



## Experiment No. - 6

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**Branch:** BE-CSE(LEET)

**Semester:** 6<sup>th</sup>

**Subject Name:** Competitive coding - II

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**Section/Group:** 20BCS-ST-801/B

**Date of Performance:** 11/04/2023

**Subject Code:** 20CSP-351

### 1. Aim/Overview of the practical:

#### Q.1 Is Graph Bipartite.

<https://leetcode.com/problems/is-graph-bipartite/>

### 2. Apparatus / Simulator Used:

- Windows 7 or above
- Google Chrome

### 3. Objective:

- To understand the concept of Graph
- To implement the concept of Bipartite Graph.

### 4. Code:

```
class Solution {  
    public boolean isBipartite(int[][] graph) {  
        int[] checked = new int[graph.length];  
        for(int i=0;i<graph.length;i++)  
            if(checked[i]==0 && !checkGraph(graph,i,1,checked))  
                return false;  
        return true;  
    }  
    public boolean checkGraph(int[][] graph,int index,int currChecked,int[] checked){  
        if(checked[index]!=0){  
            return checked[index]==currChecked;  
        }  
        checked[index]=currChecked;  
        for(int next : graph[index]){  
            if(!checkGraph(graph,next,-currChecked,checked)){  
                return false;  
            }  
        }  
        return true;  
    }  
}
```

### 5. Result/Output/Writing Summary:



Is Graph Bipartite? - LeetCode

https://leetcode.com/problems/is-graph-bipartite/

LeetCode Explore Problems Interview Contest Discuss Store

Description Solution Discuss (999+) Submissions

785. Is Graph Bipartite?

Medium 6334 304 Add to List Share

There is an **undirected** graph with  $n$  nodes, where each node is numbered between 0 and  $n - 1$ . You are given a 2D array `graph`, where `graph[u]` is an array of nodes that node `u` is adjacent to. More formally, for each `v` in `graph[u]`, there is an undirected edge between node `u` and node `v`. The graph has the following properties:

- There are no self-edges (`graph[u]` does not contain `u`).
- There are no parallel edges (`graph[u]` does not contain duplicate values).
- If `v` is in `graph[u]`, then `u` is in `graph[v]` (the graph is undirected).
- The graph may not be connected, meaning there may be two nodes `u` and `v` such that there is no path between them.

A graph is **bipartite** if the nodes can be partitioned into two independent sets `A` and `B` such that **every** edge in the graph connects a node in set `A` and a node in set `B`.

Return `true` if and only if it is **bipartite**.

**Example 1:**

Input: `graph = [[1,2,3],[0,2],[0,1,3],[0,2]]`  
Output: `false`  
Explanation: There is no way to partition the nodes into two independent sets such that every edge connects a node in one and a node in the other.

**Example 2:**

Problems Pick One < Prev 785/2637 Next > Testcase Run Code Result Debugger NEW

20°C Clear

Java Autocomplete

```
1 class Solution {
2     public boolean isBipartite(int[][] graph) {
3         int[] checked = new int[graph.length];
4         for(int i=0;i<graph.length;i++){
5             if(checked[i]==0 && !checkGraph(graph,i,1,checked))
6                 return false;
7         }
8         public boolean checkGraph(int[][] graph,int index,int currChecked,int[] checked){
9             if(checked[index]==0){
10                 return checked[index]==currChecked;
11             }
12             checked[index]=currChecked;
13             for(int next : graph[index]){
14                 if(!checkGraph(graph,next,-currChecked,checked)){
15                     return false;
16                 }
17             }
18         }
19     }
20 }
```

Your previous code was restored from your local storage. [Reset to default](#)

Accepted Runtime: 0 ms

Your input: `[[1,2,3],[0,2],[0,1,3],[0,2]]`

Output: `false`

Expected: `false`

Console Use Example Testcases Run Code Submit 10:31 AM 4/12/2023

Is Graph Bipartite? - LeetCode

https://leetcode.com/problems/is-graph-bipartite/submissions/

LeetCode Explore Problems Interview Contest Discuss Store

Description Solution Discuss (999+) Submissions

Time Submitted	Status	Runtime	Memory	Language
04/11/2023 10:09	Accepted	0 ms	43.3 MB	java

Java Autocomplete

```
1 class Solution {
2     public boolean isBipartite(int[][] graph) {
3         int[] checked = new int[graph.length];
4         for(int i=0;i<graph.length;i++){
5             if(checked[i]==0 && !checkGraph(graph,i,1,checked))
6                 return false;
7         }
8         public boolean checkGraph(int[][] graph,int index,int currChecked,int[] checked){
9             if(checked[index]==0){
10                 return checked[index]==currChecked;
11             }
12             checked[index]=currChecked;
13             for(int next : graph[index]){
14                 if(!checkGraph(graph,next,-currChecked,checked)){
15                     return false;
16                 }
17             }
18         }
19     }
20 }
```

Your previous code was restored from your local storage. [Reset to default](#)

Accepted Runtime: 0 ms

Your input: `[[1,2,3],[0,2],[0,1,3],[0,2]]`

Output: `false`

Expected: `false`

Console Use Example Testcases Run Code Submit 10:32 AM 4/12/2023

## 1. Aim/Overview of the practical: Q.2 Find The Difference

<https://leetcode.com/problems/find-the-difference/>

**2. Apparatus / Simulator Used:**

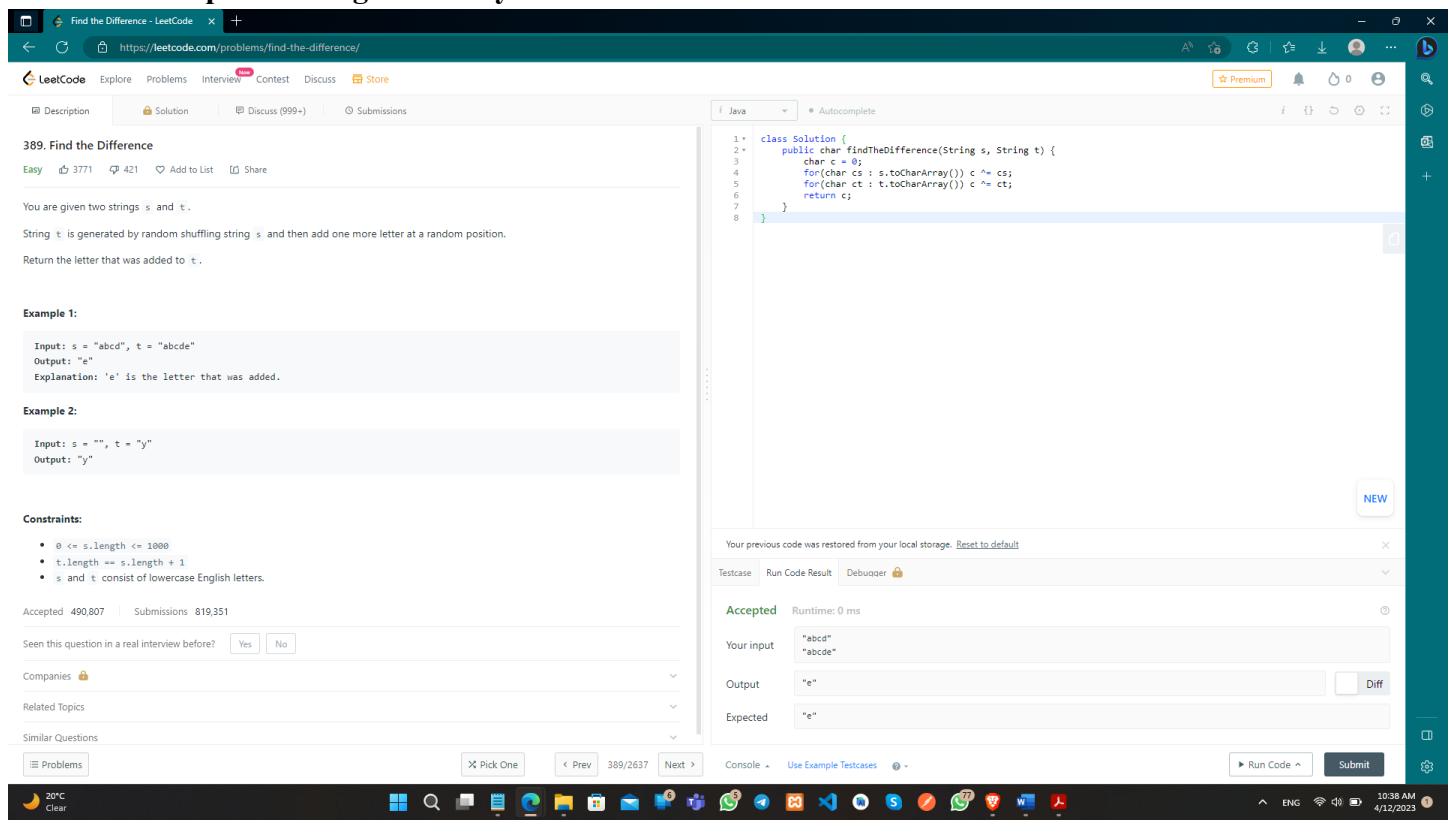
- Windows 7 or above
- Google Chrome

**3. Objective:**

- To understand the concept of String.
- To implement the concept of XOR with String.

**4. Code:**

```
class Solution {  
    public char findTheDifference(String s, String t) {  
        char c = 0;  
        for(char cs : s.toCharArray()) c ^= cs;  
        for(char ct : t.toCharArray()) c ^= ct;  
        return c;  
    }  
}
```

**5. Result/Output/Writing Summary:**

The screenshot shows a LeetCode problem page for "Find the Difference". The problem description states: "You are given two strings s and t. String t is generated by random shuffling string s and then add one more letter at a random position. Return the letter that was added to t." Example 1 shows input "abcd" and output "e", with the explanation: "e" is the letter that was added. Example 2 shows input "" and output "y". Constraints are listed as: 0 <= s.length <= 1000, t.length == s.length + 1, and s and t consist of lowercase English letters. The code editor contains the provided Java solution. The code is accepted with a runtime of 0 ms. The user has input "eecd" and expected output "e". The system output is "e". The status bar at the bottom shows the date and time as 4/12/2023 10:38 AM.



The screenshot shows a LeetCode submission page for the problem "Find the Difference". The code is written in Java and finds the extra character between two strings. The submission was accepted with a runtime of 1 ms and memory usage of 40.8 MB. The interface includes a sidebar with navigation links like Explore, Problems, Interview, Contest, Discuss, and Store. Below the code editor, there's a section for "Next challenges" and social sharing buttons for Facebook, Twitter, and LinkedIn. At the bottom, there's a toolbar with various icons and a status bar showing the date and time.

Time Submitted	Status	Runtime	Memory	Language
04/12/2023 10:38	Accepted	1 ms	40.8 MB	java

### Learning outcomes (What I have learnt):

- Learned the concept of Bipartite Graph.
- Learnt about Tree and finding the Extra Character in String.