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

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

b. Creating an Array (method 2)

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

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

```
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;
```

```
        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");

        }



    }

}
```