

Challenge

Given 20 sample minutia, find the closest match in the given database.

Insert code that will print out the load and search times for your solution. Try and optimise both of these timings.

The output should be a list of 20 IDs, minutia number and distance measurements.

Sample Output

```
Load time: 2.192095s

-=Results=-
Sample 0, closest match ID: 313805 minutia 3
Sample 1, closest match ID: 817761 minutia 1
Sample 2, closest match ID: 928366 minutia 0
Sample 3, closest match ID: 205925 minutia 3
Sample 4, closest match ID: 832929 minutia 1
Sample 5, closest match ID: 628053 minutia 0
Sample 6, closest match ID: 84714 minutia 1
Sample 7, closest match ID: 827963 minutia 2
Sample 8, closest match ID: 571213 minutia 4
Sample 9, closest match ID: 414725 minutia 2
Sample 10, closest match ID: 844094 minutia 2
Sample 11, closest match ID: 308580 minutia 2
Sample 12, closest match ID: 407503 minutia 3
Sample 13, closest match ID: 669308 minutia 4
Sample 14, closest match ID: 43237 minutia 4
Sample 15, closest match ID: 588611 minutia 3
Sample 16, closest match ID: 176929 minutia 1
Sample 17, closest match ID: 11137 minutia 4
Sample 18, closest match ID: 443701 minutia 1
Sample 19, closest match ID: 329593 minutia 4
-=====

Linear time: 1.381838s
Total runtime: 3.578884s
```

Fingerprint Templates

A fingerprint is stored as a collection of minutiae. Each Minutia has an x-y co-ordinate. To match a fingerprint, we look at the distance between minutiae.

Simplifications

Only 5 minutiae are given per an ID (normally this would be 40 – 100). They are scaled to be between 0 and 100.

A second database is provided with only one minutia per an ID. You may choose to use this instead if you wish.

Submission

Create a **private** repo on github and add me as a collaborator.

<https://github.com/bitbrain-za>

Your solution should compile using GCC. Either provide a makefile or the instruction you used to compile. Your solution should contain a readme that would enable anyone to replicate your answer.

This will be tested on a 64bit Linux machine with GCC 11.2.0.