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All programs work by running the program and simply typing the line shown in the etude file onto the terminal when the program runs unless the etude had specified otherwise. All programs contain only one 'main' file and are compiled through the program Intellij IDEA Community Edition.

Etude 1 –

Test Cases: test@test <- invalid , test@test_dot_com <- valid, test_at_test.co.nz <- valid and many more.

Etude 2 –

Test Cases: Just a list numbers that could and couldn't work for dates. In general if any order is applicable goes in the order Day/Month/Year.

Etude 3 –

Test Cases: Tried all the given test cases as well as a few like random iterations with large cases like values from 1-100.

Etude 4 –

Test Cases: Testing it with the very large cases work, 52c26, so it should work with most cases as long as they have common factors and the answer fits within a long. Also works with a bunch of other smaller cases.

Etude 5 –

The method is fairly simple though not the most efficient and simply iterates through all the points and stores them on a 2D array. It then calculates each of the distances between each of the points and stores those in a 2D array. It then adds each row of distances to an array list which sorts it by value and then gets the twelfth smallest value and compares to the current smallest value.

Test Cases: Generated random numbers between 50 – 150 and simply populated the array with them and tested the program.

Etude 6 –

Test Cases: Just changing values and adding more/less lines in the text file works.

Etude 10 –

I'm not sure what I'm supposed to do for invalid handling here since it's not stated what kind of invalid files are we going to go. Since it's only a 1 point etude I just left it as is.