ما تم اخذه في معمل 3:

**import** java.util.Arrays;  
**import** java.util.Random;  
  
*/\*\*  
 \* Created by USER on 24/02/2021.  
 \*/***public class** Ops {  
 **int a**[]={11,12,13,14,15};  
 **public void** remove(**int** []arr,**int** index )  
 {  
 **if**(index>=0&&index<arr.**length**)  
 {  
 **int** i=index;  
 **while** (i<arr.**length**-1)  
 {  
 arr[i]=arr[i+1];  
 i++;  
 }  
 arr[i]=0;  
 }  
 }  
 **public int** seqSearch(**int** []a,**int** element)  
 {  
 **boolean** flag=**false**;  
 **int** i=0;  
 **int** index=-1;  
 **while** (i<a.**length**&&!flag){  
 **if**(a[i]==element){  
 flag=**true**;  
 index=i;  
 }  
 i++;  
 }**return** index;  
 }  
 **public void** insertionSort(**int** arr[])  
 {  
 **for** (**int** i = 0; i <arr.**length** ; i++) {  
 **int** curr=arr[i];  
 **int** j=i;  
 **while** (j>0&&curr<arr[j-1]){  
 arr[j]=arr[j-1];  
 j--;  
 }  
 arr[j]=curr;  
 }  
 }  
 **public void** fillRandom(**int** arr[])  
 {  
 Random r=**new** Random();  
 r.setSeed(System.*currentTimeMillis*());  
 **for** (**int** i = 0; i <arr.**length**; i++) {  
 **a**[i]=r.nextInt(101);  
 }  
 }  
  
 **public static void** main(String[] args) {  
 Ops o=**new** Ops();  
 System.***out***.println(Arrays.*toString*(o.**a**));  
 o.fillRandom(o.**a**);  
 *// o.insertionSort(o.a);  
 // o.remove(o.a,2);* System.***out***.println(Arrays.*toString*(o.**a**));  
 *// System.out.println(o.seqSearch(o.a,191));* }  
}

التكليف:

C-3.17 Let *A* be an array of size *n* ≥ 2 containing integers from 1 to *n* − 1 inclusive, one  
of which is repeated. Describe an algorithm for finding the integer in *A* that is  
repeated.

*/\*\*  
 \* Created by USER on 24/02/2021.  
 \*/***public class** Repert {  
 **public static int** repeatCount(**int** arr[], **int** elem, **int** length) {  
 **int** count = 0;  
 **for** (**int** i = 0; i < length; i++) {  
 **if** (arr[i] == elem) {  
 count++;  
 }  
 }  
 **return** (count == 0 ? 0 : count);  
 }  
  
 **public static void** main(String args[]) {  
 **int** a[] = {0, 15, 0, 6, 1, 15, 7, 0, 04};  
 **int** num = a[0x1];  
 System.***out***.println(**"The Duplicate number: "** + num + **" The number of repetitions: "** + *repeatCount*(a, num, 9));  
 }  
}

Output:

The Duplicate number: 15 The number of repetitions: 2

C-3.18 Let *B* be an array of size *n* ≥ 6 containing integers from 1 to *n* − 5 inclusive, five  
of which are repeated. Describe an algorithm for finding the five integers in *B*  
that are repeated.

*/\*\*  
 \* Created by USER on 24/02/2021.  
 \*/***public class** Repert {  
 **public static int** repeatCount(**int** arr[], **int** elem, **int** length) {  
 **int** count = 0;  
 **for** (**int** i = 0; i < length; i++) {  
 **if** (arr[i] == elem) {  
 count++;  
 }  
 }  
 **return** (count == 0 ? 0 : count);  
 }  
  
 **public static void** main(String args[]) {  
 **for** (**int** i = 0; i <13 ; i++) {  
 **int** a[] = {0, 15, 0,5, 6,8,8,6, 1, 15, 7, 0, 04};  
 **int** num = a[i];  
 System.***out***.println(**"The Duplicate number: "** + num + **" The number of repetitions: "** + *repeatCount*(a, num, 13));  
 }  
  
 }  
}