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### **Analysis: Bootstrap vs Vanilla**

Our thoughts on using Bootstrap is that it's fast and convenient. In fact, it's incredibly convenient! Being able to quickly use a set of pre-created CSS classes for our needs allowed us to add style to our application without having to spend time on creating our own CSS. Since we didn't have to spend time on creating our own CSS classes actually completing the Bootstrap portion of the assignment was swift and simple. However, while this was easier on us, it was also slightly constraining. We could always add our own CSS, of course, but occasionally we did have to stop and think about how we wanted to make our app look since Bootstrap had its own set of classes that weren't always what we were looking for. So, while it was easy to use we thought that potential end-users or customers might not like Bootstrap and insist we use our own CSS which would end up draining more time and energy from us. Furthermore, there were a lot of classes in Bootstrap's CSS document that we never used and were thus wasting space. Vanilla CSS gave us a lot of freedom but in all honesty trying to make everything look exactly the way we wanted was very time-consuming and at times downright exasperating. The freedom to modify things was useful since we could tailor each part of the app to fit our or our potential end-users'/customers' tastes but there was also a large time investment involved. Since we're essentially newbies to CSS much of our time was spent figuring out how to design our CSS classes and what the resulting application page would look like afterwards. More often than not it wasn't what we expected and we had to go back and fix errors or simply change the look to something that suited the page better. This was further complicated by the fact that we need to design for both mobile users and desktop users and making something that would look acceptable on both platforms was sometimes frustrating. However, being able to create our

own CSS doc meant that almost everything in the document would be used (usually, at least) so we wouldn't have unnecessary classes taking up space. In addition, our Vanilla version seemed to have a slightly faster loading time (on first page load) on the Advance 4.0M BLU phone we were using to test out performance which became clearer as we went into areas with shoddier connectivity (we weren't able to throttle the connection since we had no USB cable to connect the phone to a computer, unfortunately). As for directly comparing the two? Well... from a coding perspective Bootstrap, as mentioned, does save time. In total the amount of lines the group coded was around 800 counting changes made to the html docs as well. Of course, there were some hiccups - a lot of our CSS is repetitive and redundant which we can chalk up to being CSS newbies and simply being on a time constraint due to our other classes. Compared to Bootstrap which is simply a lot of copying and pasting the difference is tremendous. We spent over 25 combined hours on the Vanilla CSS and a little less than 5 on the Bootstrap CSS version. From an employee perspective it's pretty much what Professor Powell said in class - we like it because it gets our job done quickly and easily. The style sheet that came along with it did, again, cause a few loading issues on the phone we were using to test it. However, there was one interesting problem we encountered with both Vanilla and Bootstrap CSS versions - images that were above 1 mb failed to load on the phone and caused the page to completely fail. As in, it would load everything the page BUT the image, and then it would redirect us to an "Oops, there was a problem with the webpage!" error page. This was a pretty big shocker since we were so sure that we wouldn't need to test on a mobile device, as the issue wasn't present at all on our laptops and iPhones. On higher-end devices we'd have much more freedom in what we could use and on lower-end freedom we'd need to be careful on what to render - nothing too big, nothing too fancy. In the end we believe that both Vanilla and Bootstrap CSS have obvious trade-offs and that in order to maximize their usage we should pick and choose what would serve a situation best rather than use one or the other. Vanilla CSS would allow for quicker loading and more custom designs whereas Bootstrap CSS would allow for quicker development.