Lecture 8 – Notes

IS 590DV

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Fun Activity:

Visualization 1- Understanding movies through data

- Seven visualizations: First- Describing age of top 100 movies according to best films lists from different sources from 1925 to 2000
- Second: films showing in 4200 theatres with different ratings and screenings
- Third: Recency bias in Oscar depicting various nominees over the years. The color combination ain't that great, making it difficult to predict.
- Forth: Length of Oscar accepting speeches by category. Same color pallet for writing, directing and the x-axis information makes graph difficult to read.
- Fifth: Good naming conventions, but lot of information in a single graph makes it messy.
- Sixth: Results of every Oscar nomination- where y-axis scale does not give information about exact value. Therefore, this graph gives approximate values.
- Seventh: Multiple shades of same color making it difficult to read overlapping information. Well categorized x and y axes.

Visualization 1- Different houses that diminished over time and new houses came up. Old data around 40 50 years back. Color choices is okay as the shades of blue are not clearly visible. Good labelling of the data.

Important points-

1. Evaluating visualization systems
2. Markdown
3. Maps – Projection, Coordinate systems, plotting with CartoPy
    1. Evaluating visualization Engines- Engines already existing - Microsoft Excel, Tableau.

While chosing Engine should consider following factors - cost, functionality and aesthetics.
Few of the questions that need to be answered while evaluating visualization systems:
How easier to get this software like by some software or available online?
Installed by one guy or web server like google spreadsheet?
Who has access to it, if stored locally than security issues?
Understanding how easy user interface to use and the features provided?
Declarative and imperative designs.
Functions to build from ground.
Understanding license requirements- What can be done with software, who can study and shared with, who can give visualization derivatives.

Advantage of imperative-to make crystal clear and make quick without remembering syntax
License:Software-
Educational license-what are the limitations?
Maybe education license gives more features than free one
Software documentations delivery works-How much people are able to take from the work you done and share it
Copyleft- Copyright laws
Share-alike: If you use share one, you have to share to others.
Open license-https://choosealicense.com for open source licenses
License: Data- What data owner has chosen for property like?
How you can distribute and modify data
Open data licensing-
Accessibility: Stored locally becomes difficult to share and if on public shared server
Interface: Declarative-goal oriented whereas imperative-step by step
Most declarative made from imperative.
Evaluation: Costs- Not only monetary cost but time, cognitive, transmission cost as well
Evaluation: Aesthetics – Different industries having focus on various types of tools.

Topic 2: Markdown
Markdown is type of internet style syntax- use ** instead of bold
Jackallas is used for building interactive slideshows
Idyll used for building data blocks
Eyes- convex, concave and different types of blindness
Idyll- download before next lecture
Maps-For GIS data
Biggest problem-maps represent either whole world or spaces
No perfect way to map data from flat surface and map to spherical data
Characteristics: we look to preserve map
. Trying to preserve shape of continent etc
. maintain the distance
Projection is a method to tur a spherical to flat, latitude lines get spaced out at higher and lower k=level
Mercator- doesn't do great job in representing
Lamber cylindrical- pixels at center are lower resolutions than at upper position
Molleweide- Better, all are ovaled and symmetric
Sinusoidal-less distortions at north and south pole. But pointy edge feel elegant and plant-wide
Gnomonic- navigation is interesting
What are the consequences of maps?
Gall Peter-feel stretched in middle and lose sense of shape with that
Fun tool- to see relative sizes and compare with other countries.
Ercator projection. European introduced Mercator where Europe looks gigantic than it seems.
Google maps- roundness- Mercator projection-
Discussion: open earth from bottom. Things become distorted at south corner
Butterfly-difficult to run during argument

Install in Jupyter Cartopy-
Worldwide telescope- to see how everything looks like.
Idyll engine install

Other map viz- Google maps and earth, worldwide telescope, CesiumJS, bqplot, vega and friends