



ChatGPT



please Haversine formula

The Haversine formula is used to calculate the great-circle distance between two points on the Earth's surface, given their latitude and longitude. This formula is particularly useful for calculating distances between points on a sphere, such as the Earth, and is commonly used in navigation.

Haversine Formula:

$$a = \sin^2\left(\frac{\Delta\phi}{2}\right) + \cos(\phi_1) \cdot \cos(\phi_2) \cdot \sin^2\left(\frac{\Delta\lambda}{2}\right)$$

$$c = 2 \cdot \text{atan2}\left(\sqrt{a}, \sqrt{1-a}\right)$$

$$d = R \cdot c$$

Where:

- ϕ_1, ϕ_2 are the latitudes of the two points in radians.
- λ_1, λ_2 are the longitudes of the two points in radians.
- $\Delta\phi = \phi_2 - \phi_1$ is the difference in latitudes.
- $\Delta\lambda = \lambda_2 - \lambda_1$ is the difference in longitudes.
- R is the Earth's radius (mean radius = 6,371 km).
- d is the distance between the two points along the surface of the sphere.

Steps to Calculate the Distance:



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ChatGPT can make mistakes. Check important info.