DSA Lab 4 - (53457) M. Abdullah

Problem:

1- Find First and Last Occurrence:

- **Problem**: Given an array, find the first and last occurrences of a given target value.
- **Example**:

Input: arr = [2, 4, 2, 6, 2, 3, 4], target = 2

Output: First occurrence = 0, Last occurrence = 4

- **Hint**: Use linear search to iterate through the array, updating the positions when the target is found.

2- Count Occurrences of a Number:

- **Problem**: Given an array, count how many times a given target number appears.
- **Example**:

Input: arr = [1, 2, 2, 3, 2, 5], target = 2

Output: 3

3- Check for Pair with Given Sum:

- **Problem**: Given an array and a target sum, determine if any two numbers add up to the target.
- **Example**:

Input: arr = [3, 1, 4, 6, 5], target_sum = 9

Output: True (because 4 + 5 = 9)

- **Hint**: Use nested loops or a hash table to store elements as you search.

Problem Solving

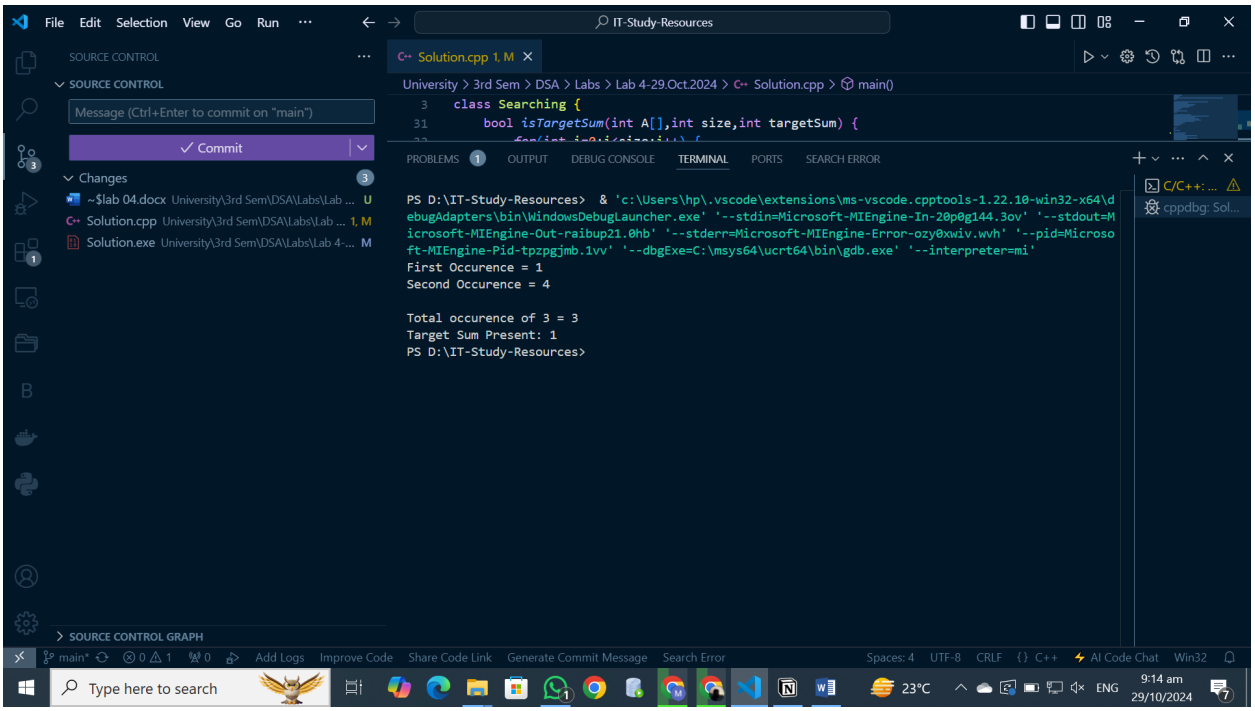
Dived right into the code.

Code

```
#include<iostream>
using namespace std;
class Searching {
    public:
    void firstAndLast(int A[],int size,int target) {
        int occ[2];
        int count = 0;
        for(int i=0;i<size;i++) {
            if(count==1 && A[i]==target) {
                occ[1] = i;
            }
            else if(count==0 && A[i]==target) {
                occ[count]=i;
                count++;
            }
        }
        cout<<"First Occurence = "<<occ[0]<<"\nSecond Occurence
    }

    int countOccurence(int A[],int size,int target) {
        int count = 0;
        for(int i=0;i<size;i++) {
            if(A[i]==target) {
                count++;
            }
        }
        return count;
    }

    //Check for Pairing Sum
```

```
    bool isTargetSum(int A[],int size,int targetSum) {
        for(int i=0;i<size;i++) {
            for(int j=i+1;j<size;j++) {
                if(A[i]+A[j]==targetSum) {
                    return true;
                }
            }
        }

    }
};
int main()
{
    //First Problem
    int size = 6;
    int Arr[6] = {13,12,22,2,12,54};
    Searching search;
    search.firstAndLast(Arr,size,12);
    // Second Problm
    int size1 = 9;
    int Arr1[9] = {12,3,10,2,12,3,10,3,65};
    int target = 3;
    cout<<"\n\nTotal occurence of "<<target<<" = "<<search.count
    // Third Problem
    int size2 = 7;
    int Arr2[7] = {5,2,12,3,10,87,65};
    int targetSum = 15;
    cout<<"\nTarget Sum Present: " <<search.isTargetSum(Arr2,siz
    return 0;
}
```

Output


File Edit Selection View Go Run
IT-Study-Resources
Solution.cpp 1, M
University > 3rd Sem > DSA > Labs > Lab 4-29.Oct.2024 > Solution.cpp > main()
class Searching {
bool isTargetSum(int A[],int size,int targetSum) {
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS SEARCH ERROR
PS D:\IT-Study-Resources> & 'c:\Users\hp\.vscode\extensions\ms-vscode.cpptools-1.22.10-win32-x64\debugAdapters\bin\WindowsDebugLauncher.exe' '--stdin=Microsoft-MIEngine-In-20p0g144.3ov' '--stdout=Microsoft-MIEngine-Out-raibup21.0hb' '--stderr=Microsoft-MIEngine-Error-ozy0xwiv.wvh' '--pid=Microsoft-MIEngine-Pid-tpzpgjmb.1vv' '--dbgExe=C:\msys64\ucrt64\bin\gdb.exe' '--interpreter=mi'
First Occurence = 1
Second Occurence = 4
Total occurence of 3 = 3
Target Sum Present: 1
PS D:\IT-Study-Resources>
SOURCE CONTROL
Message (Ctrl+Enter to commit on "main")
Commit
Changes
~$lab 04.docx
Solution.cpp
Solution.exe
SOURCE CONTROL GRAPH
Type here to search
23°C
ENG
9:14 am
29/10/2024