**GRAPH COLOURING**

include<iostream>

#define NODE 6

using namespace std;

int graph[NODE][NODE]={

{1, 0, 0, 1, 1, 0},

{1, 0, 0, 1, 0, 1},

{1, 1, 1, 0, 1, 1},

{0, 1, 0, 1, 0, 1},

{0, 0, 1, 1, 1, 0}

};

};

void graphColoring() {

int color[NODE];

color[0] = 0;

bool colorUsed[NODE];

for(int i = 1; i<NODE; i++)

color[i] = -1;

for(int i = 0; i<NODE; i++)

colorUsed[i] = false;

for(int u = 1; u<NODE; u++) {

for(int v = 0; v<NODE; v++) {

if(graph[u][v]){

if(color[v] != -1)

colorUsed[color[v]] = true;

}

}

int col;

for(col = 0; col<NODE; col++)

if(!colorUsed[col])

break;

color[u] = col;

for(int v = 0; v<NODE; v++) {

if(graph[u][v]) {

if(color[v] != -1)

colorUsed[color[v]] = false;

}

}

}

for(int u = 0; u<NODE; u++)

cout <<"Color: " << u << ", Assigned with Color: " <<color[u] <<endl;

}

main() {

graphColoring();

}

