MILESTONE 7

Team Name: College Crusaders
Members: Joey Pucciarelli, Jim Jenkins, Taylor Jesse, Toshal Ghimire, Dale Peffer, Nolawee Mengist
Github Repository Link: https://github.com/TaylorJesse/CSCI3308CollegeCrusaders

Project Reflection: Write up a final project reflection on the successful/unsuccessful use of each of the software methods and tools used in the project. It should include specific examples from the project.

- **Agile Methodology:**
    - Agile was our software methodology, and it was used successful in providing our group with weekly plans and updates. From the start, we split up into two different groups: a backend and a frontend group. Without using agile, the two groups would have rarely met face to face, but agile allowed both groups to stay updated on the progress of each group. This gave each groups an idea about what they need to do in a certain time span. For example, the frontend group had the design of the product ready and they wanting to link the database to the website in order to work out any kinks that would come from the link. However, the backend group was not ready for this. In one of our standup meetings, the frontend explained that they needed the backend to finish their part so the project could move forward. The backend group then worked diligently to catch up so each group could be productive for the next week.
    - Agile also allowed us to be flexible with our product. At the start, we all had many ideas of extra features we could implement into our website. If we decided we had to implement all of them at the start, we would have never finished our product. Agile allowed us to implement features as we saw possible. We were able to understand our progress from the weekly meetings, thus giving us the proper knowledge on our time constraints. For example, we especially wanted to add a debt calculator for our users at the start. Through every sprint cycle we discussed if we had time to design and implement this feature until we finally found a week where it fit within our schedule. The weekly meetings and flexibility agile offered us allowed us to include this feature at a time we saw fit.
- **Collaboration Tool: Slack**
    - Slack was an excellent and successful communication tool for our group. We were able to stay updated on milestone due dates, meetings, and personal schedules because of it. We were able to keep everyone updated on the milestone due dates because of it. We could also conveniently ask members of the group their progress on the milestone. For example, the market analysis milestone's due date was approaching fast, so we used Slack to have group members volunteer for a portion of that milestone. This allowed us to complete the milestone more efficiently because we were able to quickly discuss who the best fit for each section of the milestone was. Scheduling without Slack would have been extremely difficult. Slack allowed us each to put in our schedules, so we could find a good time to meet for any reason. The scheduling for all of our weekly meetings were also done through Slack.
- **Collaboration Tool: Trello**
    - Trello was a helpful checklist for our group. We were able to create tasks for some or all of us to complete and label those tasks. These two features of Trello greatly helped us through our project. Assigning tasks was helpful because we split our group into two groups--a frontend and a backend. Every task was assigned to a certain group allowing us to focus on completing our work. We would be able to check the Trello board for things we

could work on without waiting on every member of the group. For example, I did not have to worry about which group was going to work on the debt calculator; I could check the Trello board to find out for myself. This saved the group time and allowed us to freely continue our momentum. We were able to label each task based on its requirements to our product--either functionally required or not. This kept us focused on our overall goal while adding and implementing new ideas as we thought of them. For example, at the start we labeled the debt calculator as a non functional requirement. This task stayed on the board, while other functionally required tasks (like creating a script to build the website) were worked on and checked off. We could clearly distinguish which tasks had priority over the other and complete those tasks. Trello helped us stay organized and focused on our goals.

- **Collaboration Tool: Google Drive**
    - Google Drive is where we hosted most of our project documentation. Unlike Trello, where we focused on individual tasks and requirements, Google Drive was good for the bigger picture, such as project milestones. It allowed us to collaborate in real time and divide documentation labor up fairly and efficiently. The team found that their Docs application worked well enough for the groups needs, and more robust features (for example, features found in Microsoft Word) were not necessary for what we needed to accomplish. The other primary purpose for Google Drive was to host files that the team would need to repeatedly use, such as the team logo or videos of our stand up meetings. Google has made it extremely simple to share such files among team members, but also non-team members with public links. It is especially easy to use all of these features because each team member has a colorado.edu google email address. This meant that Google Drive features were completely integrated already. Finally, we used Google Drive to prepare our slideshows for in-class presentations, as well as the final presentation. Again, using the built in Google Slides app, we were able to create a slideshow that served our needs, all while seeing what each team member was working on in real time.
- **Coding and Collaboration Tool: Git/Github**
    - Our version control tool of choice was Git, and we decided to use GitHub to host our repository. Rather than choosing a competitor to GitHub (like BitBucket), we decided that since we were only going to use one free public repo, there was no need to price shop. Git allowed us to effectively manage the incremental versions of our web application and gave us the ability to backtrack in case of coding errors or data loss (although we never needed to use this feature). We could see what each team member had added since the last version by reviewing commit messages, and also make sure that we didn't overwrite each other's code with diff checking.
- **Front End Framework: Bootstrap**
    - To speed up the creation of the website, on the front end side of things we decided to use Twitter's front end framework named Bootstrap. What Bootstrap does is not only give you some nice default styles but it also makes your site responsive. This is useful because nowadays there are so many devices with internet access and different screen sizes. Thus with Bootstrap's "mobile-first" methodology, Bootstrap lets you not have to rewrite your code for different devices.
- **Coding Tool: MySQL and phpMyAdmin**
    - Our tools for creating and populating our database were MySQL and phpMyAdmin. Overall the use of these tools was very successful. We chose MySQL because most of our group had minimal database experience, so we were able to use the material we learned in class to write the proper functions to manipulate the data. PhpMyAdmin was very user-friendly, being a GUI application. It was much easier to populate and visualize our data via

phpMyAdmin rather than just through the command line. Since our app stores over 320+ college majors, it was great to actually see that data stored in phpMyAdmin. At the same time, if we were to dynamically change college major information or add majors, it would be made much simpler through this tool.

- **Coding Tool: Digitalocean and Biznf**
    - We originally created a Digitalocean droplet for server hosting purposes but towards the end of the project we decided not to use it. Digitalocean was useful at first and we were able to successfully launch our website via our droplet. After our website was running for awhile, the server actually crashed and that's when we realized that Digitalocean is not very user-friendly when it comes to troubleshooting and debugging. In the end we terminated our droplet and moved our website over to Biznf. Biznf gave us a much more user friendly environment to host our website. Biznf is an online application that gives you a free domain, free database usage (with phpMyAdmin), and an organized place to store website source code. Not only was it easy to use, but our group could all access the account online and change files accordingly.

Project Report: Write up on the status of the project based on its goals and objectives. Include a list of accomplishments, outstanding issues, and a plan to reach the goals in the future.

- **Accomplishments**
    - We accomplished our main projects goal--our website works! Our website is able to provide detailed information about a college major of the user's choosing. We also were able to implement our most desired feature--the debt calculator. These are two big goals we set for ourselves at the start, and as a team, we were able to accomplish them. We were able to populate our databases with facts about over 300 college majors, which exceeded our expectations. The current information we display per major is the average early career salary, mid-career salary, and its comprehensive rank across the US. Currently there are no known bugs in the actual application itself and it can be successfully viewed at ccrusaders.co.nf. Overall, our group is highly satisfied with the outcome of our project.
- **Outstanding Issues**
    - In the beginning of the semester, our biggest issue was finding a time to meet. Although catme gave us certain times to meet, those times were not ideal for us, and all of us could not find a good time for us to all meet. We solved this issue by forming two separate groups of, front end and back end. This issue died out as the semester went on because we adjusted to each other's schedules**.** Lack of programing experience was also a road block for our group members. It forced us to take time and learn php and mysql. We did not know how to set up a database so we had to learn that as well. Lack of experience also led to a lack of team participation from some members.
    - From a coding perspective, we currently have no bugs regarding the functionality of the website and database. As a non-functional issue, we believe that at the moment we do not have the most accurate student debt calculator. This is because currently we have just an average interest rate (4%) and average percent income (10%) going towards student debt hardcoded in. Optimally in the future we could fix this issue by creating adjustable bars for the user to pick their own interest rate for their loans and amount of salary to pay it off with. Then, our student debt calculator would be more accurate and geared towards the individual.

- **Plan to reach the goals in the future**
    - We think the best way to plan for our future goals is to learn from our past mistakes. If we had adjusted to each other's busy schedule earlier, we would have gotten more time to work on this project as the semester went on, and could of possibly added many of the features that we had brainstormed in the beginning, that were cut out. Another plan of ours would be to shorten our sprint cycle. Currently we have a 2 week sprint cycle. We believe that shortening this would increase our efficiency and will also keep every member in our group always up to date on the project. This would also keep us all more engaged and committed to our project.
    - As far as the website goes, first we plan on making our debt calculator more accurate and useful on a more individual basis as stated in the issues section. We also think it would be interesting to add functionalities that direct users to different types of student loans, and point them in the direction that will help save money the most. Much more information can also be added to the homepage such as unemployment rate per major or hire rate. Our goal is to help students become as aware of their choices as possible and we will keep striving to provide eye-opening and accurate information.