Coding Challenge:

Please return the solution to us within 1 of time.

Given a list of points in 3-dimensional space where each point has an “A” or “B” label, please write a program that adds an additional point C to the set at a fixed offset from each “B”-labeled point. The offset is a vector with a magnitude of *D* but whose direction must be computed by the program. To the extent possible, the direction of the vector should point “away” from the 3-dimensional point cloud – we should avoid adding points “within” the point cloud. Feel free to be creative in how you determine the vector directionality.

Please provide, as part of your solution, the following items:

1. A Python module that solves the exercise described above.
2. A Dockerfile that installs Python as well as your module and its dependencies into a Linux base image. (Hint: One way to do this might be compiling a wheel of your Python module, but you can use any approach you like so long as your module can be run inside the Docker image)
3. Documentation for your code. It’s useful if your documentation reflects the thought process behind your solution.

Solutions will be assessed for:

1. Functionality
    a. Does the Dockerfile compile to an image?
    b. Does the Python module run out of the box inside the image with no additional steps required beyond executing the entry point?
2. Code quality
    a. Is the code easy to understand? This includes the code structure itself as well as documentation.
    b. Is the code designed in a way that would it make it easy for others to use and improve upon it?