ADVANCED CODING-II

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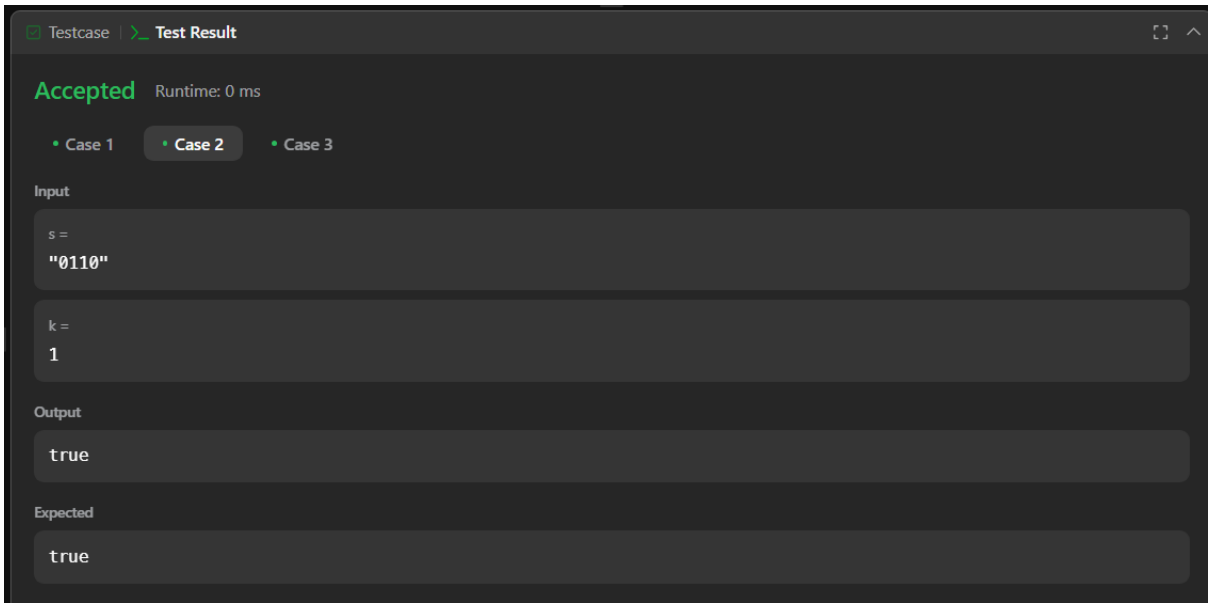
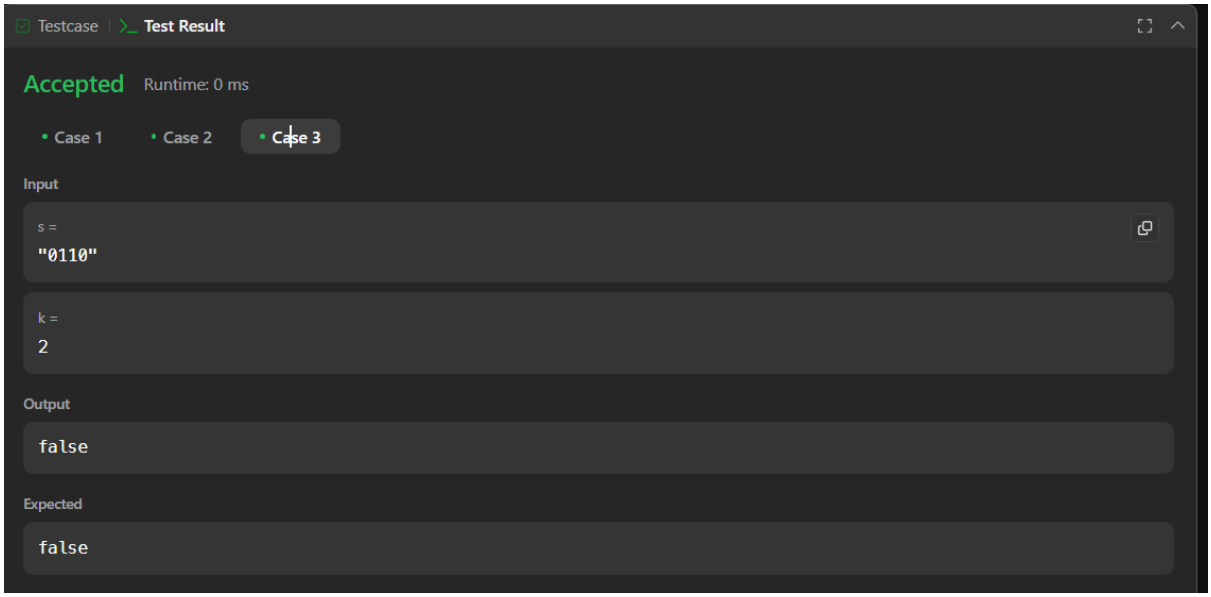
1.Check If a String Contains All Binary Codes of Size K

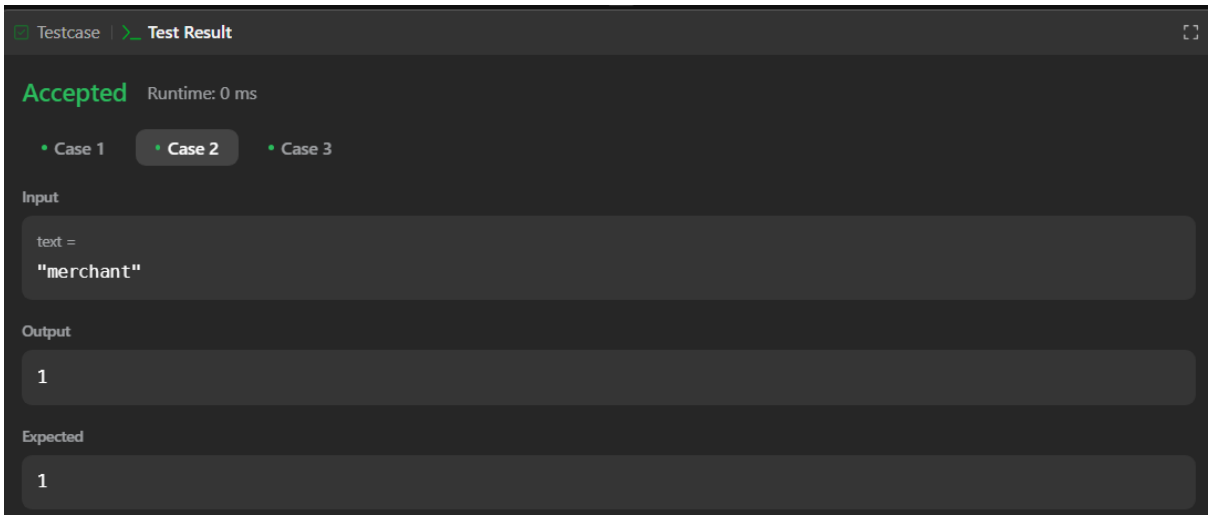
```java
class Solution {
    public boolean hasAllCodes(String s, int k) {
        Set<String> codes = new HashSet<>();
        int total = 1 << k;

        for (int i=0; i+k<=s.length(); i++) {
            codes.add(s.substring(i, i+k));
            if (codes.size() == total) return true;
        }

        return false;
    }
}
```

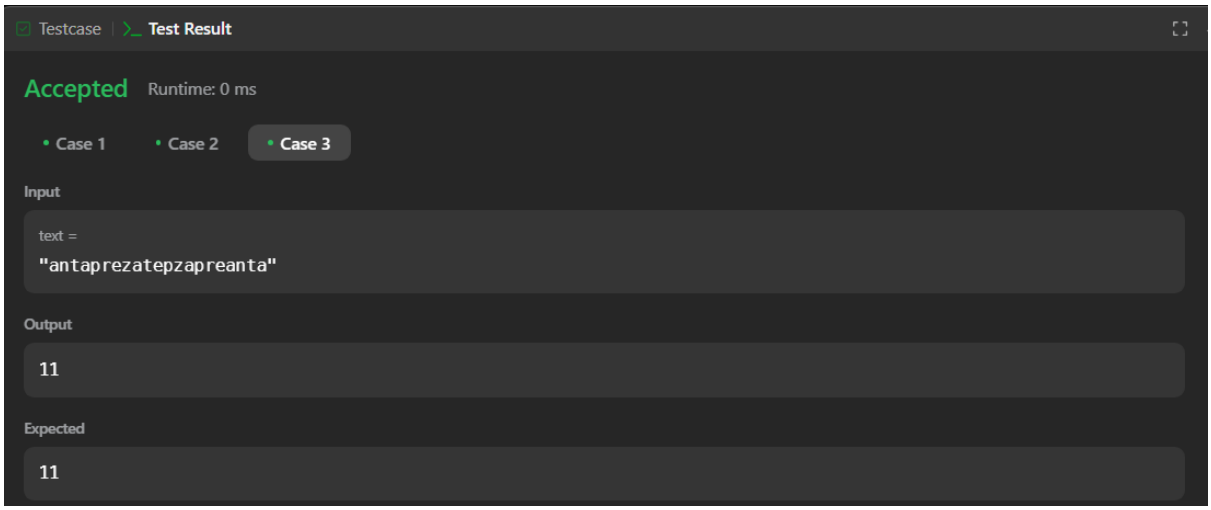




2.Longest Chunked Palindrome Decomposition

```java
class Solution {
    public int longestDecomposition(String text) {
        int n = text.length();
        int k = 0, totalLength = 0;
        int str1Start = 0, str1End = 0;
        int str2Start = n-1, str2End = n;
        while (str1End < str2Start) {
            if (text.substring(str1Start, str1End +
1).equals(text.substring(str2Start, str2End))) {
                totalLength += (str2End - str2Start) * 2;
                k++;
                str1Start = str1End + 1;
                str2End = str2Start;
            }
            str1End++;
            str2Start--;
        }
        if (totalLength < n) return (k * 2) + 1;
        return k * 2;
    }
}
```

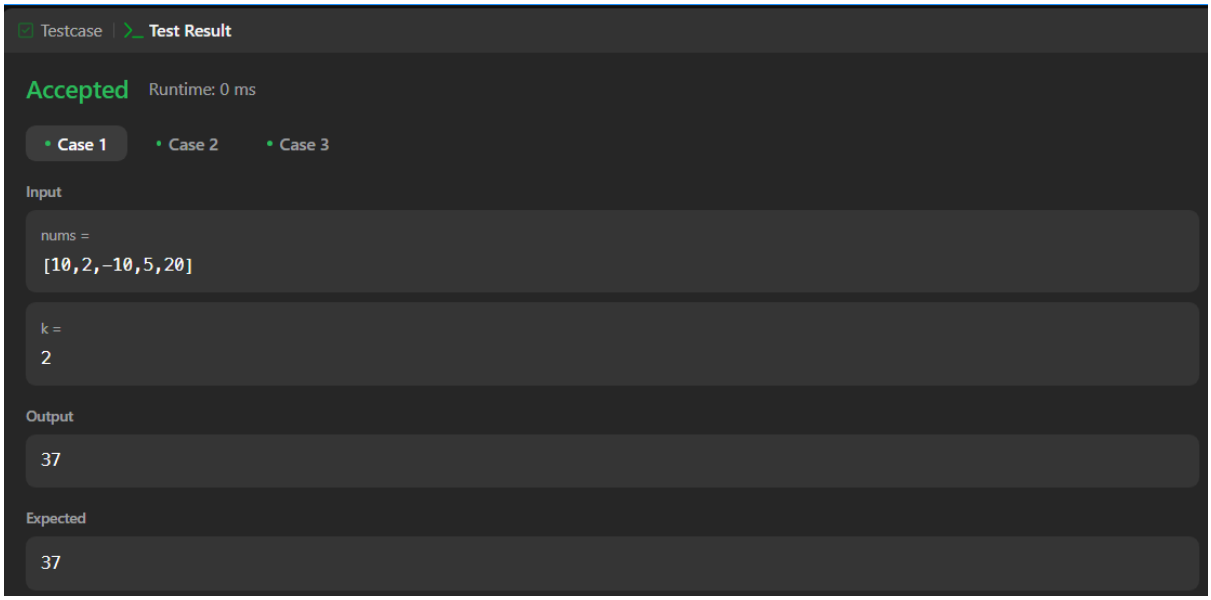


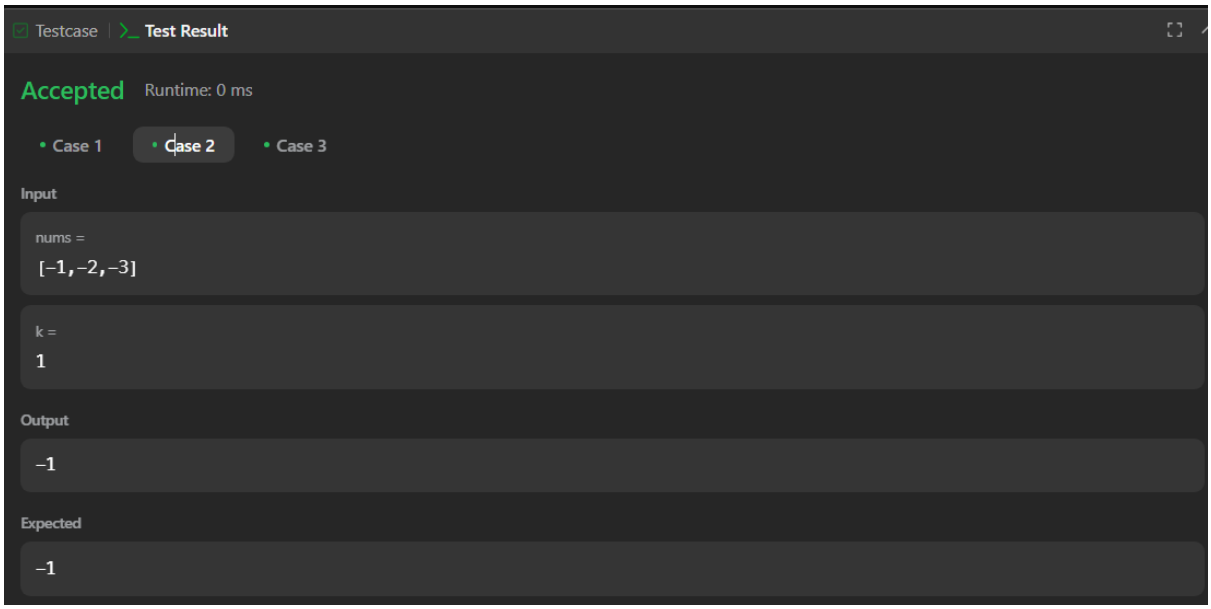


3.Constrained Subsequence Sum

```
class Solution {
    public int constrainedSubsetSum(int[] nums, int k) {
        int res = Integer.MIN_VALUE;
        Queue<int[]> maxHeap = new PriorityQueue<>((a,b) -> Integer.compare(b[1],
a[1]));
```

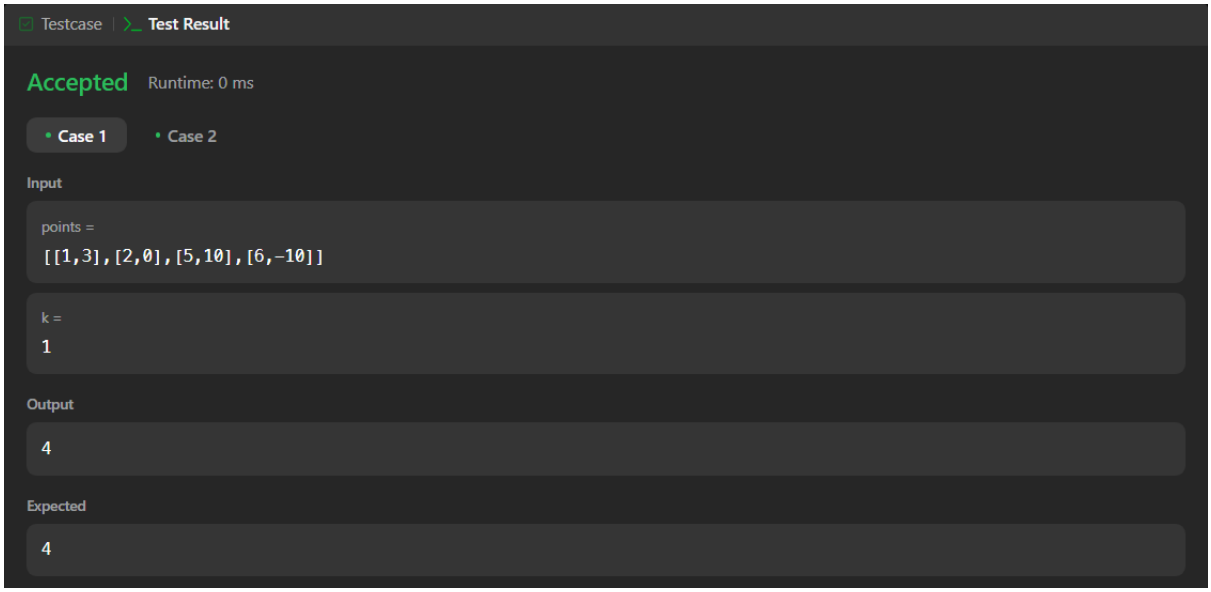
```
        for (int i = 0; i < nums.length; i++) {
            while (!maxHeap.isEmpty() && (i - maxHeap.peek()[0] > k)) {
                maxHeap.poll();
            }
            int temp = -10001;
            if (!maxHeap.isEmpty()) temp = maxHeap.peek()[1];
            temp += nums[i];
            temp = Math.max(temp, nums[i]);
            res = Math.max(res, temp);
            maxHeap.add(new int[]{i, temp});
        }
        return res;
    }
}
```

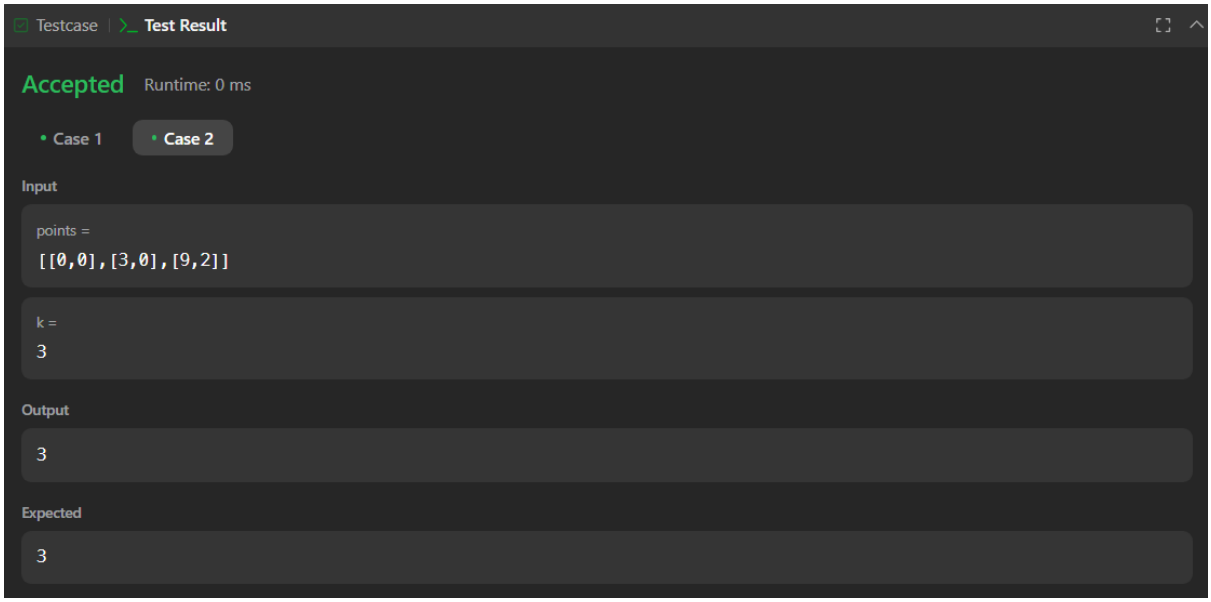




4.Max Value of Equation

```java
class Solution {
    public int findMaxValueOfEquation(int[][] points, int k) {
        int ans=Integer.MIN_VALUE;
        int i=0;
        int f=1;
        while(i < points.length) {
            if(f<i+1)
                f=i+1;
            for (int j = f; j <= points.length-1; j++) {
                if(points[j][0]>(points[i][0]+k))
                    break;
                if((points[i][1]+points[j][1]+points[j][0]-points[i][0])>ans){
                    ans=points[i][1]+points[j][1]+points[j][0]-points[i][0];
                    f=j-1;
                }
            }
            i++;
        }
        return ans;
    }
}
```


Testcase
Test Result
Accepted
Runtime: 0 ms
Case 1
Case 2
Input
points =
[[1,3],[2,0],[5,10],[6,-10]]
k =
1
Output
4
Expected
4


Testcase
Test Result
Accepted
Runtime: 0 ms
Case 1
Case 2
Input
points =
[[0,0],[3,0],[9,2]]
k =
3
Output
3
Expected
3