**Senior Project Final Self-Assessment**

**Team: MESSE**

**Project: Museum Experience Survey**

**Sponsor: Larry Kiser**

**Product**

1. Did the team prepare all the documentation artifacts requested by your faculty coach and sponsor? Were these documents carefully inspected prior to delivery? How would you assess the quality of the document artifacts?
   1. The team completed all requested artifacts and documentation. In fact we did a bit more in the first semester by completing requirements, architecture, design, and mockup documents.
   2. Documents were reviewed by the team. We probably could have made use of our faculty coach more by having him review the documents. We did for the ones listed above but the technical report was not done until the last couple weeks so we did not have a chance to have him look it over. At this point though, we as a team feel pretty confident in our abilities.
2. How well did the team elicit the requirements? What approaches were used to elicit the requirements? Were key requirements missed? What methodology was used to document and validate the project requirements?
   1. The team gave requirments top priority during the elicitation meetings with our client and sponsor. The initial proposal document we received was detailed in what the museum expected as an outcome and it was up to us to propose a solution that would meet that outcome. Over time the requirements went from an android/smartphone application to a web application to be hosted on tablet kiosks.
   2. Using our evolutionary process as a way to gather requirements, the team built the minimum viable product from the proposal document and then began to ask for additional features the museum would enjoy to expand upon our requirements.
   3. No specific validation methodology was used. Rather, we would send our “meeting notes” to our clients after each meeting. These notes would have our new requirements written down and they would verify that the requirements were ok.
3. Did the team explore the entire design space before arriving at a final design? Have there been many errors found in the design? Was it necessary to make major changes to any part of the design? What were the reasons for the change?
   1. The design for the application depended heavily on the technology choices. It was decided that a web application would be best, so that narrowed down our choices. The MEAN stack was discussed and may have provided a more elegant solution, however, it would have also introduced risk. Due to the risk, and prior experiences, we went with more comfortable technologies. MVC was going to be used regardless of the technology for the website, because it is extensible as well as widely used for web applications. No major design changes were required and no design errors were found. If you know MVC one place, you know it everywhere basically. You can add on new controllers and actions where need to expand functionality.
4. How has the development and implementation progressed? What percentage of the product do you estimate was completed? Is the team providing the documentation within the implementation artifacts?
   1. Development and implementation has gone smoothly throughout the project. We’ve definitely done 100% of what we originally set out to do. We’ve actually done more than originally asked of us. Features like themes (creating/editing), pictures for questions, advanced reporting features, and QR code support are all things we added on extra.
5. What was the team’s testing strategy? Did the team develop a test plan? If so, was it followed? Did the team performing unit testing? Did the team use any test frameworks, such as JUnit? What are the testing results? Were any major defects found during system test? If so, were they fixed? Did the team do regression testing?
   1. Testing is a sore spot for our group. We initially went ahead and starting using the testing framework Telerik to do automated web UI tests. It worked great except for the fact it only ran on one team mates laptop. Despite many attempts the other members couldn’t get it working. After wasting multiple hours troubleshooting it the team gave up. We tested some of the more important features with it but didn’t do it throughout. It’s also worth pointing out that early on our team identified that we wouldn’t have a lot of unit testing. This is because our application lacks a lot of logic. The app itself is somewhat simple so we didn’t want to waste a lot of time aiming for some percentage of lines covered by unit tests, because we didn’t feel it would be useful. Instead we focused on functionality, and like mentioned in the above section, we were able to go above and beyond.
6. Products need to be designed within guidelines and constraints appropriate for each project. It is also important to consider the impacts of the products that are designed. In the following categories discuss the constraints and impacts that have a bearing on your project. Note that all of these categories may not have bearing on your project but your project is probably affected by many of them.
   1. Economic issues - The biggest economic issue the team faced was with hardware: we needed to be able to run the software on inexpensive equipment purchased for us by our project sponsor, Lockheed Martin. We were given a laptop and two tablets, as was given to the Discovery Center of the Southern Tier.
   2. Environmental issues - There were no real environmental issues.
   3. Social issues - Given the kiosks are public-facing and connected to the internet, precautions had to be made to ensure visitors couldn’t escape the survey website and access other websites, especially adult websites.
   4. Political issues - There were no political issues.
   5. Ethical issues - See social issues.
   6. Health and safety - There were no health and safety issues.
   7. Manufacturability - There were no manufacturability issues.
   8. Sustainability - There were no real sustainability issues.
7. What industry and engineering standards was your project required to adhere to? Were these new standards that the team had to learn? Did your sponsor provide you support for understanding these standards? Did you have to educate your sponsor about these standards?
   1. Though our sponsor was Lockheed Martin, the real customers were the staff at the Discover Center. Lockheed Martin didn’t enforce any engineering standards and were there more for support in the project. There were things like security concerns that the team addressed and have enforced, such as limiting public access to the system or the internet when using the tablet kiosks.

**Process**

1. What was your process methodology? Was the process appropriate for the project? Did you follow the process or modify it as the project progressed? If you could repeat the project, what would you do differently?
   1. Our process methodology was the Evolutionary Delivery model. It was extremely appropriate for this project because it gave us the flexibility to build a strong core architecture and design before starting development and also giving us a way to incorporate customer feedback after each development cycle. We generally followed the process pretty closely, but the timeboxes we gave to each cycle were subject to change due to scheduling conflicts on the side of the sponsor and customer.
2. Was there a large requirement to learn the problem domain? What approach was used to gain domain expertise? Did your sponsor provide adequately support? What forms of support did you receive?
   1. The problem domain was relatively easy to pick up by talking to the museum staff. However, we also talked to Professor Decker to get more feedback and tips for creating museum surveys. The professor helped connect us to Professor Decker.
3. What mechanisms did the team using to track project progress? Did they give the team and sponsor adequate insight into project progress and issues? How well did the team track its project progress? How often did these artifacts get updated on the department project website?
   1. We used waffle to track progress. We first outlined major milestones that we wanted accomplished by certain dates. Then made smaller requirements and entered them into waffle. Anytime there was an issue brought up in meeting, instead of writing it down and putting into a track in the future, we simply put issues into the tracker directly. This made sure that we were up to date and we didn’t forget about any issues. Issues were constantly updated and the issue state changed rapidly. Waffle is a storyboard mainly for scrum, but it really helped us a lot and made organization easy and light weight.
4. Did the team conduct effective meetings?
   1. The team conducted very effective meetings. An agenda was generally followed that allowed us to stay on track. Also a meeting notes document was created for each meeting. This allowed us to keep track of the customer’s feedback quite well.
5. Did the team meet all project milestones? Which milestones, if any, were missed or were met ahead of schedule? What contributed to schedule changes? What could the team have done differently to ensure that milestones were met?
   1. Yes we met all major milestones for the most part. Issues or improvements would be made that related to prior milestones, but we would add them to the upcoming milestone. Since all tasks were commitment driven, all milestones were met on time and not too early or late. I think the team did an excellent job, but we probably should have started testing earlier. The last milestone should have been shorter so that we had more time to test and deploy without having to worry about new functionality.
6. Was the team required to adopt new technologies? What were these technologies? What approach did the team use for selecting the appropriate technology for the project? Did the sponsor provide any support for learning these technologies? How well did the team ramp up on the new technologies and begin to apply them effectively?
   1. Some team members did not know a great deal of C# and the entire MVC 5 framework, so those technologies had to be picked up, along with creating more interactive front end pages using Bootstrap and Javascript. We discussed early on how we would develop the application, and it came down to either C# and ASP.net or Java servlets, and it was ultimately decided on C# due to team members’ familiarity with it and its features getting us of the ground quickly. There wasn’t really any support from the sponsor needed for these new technologies besides deciding what hardware would be purchased for us. The team ramped up on the new technologies quickly and efficiently.
7. How well did the team maintain quality control over the project artifacts? Have all artifacts been reviewed for adherence to quality standards? What was the review process used by the team?
   1. Quality control was maintained to a very high standard when it came to project artifacts. Deliverables we wrote individually were peer reviewed by the team, sent off to the faculty coach, and then sent to the sponsor and customers.
8. Did the team have any issues with configuration management? How were these problems solved? What percentage of project artifacts is under configuration control?
   1. There were no issues with our configuration management. We kept all of our code in GitHub and our deliverables were made and maintained in a shared Google Drive.
9. What was the set of metrics that the team tracked? Did the team gather these metrics on a consistent basis? What did the team learn from the review of these metrics?
   1. The metrics we tracked, as discussed in our technical report, were mainly tracked the throughput of our tasks. We used Waffle.io to track this as it gave us how many tasks we completed each week. This kind of worked like calculating velocity in Scrum, and allowed us to better plan upcoming cycles. The team, admittedly, didn’t do a lot of metric tracking, but we never felt like this hindered us and instead let us focus more on what we felt was more important, like adding new functionality quicker.

**Communication and Interaction**

1. How well did the team communicate project progress to the sponsor? What regular communication did the team have with the sponsor? Did the team been maintain this communication to the satisfaction of the sponsor? Were any adjustments needed in the communication over time? Were these changes initiated by the team or the sponsor?
   1. Very well. Only positive feedback from sponsor. Seriously. Not one negative piece of feedback.
   2. Every Tuesday we had a phone meeting.
   3. Yes.
   4. Very little after the first three weeks. In the beginning we needed to synchronize our schedules.
   5. Changes were initiated by the party who had commitments that caused them to be unavailable at 5pm on Tuesdays.
2. Did the team need to provide technical input to the sponsor? How well did the team educate the customer in these areas? What mechanism did the team use?
   1. Our sponsor did not require technical input, but our customers certainly required technical education.
   2. Education on our end towards the customer could have been better. We used “Webex” web meetings and screen sharing to show the customers what we could do, but we often moved on before we were on the same page. This is something we could improve upon in future projects.
3. Was this an effective team? What has been contributing to and detracting from the team’s effectiveness? What are the team’s weak points? What are the team’s strong points? What changes could the team have made to make it more effective?
   1. The team overall was very effective. Some team members definitely excelled in certain areas more than others. 2 of the 4 members had no experience in c# and ASP .NET prior to this project, so it was a bit of a learning curve for some. The team didn’t have many defined roles either. For example we didn’t define a project manager in the beginning or anything. Overall this went smoothly as we all filed into the needed roles as things came up.
4. What mechanism did the team use to communicate with the faculty coach? Was communication with the coach effective? Were there any trouble spots with the faculty coach communications? What could the team or faculty coach have changed to make their communication more effective?
   1. Faculty coach communication was almost always done in person, and it was always effective.
5. Did the team need to interact with department staff personnel, i.e., the office staff or system administration? Was this been handled in a professional manner? Were there any problems with these interactions?
   1. We had to get storage for our equipment as well as meet with Doctor Decker about museum survey advice. This was professional. No problems.
6. Does the team have a complete website with all project artifacts stored and up-to-date on the software engineering department webserver? How often were entries on the webserver updated?
   1. The team’s website contains all of the up-to-date project deliverables. They’re connected to Google Docs so that whenever something is updated on Docs, it gets updated on the team website, which made our lives easier.
7. How well has the team made presentations to the sponsor and faculty coach? Was the final project presentation done in a professional manner? Was the poster presentation done in a professional manner? What could have been done to improve the team’s presentations?
   1. Presentations have always gone well for us. The poster day and final presentations were extremely professional and generally went off without a hitch. For poster day, we could’ve done more testing prior to showing off the application, as a few bugs were spotted while demoing.
8. Does the technical report adequately document the project and its results? Was the paper of high technical and editorial (language, style, grammar, etc.) quality? Did all teammates contribute to the paper? Did the sponsor contribute to the paper? Did the sponsor review the paper?
   1. The technical report adequately documented the project and its results. It is of very high technical and editorial quality. All of the teammates contributed to the paper, but the sponsor was not involved.
9. How well did the team work with other senior project teams, coordinating access to lab space and equipment, sharing experiences and ideas, etc.?
   1. The team worked well with other senior project teams. Our only real communication with them as far as coordination went was kicking them out of the one team room we needed to make calls out.

**Achieving Customer Satisfaction**

1. In the team’s opinion did the work satisfy the project sponsor? Were there any weak spots in this regard?
   1. The sponsor was most certainly satisfied.

**Achieving Team Satisfaction**

1. Did the project satisfy the team’s expectations for learning? Were there any weak spots in this regard? What could have been done differently to improve the team’s learning experience?
   1. The team learned a great amount when it comes to the ASP.NET MVC framework. However, the team itself was forced to expand requirements instead of constrain them. This lead to usually expanding requirements in areas that were already within our comfort zones.
   2. To improve upon the learning experience we could more clearly convey to the customer that it is our job to constrain requirements to what is possible and allow the customer’s imagination to run wild.