RAJALAKSHMI ENGINEERING COLLEGE

Started on	Wednesday, 29 October 2025, 10:55 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 10:59 AM
Time taken	4 mins 29 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>
#include <stdlib.h>

int findDuplicate(int arr[], int n) {

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

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

int main() {
    int n;
    if (scanf("%d", &n) != 1) return 1;
    int *arr = malloc(n * sizeof(int));
    if (!arr) return 1;
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

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

    free(arr);
    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	✔

	Input	Expected	Got	
✔	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

Started on	Wednesday, 29 October 2025, 10:59 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 11:01 AM
Time taken	1 min 36 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>
#include <stdlib.h>

int findDuplicate(const int arr[], int n) {


    int slow = arr[0];
    int fast = arr[0];

    do {
        slow = arr[slow];
        fast = arr[arr[fast]];
    }
    while (slow != fast);
    int finder = arr[0];
    while (finder != slow) {
        finder = arr[finder];
        slow = arr[slow];
    }
    return finder;
}

int main() {
    int n;
    if (scanf("%d", &n) != 1) {
        return 1;
    }
    int *arr = malloc(sizeof(int) * n);
    if (arr == NULL) {
        return 1;
    }
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }

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

    free(arr);
    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

Started on	Wednesday, 29 October 2025, 11:01 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 11:06 AM
Time taken	4 mins 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>
#include <stdlib.h>

int main() {
    int T;
    if (scanf("%d", &T) != 1) return 1;

    while (T--) {
        int n1;
        scanf("%d", &n1);
        int *a = (int*) malloc(n1 * sizeof(int));
        for (int i = 0; i < n1; i++) {
            scanf("%d", &a[i]);
        }

        int n2;
        scanf("%d", &n2);
        int *b = (int*) malloc(n2 * sizeof(int));
        for (int j = 0; j < n2; j++) {
            scanf("%d", &b[j]);
        }
```

```
        int i = 0, j = 0;
        int first = 1;
        while (i < n1 && j < n2) {
            if (a[i] < b[j]) {
                i++;
            } else if (a[i] > b[j]) {
                j++;
            } else {

                if (!first) {
                    printf(" ");
                }
                printf("%d", a[i]);
                first = 0;


                i++;
                j++;
            }
        }

        printf("\n");

        free(a);
        free(b);
    }

    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

Started on	Wednesday, 29 October 2025, 11:06 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 11:08 AM
Time taken	1 min 40 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>
#include <stdlib.h>

int main() {
    int T;
    if (scanf("%d", &T) != 1) return 1;

    while (T--) {
        int n1;
        scanf("%d", &n1);
        int *a = (int*) malloc(n1 * sizeof(int));
        for (int i = 0; i < n1; i++) {
            scanf("%d", &a[i]);
        }

        int n2;
        scanf("%d", &n2);
        int *b = (int*) malloc(n2 * sizeof(int));
        for (int j = 0; j < n2; j++) {
            scanf("%d", &b[j]);
        }
```

```
        int i = 0, j = 0;
        int firstPrint = 1;
        while (i < n1 && j < n2) {
            if (a[i] < b[j]) {
                i++;
            } else if (a[i] > b[j]) {
                j++;
            } else {

                if (!firstPrint) {
                    printf(" ");
                }
                printf("%d", a[i]);
                firstPrint = 0;
                i++;
                j++;
            }
        }
        printf("\n");

        free(a);
        free(b);
    }
    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

Started on	Wednesday, 29 October 2025, 11:08 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 11:10 AM
Time taken	1 min 23 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>

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

    printf("0\n");
    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

Started on	Wednesday, 29 October 2025, 11:10 AM
State	Finished
Completed on	Wednesday, 29 October 2025, 11:11 AM
Time taken	1 min 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

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

    printf("0\n");
    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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