



# Computer Programming Using Java

Course Code: 6803103-3

T.Mariah Khayat



# Week Three

## LAB

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# Week Three

# Arrays

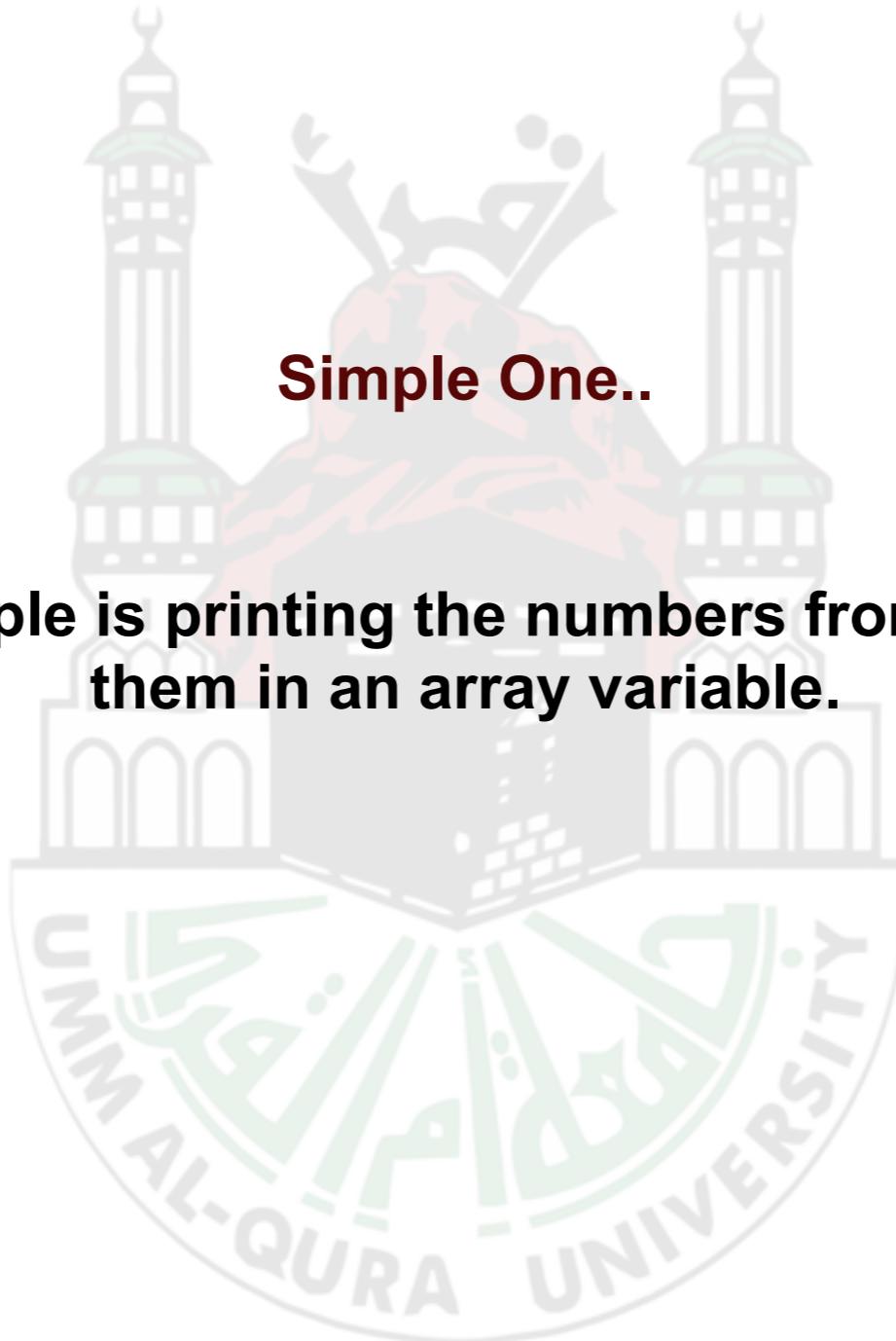
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# Example One:

Simple One..

The following example is printing the numbers from 1 to 4, after storing them in an array variable.



# Example One: Mariah Khayat

A java program that prints the numbers from 1 to 4, after storing them in an array variable:

```
public class E1 {  
  
    public static void main(String[] args) {  
  
        int[] numbers = new int[4];  
  
        numbers[0] = 1;  
        numbers[1] = 2;  
        numbers[2] = 3;  
        numbers[3] = 4;  
  
        for (int i = 0; i < numbers.length; i++) {  
            System.out.print(numbers[i] + "\n");  
        }  
    }  
}
```

# Computer Programming, Course Code: 6803103-3

## Example One Output:

The screenshot shows a Java development environment with the following details:

- Code Editor:** A window titled "E1.java" containing the following Java code:

```
1 public class E1 {  
2  
3     public static void main(String[] args) {  
4  
5         int[] numbers = new int[4];  
6  
7         numbers[0] = 1;  
8         numbers[1] = 2;  
9         numbers[2] = 3;  
10        numbers[3] = 4;  
11  
12        for (int i = 0; i < numbers.length; i++) {  
13            System.out.print(numbers[i] + "\n");  
14        }  
15    }  
16}
```
- Console Tab:** A tab labeled "Console" showing the output of the program:

```
1  
2  
3  
4
```

# Example Two:

Another simple one..

The following example is printing a string using an array variable.

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## Example Two: Mariah Khayat

A java program that print a string, using an array variable:

```
public class E2 {  
  
    public static void main(String[] args) {  
  
        String[] welcome = new String[6];  
  
        welcome[0] = "Hello!";  
        welcome[1] = "You are more than Welcome";  
        welcome[2] = "to our 3nd Week";  
        welcome[3] = "of CP Classes 'LAB'";  
        welcome[4] = "I hope this lecture is going to be very useful for you";  
        welcome[5] = "These are just strings that stored in an ARRAY variable";  
  
        for (int j = 0; j < welcome.length; j++) {  
            System.out.print(welcome[j] + "\n");  
        }  
    }  
}
```

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## Example Two Output:

The screenshot shows a Java development environment with two tabs: E1.java and \*E2.java. The \*E2.java tab is active, displaying the following Java code:

```
1 public class E2 {  
2  
3     public static void main(String[] args) {  
4  
5         String[] welcome = new String[6];  
6  
7         welcome[0] = "Hello!";  
8         welcome[1] = "You are more than Welcome";  
9         welcome[2] = "to our 3nd Week";  
10        welcome[3] = "of CP Classes 'LAB'";  
11        welcome[4] = "I hope this lecture is going to be very useful for you";  
12        welcome[5] = "These are just strings that stored in an ARRAY variable";  
13  
14        for (int j = 0; j < welcome.length; j++) {  
15            System.out.print(welcome[j] + "\n");  
16        }  
17    }  
18}  
19 }
```

The screenshot shows the Java application running in the IDE. The console tab displays the following output:

```
Problems @ Javadoc Declaration Console  
<terminated> E2 [Java Application] /Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home/bin/java (Raj. 13, 1438 AH, 6:50)  
Hello!  
You are more than Welcome  
to our 3nd Week  
of CP Classes 'LAB'  
I hope this lecture is going to be very useful for you  
These are just strings that stored in an ARRAY variable
```

# Exercise Three:

**Write a simple Java Program that find the min and max numbers in an integer Array?**

**Suppose that, the array called *numbers* and consists of numbers from 1 to 9**

```
numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};
```

# Exercise Three:

**Write a simple Java Program that find the min and max numbers in an integer Array?**

**There are more than one way:**

**-First One:**

```
import java.util.Arrays;
import java.util.Collections;

public class E3MinMax {
    public static void main(String[] args) {

        Integer[] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};
        int min = (int) Collections.min(Arrays.asList(numbers));
        int max = (int) Collections.max(Arrays.asList(numbers));

        System.out.print("Min number: " + min + "\t");
        System.out.print("Max number: " + max + "\t");

    }
}
```

# Exercise Three Output:

There are more than one way:

-First One output:



A screenshot of an IDE showing Java code. The code defines a class E3MinMax with a main method that prints the minimum and maximum values from an array of integers. The output window shows the program's execution and the resulting output.

```
1 import java.util.Arrays;
2 import java.util.Collections;
3
4 public class E3MinMax {
5     public static void main(String[] args) {
6
7         Integer[] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};
8         int min = (int) Collections.min(Arrays.asList(numbers));
9         int max = (int) Collections.max(Arrays.asList(numbers));
10
11        System.out.print("Min number: " + min + "\t");
12        System.out.print("Max number: " + max + "\t");
13    }
14 }
15
16
```

Problems Javadoc Declaration Console

<terminated> E3MinMax [Java Application] /Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home/bin/java

Min number: 1 Max number: 9

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# Exercise Three: Mahmoud Al-Khayat

**Write a simple Java Program that find the min and max numbers in an integer Array?**

**There are more than one way:**

**-Second One:**

```
import java.util.Arrays;
import java.util.Collections;

public class E3MinMaxWayTwo {
    public static void main(String[] args) {

        Integer[] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};

        int getMaxNumber = numbers[0];
        int getMinNumber = numbers[0];

        for (int i = 0; i < numbers.length; i++) {
            if (numbers[i] > getMaxNumber) {
                getMaxNumber = numbers[i];
            }

            if (numbers[i] < getMinNumber) {
                getMinNumber = numbers[i];
            }
        }

        System.out.print("Min number: " + getMinNumber + "\n");
        System.out.print("Max number: " + getMaxNumber + "\n");
    }
}
```

# Exercise Three Output:

There are more than one way:

-Second One output:



```
E1.java   E2.java   E3MinMax.java  *E3MinMaxWayTwo.java
1 import java.util.Arrays;
2 import java.util.Collections;
3
4 public class E3MinMaxWayTwo {
5     public static void main(String[] args) {
6
7         Integer[] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};
8
9         int getMaxNumber = numbers[0];
10        int getMinNumber = numbers[0];
11
12        for (int i = 0; i < numbers.length; i++) {
13            if (numbers[i] > getMaxNumber) {
14                getMaxNumber = numbers[i];
15            }
16
17            if (numbers[i] < getMinNumber) {
18                getMinNumber = numbers[i];
19            }
20        }
21
22        System.out.print("Min number: " + getMinNumber + "\n");
23        System.out.print("Max number: " + getMaxNumber + "\n");
24    }
25
26 }
```

Problems @ Javadoc Declaration Console X  
<terminated> E3MinMaxWayTwo [Java Application] /Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home  
Min number: 1  
Max number: 9

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# Exercise Four: Mariah Khayat

**Write a java program that sort this array of alphabets?**

```
alphabet = {"L", "R", "G", "W", "I", "X"};
```

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# Exercise Four: Mariah Khayat

**Write a java program that sort this array of alphabets?**

```
alphabet = {"L", "R", "G", "W", "I", "X"};
```

```
import java.util.Arrays;
public class E4Sort {

    public static void main(String[] args){

        String[] alphabet = {"L", "R", "G", "W", "I", "X"};

        System.out.println("Original string array :
"+Arrays.toString(alphabet));
        Arrays.sort(alphabet);
        System.out.println("Sorted string array :
"+Arrays.toString(alphabet));

    }
}
```

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# Exercise Four Output:

The screenshot shows a Java development environment with the following details:

- Project Structure:** Shows tabs for E1.java, E2.java, E3MinMax.java, E3MinMaxWayTwo.java, Average.java, and \*E4Sort.java.
- E4Sort.java Content:** The code defines a class E4Sort with a main method. It initializes a string array alphabet with values L, R, G, W, I, X. It prints the original array, sorts it using Arrays.sort(), and then prints the sorted array.

```
1 import java.util.Arrays;
2 public class E4Sort {
3
4     public static void main(String[] args){
5
6
7         String[] alphabet = {"L", "R", "G", "W", "I", "X" };
8
9         System.out.println("Original string array : "+Arrays.toString(alphabet));
10        Arrays.sort(alphabet);
11        System.out.println("Sorted string array : "+Arrays.toString(alphabet));
12
13    }
14 }
```

- Console Output:** The console tab shows the execution results:  
<terminated> E4Sort [Java Application] /Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home/bin/java (Raj. 13, 1438 AH, 7:36)  
Original string array : [L, R, G, W, I, X]  
Sorted string array : [G, I, L, R, W, X]

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# Homework

**1-Given the declaration:**

**int []array = {0,1,2,3,4,5,6};**

**What's the value of array[1]?**

- a) 1
- b) 3
- c) 4
- d) 5

**2-Write a Java program to calculate the average value of array elements?**

**Suppose this is the array: numbers = {14, 24, 34, 44, 54, 60, 64, 94, 104};**

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# Homework

**3 -**What loop will display each of the numbers in this array on a separate line:

```
float []nums={1.1f, 2.2f, 3.3f};
```

- a) **for (int i = 0; i < 3; i++) { System.out.print(nums[i] + "\n"); }**
- b) **for (int i = 1; i**
- c) **for (int i = 0; i**
- d) **for (int i = 1; i < 3; i++) { System.out.print(nums[i] + "\n"); }**

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## T.Mariah Khayat

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**Thank you**

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## T.Mariah Khayat



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