Weekly Lecture Note

- Warm-Up Activity
  - Visualization: 35 Years of American Death
  - The visualization is trying to show the distribution of mortality rates for leading causes of death in every U.S. county from 1980-2014 (displayed by deaths per 100K people)
  - Its method: choropleth map
  - Data used: geographical data, population data, mortality rate (caused by disease) data
  - Strengths
    - Easy to observe the areas where the rates are higher or lower
    - Easy to observe how the mortality rates changed through time
  - Weakness: challenging to find a certain county

- Representations
  - Raster
    - Each pixel is represented as a color
    - Discards data information outside of the boundary
    - Image size remains the same regardless of the number of shapes (e.g. lines)
    - Fonts are rasterized or rendered (they don't need to be embedded)
    - Compression: lossy (JPEG; loses data; keeps the file size smaller) / lossless (PNG)
    - Formats: JPEG, PNG, GIF, etc.
    - Editors: Photoshop, Paint, etc.
    - Representations involving shading (multiple colors) or information that is more complex (e.g. population density)
  - Vector
    - Each component is defined as a drawing component, including paths, patterns, shapes, and text
    - Rendering process required
    - Preserves all data information (regardless of boundaries)
    - The size of a circle representation is smaller than a line representation
    - Fonts can either be embedded or rendered
    - Compression: lossless text compression
    - Formats: SVG, PDF, EPS, etc.
    - Editors: Illustrator, Inkscape, etc.
    - Representations involving black/white or data with less information (e.g. state boundaries, height map, capitol cities)