Challenges:
A couple things that presented challenges for our team during this project were deciding what topic to focus our energy on at the beginning of the project and creating a streamlined outline for how we would use our time efficiently to get to the desired end product. Since this project was very open-ended, it left us with a lot of choices for the data we could explore; as long as we were able to find a relevant API and another accessible data source on a topic, it was an option. This kind of caused us to spend a little bit too much time exploring many different paths instead of narrowing it down to one topic early so we could start working on the actual ETL data processing. This challenge went hand in hand with creating a plan for how the project would ideally proceed. It is almost always easier to work on something with an end goal in mind, and we could have done a slightly better job of that. While these did not prove to be fatal errors, it would be a good idea to focus on using time efficiently for future projects.

Aspects That Were Easier Than Expected:
This project presented several aspects that were easier than anticipated. Combining the data into a single table and dataframe was more straightforward than expected, and integrating data from an API was already a relatively simple process. Initially, we anticipated challenges in merging data from two separate sources due to differences in column names and data points. However, renaming columns proved to be a simple task, and once we established a standardized naming convention, we were able to merge the tables with just a few lines of code. Additionally, prior to this project, we had never retrieved data from an API, and the process initially seemed daunting. However, fetching the data without errors turned out to be relatively easy, and the API data was integrated into our project seamlessly.

Aspects More Difficult than Expected:
In terms of some concrete elements of the project that proved more difficult than expected, we encountered a couple including: switching between the desired file formats (JSON, CSV, and SQL database) and making sure our API language and commands were correct for our API./

How a Utility Like This Could be Useful in Future Data Projects
The Extract, Transform, Load (ETL) process can be easily extrapolated to a wide variety of data projects because of how inherently necessary it is to derive actionable insights from raw data. In professional environments, particularly those that don't have robust data pipelines, it's very easy to imagine that significant swarths of data are never being analyzed, and thus opportunities to improve the quality of operations aren't being exploited. For instance, if in the future we're working in an industrial environment, there are certainly sectors of the business that would benefit from some of the principles we touched upon in this project. A notional example would be improving efficiencies in the fabrication process by predicting the necessitated lead-times during production. These simplistic applications of the data constantly being produced could have significant positive impacts on the synergies of virtually any business.