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

Aim:

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 %)

Algorithm:

 Read the size of the array n using scanf.

 Declare an array a of size n and initialize s = 0.

 Input the n elements of the array using a loop.

 Use nested loops to compare each pair of elements in the array.

 If a[i] == a[j] and s != a[i], set s = a[i].

 Exit the loops after processing all pairs.

 Print the value of s as the first repeated element.

 End the program.

Code:

#include <stdio.h>

int main()

{

int n,s=0;

scanf("%d",&n);

int a[n];

for(int i=0;i<n;i++)

{

scanf("%d",&a[i]);

}

for(int i=0;i<=n;i++)

{

for(int j=i+1;j<=n;j++)

{

if(a[i]==a[j]&&s!=a[i])

{

s=a[i];

}

}

}

printf("%d",s);

}

Output:

|  | **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.

Result:

The expected output was obtained