**Programming Challenge:**

The purpose of this challenge is to test your ability to look under the hood and understand how some common everyday software tools work. In this case, we’re going to look at SQL from a more abstract viewpoint and try to mimic what is going on using CSV flat files. The coding challenge must be written in python.

Two CSV files which will represent tables are provided; "Restaurants" and "Ratings". We will assume all fields are charfields. For the first “table” the fields are 'id' 'name', 'country'. For the second, the fields are 'id', 'fk' (which is the foreign key to the previous table) and 'rating'.

Create **two** python classes, one called SQLInMemory and the other SQLOnDisk.

Each of these classes has the following methods:

The classes are instantiated as follows,

sql = SQLInMemory()

or

sql = SQLOnDisk()

* **select** (takes in field names in the form of a list)
  + Example: sql.select(['name'])
* **from** (takes in a list of table names). If the list has greater than one element then it should behave like an inner join.
  + Example: sql.from(['Restaurants', 'Ratings'])
* **where** (takes in a dictionary with the keys representing the table fields and the values representing the table values. Ignore 'id' and 'fk')
  + Example: sql.where({'country': ‘Spain', 'rating': ‘3’})

Upon initializing the SQLInMemory class, load both files into memory and perform all calculations without any further file reads.

Upon initializing the SQLonDisk class, create a temporary 3rd CSV file called "Journal" which stores the intermediate values from each method call in the file. You cannot store any CSV data in memory which persists across method calls except for beginning and ending row numbers as follows {‘<method\_name>’: [beginning row, ending row]}.

For each instantiated class, you should be able to print out the result as follows:

print(sql.result) and get the following

[{‘name’: ‘El Celler de Can Roca’ }, {‘name’: ‘Asador Etxebarri’}

Note that ‘result’ is not a method but a property. And the ‘select’, ‘from’ and ‘where’ data should be taken from the examples above.