

MeanMedianDifference.java

```
1  package practice;
2
3  import java.util.*;
4
5  public class MeanMedianDifference {
6      public static int[] maxMeanMedian(int input1, int[] input2) {
7          Arrays.sort(input2);
8          ArrayList<ArrayList<Integer>> outer = new ArrayList<>();
9          for (int i = 0; i < (1 << input1); i++) {
10             ArrayList<Integer> inner = new ArrayList<>();
11             for (int j = 0; j < input1; j++) {
12                 if ((i & (1 << j)) > 0) {
13                     inner.add(input2[j]);
14                 }
15             }
16             outer.add(inner);
17         }
18         double maxDiff = 0;
19         int ans[] = null;
20         for (ArrayList<Integer> inner1 : outer) {
21             if (inner1.size() > 2) {
22                 double mean = findMean(inner1);
23                 double median = findMedian(inner1);
24                 int index = 0;
25                 if (mean - median > maxDiff) {
26                     maxDiff = mean - median;
27                     ans = new int[inner1.size()];
28                     for (int n : inner1) {
29                         ans[index++] = n;
30                     }
31                 }
32             }
33         }
34
35         // for(ArrayList<Integer> inner1:outer)
36         // {
37         //     if(inner1.size()>2) {
38         //         double mean=findMean(inner1);
39         //         double median=findMedian(inner1);
40         //         int index=0;
41         //         if(mean-median==maxDiff)
42         //         {
43         //             ans=new int[inner1.size()];
44         //             for(int n:inner1) {
45         //                 ans[index++]=n;
46         //             }
47         //         }
48         //     }
49         // }
50
51         // for (int i = 0; i < ans.length; i++) {
52         //     System.out.print(ans[i] + " ");
53         // }
54         return ans;
55     }
56
57     public static double findMean(ArrayList<Integer> inner) {
58         double sum = 0;
59         for (int i = 0; i < inner.size(); i++) {
60             sum = sum + inner.get(i);
61         }
62         return sum / inner.size();
63     }
64
65     public static double findMedian(ArrayList<Integer> inner) {
66         int n = inner.size();
67         if (n % 2 == 1) {
68             return inner.get(n / 2);
69         } else if (n >= 2) {
70             return 0.5 * (inner.get(n / 2) + inner.get((n / 2) - 1));
71         } else {
72             return 0;
73         }
74     }
75
76     public static void main(String[] args) {
77         int[] arr = { 1, 2, 3, 4 };
78         maxMeanMedian(arr.length, arr);
79     }
80 }
```