LEVEL 3

> Level 3

Kerry Kotl:
Think about it this way - there are so many flights going on, so many things they are carrying. Why not data? But, there's still a bit more work to do. Let's see how well you deal with 3D points, comrade.

ECEF coordinates

Task for Level 3: Given a list of Lat, Long, Altitude coordinates, transform them into earth centered 3D positions

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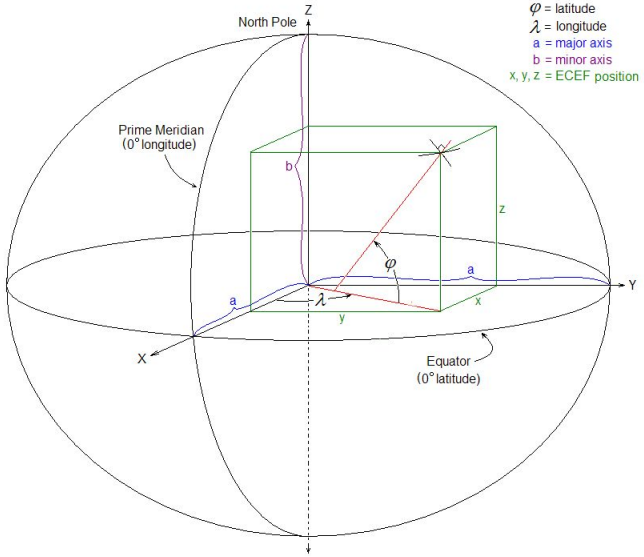
- Earth centered position, more formally known as ECEF (earth centered earth fixed) position, refers to the position in the XYZ coordinate system that has its origin in the center of the earth. The X axis passes through earth at latitude 0°N and longitude 0°E. The Z axis passes through the north pole.
- For the sake of simplicity, we will consider the earth as being a **perfect sphere with radius of *6371 km***.
- ECEF 3D vectors will be outputted in XYZ format, where each component is a float expressed in **meters**.



- P.S. You can look up how to convert Lat Long Altitude to XYZ coordinates
- P.P.S Please use **double** precision float numbers

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	Input	Output
Format	*N* *lat,long,altitude* *(repeats N times)*	*X Y Z* Repeated for each query in the input. **Validation will be done with a maximum allowed error of 10^{-5}**
Types	**N (int)** Number of coordinates that follow **lat (float)** North latitude of the coordinate. In degrees **long (float)** East longitude of the coordinate. In degrees **altitude (float)** Meters above the sea level	**X (float)** X coordinate in the ECEF model (meters) **Y (float)** Y coordinate in the ECEF model (meters) **Z (float)** Z coordinate in the ECEF model (meters)
Example	*3* *49.828,7.714,11277.0* *50.088,8.449,11590.0* *49.453,40.458,10972.0*	*4079848.963537658 552632.3744698758 4876770.406543401* *4050691.0911031296 601694.2032386649 4895643.050544712* *3156699.910772927 2692077.0019969237 4849487.983017325*

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Good luck!