RAJALAKSHMI ENGINEERING COLLEGE

POOJASHREE S 2024-AIDS

P2

Started on	Saturday, 11 October 2025, 9:15 AM
State	Finished
Completed on	Saturday, 11 October 2025, 9:28 AM
Time taken	13 mins 9 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 %)

```c
#include <stdio.h>

int findDuplicate(int nums[], int n) {
    int slow = nums[0];
    int fast = nums[0];
    do {
        slow = nums[slow];
        fast = nums[nums[fast]];
    } while (slow != fast);
    slow = nums[0];
    while (slow != fast) {
        slow = nums[slow];
        fast = nums[fast];
    }

    return slow;
}

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

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

    int duplicate = findDuplicate(nums, n);
    printf("%d\n", duplicate);

    return 0;
}
```

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

	Input	Expected	Got	
✔	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.

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RAJALAKSHMI ENGINEERING COLLEGE

POOJASHREE S 2024-AIDS

P2

Started on	Saturday, 11 October 2025, 9:30 AM
State	Finished
Completed on	Saturday, 11 October 2025, 9:38 AM
Time taken	8 mins 8 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 %)

```c
#include <stdio.h>

int findDuplicate(int nums[], int n) {
    int slow = nums[0];
    int fast = nums[0];
    do {
        slow = nums[slow];
        fast = nums[nums[fast]];
    } while (slow != fast);
    slow = nums[0];
    while (slow != fast) {
        slow = nums[slow];
        fast = nums[fast];
    }

    return slow;
}

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

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

    int duplicate = findDuplicate(nums, n);
    printf("%d\n", duplicate);

    return 0;
}
```

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

	Input	Expected	Got	
✔	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.

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POOJASHREE S 2024-AIDS

P2

Started on	Friday, 31 October 2025, 12:46 PM
State	Finished
Completed on	Friday, 31 October 2025, 12:53 PM
Time taken	6 mins 57 secs
Marks	1.00/1.00
Grade	**30.00** out of 30.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00

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>

void findIntersection(int arr1[], int N1, int arr2[], int N2) {
    int i = 0, j = 0;
    int found = 0;

    while (i < N1 && j < N2) {
        if (arr1[i] == arr2[j]) {
            printf("%d ", arr1[i]);
            found = 1;
            i++;
            j++;
        } else if (arr1[i] < arr2[j]) {
            i++;
```

```
        } else {
            j++;
        }
    }
    if (!found) {
        printf("\n");
    }
}

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

    for (int t = 0; t < T; t++) {
        int N1;
        scanf("%d", &N1);
        int arr1[N1];

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

        int N2;
        scanf("%d", &N2);
        int arr2[N2];

        for (int i = 0; i < N2; i++) {
            scanf("%d", &arr2[i]);
        }
        findIntersection(arr1, N1, arr2, N2);

        printf("\n");
    }

    return 0;
}
```

	Input	Expected	Got	
✔	1 3 10 17 57 6 2 7 10 15 57 246	10 57	10 57	✔
✔	1 6 1 2 3 4 5 6 2 1 6	1 6	1 6	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

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RAJALAKSHMI ENGINEERING COLLEGE

POOJASHREE S 2024-AIDS

P2

Started on	Saturday, 1 November 2025, 8:10 AM
State	Finished
Completed on	Saturday, 1 November 2025, 8:18 AM
Time taken	8 mins 12 secs
Marks	1.00/1.00
Grade	**30.00** out of 30.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00

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 first = 1;
        while (i < n1 && j < n2) {
            if (arr1[i] == arr2[j]) {
                if (!first)
                    printf(" ");
                printf("%d", arr1[i]);
                first = 0;
                i++;
                j++;
            } else if (arr1[i] < arr2[j]) {
                i++;
            } else {
                j++;
            }
        }
        printf("\n");
    }
    return 0;
}
```

	Input	Expected	Got	
✔	1 3 10 17 57 6 2 7 10 15 57 246	10 57	10 57	✔
✔	1 6 1 2 3 4 5 6 2 1 6	1 6	1 6	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

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RAJALAKSHMI ENGINEERING COLLEGE

POOJASHREE S 2024-AIDS

P2

Started on	Saturday, 1 November 2025, 8:19 AM
State	Finished
Completed on	Saturday, 1 November 2025, 8:29 AM
Time taken	10 mins 32 secs
Marks	1.00/1.00
Grade	**4.00** out of 4.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00

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 %)

```c
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);

    int arr[n];
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    int k;
    scanf("%d", &k);
    int i = 0, j = 1;
    int found = 0;
    while (i < n && j < n) {
        if (i != j && arr[j] - arr[i] == k) {
            found = 1;
            break;
        } else if (arr[j] - arr[i] < k) {
            j++;
        } else {
            i++;
        }
    }
    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.

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RAJALAKSHMI ENGINEERING COLLEGE

POOJASHREE S 2024-AIDS

P2

Started on	Saturday, 1 November 2025, 8:32 AM
State	Finished
Completed on	Saturday, 1 November 2025, 8:50 AM
Time taken	18 mins 35 secs
Marks	1.00/1.00
Grade	**4.00** out of 4.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00

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 %)

```c
#include <stdio.h>
int main() {
    int n;
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++)
        scanf("%d", &arr[i]);
    int k;
    scanf("%d", &k);
    int i = 0, j = 1;
    int found = 0;
    while (i < n && j < n) {
        if (i != j && arr[j] - arr[i] == k) {
            found = 1;
            break;
        }
        else if (arr[j] - arr[i] < k) {
            j++;
        }
        else {
            i++;
        }
    }
    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.

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