PostGIS
Spatial database extender for PostgreSQL

What is PostGIS
PostGIS is a spatial database extension for PostgreSQL object-relational database. PostGIS is released under the GPLv2+ license. It is written in C and relies on libraries GEOS and GDAL for many geometry and raster operations.

PostGIS implements the OGC Spatial Features for SQL (SFSQ) standard. It goes beyond the standard to support seamless raster/geometry queries, round earth model thru geography type, and 3D surface and volume support.

Some things it can do
- Geometry and geography types
- Database functions to work with these types
- Postgis_raster, postgis_topology, postgis_sfcgal, and postgis_tiger_geocoder, require this extension.
- Raster type and functions to work with raster
- Topology type, functions and topologies (nodes, edges, faces) SQL-MM: Topo-Geo
- Spatial processing functions for 3D surfaces and volume geometries
- Geocoding for USA
- Geocoding and reverse geocoding functions for USA using Census TIGER data.
- Standardizing USA addresses into their house number, street, city, state, zip and other address elements.

Database Components
PostGIS project includes several PostgreSQL extensions.

- postgis
  - geometry and geography types and database functions to work with these types
- postgis_raster, postgis_topology, postgis_sfcgal, and postgis_tiger_geocoder, require this extension.
- postgis_raster
type and functions to work with raster
- postgis_topology
topology type, functions and topologies (nodes, edges, faces) SQL-MM: Topo-Geo
- postgis_sfcgal
spatial processing functions for 3D surfaces and volume geometries
- postgis_tiger_geocoder
geocoding and reverse geocoding functions for USA using Census TIGER data.
- address_standardizer,
  address_standardizer_data_us
standardizing USA addresses into their house number, street, city, state, zip and other address elements.

Tools
PostGIS project includes tools for loading data

- shp2pgsql, pgsql2shp, shp2pgsql-gui
data loaders and export tools for ESRI Shapefiles
- raster2pgsql
load raster from various GDAL supported formats into postgis raster format.
- pgtopo_import / pgtopo_export
import and export postgis topologies.

Where to get it
In addition to source form, PostGIS is often distributed along with PostgreSQL via various package maintainers and database-as-a-service cloud hosters.

https://postgis.net/install  https://postgis.net/source