Friday, 29 April 2016

Launchpad

Lecture -25

Data Structures

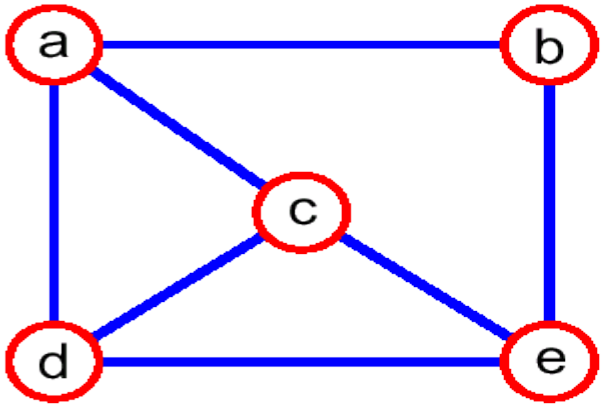
Graphs

Prateek Narang

CODING BLOCKS

Graphs

Graphs



V= {a,b,c,d,e}

E=
{(a,b),(a,c),(a,d),
(b,e),(c,d),(c,e),
(d,e)}

CODING BLOCKS

Terminology

1. Adjacent Vertices
2. Degree
3. Path
4. Connected Graph
5. Subgraph
6. Connected Components
7. Tree
8. Forest
9. Spanning Tree

Number of edges

1. Complete Graph
2. Connected Graph
3. Tree

How to implement Graph?

1. Edge List
2. Adjacency lists
3. Adjacency matrix

Traversing a a Graph

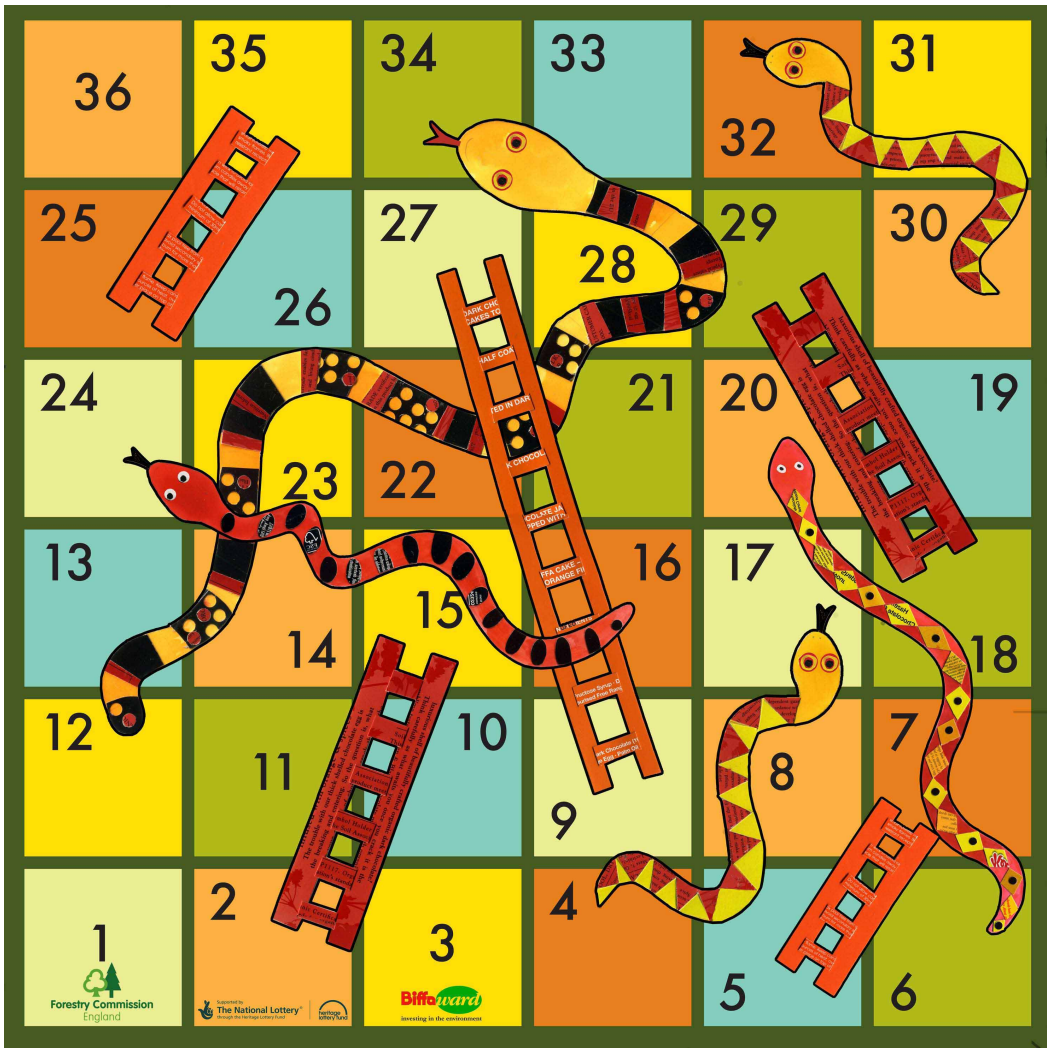
How to Search through a Graph?

1. Breadth First Search / Traversal
2. Depth First Search / Traversal

Problems

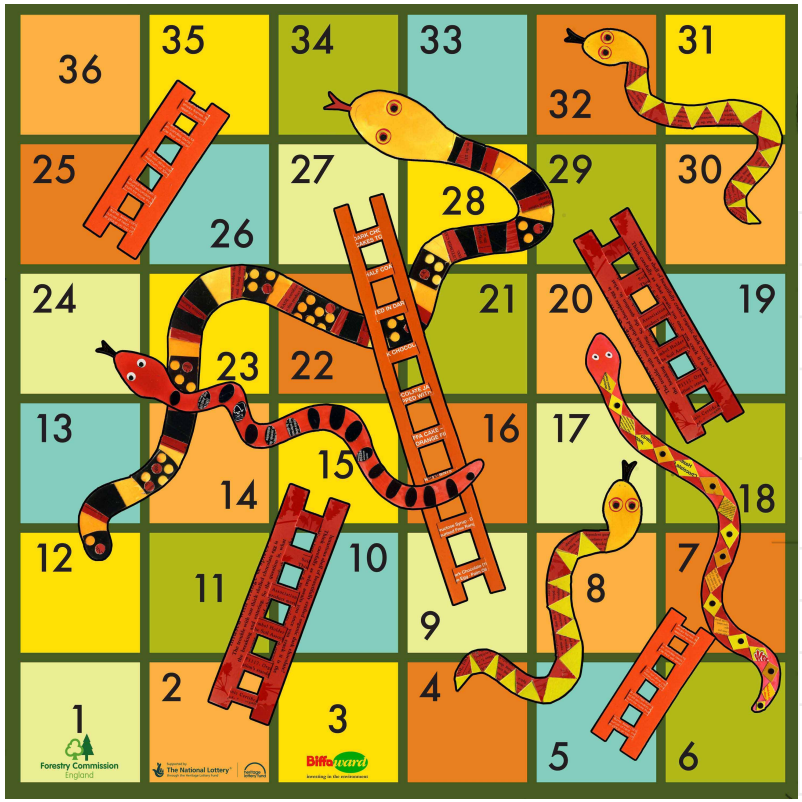
1. Implement isConnected for our graph.
2. Find all the connected components of the graph.
3. Topological Sort

4. सांप सीढ़ी का खेल !



CODING BLOCKS

Taking Input



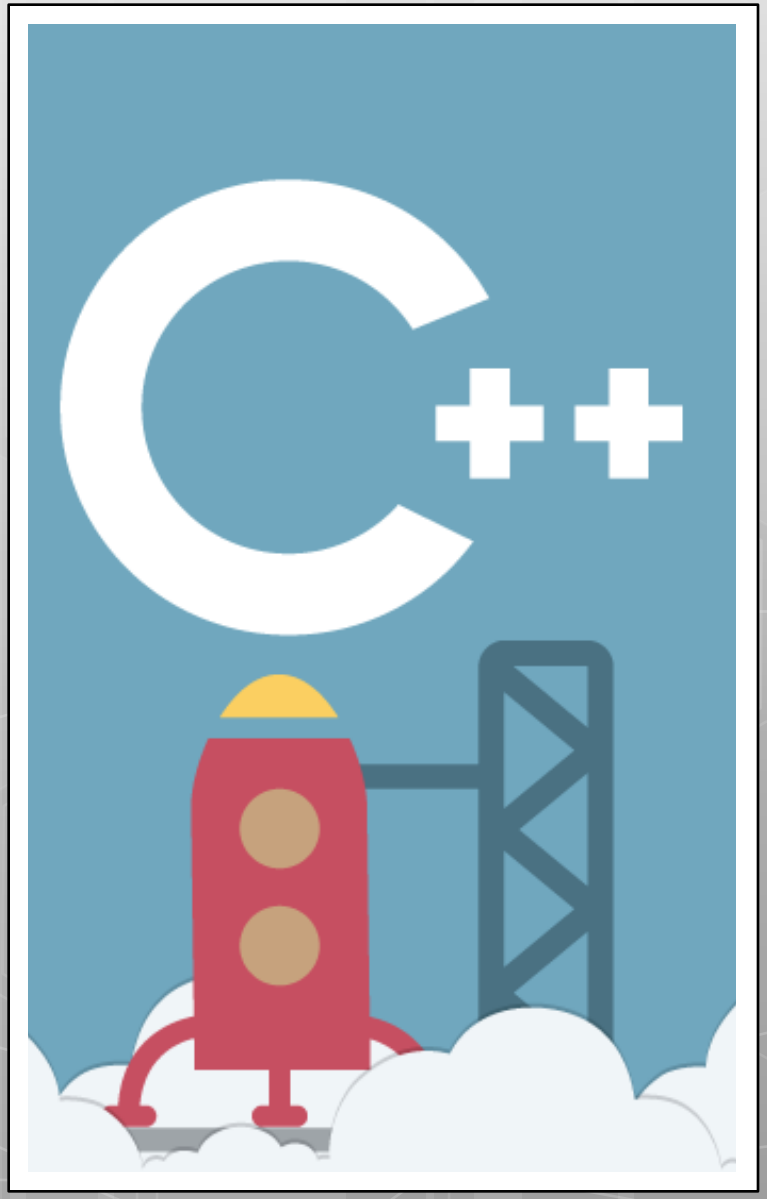

```
board[2]= 13
```

```
board[5] = 2;
board[9] = 18;
board[18] = 11;
board[17] = -13;
board[20] = -14;
board[24] = -8;
board[25] = 10;
board[32] = -2;
board[34] = -22;
```

CODING BLOCKS

Some more Graph variations

1. Directed Graphs
2. Weighted Graphs



Thank You!

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