

# COMPETATIVE PROGRAMMING

grade 4.00 out of 4.00 (100%)

**Question 1** | Correct | Mark 1.00 out of 1.00 | [Flag question](#)

To exit full screen, press and hold Esc

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 1 2 3 4	

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     scanf("%d", &n);
6     int nums[n];
7     for (int i = 0; i < n; i++) scanf("%d", &nums[i]);
8     int slow = nums[0], fast = nums[0];
9     do {
10         slow = nums[slow];
11         fast = nums[nums[fast]];
12     } while (slow != fast);
13     slow = nums[0];
14     while (slow != fast) {
15         slow = nums[slow];
16         fast = nums[fast];
17     }
18     printf("%d\n", slow);
19     return 0;
20 }
21
```

Input	Expected	Got
5		
1 1 2 3 4		

```
5     scanf("%d", &n);
6     int nums[n];
7     for (int i = 0; i < n; i++) scanf("%d", &nums[i]);
8     int slow = nums[0], fast = nums[0];
9     do {
10         slow = nums[slow];
11         fast = nums[nums[fast]];
12     } while (slow != fast);
13     slow = nums[0];
14     while (slow != fast) {
15         slow = nums[slow];
16         fast = nums[fast];
17     }
18     printf("%d\n", slow);
19     return 0;
20 }
21
```

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

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

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Data retention summary

Grade 4.00 out of 4.00 (100%)

Question 1 | Corrects 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:

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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 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int n;
5     scanf("%d", &n);
6     int a[n];
7     for (int i = 0; i < n; i++) scanf("%d", &a[i]);
8     int slow = a[0], fast = a[0];
9     do {
10         slow = a[slow];
11         fast = a[a[fast]];
12     } while (slow != fast);
13     slow = a[0];
14     while (slow != fast) {
15         slow = a[slow];
16         fast = a[fast];
17     }
18     printf("%d\n", slow);
19     return 0;
20 }
21
```

```
4     int n;
5     scanf("%d", &n);
6     int a[n];
7     for (int i = 0; i < n; i++) scanf("%d", &a[i]);
8     int slow = a[0], fast = a[0];
9     do {
10         slow = a[slow];
11         fast = a[a[fast]];
12     } while (slow != fast);
13     slow = a[0];
14     while (slow != fast) {
15         slow = a[slow];
16         fast = a[fast];
17     }
18     printf("%d\n", slow);
19     return 0;
20 }
21
```

	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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Question 1 | Correct | Mark 1.00 out of 1.00 | Flag question

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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:

- Line 1 contains N1, followed by N1 integers of the first array
- 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 %)

```
2 7 10 15 57 246
```

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int T;
5     scanf("%d", &T);
6     while (T-->0) {
7         int n1, n2;
8         scanf("%d", &n1);
9         int a[n1];
10        for (int i = 0; i < n1; i++) scanf("%d", &a[i]);
11        scanf("%d", &n2);
12        int b[n2];
13        for (int i = 0; i < n2; i++) scanf("%d", &b[i]);
14
15        int i = 0, j = 0;
16        while (i < n1 && j < n2) {
17            if (a[i] < b[j]) i++;
18            else if (a[i] > b[j]) j++;
19            else {
20                printf("%d ", a[i]);
21                i++;
22                j++;
23            }
24        }
25        printf("\n");
26    }
27    return 0;
28 }
29
```

	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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### Question 1 | Correct | Mark 1.00 out of 1.00 | Flag question

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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:

- Line 1 contains N1, followed by N1 integers of the first array
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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 %)

6 2 7 10 15 57 246
-----------------------

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int T;
5     scanf("%d", &T);
6     while (T--) {
7         int n1, n2;
8         scanf("%d", &n1);
9         int a[n1];
10        for (int i = 0; i < n1; i++) scanf("%d", &a[i]);
11        scanf("%d", &n2);
12        int b[n2];
13        for (int i = 0; i < n2; i++) scanf("%d", &b[i]);
14
15        int i = 0, j = 0;
16        while (i < n1 && j < n2) {
17            if (a[i] < b[j]) i++;
18            else if (a[i] > b[j]) j++;
19            else {
20                printf("%d ", a[i]);
21                i++;
22                j++;
23            }
24        }
25    }
26 }
```

	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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### Quiz navigation

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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 integers i < j such that A[j] - A[i] = k.

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 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int n, k;
5     scanf("%d", &n);
6     int a[n];
7     for (int i = 0; i < n; i++) scanf("%d", &a[i]);
8     scanf("%d", &k);
9
10    int i = 0, j = 1;
11    while (i < n && j < n) {
12        int diff = a[j] - a[i];
13        if (i != j && diff == k) {
14            printf("1\n");
15            return 0;
16        } else if (diff < k) {
17            j++;
18        } else {
19            i++;
20        }
21    }
22    printf("0\n");
23    return 0;
24 }
25
```

	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 19 20 24 25 10	1	1	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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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 integers i < j such that a[j] - a[i] == k.

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 %)

```
1 #include <stdio.h>
2
3 int main() {
4     int n, k;
5     scanf("%d", &n);
6     int a[n];
7     for (int i = 0; i < n; i++) scanf("%d", &a[i]);
8     scanf("%d", &k);
9
10    int i = 0, j = 1;
11    while (i < n && j < n) {
12        if (a[j] - a[i] == k) {
13            printf("1\n");
14            return 0;
15        } else if (a[j] - a[i] < k) {
16            j++;
17        } else {
18            i++;
19        }
20    }
21    printf("0\n");
22    return 0;
23 }
```

```
1 #include <stdio.h>
2
3 int main() {
4     int n, k;
5     scanf("%d", &n);
6     int a[n];
7     for (int i = 0; i < n; i++) scanf("%d", &a[i]);
8     scanf("%d", &k);
9
10    int i = 0, j = 1;
11    while (i < n && j < n) {
12        if (a[j] - a[i] == k) {
13            printf("1\n");
14            return 0;
15        } else if (a[j] - a[i] < k) {
16            j++;
17        } else {
18            i++;
19        }
20    }
21    printf("0\n");
22    return 0;
23 }
```

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

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✓

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1  
✓

Finish review

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