RAJALAKSHMI ENGINEERING COLLEGE

RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 3:54 PM
State	Finished
Completed on	Saturday, 11 October 2025, 3:55 PM
Time taken	1 min 26 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 main() {
    int n;
    scanf("%d", &n);

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

    int freq[n + 1];
    for (int i = 0; i <= n; i++)
        freq[i] = 0;

    int duplicate = -1;

    for (int i = 0; i < n; i++) {
        freq[arr[i]]++;
        if (freq[arr[i]] > 1) {
            duplicate = arr[i];
            break;
        }
    }

    if (duplicate != -1)
        printf("%d\n", duplicate);
    else
        printf("No duplicate found\n");

    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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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 3:56 PM
State	Finished
Completed on	Saturday, 11 October 2025, 3:58 PM
Time taken	1 min 31 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 arr[], int n) {
    int slow = arr[0];
    int fast = arr[0];


    do {
        slow = arr[slow];
        fast = arr[arr[fast]];
    } while (slow != fast);


    slow = arr[0];
    while (slow != fast) {
        slow = arr[slow];
        fast = arr[fast];
    }

    return slow;
}

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

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

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

    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.

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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 3:58 PM
State	Finished
Completed on	Saturday, 11 October 2025, 4:00 PM
Time taken	1 min 52 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;
        while (i < N1 && j < N2) {
            if (arr1[i] < arr2[j])
                i++;
            else if (arr1[i] > arr2[j])
                j++;
            else {
                printf("%d ", arr1[i]);
                i++;
                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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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 3:58 PM
State	Finished
Completed on	Saturday, 11 October 2025, 4:00 PM
Time taken	1 min 52 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;
        while (i < N1 && j < N2) {
            if (arr1[i] < arr2[j])
                i++;
            else if (arr1[i] > arr2[j])
                j++;
            else {
                printf("%d ", arr1[i]);
                i++;
                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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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 4:01 PM
State	Finished
Completed on	Saturday, 11 October 2025, 4:02 PM
Time taken	1 min 20 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;

        while (i < N1 && j < N2) {
            if (arr1[i] < arr2[j])
                i++;
            else if (arr1[i] > arr2[j])
                j++;
            else {
                printf("%d ", arr1[i]);
                i++;
                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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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 4:03 PM
State	Finished
Completed on	Saturday, 11 October 2025, 4:04 PM
Time taken	1 min 26 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 %)

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


int cmp(const void *a, const void *b) {
    return (*(int *)a - *(int *)b);
}

int pairWithDifference(int arr[], int n, int k) {
    qsort(arr, n, sizeof(int), cmp);

    int i = 0, j = 1;
    while (i < n && j < n) {
        int diff = arr[j] - arr[i];
        if (diff == k && i != j)
            return 1;
        else if (diff < k)
            j++;
        else
            i++;
    }
    return 0;
}

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

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

```

```
    scanf("%d", &k);

    printf("%d\n", pairWithDifference(arr, n, k));

    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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RANJANI S 2024-AIDS

R2

Started on	Saturday, 11 October 2025, 4:04 PM
State	Finished
Completed on	Saturday, 11 October 2025, 4:09 PM
Time taken	4 mins 28 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 pairWithDifference(int arr[], int n, int k) {
    int i = 0, j = 1;

    while (i < n && j < n) {
        if (i != j) {
            int diff = arr[j] - arr[i];
            if (diff == k)
                return 1;
            else if (diff < k)
                j++;
            else
                i++;
        } else {
            j++;
        }
    }

    return 0;
}

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

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

    scanf("%d", &k);

```

```
    printf("%d\n", pairWithDifference(arr, n, k));

    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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