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Assignment 6

1.Declare a single-dimensional array of 5 integers inside the main method. Traverse the array to print the default values. Then accept records from the user and print the updated values of the array.

```
package org.programming6_1;
import java.util.Scanner;
public class programming{
	public static void main(String args[]) {
	int a[]=new int[5];
	for(int element : a) {
		System.out.println("Default value:"+element);
		}
	int a2[]=new int[5];
	System.out.println("Enter elements:");
	for(int i=0;i<a2.length;i++) {
		a2[i]=sc.nextInt();
	}
	System.out.print("Array elements are:");
	for(int element:a2)
	{
		System.out.print(element+" ");
	}
	}
```

```
}
Default value:0
Default value:0
Enter elements:
1
2
4
6
8
Array elements are:1 2 4 6 8
```

2.Declare a single-dimensional array of 5 integers inside the main method.

```
package org.programming6_2;

import java.util.Scanner;


public class programming {


    public static void main(String[] args) {
    int[] array = new int[5];  // Declare an array of 5 integers


    // Accept records into the array
    acceptRecord(array);


    // Print the state of the array
    printRecord(array);
  }


  // Method to accept records into the array
  public static void acceptRecord(int[] array) {
    Scanner scanner = new Scanner(System.in);
```

```
        System.out.println("Enter 5 integer values:");

        for (int i = 0; i < array.length; i++) {
            System.out.print("Enter value for element " + (i + 1) + ": ");
            array[i] = scanner.nextInt();
        }

        // Close the scanner
        scanner.close();
    }

    // Method to print the state of the array
    public static void printRecord(int[] array) {
        System.out.println("Array elements are:");
        for (int element : array) {
            System.out.println(element);
        }
    }
```

```
Enter 5 integer values:
Enter value for element 1:
2
Enter value for element 2: 5
Enter value for element 3: 5
Enter value for element 4: 4
Enter value for element 5: 2
```

```
Array elements are:
2
5
5
4
2
```

3.Write a program to find the maximum and minimum values in a single-dimensional array of integers.

```
package org.programming6_3;

public class programming{

public static void main(String[] args) {

        // TODO Auto-generated method stub

        int a[]={1,2,3,4,5};

  int min=a[0];

  int max=a[0];

  for(int i=0;i<a.length;i++) {

        if(a[i]<=min) {

                min=a[i];

        }

        else

                max=a[i];

  }

  System.out.println("Minimum:        "+min);

  System.out.println("Maximum:        "+max);

}

}
```

```
Minimum:        1
Maximum:        5
```

4.Write a program to remove duplicate elements from a single-dimensional array of integers.

```
package org.programming6_4;
import java.util.Scanner;

public class programming{

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		int a[]= {1,2,3,4,5,2};
		System.out.print("Array elements are:");
		for(int element: a) {
			System.out.print(element+" ");
		}
		System.out.println();
		System.out.print("Array elements after removing duplicates:");
		for(int i=0;i<a.length;i++) {
			for(int j=i+1;j<a.length;j++) {
			if(a[i]==a[j])
				a[i]=-1;
			}
		}
		for(int i=0;i<a.length;i++) {
			if(a[i]!=-1) {
				System.out.print(a[i]+" ");
			}
		}
```

```
    }
}
```

```
Array elements are:1 2 3 4 5 2
Array elements after removing duplicates:1 3 4 5 2
```

5.Write a program to find the intersection of two single-dimensional arrays.

```
package org.programming6_5;
import java.util.Scanner;
public class programming{
        public static void main(String[] args) {
            int[] array1 = {1, 2, 3, 4, 5};
            int[] array2 = {4, 5, 6, 7, 8};

            // Find the intersection of the two arrays
            int[] intersection = findIntersection(array1, array2);

            // Print the intersection elements
            System.out.println("Intersection of the two arrays:");
            for (int i = 0; i < intersection.length; i++) {
               if (intersection[i] != -1) {
                  System.out.print(intersection[i] + " ");
               }
```

```
        }
    }

    public static int[] findIntersection(int[] array1, int[] array2) {
        // Array to store the intersection elements, with a size equal to the smaller of the two input arrays
        int[] tempIntersection = new int[Math.min(array1.length, array2.length)];
        int index = 0;

        // Initialize the tempIntersection array with -1 to indicate unused positions
        for (int i = 0; i < tempIntersection.length; i++) {
            tempIntersection[i] = -1;
        }

        // Nested loop to find common elements
        for (int i = 0; i < array1.length; i++) {
            for (int j = 0; j < array2.length; j++) {
                if (array1[i] == array2[j]) {
                    // Check if the element is already in the tempIntersection array
                    boolean alreadyExists = false;
                    for (int k = 0; k < index; k++) {
                        if (tempIntersection[k] == array1[i]) {
                            alreadyExists = true;
                            break;
                        }
                    }
```

```
                    // If the element is not already in the tempIntersection array,
add it
                    if (!alreadyExists) {
                        tempIntersection[index++] = array1[i];
                    }
                }
            }
        }

        return tempIntersection;
    }
}
```

```
Intersection of the two arrays:
4 5
```

6.Write a program to find the missing number in an array of integers ranging from 1 to N.

```
package org.programming6_6;
import java.util.Scanner;

public class programming{
public static void main(String args[]) {
    int a[]= {1,2,3,5,6};
    System.out.print("Array elements are:");
    for(int element:a) {
        System.out.print(element+" ");
    }
```

```
        System.out.println();
        int totsum=0;
        int sum=0;
        for(int i=0;i<a.length;i++) {
                sum+=a[i];
        }
        for(int i=1;i<=6;i++) {
                totsum+=i;
        }
        System.out.println("Missing element is:"+(totsum-sum));
}
}
```

```
Array elements are:1 2 3 5 6
Missing element is:4
```

7.Declare a single-dimensional array as a field inside a class and instantiate it inside the class constructor. Define methods named acceptRecord and printRecord within the class and test their functionality.

```
package org.programming6_7;
import java.util.Scanner;

import java.util.Scanner;

class Array1{
        int a[];
        public Array1(){
```

```
        a=new int[5];
    }
    public void acceptRecord() {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter array elements:");
        for(int i=0;i<a.length;i++) {
            a[i]=sc.nextInt();
        }
    }
    public void printRecord() {
        System.out.println("Array elements are:");
        for(int ele:a) {
            System.out.println(ele);
        }
    }
}
public class programming {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Array1 obj=new Array1();
        obj.acceptRecord();
        obj.printRecord();
    }

}
```

```
Enter array elements:
20
40
50
60
80
Array elements are:
20
40
```

```
50
60
80
```

8.Modify the previous assignment to use getter and setter methods instead of acceptRecord and printRecord.

```
package org.programming6_8;
import java.util.Scanner;

class Array2{
private         int a[];

        public Array2(int size) {
        a=new int[size];
}
        public int[] getA() {
        return a;
}
```

```
public void setA(int[] a) {
        this.a = a;
}
}
public class programming{

        public static void main(String[] args) {
                // TODO Auto-generated method stub
                Array2 obj=new Array2(5);
                System.out.println("Enter array size:");
                Scanner sc = new Scanner(System.in);
    int size =sc.nextInt();
    int a2[]=new int[size];
    System.out.println("Enter array elements:");
                for(int i=0;i<a2.length;i++) {
                        a2[i]=sc.nextInt();
                }
           obj.setA(a2);
                int a[]=obj.getA();
                 System.out.println("Array elements are:");
              for (int ele :a) {
                 System.out.println(ele);
              }
        }
}
```

```
Enter array size:
6
Enter array elements:
10
20
40
50
70
80
```

```
Array elements are:
10
20
40
50
70
80
```

9.You need to implement a system to manage airplane seat assignments. The airplane has seats arranged in rows and columns. Implement functionalities to:

- **Initialize the seating arrangement with a given number of rows and columns.**
- **Book a seat to mark it as occupied.**
- **Cancel a booking to mark a seat as available.**
- **Check seat availability to determine if a specific seat is available.**
- **Display the current seating chart.**