Updating Databases

JULY 1, 2021

API Data Loading

- The python code you wrote yesterday to load your API data to your database entirely overwrites the database on every run.

- Is that a good thing? Is that useful?

- What's the alternative? Why might we want to do that?

SQL Commands to Update Tables

SQL Command	Description
SHOW COLUMNS from table_name;	Show the table's columns and their data types
UPDATE table_name SET column_name = value WHERE column_name operator value;	Update records in *table_name*. Set the value in *column_name* where the given condition matches.
ALTER TABLE table_name CHANGE column_name new_col_name data_type;	Change the name and data type of a column in the table
ALTER TABLE table_name RENAME column_name TO new_col_name;	Change the name only of a column in the table
ALTER TABLE table_name DROP column_name;	Delete a column
ALTER TABLE table_name ADD column_name data_type;	Add a column
RENAME TABLE old_table_name TO new_table_name;	Rename a table
DROP TABLE table_name;	Delete a table
DROP DATABASE database_name;	Delete a database

Saving and Loading a Database

- Save your database to a file with the following command form the command line (not mysql prompt):

  mysqldump -u root -pcodio *data_base_name* > *file_name*.sql

- Load your database from a file:

  mysql -u root -pcodio *data_base_name* < *file_name*.sql

- You can execute shell commands from your python script by using os.system() and passing the shell command as an argument. You will need to import the os module first.
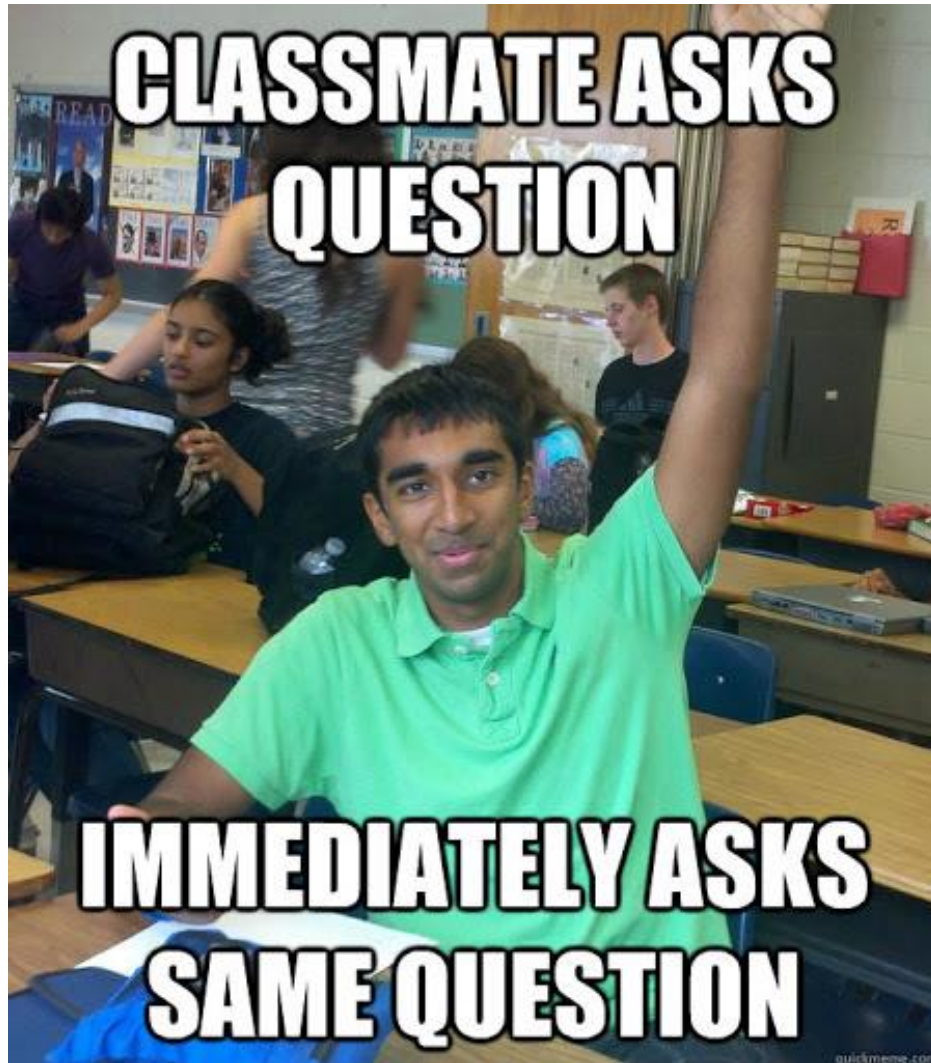
Today's Activity

1. You will practice the SQL commands we just covered.

2. You will define functions in your API loading program to
   a. Encapsulate the existing behavior of overwriting the database
   b. Save the database to a file
   c. Load the database from a file
   d. Update the database with new records
   e. Easily be able to choose between overwriting the database with the latest data and updating the existing database

- You will go into your TA's breakout room and work on the activity.

- Feel free to work with others in your room and ask questions of the group.

- The TA is there to assist you. If you want to ask me a question, come back to the main zoom room.

Updating Your API Loading Program

The following commands may prove useful to you.

- Create the database if it doesn't exist. This is important before you load data into a table. You will need to import the os module.
  os.system('mysql -u root -pcodio -e "CREATE DATABASE IF NOT EXISTS '+*database_name*+'; "')

- Read existing data in a table into a dataframe
  df = pd.read_sql_table(*table_name*, con=createEngine(*database_name*))

Questions?