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| --- |
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|  | #include <iostream>  #include <queue> |
|  | using namespace std; |
|  |  |
|  | int adj\_mat[50][50] = {0,0}; |
|  | int visited[50] = {0}; |
|  |  |
|  | void dfs(int s, int n, string arr[]) |
|  | { |
|  | visited[s] = 1; |
|  | cout<<arr[s]<<" "; |
|  | for(int i=0; i<n; i++) |
|  | { |
|  | if(adj\_mat[s][i] && !visited[i]) |
|  | dfs(i,n,arr); |
|  | } |
|  | } |
|  |  |
|  | void bfs(int s, int n, string arr[]) |
|  | { |
|  | bool visited[n]; |
|  | for(int i=0; i<n; i++) |
|  | visited[i] = false; |
|  | int v; |
|  | queue<int> bfsq; |
|  | if(!visited[s]) |
|  | { |
|  | cout<<arr[s]<<" "; |
|  | bfsq.push(s); |
|  | visited[s] = true; |
|  | while(!bfsq.empty()) |
|  | { |
|  | v = bfsq.front(); |
|  | for(int i=0; i<n; i++) |
|  | { |
|  | if(adj\_mat[v][i] && !visited[i]) |
|  | { |
|  | cout<<arr[i]<<" "; |
|  | visited[i] = true; |
|  | bfsq.push(i); |
|  | } |
|  | } |
|  | bfsq.pop(); |
|  | } |
|  | } |
|  | } |
|  |  |
|  | int main |
|  | () |
|  | { |
|  | cout<<"Enter no. of cities: "; |
|  | int n, u; |
|  | cin>>n; |
|  | string cities[n]; |
|  | for(int i=0; i<n; i++) |
|  | { |
|  | cout<<"Enter city #"<<i<<" (Airport Code): "; |
|  | cin>>cities[i]; |
|  | } |
|  | cout<<"\nYour cities are: "<<endl; |
|  | for(int i=0; i<n; i++) |
|  | cout<<"city #"<<i<<": "<<cities[i]<<endl; |
|  | for(int i=0; i<n; i++) |
|  | { |
|  | for(int j=i+1; j<n; j++) |
|  | { |
|  | cout<<"Enter distance between "<<cities[i]<<" and "<<cities[j]<<": "; |
|  | cin>>adj\_mat[i][j]; |
|  | adj\_mat[j][i] = adj\_mat[i][j]; |
|  | } |
|  | } |
|  | cout<<endl; |
|  | for(int i=0; i<n; i++) |
|  | cout<<"\t"<<cities[i]<<"\t"; |
|  | for(int i=0; i<n; i++) |
|  | { |
|  | cout<<"\n"<<cities[i]; |
|  | for(int j=0; j<n; j++) |
|  | cout<<"\t"<<adj\_mat[i][j]<<"\t"; |
|  | cout<<endl; |
|  | } |
|  | cout<<"Enter Starting Vertex: "; |
|  | cin>>u; |
|  | cout<<"DFS: "; dfs(u,n,cities); |
|  | cout<<endl; |
|  | cout<<"BFS: "; bfs(u,n,cities); |
|  | return 0; |
|  | } |