iA Coding Challenge

Requirements

➤ Code in any language you like but please provide clear instructions on how to compile and run your code
➤ Clearly state any assumptions made
➤ Please use any source control system you like and send us a link via GitHub, Bitbucket or google drive (our email system blocks zip files).
➤ Your code will be evaluated using the following factors:
  • Code accuracy to the given scenario
  • Design pattern being used
  • How well thought out, easy to read and clearly laid out the code is
  • Code maintainability and organization
  • Accounting of different edge cases

Scenario

➤ Your program should randomly generate seed data.
➤ Your program should operate in a world that ranges from -10 to +10 (Y axis), and -10 to +10 (X axis).
➤ Your program should assume that each co-ordinate can hold a maximum of one Central Fill facility.
➤ Each Central Fill facility has a unique numeric identifier (e.g., 001, 002, 003).
➤ Each central fill facility has different medications (A, B, C) as Inventory.
➤ Each medication has a non-zero price, expressed in USD. Ex: Medication A at Central Fill 001 costs $30.50
➤ The distance between two points should be computed as the Manhattan Distance.

Instructions

➤ You are required to write a program which accepts a user location as a pair of co-ordinates and returns a list of the three closest central fill facilities, along with the cheapest medication price for each central fill.
➤ Please detail any assumptions you have made (it is recommended you make strong assumptions and state them).
➤ Provide a brief summary of how you might change your program if you needed to support multiple central fills at the same location?
➤ Provide a brief summary of how you would change your program if you were working with a much larger world size?

Example Program Run

Please Input Coordinates:

> 4,2

Closest Central Fills to (4,2):

Central Fill 002 - $30.29, Medication A, Distance 3

Central Fill 006 - $35.20, Medication B, Distance 5

Central Fill 001 - $01.40, Medication A, Distance 12

For any questions, please contact Chirag Khubchandani (chiragk@innovat.com)