Experiment 1.4

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Subject Name: Advance Programming-2 **Subject Code:** 21CSP-351

Aim: To demonstrate the concept of Hashing.

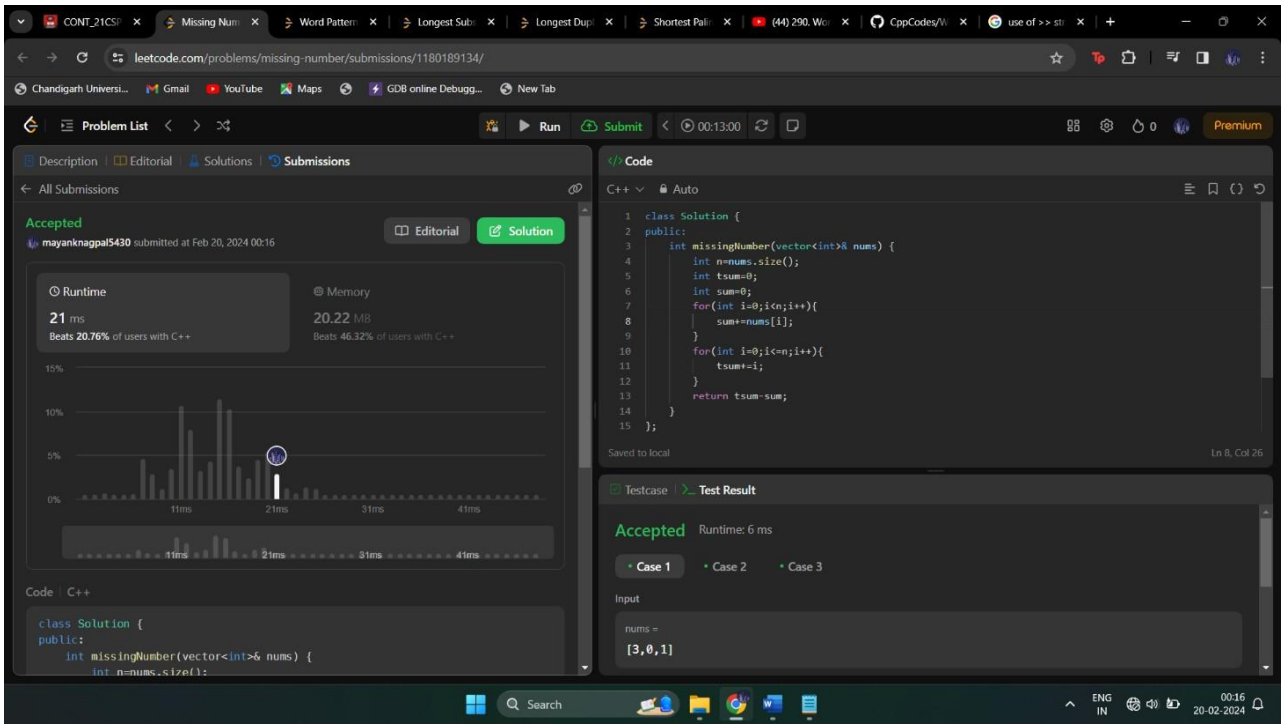
Problem statement –

Given an array nums containing n distinct numbers in the range [0, n], return the only number in the range that is missing from the array.

Code:

```
class Solution
{
public:
    int missingNumber(vector<int>& nums)
     {
    int n=nums.size();
        int tsum=0;
        int sum=0;
        for(int i=0;i<n;i++)
        {
        sum+=nums[i];
        }
        for(int i=0;i<=n;i++)
        {
        tsum+=i;
        }
        return tsum-sum;
    }
};
```

Output:



Problem statement-

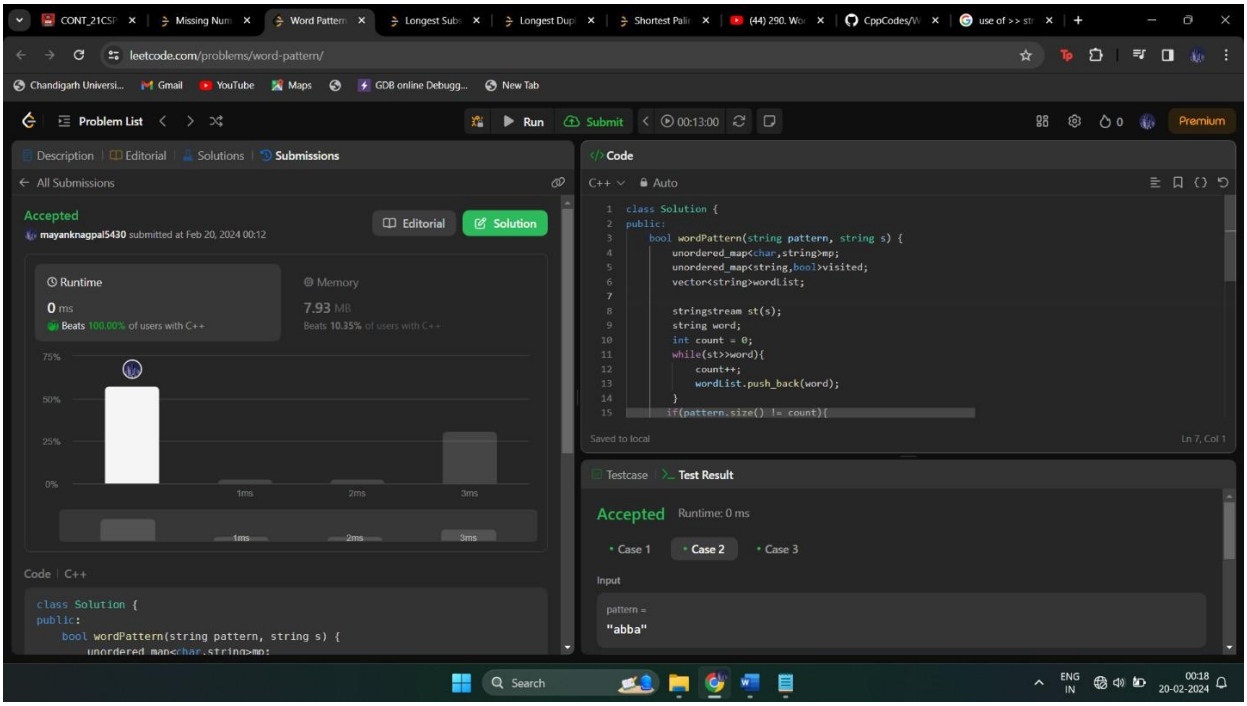
Given a pattern and a string s, find if s follows the same pattern.Here follow means a full match, such that there is a bijection between a letter in pattern and a non-empty word in s.

Code:

```
class Solution
{
public:
    bool wordPattern(string pattern, string s)
    {
    unordered_map<char,string>mp;
        unordered_map<string,bool>visited;
        vector<string>wordList;
        stringstream st(s);
        string word;
```

```
        int count = 0;
        while(st>>word)
        {
            count++;
            wordList.push_back(word);
        }
       if(pattern.size() != count)
       {
       return false;
        }
        Else
        {
            for(int i=0;i<pattern.size();i++)
            {
            char c=pattern[i];
                if(mp[c] == "" && visited[wordList[i]] == true )
                {
                return false;
                }
               else if(mp[c] == "")
               {
                mp[c] = wordList[i];
                    visited[wordList[i]] =true;
                }
                Else
                {
                    if(mp[c] != wordList[i])
                    return false;
                }
            }
        }
        return true;
    }
};
```

Output:



Learning Outcomes:

- Learn the concept of hashing.
- Learned how to implement hash.