IS590DV Week3 Note taking

Warm up activity:

1. Where do the data come from?
    a. Sensor data
    b. From healthcare organization, death certificate
2. What is the visualization trying to show?
    a. Want to show the trend of the death rate
    b. ex: decreasing death rate -> technology improve
3. What are its methods?
    a. Map visualization
4. What are the strengths / weaknesses?
    a. Strength:
       Can easily see the trend of the death rate of a specific disease in each region
       User without background can also easily understand the visualization
    b. Weakness: Hard to compare what kind of death is more serious or spread further in US

How to draw a visualization on a screen

1. How to store a line, (x1, y2) -> (x2, y2) widths (5bytes) or 32*32 Pixels (might store a lot of white pixels and wasting the memory)
2. Raster -> solve the problem of unused pixels (mentioned in No.1)
    a. Ex: GIF, JPG (better lossy compression format than others), PNG
3. Vector: Text compression -> Render -> Image display
    a. Ex: SVG, PDF, EPS
4. A point takes more memory than a pixel (P42: show how raster is more efficient than vector)

Text - Raster vs Vector (see in jupyter notebook file, change the output_directory)

Geographical Data:

1. State Boundaries: vector
2. Relief (height) Map: raster
3. Population Density: raster, give every pixel value a value is more efficient for density than picking the pixels that need to be used
4. Capitol Cities: vector, giving specific pixels a value is more efficient than assigning every pixels a value

Examples:

Vector: sign wave, location or boarders on the map

Raster: histogram, density, satellite images

Histograms:

1. Showing the buildings on the histograms (Slide 53)
2. The number of search for "All I want for Christmas" (Slide 54)

Demonstration: Python Matplotlib with IL_Building_Inventory.csv