Sprint 3 Retrospective
TEAM 5
WPEAR

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1. **What Went Well**

In this sprint, we have been successful in completing almost all the individual use stories. We were successful in creating a new website according to the specs we had decided during planning. Creating a user-friendly and useful website is critical since it is the primary point of reporting and the main section of the demo. We also implemented animated visualizations to illustrate the difference between forecasts and observations. Furthermore, we also implemented standard deviation comparisons and visualizations to help judge the accuracy of forecasts to observations. All in all, we completed all the necessary user stories in preparation for the demo.

a. User Story 1 is completed. It interpolates both forecast and observation files to the required grid size and makes them compatible for comparisons.
b. User Story 2 is complete. We decided to do standard deviation and mean together in 1 graph rather than separate graphs for each.
c. User Story 3 is completed.We are able to generate correct animated visualization of observational data against forecast data by difference.
d. User Story 4 is completed. We are able to compare means and standard deviations of multiple forecasts with their corresponding observation and

plot the results on a x-y scatter graph and store the graph as individual png files.

e. User Story 5 is completed. We properly implemented the landing page with calendar sidebar to enable users to view daily data and rendered the home page with representative demo graphs.
f. User Story 6 is completed. We are now able to generate a daily page which contains the visualizations for each day.
g. User Story 7 is not completed. We did not add links to the data files on the website.
h. User Story 8 is partially completed. We have standardized temp locations and created many flags to help with the configuration of the application, however the atmospheric variable portion did not get completed.
i. User Story 9 is completed. All features were integrated successfully.
j. User Story 10 is completed. We have written a detailed product wiki on github about how to setup and run the server, how the inner components cooperate with each other as well as further troubleshooting.

2. What Did Not Go Well

While we did manage to implement the functionality for all user stories, few of these were either completed too late to be integrated into our controller or were partially completed. As a result, these functionalities could not be presented in the demo even though they had been implemented. However, these were not the core functionalities and could easily be integrated in future sprints.

a. User Story 6: It took us a long time to get the daily page showing the right information:
    i. We had issues with selecting the right files that needed to be displayed on the page
    ii. We ran into trouble with getting the image source linking to the right path
    iii. We also had some minor issues with the layout of the page and making sure that the page is compatible with various screen sizes
b. User Story 8: Did not have time to integrate weather variables into the command line flags
    i. Because of how core weather variables are to the operation of the enter pipeline, it was decided we would do this last

ii. We ran into a time crunch trying to complete and integrate User Story 6 and had no time to finish User Story 8.

3. How we can improve

Overall, we have shown great teamwork. We finished our product as we expected in the last sprint. Every member has put time and efforts on the product. Still we have to admit that things could have been better and easier if we could communicate better, integrate earlier and have a more evenly distributed working hours.

a. We should have better communicated and kept track of one another's progress. This could have been done by individually questioning each team member's daily progress or using project management software such as Trello boards.

b. We spent some time adapting our code to work seamlessly on a server because of some assumptions that we had made on file paths and references. This could have been improved by us discussing it as a team instead of each of us individually figuring it out or implementing a hacky solution.

c. We should have asked for help or shown concern for team members making slow progress earlier in the sprint allowing for more polished code and less panicking in the last day before the demo.

d. We could have made our website look cooler if we could integrate earlier. Since any frontend feature comes after testing the basic functioning of the overall product.

e. We should have had a time-based sprint breakdown for individual goals instead of goals to be completed by the end of the sprint. This would have helped us track our own and each other's goals better and step in if someone else needed help.

Semester Retrospective:

For this senior design course, we took on a challenging project that involved gathering information from different sources, learning and integrating libraries into our code, and developing a system that would process real world data and generate relevant results. Due to the complex nature of the project, we had to be flexible and make changes to the requirements as we progressed. We faced several challenges relating to dealing with legacy code and working with the resources and time available to understand and implement this system. We also had to try and understand what results would be relevant and how we would be able to present it to them. We took help from Dr. Baldwin in the EAPS department to help us with this project. Our project is a starting point to answering the important question about which sources provide accurate weather forecasts.

In retrospect there are a few things we could change to make things go more smoothly. First, we should have concentrated on interpolation in the first sprint heavily. Not having interpolation be prioritized held us back until the end of the second sprint. Second, we should have prioritized the website from the beginning. Having the ability to make incremental changes to the website over multiple sprints would have provided the opportunity to have a better looking and more functional website. Last, a regular meeting with our advising faculty would have been useful and may have helped us move through some of our struggles quicker.