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DSA PRACTICE SET 3

1.Anagaram Problem

```
class Main {
    public static boolean areAnagrams(String s1, String s2) {


        // Your code here
        int[] freq=new int[26];
        for(char c:s1.toCharArray()){
            freq[c-'a']++;
        }
        for(char c:s2.toCharArray()){
            freq[c-'a']--;
        }
        for(int i=0;i<26;i++){
            if(freq[i]!=0){
                return false;
            }
        }
        return true;
    }
    public static void main(String[] args) {
        String s1 = "listen";
        String s2 = "silent";
        System.out.println(areAnagrams(s1, s2));


        s1 = "hello";
        s2 = "world";
        System.out.println(areAnagrams(s1, s2));
    }
true
false
}
```

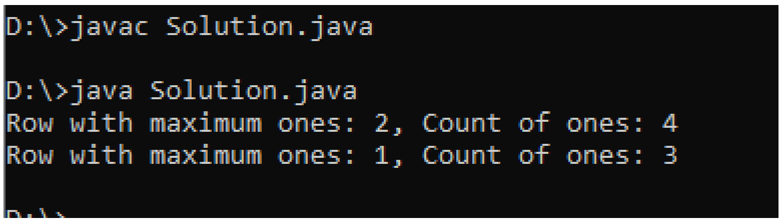
2.Row With Maximum Ones

```
class Solution {
    public int[] rowAndMaximumOnes(int[][] mat) {
        int m = mat.length;
        int n = mat[0].length;
        int max = 0;
        int ind = 0;
        for (int i = 0; i < m; i++) {
            int crr = 0;
            for (int j = 0; j < n; j++) {
                if (mat[i][j] == 1) {
                    crr++;
                }
            }
            if (crr > max) {
                ind = i;
                max = crr;
            }
        }
        return new int[] { ind, max };
    }
    public static void main(String[] args) {
       Solution solution = new Solution();

    int[][] mat1 = {
        {1, 0, 1, 1},
        {0, 1, 1, 0},
        {1, 1, 1, 1}
    };
    int[] result1 = solution.rowAndMaximumOnes(mat1);
    System.out.println("Row with maximum ones: " + result1[0] + ", Count of ones: " + result1[1]);



    int[][] mat2 = {
        {0, 0, 0},
        {1, 1, 1},
        {0, 1, 0}
    };
    int[] result2 = solution.rowAndMaximumOnes(mat2);
    System.out.println("Row with maximum ones: " + result2[0] + ", Count of ones: " + result2[1]);
    }
}
```



```
D:\>javac Solution.java

D:\>java Solution.java
Row with maximum ones: 2, Count of ones: 4
Row with maximum ones: 1, Count of ones: 3
```

3.Longest consequtive subsequence

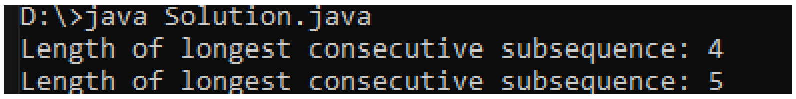
```
import java.util.*;
class Solution {
    public int findLongestConseqSubseq(int[] arr) {
        // code here
        Arrays.sort(arr);
        int crr=1;
        int max=1;
        int n=arr.length;
        for(int i=1;i<n;i++){
            if(arr[i]==arr[i-1]+1 ){
```

```
            crr++;
          }else if(arr[i]!=arr[i-1]){
            crr=1;
          }
          max=Math.max(max,crr);
        }

        return max;
    }
public static void main(String[] args) {
    Solution solution = new Solution();

    int[] arr1 = {1, 9, 3, 10, 4, 20, 2};
    System.out.println("Length of longest consecutive subsequence: " +
solution.findLongestConseqSubseq(arr1));

    int[] arr2 = {36, 41, 56, 35, 37, 34, 33, 42};
    System.out.println("Length of longest consecutive subsequence: " +
solution.findLongestConseqSubseq(arr2));
}
}
```

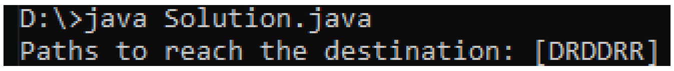


```
D:\>java Solution.java
Length of longest consecutive subsequence: 4
Length of longest consecutive subsequence: 5
```

4.Rat in a Maze Problem – I

```
import java.util.*;
class Solution {
    public int[] drow={-1,0,1,0};
    public int[] dcol={0,1,0,-1};
    ArrayList<String> ls=new ArrayList<>();
    public void dfs(int row,int col,int[][] mat,boolean[][] visited,StringBuilder sb){
        if(row==mat.length-1 && col==mat.length-1){
            ls.add(sb.toString());
            return;
        }
        visited[row][col]=true;
        for(int i=0;i<4;i++){
            int nr=row+drow[i];
            int nc=col+dcol[i];
            if(nr>=0 && nr<mat.length && nc>=0 && nc<mat.length && !visited[nr][nc] &&
mat[nr][nc]==1){
                if(i==0) sb.append('U');
                if(i==1) sb.append('R');
                if(i==2) sb.append('D');
                if(i==3) sb.append('L');
                dfs(nr,nc,mat,visited,sb);
                sb.deleteCharAt(sb.length()-1);
            }
        }
        visited[row][col]=false;


    }
public ArrayList<String> findPath(int[][] mat) {
        // Your code here
        int n=mat.length;
        boolean[][] visited=new boolean[n][n];
        if(mat[0][0]==1) dfs(0,0,mat,visited,new StringBuilder());
        return ls;
    }
public static void main(String[] args) {
    Solution solution = new Solution();
    int[][] mat1 = {
        {1, 0, 0, 0},
        {1, 1, 0, 1},
        {0, 1, 0, 0},
        {1, 1, 1, 1}
    };
    ArrayList<String> paths1 = solution.findPath(mat1);
    System.out.println("Paths to reach the destination: " + paths1);
}
}
```



```
D:\>java Solution.java
Paths to reach the destination: [DRDDRR]
```