Shapefiles

- Shapefiles store geospatial data for Geographic Information Systems (GIS) applications
  - They contain geometry for maps: points and polygons for geographic features
  - A shapefile is actually a collection of files stored in the same directory
- Most mapping platforms (ArcGIS, QGIS, R, Tableau) use shapefiles, which you can find online. Some helpful repositories:
  - NYC Dept. of City Planning,
  - NYU Spatial Data Repository
  - GADM database of country administrative areas
- Some R packages have built in base maps, for example:
  - `tigris` includes geospatial data for mapping US Census Bureau data
  - `tmap` has built-in geospatial data for world country maps and more

You can't make a map without… a map!

- We always start with a shapefile to create a map (or with built-in geospatial data)
  - Today we'll use a shapefile with geometry for administrative boundaries in Indonesia: regencies/cities (2nd level administrative units)
- Next join in the data you want to incorporate into the map
  - We need to identify/create columns with common information for joining (e.g. a column for regency)