

Tools Analysis

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INFO 220 - Digital Humanities

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3/10/16

## **Divja.js**

As the digitization of archival materials marches on there is an increased need to provide patrons with a user-friendly way to access, view, and browse digitized documents, manuscripts, and books. Divja.js (Document Image Viewer with AJAX) is an open-source tool that can be used within Digital Humanities (DH) to help institutions with digitized content easily create user-friendly viewing interfaces to their digitized documents. Divja.js is a JavaScript library to make creating a digital-object viewer easier than building one from scratch. Javascript is an object-oriented programming language mainly used by web browsers. A developer or programming library is a package of computer code that makes developing software quicker and easier. The divja.js library makes it easier for an institution to display their digitized images and documents in a user-friendly viewer on the web rather than having to develop the viewer tool themselves.

Once the tool is implemented and available for use online it is easy for an end-user to use. The documentation on the divja.js website is geared towards an end-user perspective giving helpful guidance and instruction. There is a live demo on the site letting users try the tool out before they commit to installation and implementation. The tool is intuitive to use especially for users of online interactive maps like MapQuest and Google Maps. The challenge with this tool is the installation and implementation. For a developer familiar with JavaScript and web development the tool looks to be fairly easy to implement. The website links to the tool's code repository on Github. The tool's Github page is well documented taking the developer step-by-step through implementation but isn't ready out-of-the-box for use after download. The tool requires development work to setup and deploy.

This tool has many possible uses in an DH context. The viewer could be used to display digitized books or manuscripts that are part of a DH project. If multiple images or documents were part of a DH project this viewer could provide easy access to all the digitized items. The viewer also supports displaying annotations and highlights that are part of the item's metadata. This could be useful for displaying analysis and research findings related to a specific text or image. The viewer also supports linking to specific pages of a document which makes hyper-linking to information about a digitized object easy and user-friendly.

### **Gephi**

Network analysis plays an important role in DH where data collected or created is interconnected. Gephi is an open-source computer application for exploring and visualizing networks and relationships. The tool runs on the three major computer platforms (Windows, Mac OS X, and Linux). The tool can import and display network data. Network data has two fundamental components: nodes and links. Nodes are the entities in a network that share a relationship. Links represent the relationship between nodes. This tool helps perform standard network analysis algorithms to identify bottlenecks or key entities in the network. The tool also includes a series of quantitative analyses to help identify other patterns and characteristics of the network.

While Gephi is extremely powerful and easy to install and run, this tool has a steep learning curve for importing, exploring, analyzing, and manipulating data. The documentation is helpful but the tool is not designed for beginners. Someone who is familiar to common network analysis algorithms and jargon would have an easier time using this tool than a novice.

Humanities research is deeply connected to social networks and finding relationships between

entities. This tool would be helpful in analyzing a network as well as helping to visualize the network for display research results. Examples of using this tool in DH could include analyzing the relationships between characters in specific literature, exploring the monetary transactions of people on early cuneiform tablets, and visualizing the connectedness of people on popular social media networks. Despite its steep learning curve Gephi is an essential tool for network analysis in a DH research project.

### **Leaflet.js**

Web mapping is an important part in the intersection of technology and the humanities. Research in the humanities often involves a geospatial component. Leaflet.js is an open-source JavaScript developer library for creating online interactive web maps. Javascript is an object-oriented programming language mainly used by web browsers. A developer or programming library is a package of computer code that makes developing software quicker and easier. The leaflet.js library makes it easy for developers to quickly and easily display maps with geographic data. Maps created with this library work with standard web mapping data formats and include interactive features that are common place for web maps today: drag panning, scroll wheel zoom, pinch-zoom on mobile devices, double-click to zoom, keyboard navigation, layer switching, and marker dragging. Maps created with leaflet.js are easily customizable for adding information popups, custom map markers, and custom map projections. Another benefit of this tool is its wide support across all major web browsers (desktop and mobile).

For web developers leaflet.js is relatively simple to implement with but could prove challenging for non-developers. The documentation, FAQs, and tutorials are well written so that a novice could quickly learn how to use this programming library for making their own custom

maps. Links to the Github repository are accessible from the website to help facilitate installing and implementing the library quickly and easily. Maps created with this library are simple and well designed for end-users to intuitively use as they browse, pan, zoom, and explore the map.

The possible applications of leaflet.js in DH are endless. Much of the research in the humanities involves some kind of location that could be mapped to a physical place on the earth. Historical events or places could be shown on the map. Photographs about a location could be displayed when clicking a location marker providing more context and information related to the project. Locations relevant to specific works of literature or their authors could be mapped to help put the work in its geographic context. Transcribed texts that have place names tagged could be mapped using the leaflet.js mapping library. Historic maps could also be overlaid places in a leaflet.js map to help show a historical event or location as compared to its modern day landscape. Leaflet.js is a powerful open-source JavaScript mapping library that should be considered where mapping is needed.

### **Links to Tools**

Diva.js: <http://ddmal.github.io/diva.js/>

Gephi: <https://gephi.org>

Leaflet.js: <http://leafletjs.com>