**Superhero Sightings ERD Design:**

**Heroes**

hero\_id (Primary Key)

name

description

superpower

**Locations**

location\_id (Primary Key)

name

description

address

latitude

longitude

**Organizations**

organization\_id (Primary Key)

name

description

address\_contact\_info

**Sightings**

sighting\_id (Primary Key)

hero\_id (Foreign Key referencing Heroes)

location\_id (Foreign Key referencing Locations)

date

**Hero\_Organization (Bridge table for many-to-many relationship between Heroes and Organizations)**

hero\_id (Foreign Key referencing Heroes)

organization\_id (Foreign Key referencing Organizations)

**Relationships:**

1. A hero can be sighted at many locations but each sighting is for one hero. (One-to-Many between Heroes and Sightings)
2. A location can have many sightings but each sighting is at one location. (One-to-Many between Locations and Sightings)
   1. One Location, Many Sightings:

Imagine a location named "Gotham City". Over the course of a week, Batman might be sighted there multiple times. So, for "Gotham City" (a single location), there might be multiple sightings entries (one for each time Batman was sighted).

This means that the Locations table has a one-to-many relationship with the Sightings table. One location can have many associated sightings.

* 1. Each Sighting is at One Location:

Consider a single sighting record that says "Batman was sighted on Sept 1, 2023". This particular sighting can only be associated with one location. It can't say Batman was sighted in both "Gotham City" and "Metropolis" at the same time for that specific sighting entry.

This means that every entry in the Sightings table is tied to one and only one location.

1. A hero can be a part of many organizations and an organization can have many heroes. (Many-to-Many between Heroes and Organizations, resolved using Hero\_Organization table)