

## **Object Oriented Programming Lab**

### **(CS 32203)**

### **Assignment - 3**

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**1.Java Program to copy all elements of one array into another array**

#### **PROGRAM:**

```
import java.util.Scanner;

public class ArrayCopy {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter size of array: ");
        int size = sc.nextInt();
        int[] array = new int[size];
        for (int i=0; i<size; i++)
            array[i] = sc.nextInt();
    }
}
```

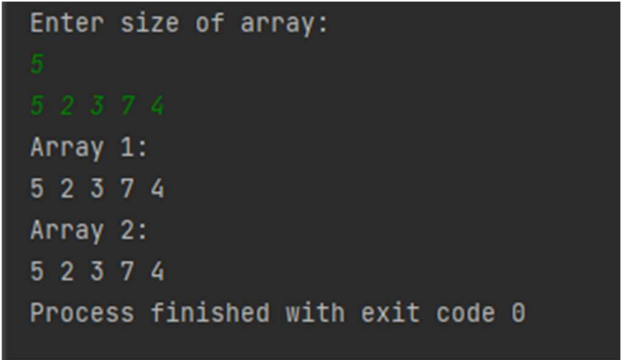
```
int[] res = new int[size];

for (int i=0; i<size; i++)
    res[i] = array[i];

System.out.println("Array 1:");
for (int value : array)
    System.out.print(value + " ");

System.out.println();
System.out.println("Array 2:");
for (int value : res)
    System.out.print(value + " ");
}
```

## OUTPUT:



```
Enter size of array:
5
5 2 3 7 4
Array 1:
5 2 3 7 4
Array 2:
5 2 3 7 4
Process finished with exit code 0
```

## 2.Java Program to find the frequency of each element in the array

### PROGRAM:

```
import java.util.Scanner;

public class ArrayFrequency {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size of array: ");

        int size = sc.nextInt();

        int[] array = new int[size];

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

            array[i] = sc.nextInt();


        for (int i = 0; i < size-1; i++) {

            for (int j = i+1; j<size; j++){

                if (array[i] > array[j]){

                    int temp = array[i];

                    array[i] = array[j];

                    array[j] = temp;

                }

            }

        }

    }

}
```

```
    }

    int count = 1;

    for (int i=1; i<size; i++){
        if (array[i] == array[i-1]){
            count++;
        }else{
            System.out.println("Frequency of "+array[i-1]+ " is
: "+count);
            count=1;
        }

        if(i==(size-1) ){
            System.out.println("Frequency of "+array[i]+ " is :
"+count);
        }
    }
}
```

**OUTPUT:**

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...  
Enter size of array:  
8  
4 3 8 1 4 6 5 4  
Frequency of 1 is : 1  
Frequency of 3 is : 1  
Frequency of 4 is : 3  
Frequency of 5 is : 1  
Frequency of 6 is : 1  
Frequency of 8 is : 1  
  
Process finished with exit code 0
```

### 3. Java Program to print the duplicate elements of an array

#### PROGRAM:

```
import java.util.Scanner;
```

```
public class DuplicateElements {
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter size of array: ");
```

```
        int size = sc.nextInt();
```

```
        int[] array = new int[size];
```

```
        for (int i=0; i <size; i++){
```

```
            array[i] = sc.nextInt();
```

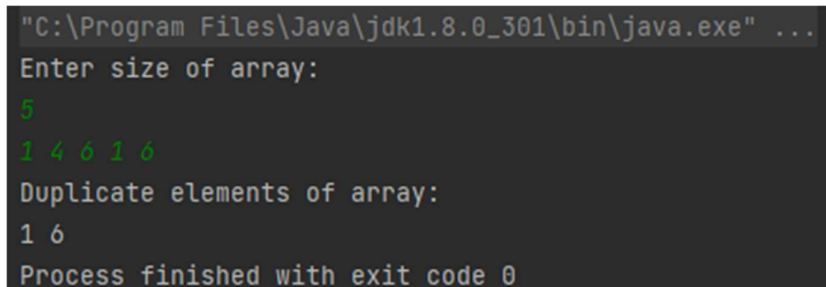
```
        }
```

```
        for (int i = 0; i < size-1; i++) {
```

```
        for (int j = i+1; j<size; j++){
            if (array[i] > array[j]){
                int temp = array[i];
                array[i] = array[j];
                array[j] = temp;
            }
        }
    }
```

```
    System.out.println("Duplicate elements of array: ");
    for (int i=1; i<size; i++){
        if(array[i] == array[i-1])
            System.out.print(array[i]+ " ");
    }
}
```

## OUTPUT:



```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...
Enter size of array:
5
1 4 6 1 6
Duplicate elements of array:
1 6
Process finished with exit code 0
```

## 4. Java Program to print the elements of an array

### PROGRAM:

```
import java.util.Scanner;

public class ArrayElements {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size of array: ");

        int size = sc.nextInt();

        int[] array = new int[size];

        for (int i=0; i <size; i++){

            array[i] = sc.nextInt();

        }

        System.out.println("Array elements : ");

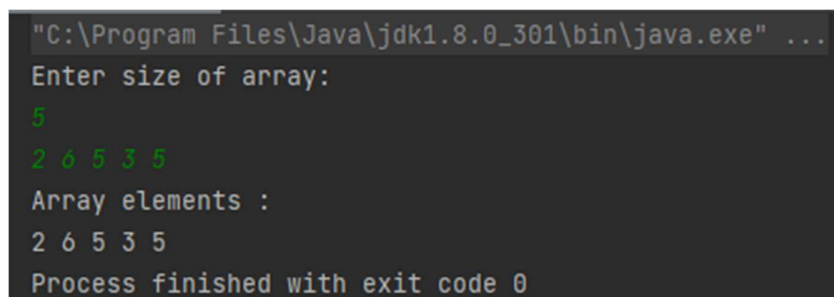
        for (int value : array)

            System.out.print(value+" ");

    }

}
```

### OUTPUT:

A screenshot of a terminal window showing the execution of a Java program. The command prompt is "C:\Program Files\Java\jdk1.8.0\_301\bin\java.exe". The program prompts "Enter size of array:" and the user enters "5". The program then prompts "Array elements :" and the user enters "2 6 5 3 5". The output shows the array elements "2 6 5 3 5" and the message "Process finished with exit code 0".

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...
Enter size of array:
5
2 6 5 3 5
Array elements :
2 6 5 3 5
Process finished with exit code 0
```

## 5.Java Program to print the elements of an array in reverse order

### PROGRAM:

```
import java.util.Scanner;

public class ArrayReverse {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size of array: ");

        int size = sc.nextInt();

        int[] array = new int[size];

        for (int i=0; i <size; i++){

            array[i] = sc.nextInt();

        }

        System.out.println("Array elements in reverse order:

");

        for (int i=size-1; i>=0; i--)

            System.out.print(array[i]+ " ");

        }

    }
```

### OUTPUT:



```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...  
Enter size of array:  
5  
5 3 8 3 1  
Array elements in reverse order:  
1 3 8 3 5  
Process finished with exit code 0
```

## 6.Java Program to print the elements of an array present on even position

### PROGRAM:

```
import java.util.Scanner;  
  
public class ArrayEven {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        System.out.println("Enter size of array: ");  
        int size = sc.nextInt();  
        int[] array = new int[size];  
  
        for (int i=0; i <size; i++){  
            array[i] = sc.nextInt();  
        }  
  
        System.out.println("Array elements in even position:  
");
```

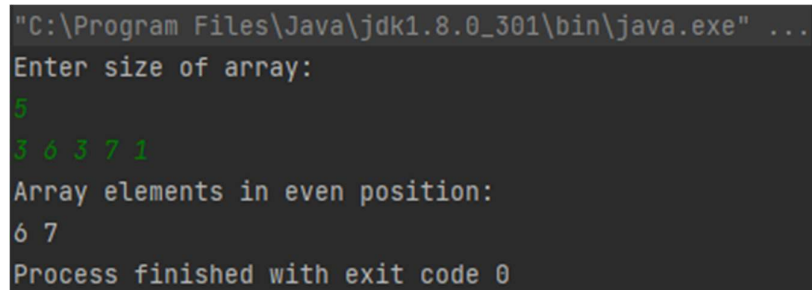
```
        for (int i=1; i<size; i=i+2)

            System.out.print(array[i]+ " ");

    }

}
```

## OUTPUT:



A screenshot of a Java program execution in a command prompt. The prompt shows the path "C:\Program Files\Java\jdk1.8.0\_301\bin\java.exe" followed by "...". The user is prompted to "Enter size of array:" and enters "5". The program then displays the array elements "3 6 3 7 1" in green. Below this, it says "Array elements in even position:" and displays "6 7". The final line shows "Process finished with exit code 0".

## 7.Java Program to print the elements of an array present on odd position

### PROGRAM:

```
import java.util.Scanner;

public class ArrayOdd {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size of array: ");

        int size = sc.nextInt();

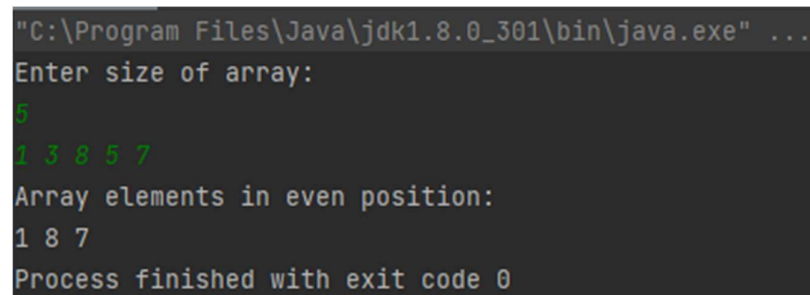
        int[] array = new int[size];

        for (int i=0; i <size; i++){
```

```
        array[i] = sc.nextInt();
    }
    System.out.println("Array elements in even position:");

    for (int i=0; i<size; i=i+2)
        System.out.print(array[i]+ " ");
    }
}
```

### OUTPUT:



A screenshot of a Java program execution in a command prompt. The prompt shows the path "C:\Program Files\Java\jdk1.8.0\_301\bin\java.exe" followed by the command "Enter size of array:". The user enters "5". Then, the prompt shows "1 3 8 5 7" in green text. Below that, the prompt shows "Array elements in even position:". The user enters "1 8 7". Finally, the prompt shows "Process finished with exit code 0".

## 8.Java Program to print the largest element in an array

### PROGRAM:

```
import java.util.Scanner;

public class ArrayLarge {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter size of array: ");
        int size = sc.nextInt();
```

```
int[] array = new int[size];

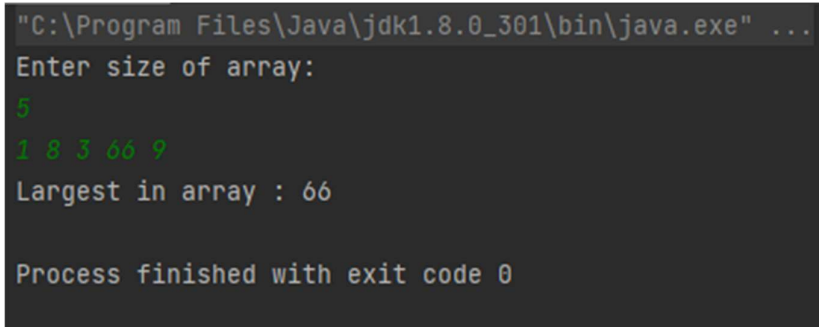
for (int i=0; i <size; i++){
    array[i] = sc.nextInt();
}

int max=Integer.MIN_VALUE;

for (int value : array)
    if (max<value)
        max=value;

System.out.println("Largest in array : "+max);
}
}
```

## OUTPUT:

A screenshot of a Java program execution in a command prompt. The prompt shows the path "C:\Program Files\Java\jdk1.8.0\_301\bin\java.exe" followed by an ellipsis. The user is prompted to "Enter size of array:" and enters "5". Then, the user enters "1 8 3 66 9". The program outputs "Largest in array : 66". Finally, it shows "Process finished with exit code 0".

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...
Enter size of array:
5
1 8 3 66 9
Largest in array : 66

Process finished with exit code 0
```

## 9.Java Program to print the smallest element in an array

### PROGRAM:

```
import java.util.Scanner;

public class ArrayMin {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter size of array: ");

        int size = sc.nextInt();

        int[] array = new int[size];

        for (int i=0; i <size; i++){

            array[i] = sc.nextInt();

        }

        int min=Integer.MAX_VALUE;

        for (int value : array)

            if (min>value)

                min=value;

        System.out.println("Largest in array : "+min);

    }

}
```

**OUTPUT:**

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...  
Enter size of array:  
5  
3 8 3 7 4  
Largest in array : 3  
  
Process finished with exit code 0
```

**10.Java Program to print the number of elements present in an array****PROGRAM:**

```
import java.util.Scanner;  
  
public class ArrayCount {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        System.out.println("Enter size of array: ");  
        int size = sc.nextInt();  
        int[] array = new int[size];  
        for (int i=0; i <size; i++){  
            array[i] = sc.nextInt();  
        }  
        System.out.println("Size of array is : "+array.length);  
    }  
}
```

**OUTPUT:**

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...  
Enter size of array:  
5  
1 8 5 3 6  
Size of array is : 5  
  
Process finished with exit code 0
```

## 11. Java Program to print the sum of all the items of the array

### PROGRAM:

```
import java.util.Scanner;  
  
public class ArraySum {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        System.out.println("Enter size of array: ");  
        int size = sc.nextInt();  
        int[] array = new int[size];  
  
        for (int i=0; i <size; i++){  
            array[i] = sc.nextInt();  
        }  
  
        int sum=0;  
        for (int value : array)
```

```
sum+=value;
```

```
System.out.println("Sum of array is : "+sum);
```

```
}
```

```
}
```

## OUTPUT:

```
"C:\Program Files\Java\jdk1.8.0_301\bin\java.exe" ...  
Enter size of array:  
5  
2 7 3 9 1  
Sum of array is : 22  
  
Process finished with exit code 0
```