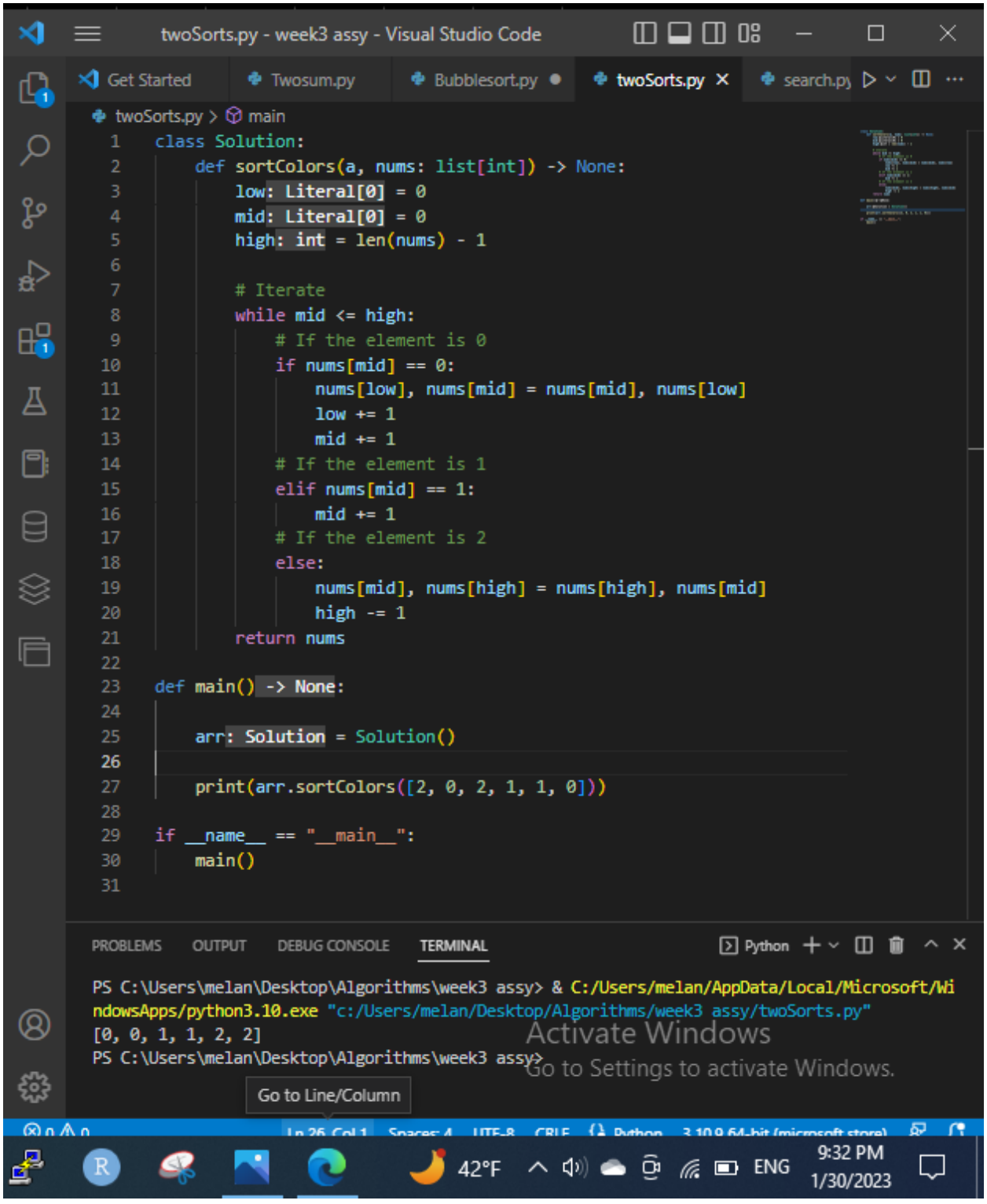
```
class BubbleSort
{
    void bubbleSort(int arr[])
    {
        int n = arr.length;
        for (int i = 0; i < n-1; i++) // O(N)
            for (int j = 0; j < n-i-1; j++) // O(N)
                if (arr[j] > arr[j+1])
                {
                    // swap arr[j+1] and arr[i]
                    int temp = arr[j];
                    arr[j] = arr[j+1];
                    arr[j+1] = temp;
                }
    }

    /* Prints the array */
    void printArray(int arr[])
    {
        int n = arr.length;
        for (int i=0; i<n; ++i) // O(N)
            System.out.print(arr[i] + " ");
        System.out.println();
    }

    // Driver method to test above
    public static void main(String args[])
    {
        BubbleSort ob = new BubbleSort();
        int arr[] = {64, 34, 25, 12, 22, 11, 90};
        ob.bubbleSort(arr);
        System.out.println("Sorted array");
        ob.printArray(arr);
    }
}
```

BIG O = O(N) * O(N) + O(N) ⇒ O(N^2 + N)

OPTIONAL:


twoSorts.py - week3 assy - Visual Studio Code
Get Started
Twosum.py
Bubblesort.py
twoSorts.py
search.py
twoSorts.py > main
class Solution:
def sortColors(a, nums: list[int]) -> None:
low: Literal[0] = 0
mid: Literal[0] = 0
high: int = len(nums) - 1
# Iterate
while mid <= high:
# If the element is 0
if nums[mid] == 0:
nums[low], nums[mid] = nums[mid], nums[low]
low += 1
mid += 1
# If the element is 1
elif nums[mid] == 1:
mid += 1
# If the element is 2
else:
nums[mid], nums[high] = nums[high], nums[mid]
high -= 1
return nums
def main() -> None:
arr: Solution = Solution()
print(arr.sortColors([2, 0, 2, 1, 1, 0]))
if __name__ == "__main__":
main()
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
Python
PS C:\Users\melan\Desktop\Algorithms\week3 assy> & C:/Users/melan/AppData/Local/Microsoft/WindowsApps/python3.10.exe "c:/Users/melan/Desktop/Algorithms/week3 assy/twoSorts.py"
[0, 0, 1, 1, 2, 2]
PS C:\Users\melan\Desktop\Algorithms\week3 assy>
Activate Windows
Go to Settings to activate Windows.
Go to Line/Column
42°F
ENG
9:32 PM
1/30/2023