Homework 4 Design Report

For Homework 4, I would say I spent around 48 hours on the design and code. I would work for 2-3 hours at a time, and then I would take a break to think through the rest of the code. I largely fell back on the design algorithm I created for Homework 3 so that I could better understand how to approach the homework. If I were to do anything different, I could add more checks for various corner cases, but as I understand, this will be addressed in Homework 5.

Throughout the coding experience, I struggled with completely understanding the idea behind entities and collections, but my diagrams of the classes, collections, and entities helped me a lot. These diagrams were also updated with some more changes along the way. One challenging aspect that I faced for this homework was making sure there was no overlap in the scheduling of the crew members and planes for flights. In order to address this, I created an Interval class that managed a vector of scheduled intervals. In addition, I spent quite a bit of time understanding the relationship between the entities and collections (which the diagrams for Homework 3 helped me with). Lastly, I noticed that using the plane ID as the same entity as tailNum led to multiple flights with the same flight number, which could have been avoided by having a separate plane ID in the Flight object, thereby making a unique flight ID. As a workaround, I used a vector as opposed to a map for storing the flights in the flight schedule so that I didn’t have to have just one flight per plane ID.