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**ROLL NO. – 1906137**

**SUBJECT NAME – DESIGN AND ANALYSIS OF ALGORITHMS LAB**

**SUBJECT CODE – CSL4403**

**DATE – 12TH APRIL, 2021**

**BRANCH – CSE 2**

**ASSIGNMENT-14**

**Q14. WAP to implement Graph Coloring problem using Backtracking.**

**Source Code in C++ Language:**

#include <bits/stdc++.h>

using namespace std;

int x[6]={0,0,0,0,0,0};

int g[6][6]={{0,0,0,0,0,0},

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

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

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

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

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

int m=3;

int n=5;

void Next(int k)

{

do

{

x[k]=(x[k]+1)%(m+1);

if(x[k]==0)

return;

int j;

for(j=1;j<=n;j++)

{

if(g[k][j]==1 && x[k]==x[j])

break;

}

if(j==n+1)

return;

}

while(true);

}

void mcolor(int k)

{

do

{

Next(k);

if(x[k]==0)

return;

if(k==n)

{

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

cout<<x[i]<<" ";

cout<<endl;

}

else

mcolor(k+1);

}

while(true);

}

int main()

{

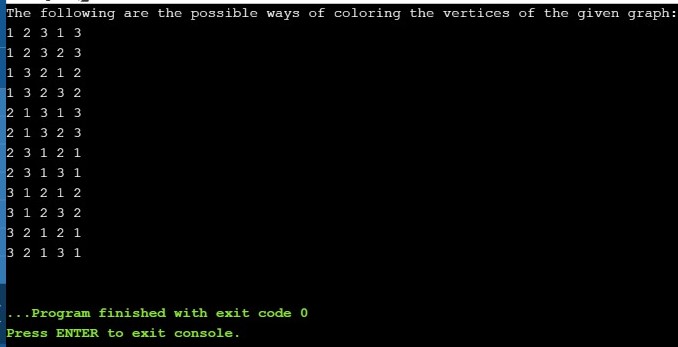
cout<<"The following are the possible ways of coloring the vertices of the given graph:"<<endl;

mcolor(1);

return 0;

}

**Output Screenshot:**

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