NNIP Camp Session #1

Thursday April 7, 2016

Leaflet Workshop

Led by Steve Peyton

Attendance: Gerety, Cruz, Tyger, Knott, Monk, Lucas, Holzer, Martinez, Simmons, Grossman, Linn, Buffkin, Pyne, Moe, Farooq, Acero, Spike, Kandris

[Start 2:30pm]

Peyton: Let’s go around and say what you do with web mapping.

Moe: Use ArcGIS online.

Buffkin: We use Esri and some Arcgis online.

Pyne: We use mostly Esri products; static maps. We have programmers who do interactive online mapping. We’ve gone through different platforms for that. We tried pushpin, then Weave, and now leaflet.

Farooq: No experience, just here to learn.

Linn: No experience. I’m happy to learn.

Simmons: Use plain ArcMap most of the time. Neighborhood indicators system is based on leaflet.

Acero: Interested in open source mapping. Have looked at Prov Plan and Pittsburgh for guidance.

Martinez: Former Weave user. Moved to insta Atlas. I also know Arcmap online.

Holzer: Esri products for interactive mapping. I am self-taught.

Grossman: Don’t do mapping but know people who do coding and mapping.

Lucas: We publish maps of voting locations and where to get immunizations that are popular but low tech.

Monk: Use Esri products and want to expand.

Tyger: Mostly use Arcmap and Weave but want to get into interactive mapping.

Cruz: I use Esri but I was a web developer in the past and used Google Maps.

Knott: I’ve used desktop Esri and starting using onlin Esri a few years ago. I only have a background in Esri. Someone else is learning leaflet.

Gerety: I haven’t done anything with leaflet but did web development for years.

Spike: We use open source desktop in the past have moved away from Esri but I’m rusty on leaflet now.

Peyton: I would like to go over some basics and get an understanding. I want to leave open to discussion how to develop your own leaflet app. I see that people have a wide skillset. A lot of people use Esri and I did too. I want to open the possibility of shifting from Esri into the wealth of opportunities. Leaflet is one example. Power in leaflet comes from the plugins. Users and people in the leaflet community contribute to codebase and contribute plugins. A lot of our work requires specific user needs. Not everything works with an Esri story map. What we really want is a tool designed for a user group. You’re going to get into coding when you get to leaflet. I don’t think we have time to do all the html and css code. Who knows what HTML is?

Cruz: HTML converts text into graphics. It’s not smart and if you say 2+2=5 it will display that.

Peyton: Anyone know what CSS is?

Gerety: CSS changes colors and tags and styles of the actual HTML.

Peyton: Think of HTML as structure and CSS and style and how it looks.

Petyon: How about javascript?

Gerety: Javascript is processed on a computer and will look like a programming that can do loops and else statements and it’s how the site becomes interactive.

Peyton: An event handler can link to an item on the page and create a code to run whenever an action is taken. It allows things to run. Leaflet, most simply, is a javascript library. People wrote code that renders the map. We pull that into javascript and then we can use leaflet to create our own maps. So the heavy lifting is already done. So we have our HTML, CSS and javascript. You also pull in images and various things like that.

HTML has a head and a body. In the head you want to link to your other files. For this map it’s very simple so there are some link in the head. Style sheet goes to leaflet syle sheet. That pulls in code from leaflet. We have one from jquery which is another library. Then we pull in sytle.css. Then we pull in some javascript files. Then we pull in data in json format. That’s the end of the head.

Then we go into body, the real content session. You can nest items in other items to make a complex structure. Does everyone understand how the files work together? OK let’s move onto leaflet.

In leaflet, everything is an object. Think of everything as an object with characteristics. Say you have a map and want to zoom. The map is an object with a method called zoom. Instead of having an esri map where you are constrained by methods, you can run loops that aren’t possible in esri alone. A lot of this will seem difficult to implement but should be helpful hopefully.

Leaflet is easy and straightforward use. You say you want to make a map and give it this vairable name. Var is saying that within this score I’m going to create a variable map and give the object the variable name map.

I personally learn by just googling everything.

Gerety: Trial and error works.

Cruz: You could do that or try to reverse engineer other sites. Since css is simple maybe try to find a simple book that’s not a college textbook and use that.

Peyton: css.tricks.com or org - go to that if you have specific element manipulations to do. We don’t go too far into the css. Everying in leaflet starts with L. Who knows what a basemap is. What is it?

Moe: The background map that all the other info is layered on top of.

Peyton: There are reference maps and thematic maps. Anyone know the difference?

Simmons: Reference maps show you where things are.

Martinez: Thematic map displays data.

Peyton: For base I used open street map. I love open street map. If you use Google base maps I think once you start hitting a certain number of visits you get charged. If you have money it’s great but there are usage restrictions.

Pyne: Are there other options beside open street map?

Peyton: Yes. There are even several version of open street map. I want to talk about data structures. Tell me about json data.

Simmons: It separates things into different files. Instead of one excel file, there are many files in a json.

Peyton: Stands for javascript object notation. You can have objects in objects. Leaflet can read that data. Json. I’d like to shift at this point toward discussing leaflet and mapping tools. I’m interested because I feel like we have all these partners and I didn’t know about NNIP until recently. I felt like I’d been doing it in a bubble. This is a technology I’ve found has been good for customizability and can be easily thrown together.

Gerety: Can you share some things about leaflet like what’s hard, what problems there are?

Peyton: It’s so lightweight and it’s not good at rendering a lot of features. Esri does a better job of feature load. If you use leaflet use it for a small scale project. At a high level you might need a better system to render. If you have a lot of census tracts don’t store as a json file.

Gerety: What’s the biggest dataset that you can use in leaflet?

Peyton: A client wanted block level data on noise pollution. We have data on that and it’s a lot of features rendered. For big airports that would take 20 seconds to render. There are limitations. Try to keep it to point data.

Pyne: We’ve been testing with block level data. We have it so that you only see the blocks rendered when you are zoomed into a certain level. Then you figure out the best zoom levels. I don’t know how but I know you can.

Cruz: What you do is have a window and you zoom in and out and have a refresh button that regenerates based on when you are. If you have it automatic then it’s going to crash.

Peyton: Leaflet is nice because it’s sleek. What kind of projects might people use this for?

Moe: A lot of things we do are on large datasets and it might not be a good use. But maybe using it as an intro page to a larger thing? Then you can go in and see arcgis or something else with more capabilities.

Peyton: What about spatial functionality?

Simmons: I am interested in using parcel data and figure out vacant property in close proximity to some resource.

Peyton: Why go with an interactive format for that?

SImmons: Make it a public facing tool.

Peyton: I personally have not done any calculations in leaflet. I know esri has a service for that but you have to call their server. There are some plugins but I can’t vouch for them.

Martinez: How well does it do for time series? WE do thematic maps over a 10 year period. Diabetes rates changing over time. We have 365 census tracts, so we’re looking at a lot.

Peyton: Whether it’s useful for time series depends what you’re looking for.

Martinez: We had speed options on weave.

Simmons: We have that on our site.

Moe: Codepin.io is a resource to get examples of html, css and other things. You can see in the moment what the code does.

Peyton: Code academy is a good resource. D3 is another resource (not data driven Detroit). Google, stackexchange. Any other advice or technologies?

Pyne: Leaflet isn’t meant to take over GIS. You still need to have house gis to manage files. Leaflet doesn’t replace that. It more replaces arcgis online.

Moe: Are there tools convert files. Do you use shapefiles with leaflet?

Peyton: I’ve use the built in converter and esri feature layers and other kinds of gis servers. OGRE2OGRE is a converter for spatial formats.

Pyne: We use post gis database.

Peyton: Other tools? Mapbox? Open layers?

Simmons: How is map box related to leaflet?

Pyne: Map box is one of your basemaps. WIth new leaflet you can have street layers and another data layer. OK I guess time is up. Thanks everyone.

[End 3:40]