**Practical 8: Compute n-moment**

Codes:

import java.io.\*;

import java.util.\*;

public class n\_moment {

    public static void main(String args[]) {

        int n = 15; // Total number of elements in the stream

        String stream[] = {"a", "b", "c", "b", "d", "a", "c", "d", "a", "b", "d", "c", "a", "a", "b"};

        int zero\_moment = 0, first\_moment = 0, second\_moment = 0, count = 1, flag = 0;

        ArrayList<Integer> arrlist = new ArrayList(); // Creating a new ArrayList

        System.out.println("Arraylist elements are::");

        for (int i = 0; i < 15; i++) {

            System.out.println(stream[i] + " "); // Printing the elements of the stream

        }

        Arrays.sort(stream); // Sorting the elements of the stream

        for (int i = 1; i < n; i++) {

            if (stream[i] == stream[i - 1]) { // If current element is same as previous element

                count++; // Increment the count

            } else {

                // System.out.println("Hello"+i);

                arrlist.add(count); // Add the count to the ArrayList

                count = 1; // Reset the count

            }

        }

        arrlist.add(count); // Add the last count to the ArrayList

        zero\_moment = arrlist.size(); // Zeroth moment is the size of the ArrayList

        System.out.println("\n\n\nValue of Zeroth moment for given stream::" + zero\_moment);

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

            first\_moment += arrlist.get(i); // Summing up all the elements in the ArrayList

        }

        System.out.println("\n\nValue of First moment for given stream::" + first\_moment);

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

            int j = arrlist.get(i);

            second\_moment += (j \* j); // Computing the second moment by summing up the squares of all elements in the ArrayList

        }

        System.out.println("\n\nValue of Second moment for given stream::" + second\_moment);

    }

}

**OUTPUT**

