**PROBLEM STATEMENT**:

There are a total of numCourses courses you have to take, labeled from 0 to numCourses-1.

Some courses may have prerequisites, for example to take course 0 you have to first take course 1, which is expressed as a pair: [0,1]

Given the total number of courses and a list of prerequisite **pairs**, is it possible for you to finish all courses?

**Example 1:**

**Input:** numCourses = 2, prerequisites = [[1,0]]

**Output:** true

**Explanation:** There are a total of 2 courses to take.

  To take course 1 you should have finished course 0. So it is possible.

**Example 2:**

**Input:** numCourses = 2, prerequisites = [[1,0],[0,1]]

**Output:** false

**Explanation:** There are a total of 2 courses to take.

  To take course 1 you should have finished course 0, and to take course 0 you should

  also have finished course 1. So it is impossible.

**MY CODE:**

**bool dfs(int src,bool\*vis,bool\*rec\_stack,vector<int> adj[])**

**{**

**if(!vis[src])**

**{**

**vis[src]=true;**

**rec\_stack[src]=true;**

**for(auto x:adj[src])**

**{**

**if(!vis[x] && dfs(x,vis,rec\_stack,adj))**

**return true;**

**else if(rec\_stack[x]==true)**

**return true;**

**}**

**}**

**rec\_stack[src]=false;**

**return false;**

**}**

**bool is\_cyclic(vector<int> adj[],int n)**

**{**

**bool \*vis = new bool[n];**

**bool \*rec\_stack = new bool[n];**

**for(int i=0;i<n;i++)**

**{**

**vis[i]=false;**

**rec\_stack[i]=false;**

**}**

**for(int i=0;i<n;i++)**

**{**

**if(dfs(i,vis,rec\_stack,adj))**

**return true;**

**}**

**return false;**

**}**

**bool canFinish(int numCourses, vector<vector<int>>& prerequisites) {**

**int n=prerequisites.size();**

**vector<int> adj[numCourses];**

**for(auto x:prerequisites)**

**adj[x.back()].push\_back(x.front());**

**if(is\_cyclic(adj,numCourses))**

**return false;**

**return true;**

**}**