Make Mr.Happy happy

locked

by pmani_naga_123

Mr. Happy is recently appointed as officer in Indian Airlines. His job is to prevent airplane crashes. Given a snap-shot of positions of all airplanes in 3D Euclidean space he needs to find two closest airplanes and advise pilots to move away from each other. Now Mr. Happy is sad because there are too many airplanes and he needs to check them manually. Can you make him happy by writing an efficient program for finding the positions of two nearest airplanes and distance between them?

Distance function is same as distance between two points in 3D Euclidean space.

Input Format

```
First line contains the total number of airplanes denoted as N.

Next N subsequent lines contains coordinates of each airplane in 3D euclidean space (X cord <space> Y cord <space> Z cord).
```

Constraints

```
2 <= N <= 10^5

0 <= X,Y,Z <= 10^5

All coordinates are distinct, (i.e) no two (X1,Y1,Z1) and (X2,Y2,Z2) are equal.
```

Output Format

In First line print the distance between two nearest airplanes. Exactly two digits should be printed after decimal point. Examples are 39.80, 47.79, 5689.00 etc

Assuming (X1,Y1,Z1) and (X2,Y2,Z2) are coordinates of two nearest airplanes, in the next 6 subsequent lines print them in following order. Before printing sort the both points for deciding order (First sort w.r.t. X co-ordinate, if both X co-ordinates are equal then check Y co-ordinate, if they are also equal check Z co-ordinate).

```
X1
Y1
Z1
X2
Y2
Z2

****Word of Caution::****   Be aware of overflows while dealing with the large numbers
```

Sample Input 0

```
3
1 2 3
50000 50000 50000
99999 99999 99999
```

Sample Output 0

```
86599.08
1
2
3
```

```
50000
50000
50000
```

Explanation 0

```
Here total 3 airplanes are there.
Distance between first and second airplanes is  86599.08
Distance between first and third airplanes is   173199.88
Distance between second and third airplanes is  86600.81
Nearest airplanes are first and second. So printed distance and their positions in the order described in output format.
```

Sample Input 1

```
3
10 15 20
30 40 50
60 70 80
```

Sample Output 1

```
43.87
10
15
20
30
40
50
```

Explanation 1

```
Here total 3 airplanes are there.
Distance between first and second airplanes is  43.87
Distance between first and third airplanes is   95.52
Distance between second and third airplanes is 51.96
Nearest airplanes are first and second. So printed distance and their positions in the order described in output format.
```

Submissions: 61
Max Score: 100
Difficulty: Medium

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```cpp
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

```

Line: 1 Col: 1

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