Visualizing Geographic Data: Takeaways

Syntax

- Importing Basemap:

  ```
  from mpl_toolkits.basemap import Basemap
  ```

- Using the Basemap constructor:

  ```
  m = Basemap('merc', -80, 80, -180, 180)
  ```

- Converting Longitude and Latitude to Cartesian:
  - Use basemap constructor for conversion.
  - Only accepts list values.

  ```
  x, y = m(airports["longitude"].tolist(), airports["latitude].tolist())
  ```

- Using the scatter attribute of Basemap:

  ```
  m.scatter(x, y)
  ```

- Adjusting the size of the scatter marker:

  ```
  m.scatter(x, y, s=5)
  ```

- Drawing coastlines on the Basemap object:

  ```
  m.drawcoastlines()
  ```

- Drawing Great Circles on the Basemap object:

  ```
  m.drawgreatcircles(startlon, startlat, endlon, endlat)
  ```

Concepts

- Latitude runs North to South and ranges from -90 to 90 degrees.
- Longitude runs East to West and ranges from -180 to 180 degrees.

- Map projections project points on a sphere onto a 2D plane.
- Basemap makes it easy to work with geographical data.
- You'll want to import matplotlib.pyplot because Basemap is an extension of matplotlib.
- Matplotlib classes can be used to customize the appearence of map.
- Great Circle is the shortest circle connecting 2 points on a sphere, and it shows up as a line on a 2D projection.

Resources

- Geographic Data with Basemap
- Basemap Toolkit Documentation
- Plotting Data on a Map