Java - Introduction to Programming
Lecture 10

Arrays In Java

Arrays in Java are like a list of elements of the same type i.e. a list of integers, a list of booleans etc.

    a. Creating an Array (method 1) - with new keyword

```java
int[] marks = new int[3];
marks[0] = 97;
marks[1] = 98;
marks[2] = 95;
```

    b. Creating an Array (method 2)

```java
int[] marks = {98, 97, 95};
```

    c. Taking an array as an input and printing its elements.

```java
import java.util.*;

public class Arrays {
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        int size = sc.nextInt();
        int numbers[] = new int[size];

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

        //print the numbers in array
        for(int i=0; i<arr.length; i++) {
            System.out.print(numbers[i]+" ");
        }
    }
}
```

Homework Problems

1. Take an array of names as input from the user and print them on the screen.

```java
import java.util.*;



public class Arrays {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        int size = sc.nextInt();

        String names[] = new String[size];



        //input

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

            names[i] = sc.next();

        }



        //output

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

            System.out.println("name " + (i+1) +" is : " + names[i]);

        }



    }

}
```

2. Find the maximum & minimum number in an array of integers.

[HINT : Read about Integer.MIN_VALUE & Integer.MAX_VALUE in Java]

```java
import java.util.*;


public class Arrays {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        int size = sc.nextInt();

        int numbers[] = new int[size];


        //input

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

            numbers[i] = sc.nextInt();

        }



        int max = Integer.MIN_VALUE;

        int min = Integer.MAX_VALUE;


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

            if(numbers[i] < min) {

                min = numbers[i];

            }

            if(numbers[i] > max) {

                max = numbers[i];

            }

        }
```

```
            System.out.println("Largest number is : " + max);

            System.out.println("Smallest number is : " + min);


    }

}
```

3. Take an array of numbers as input and check if it is an array sorted in ascending order.

    Eg : { 1, 2, 4, 7 } is sorted in ascending order.

        {3, 4, 6, 2} is not sorted in ascending order.

```
import java.util.*;


public class Arrays {

    public static void main(String args[]) {

        Scanner sc = new Scanner(System.in);

        int size = sc.nextInt();

        int numbers[] = new int[size];


        //input

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

            numbers[i] = sc.nextInt();

        }


        boolean isAscending = true;
```

```java
        for(int i=0; i<numbers.length-1; i++) { // NOTICE numbers.length - 1 as
termination condition

            if(numbers[i] > numbers[i+1]) { // This is the condition for
descending order

                isAscending = false;

            }

        }


        if(isAscending) {

            System.out.println("The array is sorted in ascending order");

        } else {

            System.out.println("The array is not sorted in ascending order");

        }


    }

}
```