Assignment – 8

1. Let's create a program that calculates the average of different ages:

```java
import java.util.Scanner;

public class AverageAge {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the number of ages: ");
        int n = scanner.nextInt();
                int[] ages = new int[n];
                int sum = 0;

                for (int i = 0; i < n; i++) {
                    System.out.print("Enter age " + (i + 1) + ": ");
                    ages[i] = scanner.nextInt();
                    sum += ages[i];
                }

                double average = (double) sum / n;
                System.out.println("The average age is: " + average);
            }
        }

```

Output:

```
nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ javac AverageAge.java

nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ java AverageAge
Enter the number of ages: 5
Enter age 1: 22
Enter age 2: 24
Enter age 3: 32
Enter age 4: 34
Enter age 5: 54
The average age is: 33.2
```

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

```java
import java.util.Arrays;

```

```java
public class ArrayCopy {
    public static void main(String[] args) {
        int[] originalArray = {1, 2, 3, 4, 5};
        int[] copiedArray = new int[originalArray.length];

            for (int i = 0; i < originalArray.length; i++) {
                copiedArray[i] = originalArray[i];
            }

            System.out.println("Original Array: " + Arrays.toString(originalArray));
            System.out.println("Copied Array: " + Arrays.toString(copiedArray));
        }
    }

```

Output:

```
nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ javac ArrayCopy.java

nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ java ArrayCopy
Original Array: [1, 2, 3, 4, 5]
Copied Array: [1, 2, 3, 4, 5]
```

3. Java Program to Find Largest Number in an array.

```java
public class LargestNumber {
    public static void main(String[] args) {
        int[] numbers = {5, 7, 2, 8, 1, 9, 3};
        int largest = numbers[0];

        for (int i = 1; i < numbers.length; i++) {
                if (numbers[i] > largest) {
                    largest = numbers[i];
                }
            }

            System.out.println("The largest number is: " + largest);
        }
    }

```

Output:

```
nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ javac LargestNumber.java

nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ java LargestNumber
The largest number is: 9
```

4. Java Program to Remove Duplicate Element in an array.

```
import java.util.Arrays;

public class RemoveDuplicates {
    public static void main(String[] args) {
        int[] array = {1, 2, 2, 3, 4, 4, 5};
                int[] result = Arrays.stream(array).distinct().toArray();

                System.out.println("Array without duplicates: " +
    Arrays.toString(result));
            }
        }

```

Output:

```
nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ javac RemoveDuplicates.java

nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ java RemoveDuplicates
Array without duplicates: [1, 2, 3, 4, 5]
```

5. Java Program to Find second Largest Number in an array.

```
public class SecondLargest {
    public static void main(String[] args) {
        int[] numbers = {5, 7, 2, 8, 1, 9, 3};

                if (numbers.length < 2) {
```

```
            System.out.println("Array should have at least two elements.");
            return;
        }

        int firstLargest, secondLargest;
        if (numbers[0] > numbers[1]) {
            firstLargest = numbers[0];
            secondLargest = numbers[1];
        } else {
            firstLargest = numbers[1];
            secondLargest = numbers[0];
        }

        for (int i = 2; i < numbers.length; i++) {
            if (numbers[i] > firstLargest) {
                secondLargest = firstLargest;
                firstLargest = numbers[i];
            } else if (numbers[i] > secondLargest && numbers[i] != firstLargest) {
                secondLargest = numbers[i];
            }
        }

        System.out.println("The second largest number is: " + secondLargest);
    }
}
```

Output:

```
nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ javac SecondLargest.java

nagav@sundeeep MINGW64 ~/OneDrive/Desktop/st33/Assignment-Codes/Assignment-9
$ java SecondLargest
The second largest number is: 8
```