Find the Mean, Median, Mode of the array of numbers?

CODE:

import java.util.Arrays;

import java.util.HashMap;

import java.util.Map;

import java.util.Scanner;

public class MeanMedianModeCalculator {

public static double calculateMean(int[] arr) {

double sum = 0;

for (int num : arr) {

sum += num;

}

return sum / arr.length;

}

public static double calculateMedian(int[] arr) {

Arrays.sort(arr);

if (arr.length % 2 == 0) {

int mid1 = arr.length / 2 - 1;

int mid2 = arr.length / 2;

return (arr[mid1] + arr[mid2]) / 2.0;

} else {

return arr[arr.length / 2];

}

}

public static int calculateMode(int[] arr) {

Map<Integer, Integer> frequencyMap = new HashMap<>();

for (int num : arr) {

frequencyMap.put(num, frequencyMap.getOrDefault(num, 0) + 1);

}

int mode = 0;

int maxFrequency = 0;

for (Map.Entry<Integer, Integer> entry : frequencyMap.entrySet()) {

int frequency = entry.getValue();

if (frequency > maxFrequency) {

maxFrequency = frequency;

mode = entry.getKey();

}

}

return mode;

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the number of elements: ");

int n = scanner.nextInt();

int[] arr = new int[n];

System.out.println("Enter the elements:");

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

arr[i] = scanner.nextInt();

}

scanner.close();

double mean = calculateMean(arr);

double median = calculateMedian(arr);

int mode = calculateMode(arr);

System.out.println("Mean: " + mean);

System.out.println("Median: " + median);

System.out.println("Mode: " + mode);

}

}

OUTPUT:

C:\javap>javac MeanMedianModeCalculator.java

C:\javap>java MeanMedianModeCalculator

Enter the number of elements: 8 5 2 7 3 6 1 4

Enter the elements:

8 5 2 7 3 6 1 4

Mean: 4.5

Median: 4.5

Mode: 1

