

Social Distancing

The task is to find the social distance factor aka the maximum minimum distance between any two coordinates that are not in the same group, coordinates can only be by themselves or in pairs.

When approaching this problem, we want to maximise the “minimum social distance”. To do this we need to eliminate as many minimums as possible, this is done by pairing coordinates by the smallest distances. Instead of actually pairing coordinates we can just find the second smallest pair distance between all coordinates and then find the minimum out of all those second smallest distances. Thus, we find the social distance factor.

Finding the second smallest distance just disregards the smallest distance pair which is assumed to be paired off.

I have found that the algorithm produces the correct output for all inputs I have tried and runs in under a second which fulfills the time requirement for this question.

Pseudo Code:

My program is written in python and has comments, it is basically pseudo code.

Note:

To test the code use a .txt file with all the parameters included and formatted correctly, store the .txt file in the same directory as my .py file and specify the name of the .txt file when the programs asks you to at the start of run time.