Milestone Two

**Enhancement One Narrative**

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The artifact for my Software Engineering enhancement is my custom app titled MyMessierTracker. This Flask-based web app was recently created by myself over the past 2 months and allows users to log and track their progress in capturing all 110 Messier objects with functionality to upload images, log observation dates, add notes and see your overall progress as well as categorical progress.

I have selected this artifact for my ePortfolio as it showcases a complete end-to-end, full stack, development project that also showcases my specialization in data analytics and databases. The item I chose as the enhancement was to develop an ‘Account Deletion’ feature as this incorporates both programming ethics and intelligent database design. The GDPR’s ‘right to erasure’ states that users should have ability to request the deletion of their personal data from a system. This was implemented within the database structure by assigning cascades to appropriate columns that would flow through the related tables. Additionally a delete function was created within the python code that, when initiated, flashes a message to the user informing them that this action is permanent and irreversible then asks the user to verify their password before continuing. Afterwords it efficiently deletes all user records with straightforward and minimal code that relies on the database to perform the record deletions within the table. However, prior to completing the data removal, this python function will also store a list of all image files in the path to delete them as well once the record deletion is successful. After all account data is successfully removed, the user is then routed to the login/register screens where they can attempt to login to prove that their data was in fact deleted and if they wish to start over they can then register a new account to start loading data again. With this enhancement now complete the system has been improved to better align with user privacy best practices and clear communication with both the user and other developers via the code comments.

The course outcomes I met include all of the outcomes I previously laid out in my proposal which include outcome #2 via incorporating a clear messaging for the user as well as documenting my code, outcome #4 through implementing Flask + Postgres database transactions through foreign key cascades following best practices and then object #5 through proper password verification when performing destructive processes and then also cleaning up storage through the file removals.

Throughout this enhancement process I learned that it is more important to understand the overall goal that you are trying to accomplish and write your code in the clearest and most efficient way. Not just the most efficient computationally but as a system that is easy to share and maintain, using the right tools and methods for the process. For example, here I could have systematically and manually coded out each individual table with an overload of comments to delete and then add the parameterized WHERE statement with the user id to ensure all records pertaining to that user were deleted. However, that is not efficient, not just computationally but also that is cluttering the project with unnecessary code. Also, I ran into some challenges around properly flashing error messages to the user throughout the process. For example I had an issue with the ‘incorrect password’ error message instantly flashing and going away or after it loaded the first time then the cancel button became no longer interactable. I was able to research and solve this through using addEventListeners to properly load this content so the user to stay aware of what was going on and interact with the page elements properly.