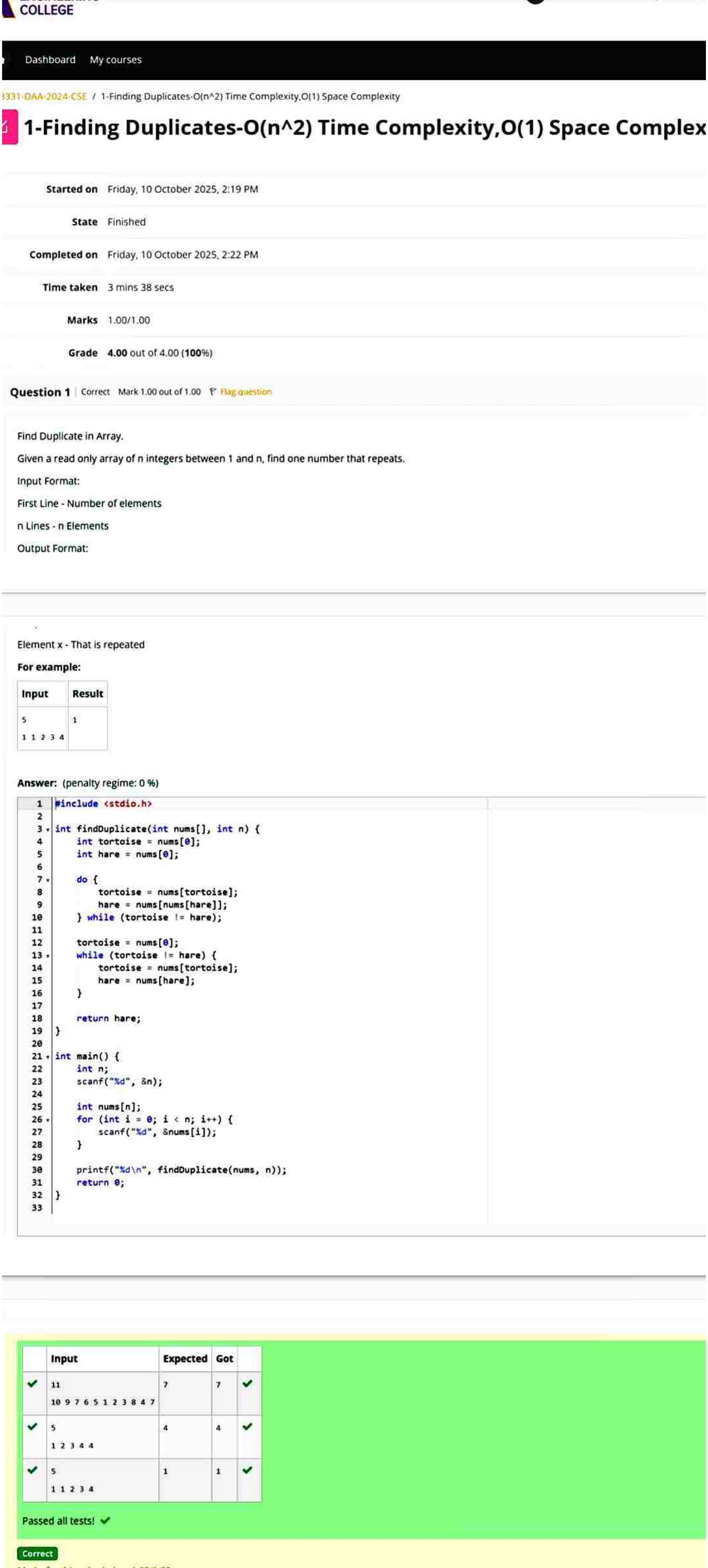


COLLEGE

Dashboard   My courses

3331-DAA-2024-CSE / 1-Finding Duplicates-O(n^2) Time Complexity,O(1) Space Complexity

1-Finding Duplicates-O(n^2) Time Complexity,O(1) Space Complex

Started on	Friday, 10 October 2025, 2:19 PM
State	Finished
Completed on	Friday, 10 October 2025, 2:22 PM
Time taken	3 mins 38 secs
Marks	1.00/1.00
Grade	**4.00** out of 4.00 (**100%**)

Question 1 Correct Mark 1.00 out of 1.00 Flag question

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

For example:

Input	Result
5 1 1 2 3 4	1

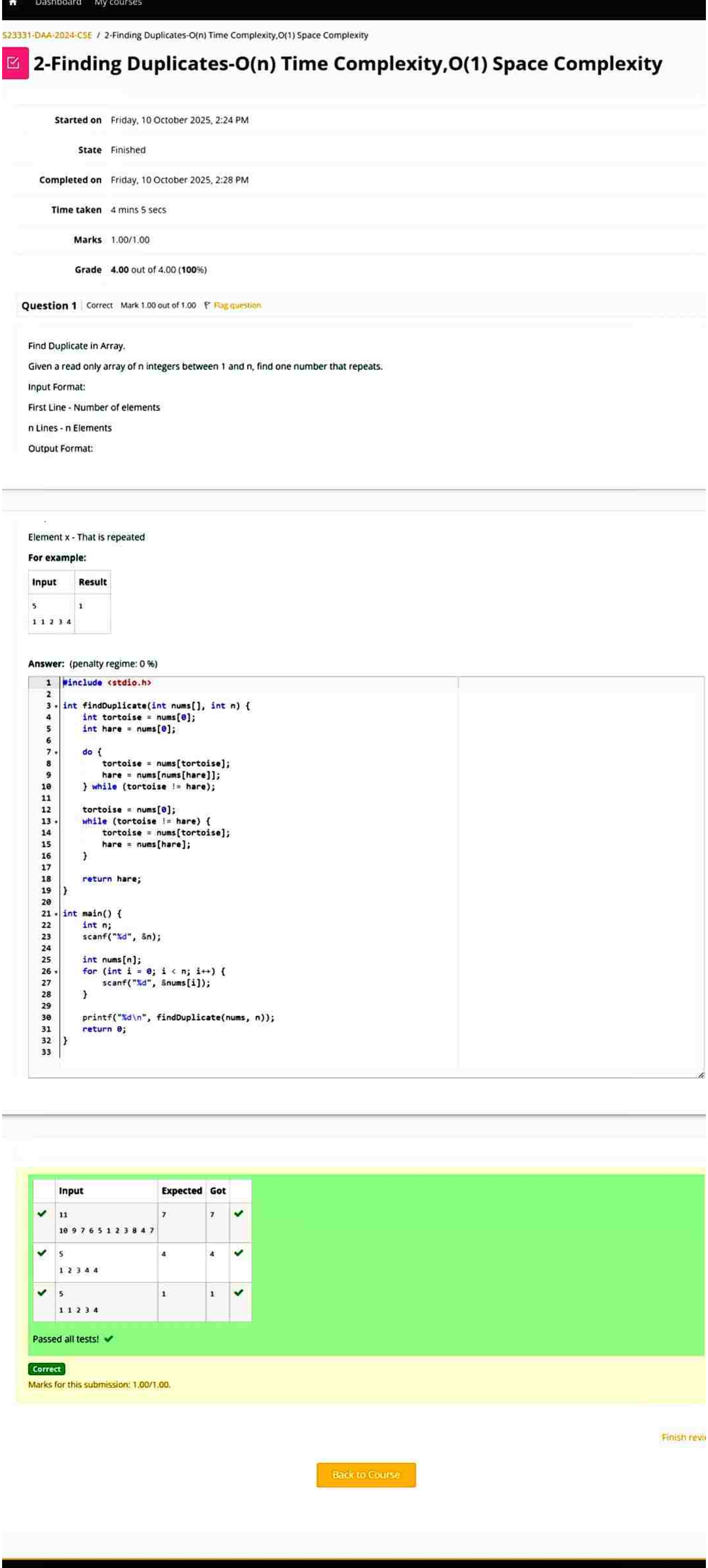
Answer: (penalty regime: 0 %)

```c
#include <stdio.h>

int findDuplicate(int nums[], int n) {
    int tortoise = nums[0];
    int hare = nums[0];

    do {
        tortoise = nums[tortoise];
        hare = nums[nums[hare]];
    } while (tortoise != hare);

    tortoise = nums[0];
    while (tortoise != hare) {
        tortoise = nums[tortoise];
        hare = nums[hare];
    }

    return hare;
}

int main() {
    int n;
    scanf("%d", &n);

    int nums[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &nums[i]);
    }

    printf("%d\n", findDuplicate(nums, n));
    return 0;
}

```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct



S23331-DAA-2024-CSE / 2-Finding Duplicates-O(n) Time Complexity,O(1) Space Complexity

2-Finding Duplicates-O(n) Time Complexity,O(1) Space Complexity

Started on	Friday, 10 October 2025, 2:24 PM
State	Finished
Completed on	Friday, 10 October 2025, 2:28 PM
Time taken	4 mins 5 secs
Marks	1.00/1.00
Grade	**4.00** out of 4.00 (**100**%)

Question 1 Correct Mark 1.00 out of 1.00

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

For example:

Input	Result
5 1 1 2 3 4	1

Answer: (penalty regime: 0 %)

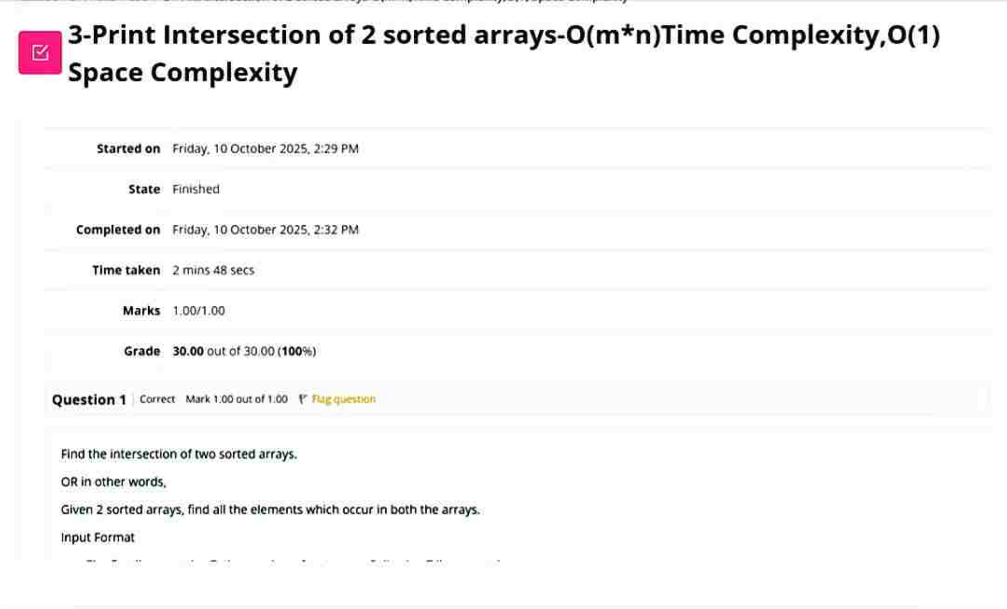
```
#include <stdio.h>

int findDuplicate(int nums[], int n) {
    int tortoise = nums[0];
    int hare = nums[0];

    do {
        tortoise = nums[tortoise];
        hare = nums[nums[hare]];
    } while (tortoise != hare);

    tortoise = nums[0];
    while (tortoise != hare) {
        tortoise = nums[tortoise];
        hare = nums[hare];
    }

    return hare;
}

int main() {
    int n;
    scanf("%d", &n);

    int nums[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &nums[i]);
    }

    printf("%d\n", findDuplicate(nums, n));
    return 0;
}

```

	Input	Expected	Got	
✓	11 10 9 7 6 5 1 2 3 8 4 7	7	7	✓
✓	5 1 2 3 4 4	4	4	✓
✓	5 1 1 2 3 4	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.



3-Print Intersection of 2 sorted arrays-O(m*n)Time Complexity,O(1) Space Complexity

Started on	Friday, 10 October 2025, 2:29 PM
State	Finished
Completed on	Friday, 10 October 2025, 2:32 PM
Time taken	2 mins 48 secs
Marks	1.00/1.00
Grade	**30.00** out of 30.00 (**100**%)

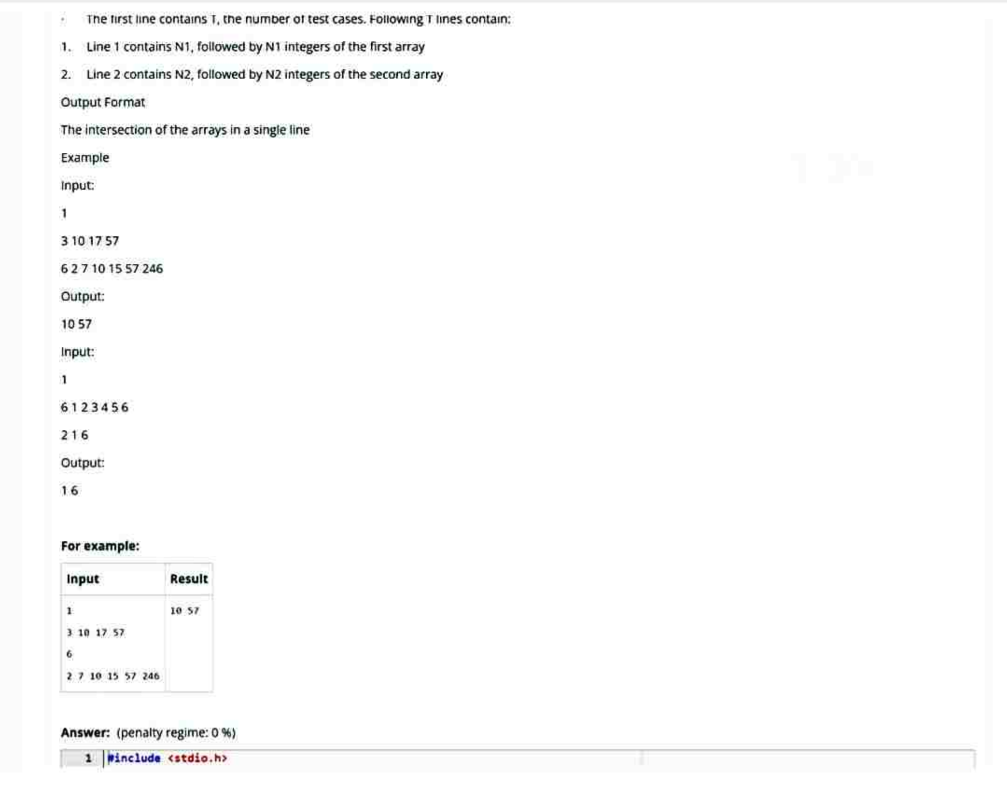
Question 1 Correct Mark 1.00 out of 1.00 Flag question

Find the intersection of two sorted arrays.

OR in other words,

Given 2 sorted arrays, find all the elements which occur in both the arrays.

Input Format



- The first line contains T, the number of test cases. Following T lines contain:

1. Line 1 contains N1, followed by N1 integers of the first array
2. Line 2 contains N2, followed by N2 integers of the second array

Output Format

The intersection of the arrays in a single line

Example

Input:

1

3 10 17 57

6 2 7 10 15 57 246

Output:

10 57

Input:

1

6 1 2 3 4 5 6

2 1 6

Output:

1 6

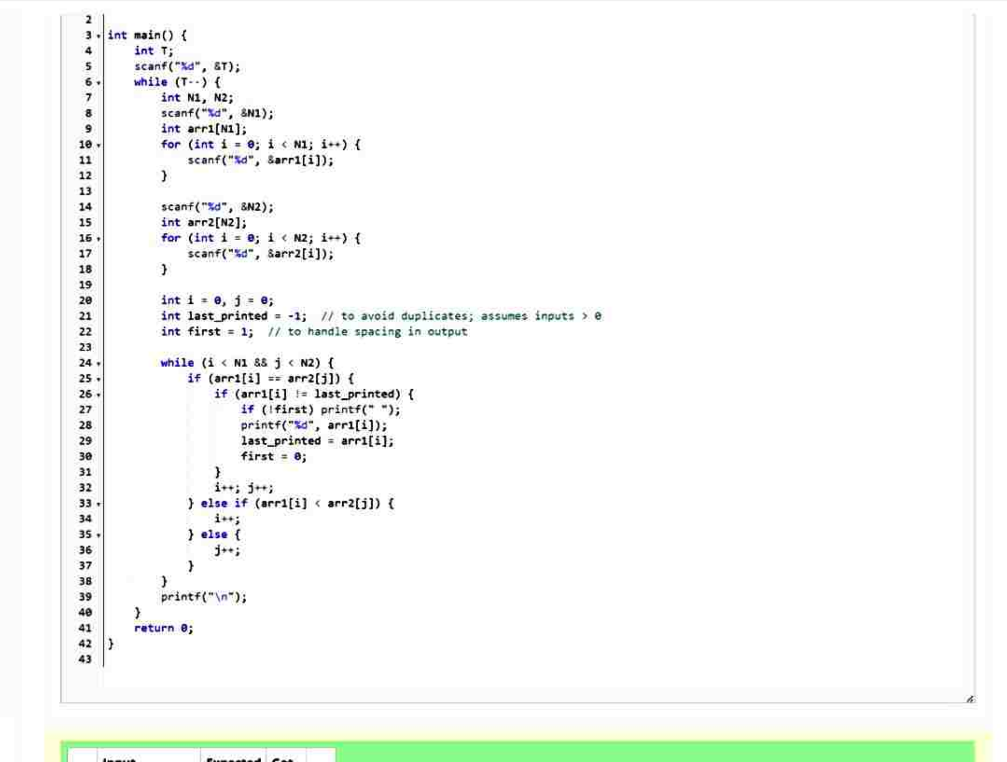
For example:

Input	Result

1
3 10 17 57
6
2 7 10 15 57 246
	10 57

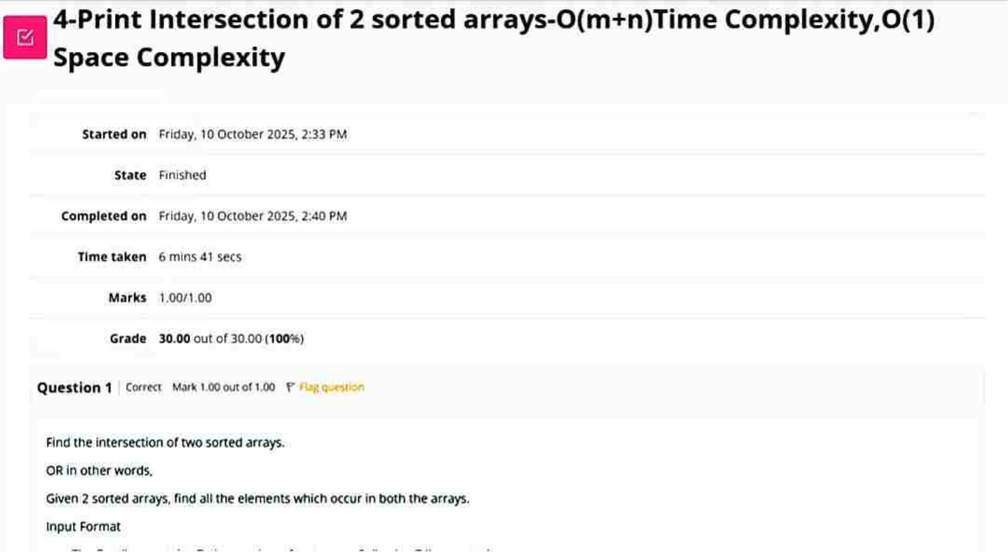
Answer: (penalty regime: 0 %)

```
#include <stdio.h>
```



```

int main() {
    int T;
    scanf("%d", &T);
    while (T--) {
        int N1, N2;
        scanf("%d", &N1);
        int arr1[N1];
        for (int i = 0; i < N1; i++) {
            scanf("%d", &arr1[i]);
        }

        scanf("%d", &N2);
        int arr2[N2];
        for (int i = 0; i < N2; i++) {
            scanf("%d", &arr2[i]);
        }

        int i = 0, j = 0;
        int last_printed = -1;  // to avoid duplicates; assumes inputs > 0
        int first = 1;  // to handle spacing in output

        while (i < N1 && j < N2) {
            if (arr1[i] == arr2[j]) {
                if (arr1[i] != last_printed) {
                    if (!first) printf(" ");
                    printf("%d", arr1[i]);
                    last_printed = arr1[i];
                    first = 0;
                }
                i++; j++;
            } else if (arr1[i] < arr2[j]) {
                i++;
            } else {
                j++;
            }
        }
        printf("\n");
    }
    return 0;
}

```

	Input	Expected	Got	



4-Print Intersection of 2 sorted arrays-O(m+n)Time Complexity,O(1) Space Complexity

Started on	Friday, 10 October 2025, 2:33 PM
State	Finished
Completed on	Friday, 10 October 2025, 2:40 PM
Time taken	6 mins 41 secs
Marks	1.00/1.00
Grade	**30.00** out of 30.00 (**100**%)

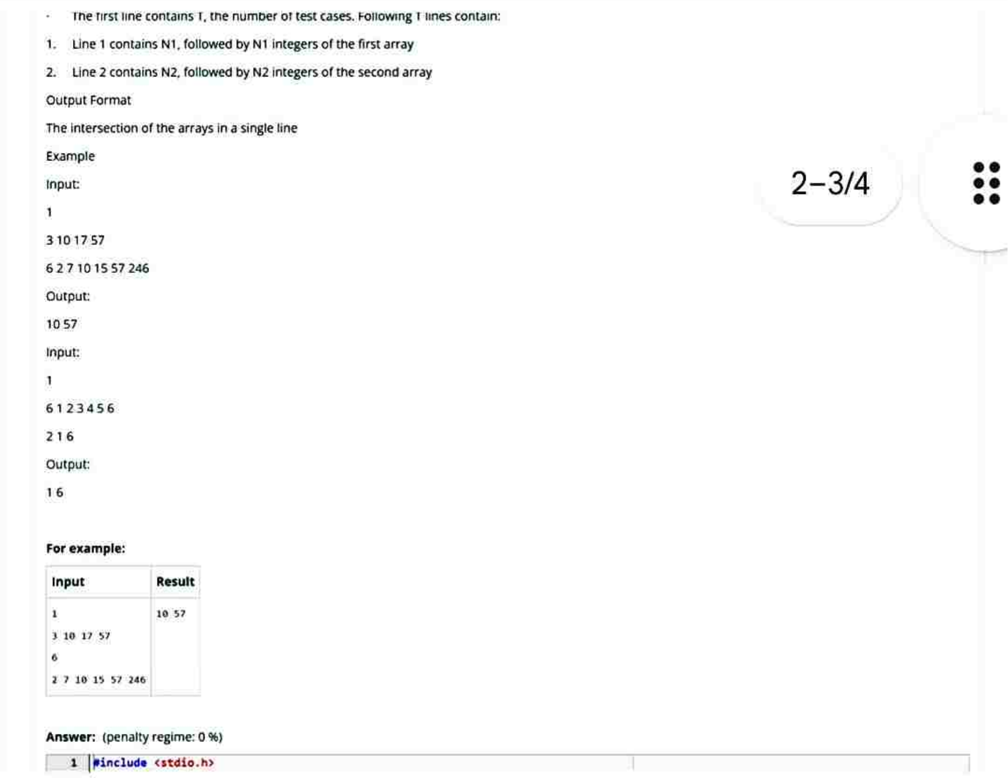
Question 1 Correct Mark 1.00 out of 1.00 Flag question

Find the intersection of two sorted arrays.

OR in other words,

Given 2 sorted arrays, find all the elements which occur in both the arrays.

Input Format



- The first line contains T, the number of test cases. Following T lines contain:

1. Line 1 contains N1, followed by N1 integers of the first array
2. Line 2 contains N2, followed by N2 integers of the second array

Output Format

The intersection of the arrays in a single line

Example

Input:

1

3 10 17 57

6 2 7 10 15 57 246

Output:

10 57

Input:

1

6 1 2 3 4 5 6

2 1 6

Output:

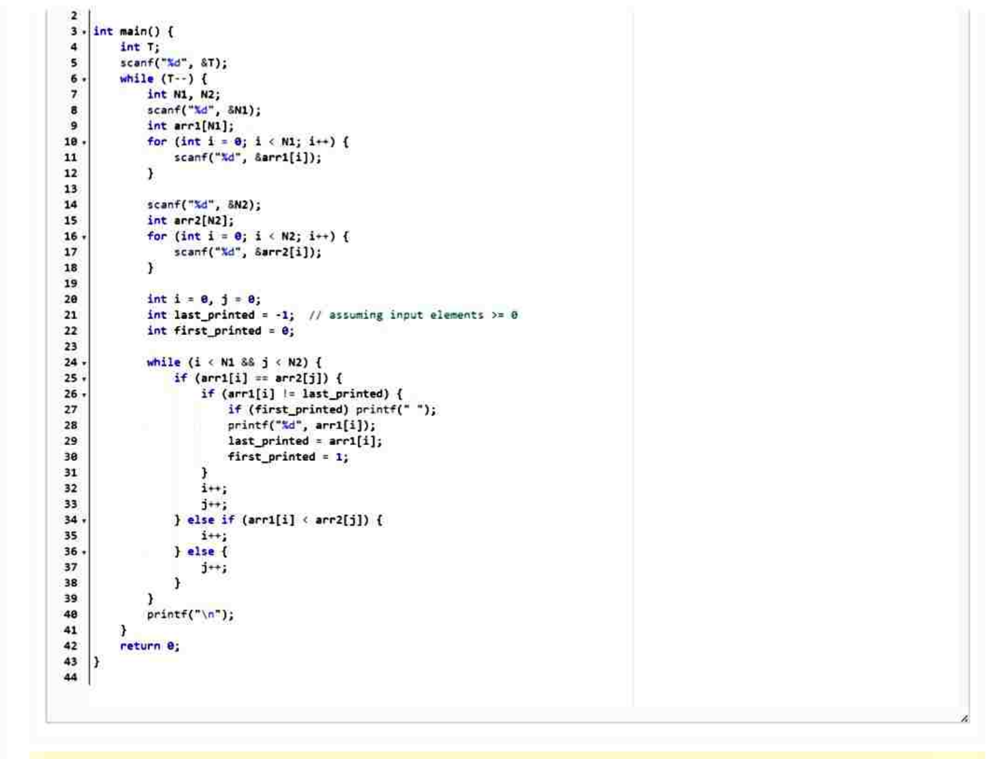
1 6

For example:

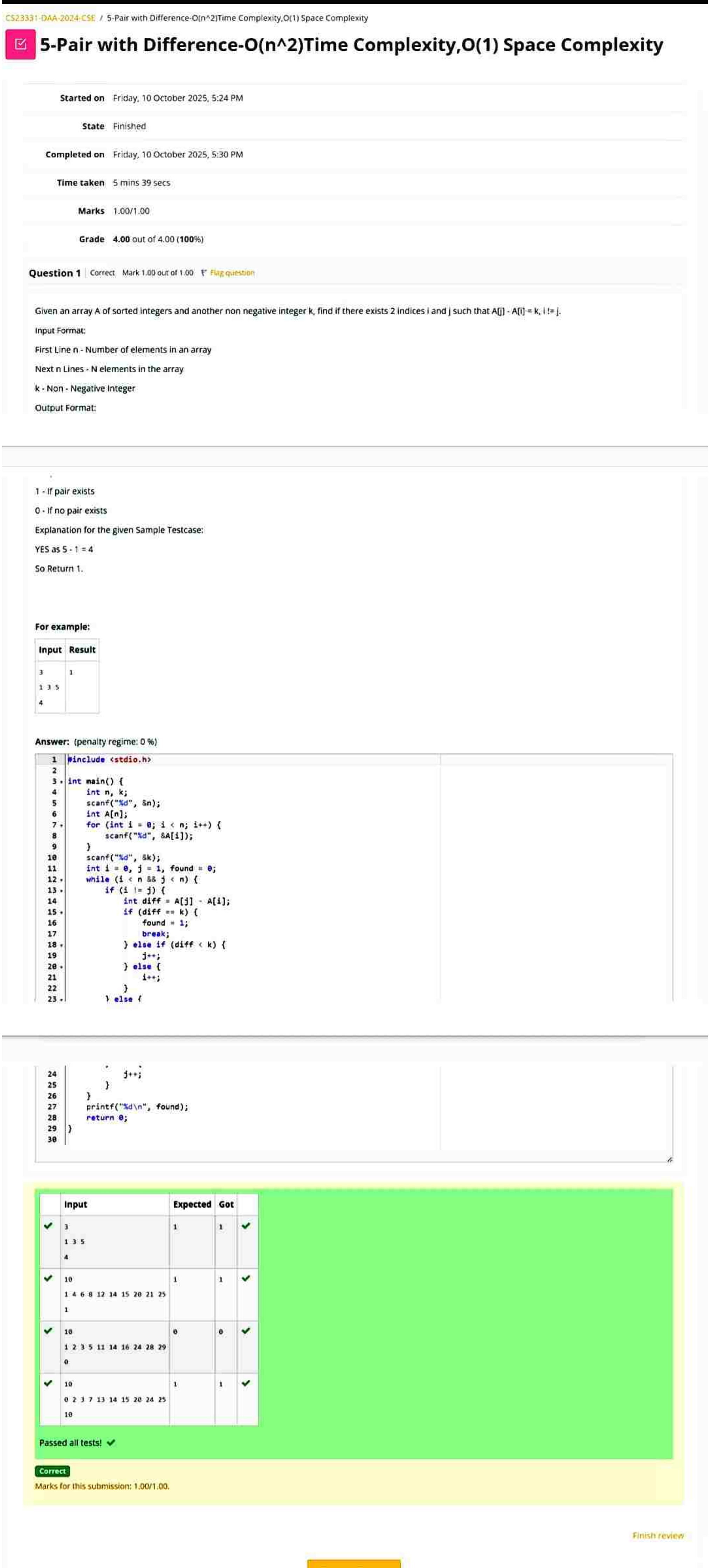
Input	Result

1
3 10 17 57
6
2 7 10 15 57 246
	10 57

Answer: (penalty regime: 0 %)



```
#include <stdio.h>

int main() {
    int T;
    scanf("%d", &T);
    while (T--) {
        int N1, N2;
        scanf("%d", &N1);
        int arr1[N1];
        for (int i = 0; i < N1; i++) {
            scanf("%d", &arr1[i]);
        }

        scanf("%d", &N2);
        int arr2[N2];
        for (int i = 0; i < N2; i++) {
            scanf("%d", &arr2[i]);
        }

        int i = 0, j = 0;
        int last_printed = -1;  // assuming input elements >= 0
        int first_printed = 0;

        while (i < N1 && j < N2) {
            if (arr1[i] == arr2[j]) {
                if (arr1[i] != last_printed) {
                    if (first_printed) printf(" ");
                    printf("%d", arr1[i]);
                    last_printed = arr1[i];
                    first_printed = 1;
                }
                i++;
                j++;
            } else if (arr1[i] < arr2[j]) {
                i++;
            } else {
                j++;
            }
        }
        printf("\n");
    }
    return 0;
}

```



5-Pair with Difference-O(n^2)Time Complexity,O(1) Space Complexity

Started on	Friday, 10 October 2025, 5:24 PM
State	Finished
Completed on	Friday, 10 October 2025, 5:30 PM
Time taken	5 mins 39 secs
Marks	1.00/1.00
Grade	**4.00** out of 4.00 (**100%**)

Question 1 Correct Mark 1.00 out of 1.00 Flag question

Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that A[j] - A[i] = k, i != j.

Input Format:

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

Output Format:

1 - If pair exists

0 - If no pair exists

Explanation for the given Sample Testcase:

YES as 5 - 1 = 4

So Return 1.

For example:

Input	Result

3
1 3 5
4
	1

Answer: (penalty regime: 0 %)

```
#include <stdio.h>

int main() {
    int n, k;
    scanf("%d", &n);
    int A[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &A[i]);
    }
    scanf("%d", &k);
    int i = 0, j = 1, found = 0;
    while (i < n && j < n) {
        if (i != j) {
            int diff = A[j] - A[i];
            if (diff == k) {
                found = 1;
                break;
            } else if (diff < k) {
                j++;
            } else {
                i++;
            }
        } else {
            j++;
        }
    }
    printf("%d\n", found);
    return 0;
}
```

	Input	Expected	Got	
✓	3 1 3 5 4	1	1	✓
✓	10 1 4 6 8 12 14 15 20 21 25 1	1	1	✓
✓	10 1 2 3 5 11 14 16 24 28 29 0	0	0	✓
✓	10 0 2 3 7 13 14 15 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

Finish review