

# Project Retrospective Report

Team 05

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## **Project Objectives and Goals**

For this Capstone project, we decided to create an IOS application called Carma. Carma is a mobile application that allows users to rent cars without having to go to the rental company. Everything is done online and all you have to do is pick up the car at the time and location that you have chosen. If you are someone who does not like socializing and talking to staff, this is the perfect application for you.

The reason as to why we chose to develop this application using IOS instead of Android is because we believe that the majority of people in the world are currently using Apple products. Creating the application from nothing, we have learned how to code using Swift and also the importance of GitHub when working with coding as a group.

## **Features of the Project**

In the previous semester, during the planning stage of our project, we decided upon what features of our application that should be considered "high priority". Meaning that when we start coding, the features that we chose as "high priority" should be able to function smoothly without any complications. There are 10 features that we finalized as high priority and it is log in (via Google), sign up, use a map to locate the vehicle, choose the type of vehicle, reserve a vehicle,

modify vehicle option and information, payment request (via PayPal), edit profile, verify license and last but not least manage the fleet. Some of the other features that were discussed are: modify a reservation, pick up and drop off time, and also the summary of the reservation. As a group, we felt that it was necessary to have a modified reservation feature (after they have chosen the car and their pick up and drop off time) so that users would feel more comfortable and it will allow them to change any necessary information that they want to change if anything came up last minute.

We decided that the design of the application should be clean and simple so that users would not be too confused when using the application. The color of our logo is green and orange as we think green would promote our brand as being eco friendly. Something simple for the design of the logo so that it would be easily recognized, memorable, and versatile.

### **Breakdown of Tasks & Team Collaboration & How our Team Functioned**

There are many features that we decided as a group that are considered high priority, we mainly focus the majority of our time on that. We would divide up the task and work on it, but, if we are stuck on a certain code, we would meet up and discuss it further to see what was wrong with the code or if there is anything that we missed. Since our AI meeting was every Wednesday, we decided to have a team meeting twice a week on Monday and Wednesday afternoon to discuss what we were currently doing and which part of the project we were currently working on or stuck on. Every 2 weeks, we would set up a meeting with our instructor to show the progress of our work and what we have accomplished so far.

When we first started we knew nothing about each other and we still do not know a lot about each other. As a team, we worked together about 60% of the time. Things were great when

we were able to get together and do the work together but when we had to do things alone it usually did not end well. Not much work was done when we were not together. We decided it was important to have scheduled meetings every week but even though they were every week, it was still a struggle to get everyone together most of the time. There were times when only two people showed up. The members who did not show up would not inform the group until the meeting already started and sometimes it would take a day for the member to say why they could not make it. This was due to bad communication. Communication was great sometimes and really bad at other times, it was very inconsistent.

Other times, we worked very well together. Overall we got most of what we needed to do so the team did not work horribly together but there was always room for improvement. We were at our prime before the campus was closed. The communication has been much worse since we could not communicate in person.

## **Struggles**

There were a lot of things that our team struggled with during the coding sessions. We had trouble with the API's because none of us had the experience of working with APIs. Not only did we not have experience but we did not fully understand the language of swift or exactly how Xcode worked. Before this project, none of us had worked with Xcode or swift which we were way in over our heads picking that in the first place. Even after the individual assignments from the first semester that were supposed to help us learn the language we did not succeed with most of those assignments. Basically, in the first semester, we did not use the time right to learn the little things about swift. Instead, we focused on the assignments which in the end we should have looked at the small pieces instead of the big picture. Those assignments were meant to help

us learn the basics. We had to overcome the struggles of not knowing the language in the first few weeks of the second semester. As a team, we had to be comfortable with not knowing how to do everything right off the bat. Instead, we knew it was going to be hard to learn everything.

Frustration was also a big struggle we had to overcome as well. Frustration was the biggest thing holding us back the whole time because we had so much to learn and so much was riding on us figuring it out. When something did not work the first or second try it was hard to keep trying. If we had to do this project individually we definitely would have given up. It was frustrating to know that we could have picked a website which we are more comfortable with but instead, we decided to pick iOS. We thought it would be a good challenge for us to not pick iOS but knowing how it ended up we probably would have been more successful with doing a website.

We also had to search on how to pass data from one screen to another and also from our team burrow account. We had to do a lot of research and watch tutorials in order to understand how the code works. We spent about 2 weeks on Google sign in and another 2 weeks on PayPal. Other than coding itself, at the beginning of the semester, we also struggled with communicating with our team members. There are times that we would overlap and do the same things twice or just the general miscommunication. There are also times where we did not get any reply from our team members, but from there we learned to always be on top of things.

As a team, we struggled with git and merging our files together. We followed directions that were given to us and did research on how to properly merge our files however we would almost always get an error. We knew early on that we had to overcome this struggle. It was very important that our files and branches merge with the master in order for everyone to get credit

for what they did. We also knew the importance of working on branches instead of the master. One time a branch was merged and it messed up other files so we had to revert.

### **What we Accomplished**

We accomplished most of the features that were on our high priority list. Although we struggled to accomplish most of our features we did accomplish most of the things that we wanted to. We were able to accomplish all our APIs which include Google Sign in, Google maps, and PayPal. We were able to check if the Google email was in our database, if not it would send the user to sign up for our app. This was important because it would not just allow anyone to login because we needed information that Google did not offer. Also, we accomplished pulling data from our database and displaying it in our app. Along the same line, we accomplished passing data from the view controller to the next one. Meaning, if the user picked a certain vehicle, the vehicle name was able to change based on the one picked. Also, we could enter data into the app and it would be sent to the database. This came in handy when we needed to sign up a user or have the user enter their driver's license information. Our app offers the option for users to change their phone numbers and email. This requires for the PHP to use an update statement. We did successfully make this feature work, the user has to enter their old information and the new one. The inspiration for this came from apps or websites that make you enter your old password in order to add some security.

When we needed help we would use the internet and YouTube as our main sources of help. With the APIs, we used the respective documentation from Google and PayPal. Without the internet (mostly stack overflow), YouTube, and documentation we would not have been able to get what we did do properly. Those were the only resources that were available to us since no

one in the group had taken classes or had prior knowledge of swift or Xcode. Another reason we were somewhat successful is that we tried to get the majority of it done before spring break and deal with the little things after the break.

After spring break, the little things that needed to be done was adding the location tag (the red location dot) on the map for the users to click and pick the vehicles and also the managed fleet that is considered high priority in the features list. We did manage to get the location tag done, however, for the managed fleet, that was one of the things we did not manage to complete.

### **What we did not accomplish**

On our high priority list, we were not able to finish the managed fleet. The reason it did not get done was that the person responsible for it did not respond that they needed help and did not complete it by the time the code was due. That was the only high priority thing but there were more things that needed to be done that just were not accomplished. The first thing was validating text fields and displaying some errors. For example, if the user does not enter a Google email or enter the required things for a password there should be an error message but we do not have that. The second thing that did not get done that was low level was getting the user to go back to the homepage or get a message after PayPal went through. We tried several things to at least get a message to pop up after the payment went through but it would always show up before the user gave them permission to open PayPal. This meant the message said "thank you for your payment" before the user paid. That did not make sense or we had to give up on that message. This is not ideal because then the user is just left on that payment page instead of it taking them back to the account page. It messes up the workflow.

## **Things we learned**

There are many things that we learned throughout the year working for the capstone project. Besides learning how to code, we also learned the importance of teamwork and not being on time. In the second half of the year, we were tasked to start the coding project. We were set free on our own and the only requirement was to meet with our AI every week and with our instructor every 2 weeks, to discuss what we have accomplished and what we are planning to do next. Here, we learned how to work proficiently and how communication was essential in a group project. If it is a team assignment then everyone needs to hold their own weight in the team. We also learned the importance of being professional. It is not acceptable to not communicate with your teammates because it can cause confusion and problems within the team. It is important for everyone in the team to be civil with each other and let others know if they need help or if they cannot make it to a meeting. We learned that these behaviors would not work in the real world if you want to be a good team member.

Participation in a group is also important, not just doing the work that you're supposed to do but also giving good feedback to other group members would extremely help. By giving our team members feedback, it could help motivate others who are currently not working their best, to improve their work. Also, giving feedback can increase confidence in between team members, making them work even harder and more efficiently. Especially during coding, an extra set of eyes would never hurt. There are times when we would completely miss a comma or even a semicolon, the smallest things could make a huge impact on how the code works.

Other than that, as a team we also learned how to keep up with the tasks that we were asked to do or volunteered to do. Making sure that we had things done before the deadline is extremely important or if any of us are having trouble with the coding of the assignment, asking for help from the rest of the group members is the right thing to do. Even though all of us in the group are new to Xcode and still do not know the flow of the code, we work better as a team rather than working on it individually.

Another thing we learned was the importance of making sure the database is right before starting to code. Of course, changes can be made to the database while coding but it causes more problems when it could have just been done by carefully looking at the database. Also, if our database was more complex it could have been much harder. We did have to change a few things in our database because the information was in the wrong tables or never added to the database. It would have been easier if we had an ERD then did a workflow then revised the ERD. If we would have thought about what information each page needed to work it would have been better for the database set up.

Another thing we learned from this project is to be ambitious but also be realistic. Picking the iOS for our platform was very ambitious. Picking to make a whole app without prior knowledge in one semester was eager for us. We did learn a lot over the semester but we always think we could have done better with a platform we had prior knowledge in. However, it was a great learning experience and a new skill that we can put on our resumes. We learned more than just the language of swift but also that we are capable of learning new things and applying them. We learned that it is important to be proud of how far we have come even if we did not get everything done that we wanted to. We should think about how far we have come from not



knowing everything to having a good layout for an app. If we had more time we definitely would be able to complete everything. It is important to not give up when it gets hard because the payoff of getting code to work is like nothing else.

### **Things we would have done differently**

The first thing we would have done differently is made it clear at the beginning of each sprint who was responsible for each task. We did not do this most of the time because we would just work on things together but once things were not getting done we tried to implement this. It was not enforced that well so we continued to not hold people accountable for not completing the task they were assigned. Or people would just not complete the task and not tell the team until it was due. There should have been more of a penalty for not getting it done, or even for not asking for help. It is understandable if someone could not figure it out because we were all new to it but to not say anything is something that should have been done differently. Everyone should be given a task and be responsible for it. That does not mean they cannot receive help from other team members but they are the ones who are responsible for that section.

The second thing we would have done differently is not just do a task first because it is easy. We would do the easy tasks first instead of doing them in the steps that needed to be done first. Since we were all beginners we should have worked in order to make sure it flowed and everything was needed for each page. At the end of the project, there were aspects missing from almost every task that should have been caught before moving to the next one. We would pick tasks just because they were easier than other ones but then we did not have enough time to work on the harder tasks. However, if we started earlier we would have had more time to figure it out.

Along the same line, we wasted a lot of time. Some meetings were useless because half of the team did not show up so we were not being as productive as we should have been.

The third thing we should have done differently is not give up so close to the end. Some members thought we were almost done with the project which meant they did not work as hard as they should have because they thought we were close to being done. Having that mentality really hurt us. We could have gotten everything done if people did not give up so close to the end. It is not over until it is due and getting lazy at the end is something that should not have been done.

Another thing that we could have done differently is probably working on the code right after the first spring break ended. Due to the current pandemic, our school had made an official announcement that spring break was extended to another week. During this week, it would be the right decision to have worked on the code and not wait until the next week to start. We did not have our regular meetings (which was every Monday and Wednesday) and decided to take on tasks that were left on the featured list. Even here, we had struggled with the coding and had to meet through zoom with our teammates. When meeting through zoom, it was harder to help each other with the code as sometimes the internet connection is down and we could not see the code clearly. With one of our members located on the other side of the world, it was hard to communicate with each other if something is needed urgently. We would have to wait a couple of hours for the response in order to not overlap on work.

Overall, like other teams, there are ups and downs in making things work. Our team worked great when we were together. Of course, there is always room for improvement. We learned a lot of things from this one-year Capstone project. Being able to code efficiently is

obviously one of them, but also about teamwork and time management. These two things contribute a lot to a successful project.