SE 491 WEEKLY REPORT 7 Date: 10/18/16-10/24/16

Group number: 01

Visualization of Earth Modeling System (Project 1)

Prof. Johnny Wong (Advisor) & Prof. Chaoqun Lu (Client)

Team Members/Role:

Kellen Johnson – Team Communication Leader

Anish Kunduru – Team Leader

Julio Salinas – Team Concept Holder

Eli Devine – Team Webmaster

- **Weekly Summary**

This past week revolved largely around finishing the parse which will allow us to plot the points modeled by the client, onto the 3D space. Kellen was able to completely write the parser, and convert the ASCII files given to us by the client, into CSV files which can be loaded onto the graph. We then wanted to plot these points onto our first test demo (which can be seen at http://proj-491-01.cs.iastate.edu/First_Demo/arcGIS_Test.html). The plots can be successfully transferred and uploaded to the server, but the sheer amount of points is incapable to be rendered by the server (this problem can be seen at http://proj-491-01.cs.iastate.edu/Demo2/arcGIS_Test.html …. I wouldn't recommend running it, as it takes a couple minutes to load). Therefore, we will begin implementing a data-type change of points which will allow us to either plot all of the points or consolidate the points down to less objects.

- **Past week accomplishments**
  - Kellen Johnson: Implemented the Parser for reading the ASCII values. As of right now, the parser takes the values, and inputs them into a CSV file format, which can be uploaded to the web server and loaded onto the 3D space. Also uploaded the new demo to the server, rearranged a few things on the server, collaborated on the Project Plan, and uploaded the Website to the server. Gave small Demo to advisor to catch him up with where we stand.
  - Anish Kunduru: Did some testing based on Kellen's initial implementation of the parser. Worked on the project plan.
  - Eli Devine: Worked on the project plan. Finalized the first version of the Team Website. Will update soon to reflect current status and upload weekly reports.
  - Julio Salinas: Worked on the project plan, also looked into moving off 2D points into 3D points. Met with Dr. Wong to show him the demo.
- **Pending issues**

  Looks like the current method we are using with a CSV layer will be much too slow. We need to move off 2D points and use the appropriate 3D points.We're stuck on this, and cannot get it to work as the example shows in the ArcGIS API. We will look to get this resolved before the Demo, so we can model the 3D space instead of showing an image of the partially loaded one.
- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Kellen Johnson	Created the Parser. Uploaded website to server. Gave Demo to Advisor.	10	35
Anish Kunduru	Finalized the Project Plan. Explored moving the current 2d points demo into 3D data-types.	3	30
Eli Devine	Helped work on the Project Plan. Got first version of Team Website up and running	3	15

Julio Salinas	Helped work on the Project Plan. Helped Demo to Advisor.	3	16

- **Comments and extended discussion**
  - Anish Kunduru: Several issues stand with the client-side rendering that we wish to implement:
    - The CSV Layer type is limited to ~17,000 entries.
    - If you actually use the max number of entries, loading the page becomes quite slow. While it only takes a few seconds on a fast computer, it can take a few minutes on a laptop. Perhaps we can fix this by using 3D points (which I am very much stuck on and need help with).
    - If we switch from the CSV Layer type, we will need to use a map service.
    - My knee-jerk reaction is to try and see if we can merge the initial data points into one point using memoization while reading the ASCII file and hysteresis for point allocation in the CSV. ArcGIS supports adding colors to various value ranges, and that's the way I plan to handle this. Hopefully, this solution can keep the number of plotted points ~1,000, which would be fast enough. The issue then, is that we would be plotting nearly 10,000 square miles for each point in North America (assuming North America is 10 million square miles)...
  - Eli Devine: Our current team site can be viewed at http://may1701.sd.ece.iastate.edu/.

- **Plan for coming week**
  - Kellen Johnson: Meet with Client and discuss our options for 3D datatypes on Wednesday. See if we can get the 3D data-types going before Wednesday so we can have a full representation of the clients work on our 3D space. Ideally, we should be stuck on this problem no longer than a week (unless something horrible happens).
  - Anish Kunduru: Will come up with a modification on the parser to see if we can continue to use the CSV plan before shuttling it. If I can get this done by Wednesday, we can demo how it might look to Crystal and see if she finds the solution acceptable.
  - Eli Devine: Continue work on the team site. Begin work on moving from 2D points to 3D points.
  - Julio Salinas: Keep looking into the CSV issue, decide if we need to move on from it.
- **Summary of weekly advisor meeting**

As we had technical difficulties in speaking with Professor Wong during the meeting last, week Kellen and Julio met with him shortly this week to discuss where we stand. We showed him our limited demo which allows us to plot single points onto the 3D space. We discussed that we should be able to parse all of the points onto the 3D space before the next meeting with the client (this is now done, but we have a technical difficulty with rendering so many points (as described above). Our next meeting will be on Wednesday 10/26.