What we’ve done so far:

After identifying the final members of the team and joining the group on Canvas, we jumped right into the logistics of scheduling a weekly recurring meeting to ensure that we stayed on track and made continual progress. During our initial meeting, we identified our strengths and took actions to go out and do some background research on our topic, options pricing/trading. One of us took on the task of researching if there were any substantial amount existing packages that we could leverage with regards stock forecasting and calculating option pricing. The search started in Python because of our familiarity as a team and a hunch it might have the most resources available. Admittedly, it was a grueling task without knowing exactly how we wanted to define the project. In turn, it helped define our a model framework and what language we wanted to code in by knowing what resources we had available. In parallel, the others went out to start doing research to find white papers defining the different types of options available across the global. Once we came back together the next week, we were able to back into and create our problem statement and hone our scope. (Problem statement of The volatile nature of the stock market, uncertainty that the future financial market presents, time value of money, and involvement of multiple dynamic factors make stock options pricing risky.) We identified the models that didn’t have as much coding available but were critical to creating a comprehensive catalog for our project. While we do know a lot of the components we want to include in our model, we haven’t tied it completely together yet nor know the exact parameters we want to use. Currently, our best understanding is with the Black-Scholes model. We have also started to discuss what stocks we want to use as our business case. We are still deciding on blue chip stocks, indexes, or ETFs. Subsequently, as we started to bring together our information together, we realized we needed a better way to stay organized too. This led us to choosing Microsoft Teams as our document share as well as a github repository to start our version control and branching for the co-coding we will do in the future. Dataset?

What we’re doing next:

As we continue our discovery phase, we will continually iterate the model we’re putting together. Included in this will obviously be different ways to reduce variance in the models as well. We will also want to finalize our data set and data source. In theory, we won’t want to boil the ocean, but we’ll also want to make sure that we don’t overfit our model by using too narrow of data. In parallel, we will also determine our model for how we want to simulate future stock prices, most likely through the use of Monte Carlo. After watching the beginning of week nine’s lecture material, there may be some better guidance on how to handle pseudo random variables with regards to Time Series analysis. After understanding the process to input the PRV’s into our forecasting and options model, we’ll want to design an experiment to understand which model with best answer our problem statement within our risk aversity. Interpreting and analyzing the output analyze of these models will also be key into giving us insights into the best model possible. While what we have left to do seems over simplified here, we completely understand that tying our research together and portraying a comprehensive conclusion is going to be time consuming and may require a few different iterations and even possibly a change in our problem statement. Staying on course with our recurring meetings and completing our tasks on time are going to be critical to staying agile as a team.