Experiment No. - 7

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Branch: BE-CSE(LEET)
Semester: 6th
Subject Name: Competitive coding - II

UID: 21BCS8129
Section/Group: 20BCS-ST-801/B
Date of Performance: 25/04/2023
Subject Code: 20CSP-351

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

   Q.1 Water and Jug Problem.

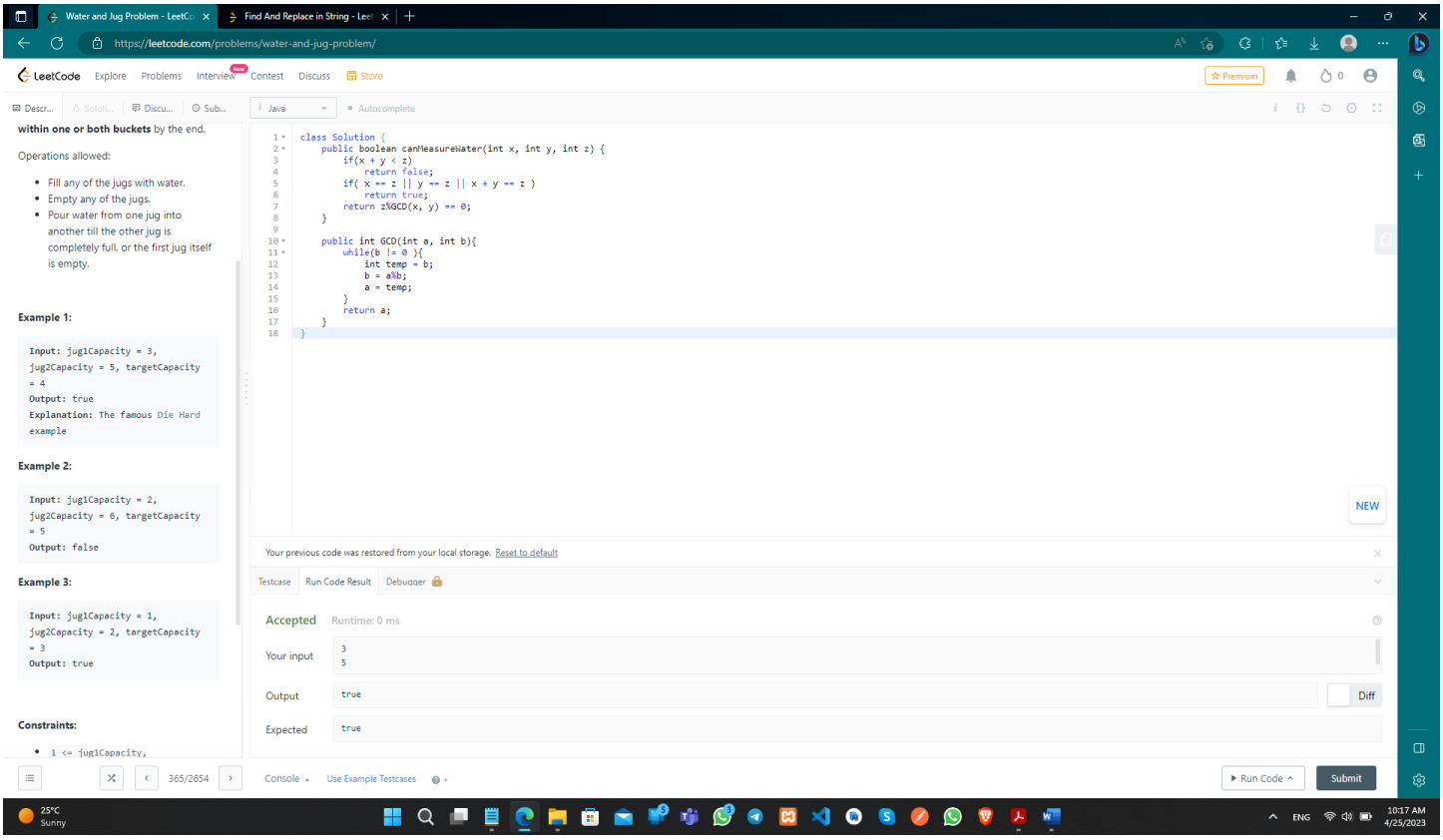
   https://leetcode.com/problems/water-and-jug-problem/

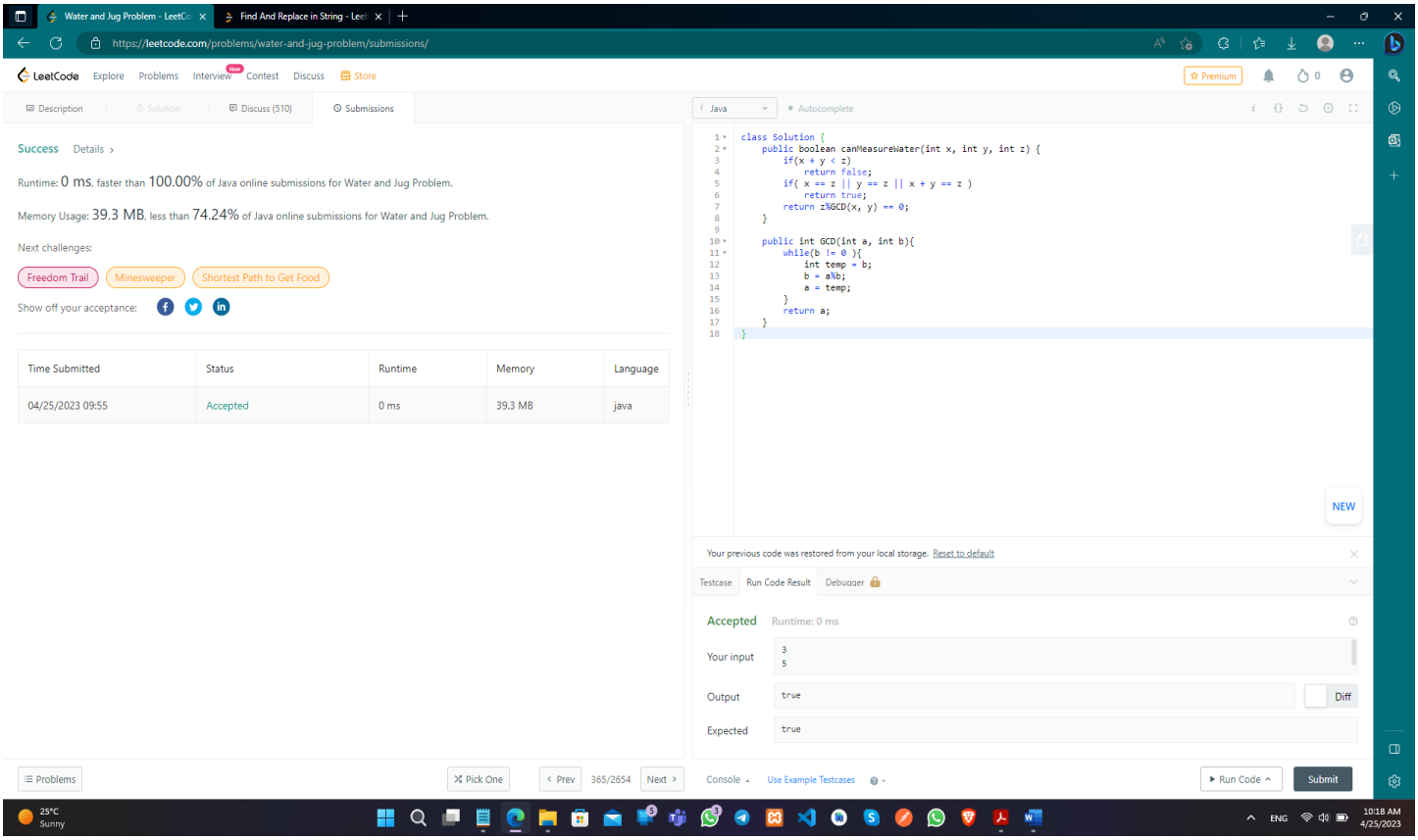
2. **Apparatus / Simulator Used:**
   - Windows 7 or above
   - Google Chrome
3. **Objective:**
   - To understand the concept of Divide and Conquer.
   - To implement the concept of Water and Jug Problem.
4. **Code:**

```
class Solution {
    public boolean canMeasureWater(int x, int y, int z) {
        if(x + y < z)
            return false;
        if( x == z || y == z || x + y == z )
            return true;
        return z%GCD(x, y) == 0;
    }

    public int GCD(int a, int b){
        while(b != 0 ){
            int temp = b;
            b = a%b;
            a = temp;
        }
        return a;
    }
}
```

5. Result/Output/Writing Summary:

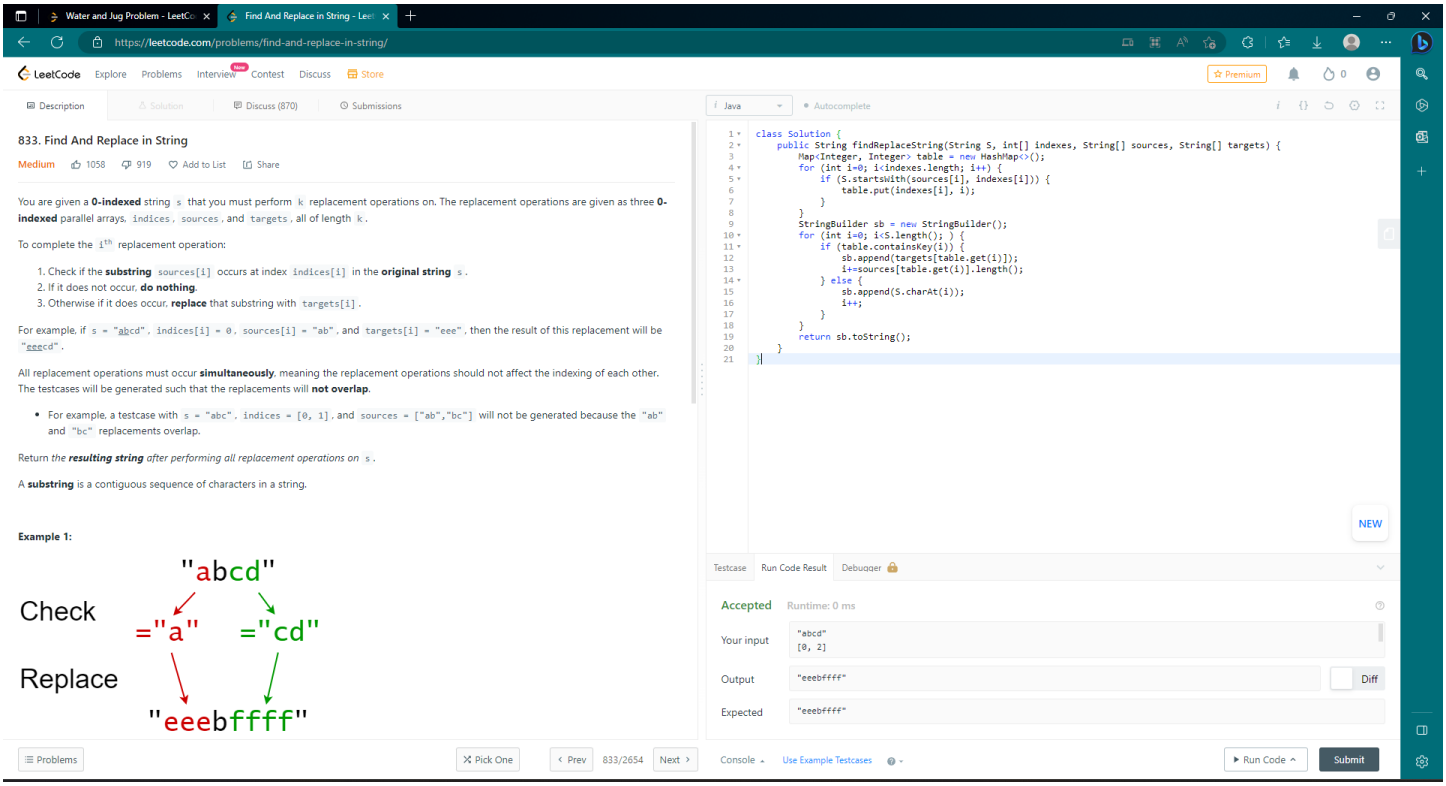


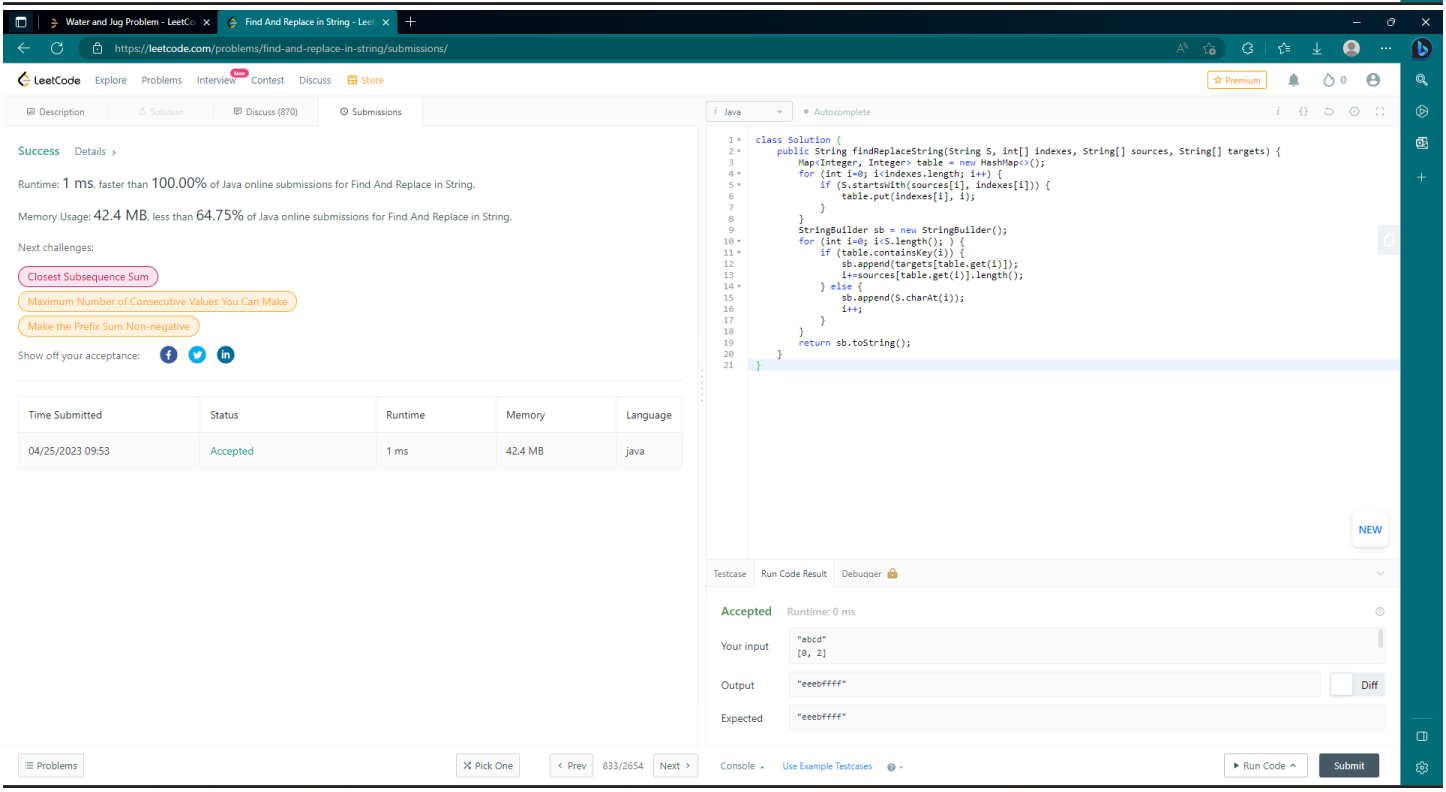


1. **Aim/Overview of the practical:**
   Q.2 Find and Replacement in String
   https://leetcode.com/problems/find-and-replace-in-string/
2. **Apparatus / Simulator Used:**
   - Windows 7 or above
   - Google Chrome
3. **Objective:**
   - To understand the concept of String.
   - To implement the concept of Divide and Conquer.
4. **Code:**

```
class Solution {
    public String findReplaceString(String S, int[] indexes, String[] sources, String[] targets) {
        Map<Integer, Integer> table = new HashMap<>();
        for (int i=0; i<indexes.length; i++) {
            if (S.startsWith(sources[i], indexes[i])) {
                table.put(indexes[i], i);
            }
        }
        StringBuilder sb = new StringBuilder();
        for (int i=0; i<S.length(); ) {
            if (table.containsKey(i)) {
                sb.append(targets[table.get(i)]);
                i+=sources[table.get(i)].length();
            } else {
                sb.append(S.charAt(i));
                i++;
            }
        }
        return sb.toString();
    }
}
```

5. Result/Output/Writing Summary:





Learning outcomes (What I have learnt):

- Learned the concept of Divide and Conquer.
- Learnt about Water and Jug Problem & Find and Replacement in String.