 4
]