Visual Editor Final Report

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5.1 Challenges

5.1.1 Technical Challenges

The biggest technical challenge that I faced while on the Visual Editor team was my personal inexperience with the HTML5 Canvas or any of the graphical JavaScript libraries. After learning that the visual editor was going to be based in an HTML5 Canvas, I started to go through the process of figuring out how it worked and how to use it. I was told that the Canvas was very similar to doing graphics in Java, but since I had little to no experience with Java graphics, that advice did not help me as much. Two things mainly helped me overcome this challenge. The first was my prior experience using JavaScript and HTML. Even though the Canvas was unfamiliar, the language used to control it was very familiar and I was able to use my prior knowlege to accelerate the learning process. The second learning tool was simply trial-and-error. No one on the visual editor team had ever used the HTML5 Canvas or KineticJS before so what really helped us was several test documents trying to figure out how object were created and how we could interact with them.

5.1.2 Organizational Challenges

Unlike other groups working on the Edith project, our group had six members, opposed to five. Since none of us had any familiarity with the technologies we were working with, our organizational challenges revolved around slow progress. Another challenge that surrounded the visual editor is that it was very difficult to seperate work out until we had a solid foundation of what we were doing with Canvas and KineticJS and how we were going to execute such actions. Until we got to a point where we had a plan of action in which we knew how things were going to be done, we were unable to work seperately and the only time progress was made was when all of us could meet up and surround one computer while we tried things out. Fortunately, we soon figured out what we were trying to do and were clearly able to divide tasks among group members.

5.2 Applied Software Engineering

Many aspects of the visual editor were designed and implemented according to software engineering techniques, however, I thought that the biggest lesson from software engineering we used was on creating the user interface. We estimated that the visual editor component of Edith is where the typical end-user would spend the majority of their time. Because of this, we wanted to spend some time

on designing the user interface and become aware of exactly what actions users would be able to perform and make sure that certain elements of the editor are presented in a consistent manner.

5.3 Different Approach

One of the largest over-arching challenges that the visual editor team faced was that we were unsure of our requirements for the project and I felt like each of us had 'an idea' of what we were doing, but no one's ideas actually matched up with anyone else's. This posed a big problem at the beginning of this project and until we were sure of what we were doing, our progress stalled and at some points, came to a halt. If I were to do this project again, I would make sure that I was completely aware of the project/section requirements. If I were given more time to continue to work on this project, I would want to improve some of the graphical elements and transitions on the visual editor. The boxes and 'method containers' used currently are functional, but I feel like with more time, I could make those boxes more visually appealing. Another feature I would implement is ease-of-use for the end-user. That is, making sure it is clear how to operate the visual editor and making sure the user is not confused when they are trying to operate the application.

6 Reflection: Graham Baker

6.1 Challenges

Some of the main challenges I experienced during development were learning a new language, dealing with GitHub, and trying to find dividing lines between our group and others. I really enjoyed learning to use javascript. While it was pretty difficult at the beginning to work out how to access certain attributes, using global variables and other general points of confusion transitioning from traditional object oriented programming languages, I felt just pounding through trying to get my code to work was extremely beneficial and valuable. GitHub was also a source of confusion and frustration early on. I used the terminal for the first half of the semester and struggled to accomplish what I wanted to do. After I switched to the GitHub application, things got a lot easier. I am glad that I was introduced and got experience working with this important software development tool. Finally, the most difficult challenge this semester was settling on what each group was supposed to do. There were a few times where we were not really sure what we were supposed to be doing because our requirements overlapped with other groups. It was a good experience for us to have to grapple with the miscommunication and complexity that is so often the downfall of many projects. I learned that it is vital to get the requirements and direction of the project as early as possible to make life easier as the project goes on.

6.2 Applied Software Engineering

The technique that I most frequently used over the course of the semester was the idea of iterative development. Since our requirements and goals were constantly

shifting, we had to adapt every time we got a new direction. It was also nice to see that is consistent with how most software engineering firms operate.

6.3 Different Approach

If we started over, I think we would probably seek out another graphics package to use for our user interface. While kinetic.js offered quite a bit of useful tools, I think one that supported text input would have probably suited our needs better. We landed on kinetic.js after trying to get things to work with jquery ui as well as other graphics packages. As we approached the first implementation, we just had to go with kinetic.js. If we wanted to continue development we could find a better package that would suit our needs more appropriately. Now that we are at a decent position, I think there is a lot that could be done. It would be really great to add method box encapsulation like we wanted to do. Now that things are up and running, it is easy to see things that could be improved on and how to make the software easier to use for the user.

7 Reflection: Walker Bohannan

7.1 Challenges

Developing the Visual Editor platform for the Edith project involved a tremendous amount of work, and creating boxes with which to create and edit code with was not without its difficulties. Some specific challenges that I encountered in the beginning was on deciding which framework to use. Some options we considered were jQuery UI, RaphaelJS, finally settling with KineticJS, which offered the tools to manipulate what we needed to on a HTML5 canvas. Organizational issues often arose with cross-team integration of using GitHub, and resolving conflicts was not always as simple as we might have hoped. In the end, we figured out how to solve these problems, and came away from the problems with renewed expertise and troubleshooting skills regarding GitHub. That being said, I was always extra careful of any changes I made when pushing to Git, and being sure if I needed to modify another group's code I was explicit in what I did and commented my changes so they would not be deleted. Another challenge which required being overcome was a mid-project reassessment of what our role in the project as a whole was. Our requirements were not explicit until this point, and until then there was a lot of, "well the other group is taking care of that," going on not just in our group but in others as well. Other challenges was learning a new language - Javascript, which I knew none of prior to this course. The syntax quickly came in, and past coding experienced helped, and soon I was enjoying using a new language as I had used others, which only minor hiccups along the way.

7.2 Applied Software Engineering

A software engineering technique that helped us during the process was using rapid application development, where we constructed prototypes, and would test them (lining up with the deadlines for our integration tests). We iteratively developed our prototypes. We also fulfilled one of the main principles of rapid application development by emphasizing the "business need," which was being

able to create and write code using blocks rather than focusing on the technological excellence. We used ourselves to act as the users, testing continuously. In continuity with our integration deadlines, we focused on reducing implementations and making our deadlines with what we had working well. Another useful technique was to use pair programming, or even group programming, with one person "driving" while the other members looked on. This was especially useful in imparting knowledge of Javascript (which started at zero), as we started this project. We would switch roles often, with different combinations of different group members taking different roles, so nearly everyone had a chance at the controls.

7.3 Different Approach

If I were to start this project over again, I would probably create my own framework, rather than use KineticJS or something else similar to it. Creating our own framework would enable us to manipulate objects and variables in a way which was efficient and could be used in a way to how we could optimize it. Often I felt as though I was spending a majority of the time figuring out how to make the KineticJS work, figuring out correct syntax rather than being able to go through my code and edit and implement new features. That being said, having the KineticJS framework probably did save us an enormous amount of time, rather than discovering halfway through the project that our own implementation was not going to work. As far as continuing work using the existing code we have, I think method encapsulation would be the next step, as well automatic end bracket creation. However, with how we are implementing it, I think requiring the user to add end brackets is a very relatable aspect of coding, and will teach the user how to code better. That being said, implementing a "compile" function, letting the user know they forgot something syntactically would also be useful.