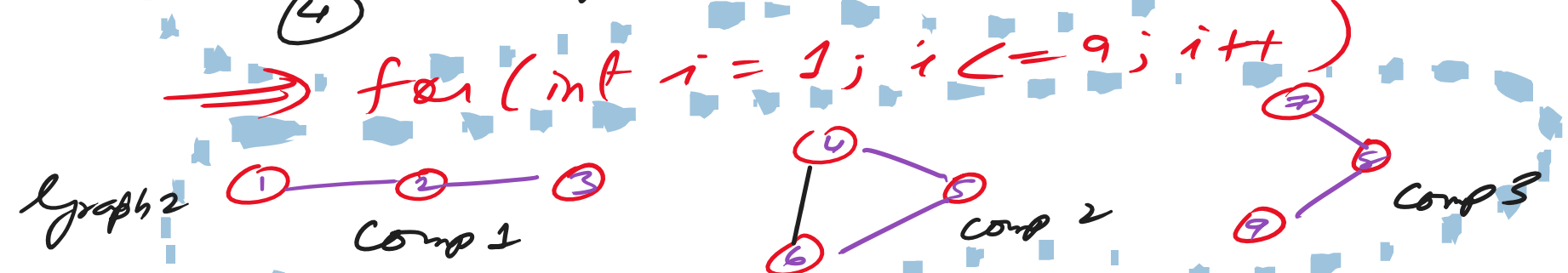


Graphs

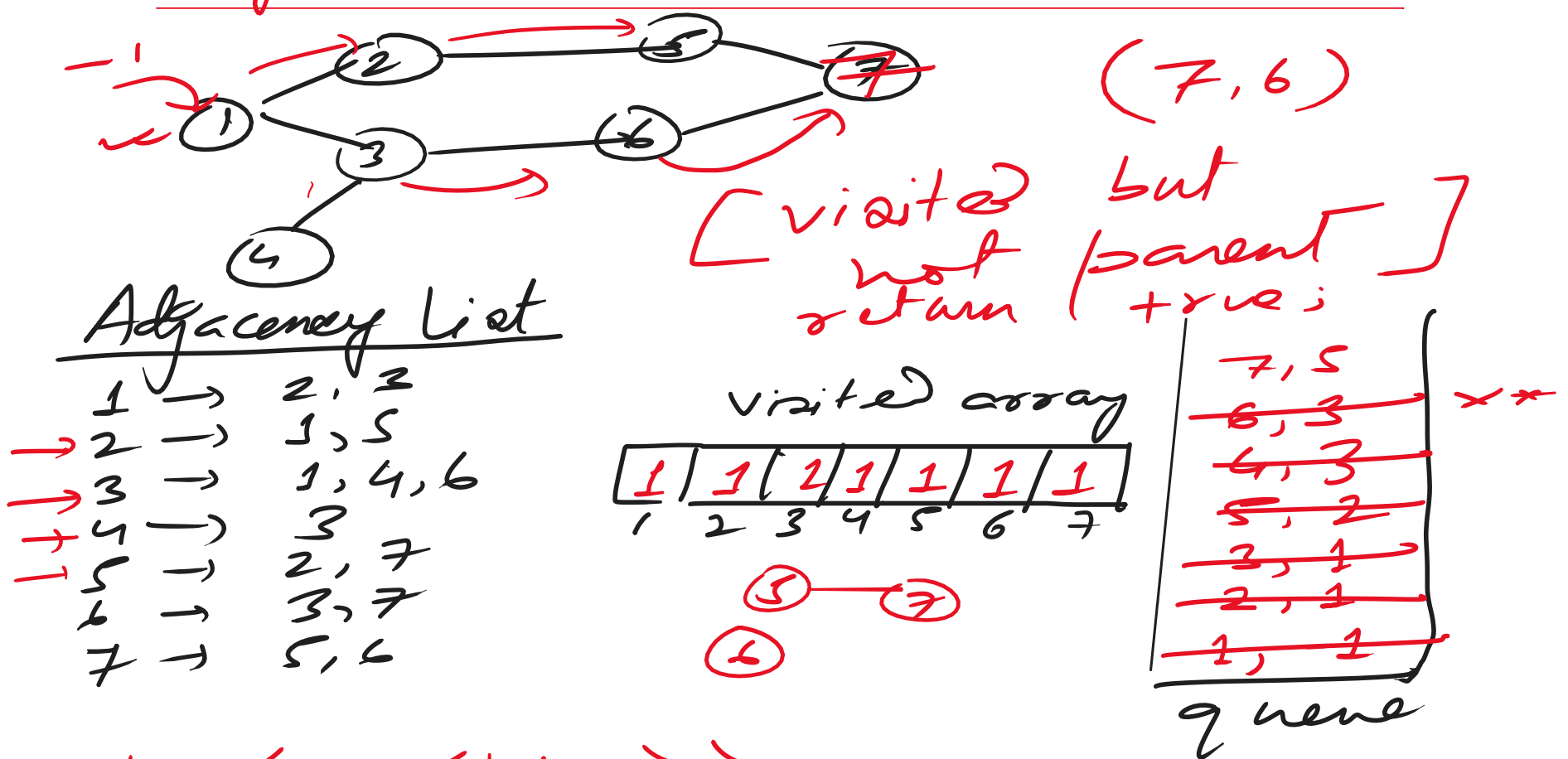
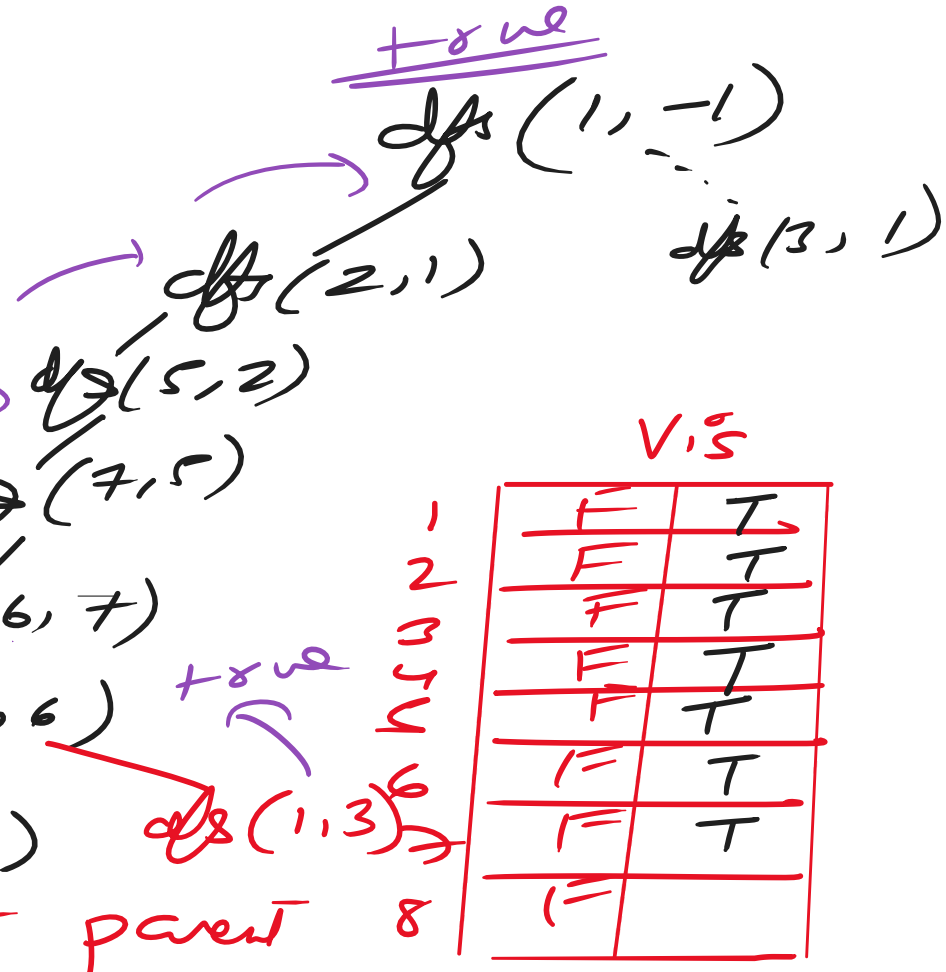
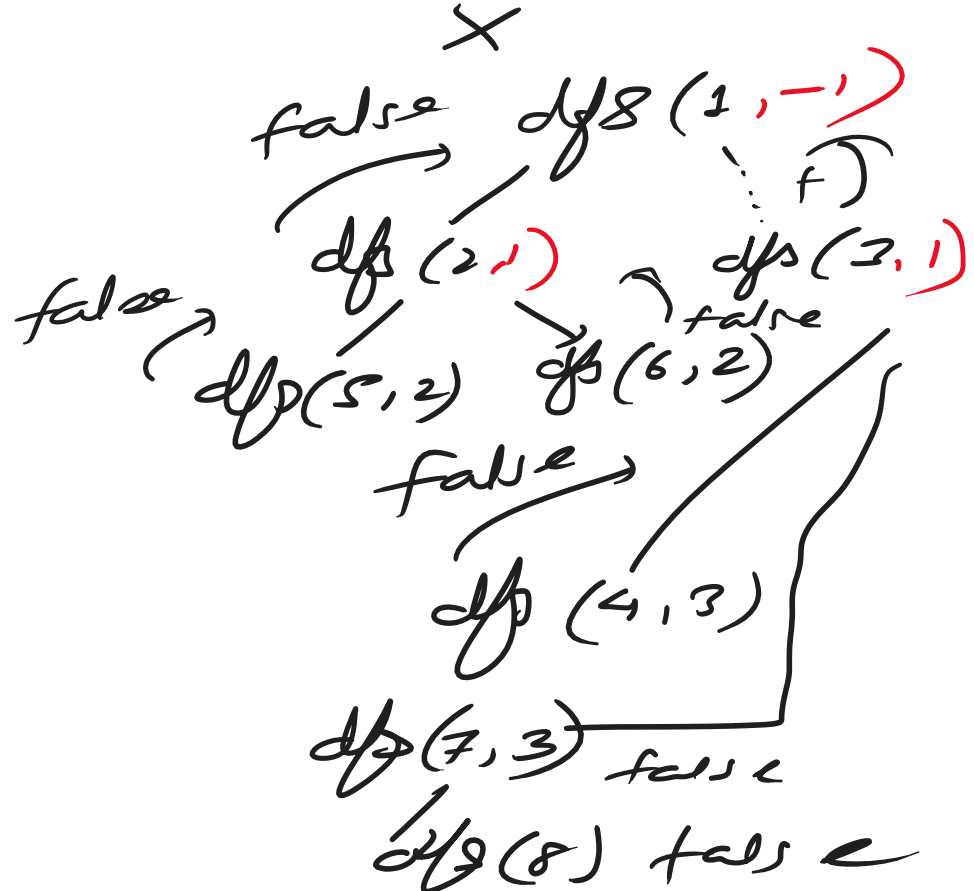
```
graph LR; 1 --- 2; 2 --- 5; 5 --- 7; 7 --- 6; 6 --- 3; 3 --- 4; 4 --- 1; 8 --- 9; 9 --- 10
```

Comp 1

Comp 2



## Cycle Detection : BFS Undirected


$$\{1, \{2, 3\}\}, \{2, \{1, 5\}\}$$


visited & P.V

$df_5(1) \rightarrow df_5(2) \rightarrow df_5(3) \rightarrow df_5(4) \rightarrow df_5(5) \rightarrow df_5(6)$   
 $df_5(2) \rightarrow df_5(7) \rightarrow df_5(8) \rightarrow df_5(9) \rightarrow df_5(10)$   
 $df_5(1) \rightarrow df_5(8) \rightarrow df_5(9) \rightarrow df_5(10)$

- \* BFS
- \* BFS Kahn's
- \* DFS

\* Two important problems on graphs:

→ Islands \*

# Dynamic Programming