Python Project Requirements

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**Project Deadline: Push your final project to GitHub no later than Friday, November 16th by noon!**

There will be a project turn-in form provided 1-2 weeks prior to the due date that you must also complete for your project.

Late projects will not be accepted.

**Project Requirements**

The purpose of the capstone project is to reinforce what you’ve learned and show off your skills. Your projects will be your go-to tool to show off to potential employers and demonstrate you know what you’re talking about. Pick an idea that is fun, challenging, and hopefully useful, too!

For your project, you will create a repository that will contain your scripts for importing, manipulating, and displaying your data. You will state a question or topic that you are analyzing as well as an outline of your procedure to accomplish that.

You can choose any data-oriented question to answer or report on, but you are encouraged to find something that shows you were trying to solve a problem or increase understanding of an issue through analyzing data and providing information derived from that. This will show you are able to come up with a problem, find data to support an answer, then manipulate and display that data to support a conclusion - all very valuable skills in the Data Analysis and Data Science world.

**Requirements:**

* Must include a README file that states the following:
  + What question are you answering or problem are you analyzing
  + A brief overview of how you accomplished this, including any necessary background for someone to understand the problem, where your data came from, what you used from that data, any analysis you applied to the data, and what you chose to visualize/display/report in the final product
  + Any special requirements, dependencies, or steps to run the project
* You must include a SQL database (MySQL or SQLite) where your data will be stored
  + You need to include the script that sets up/creates your database
* You must include a Python script used to fetch data from a data source and load it into your SQL database
  + Your data source may be an external API, database, a CSV file, or any other data source that you can read/parse via Python code
* You must include a Python script to retrieve the data from your SQL database into a Python object
* Visualize the results of your analysis using Matplotlib, Seaborn, Bokeh or another Python Data Visualization library. Your results cannot be a plain text representation and you are encouraged to explore a visualization approach that clearly supports a conclusion/result of the analysis of your data.
* Your data retrieval for visualization uses at least one SQL query, meaning you can't parse records from your data set using only Python or an ORM. Pushing and retrieving an entire dataframe to and from SQL also does not meet the requirement, e.g. the SQL query should not simply be SELECT \* FROM database
* Your project is uploaded to GitHub
  + If your project requires your datasource to be included with the project (instead of accessing it from an external source such as through an API), please speak with your mentors about how best to approach this
* Have fun! Your project should be something you're proud of, and that adequately demonstrates your base knowledge in the concepts you've learned.

**Mentors**

You should talk about your project early with your mentors. Explain your idea and the features you are thinking of implementing. They will help you understand if it will meet the requirements or if you've possibly decided to tackle too large of a project for the 12-week time period. Towards the end of the session, you should again show your project to your mentors and get confirmation that it meets the requirements of the project.

**Testing**

You should definitely test your project on a second machine to avoid a situation where your project runs on your local machine but does not on your project reviewer's. Be sure to send your project to someone else via GitHub to have them test it before you call it done.