using sqlite3

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1 What is relational database?

"A relational database (RDB) is a way of structuring information in tables, rows, and columns. An RDB has the ability to establish links—or relationships–between information by joining tables, which makes it easy to understand and gain insights about the relationship between various data points."[1]

2 What is SQL query?

"Structured query language (SQL) is a standardized, domain-specific programming language that excels at handling data relationships. It is used extensively for storing, manipulating and retrieving data in systems such as MySQL, SQL Server and Oracle. When data needs to be retrieved from a database, SQL is used to make the request."[2]

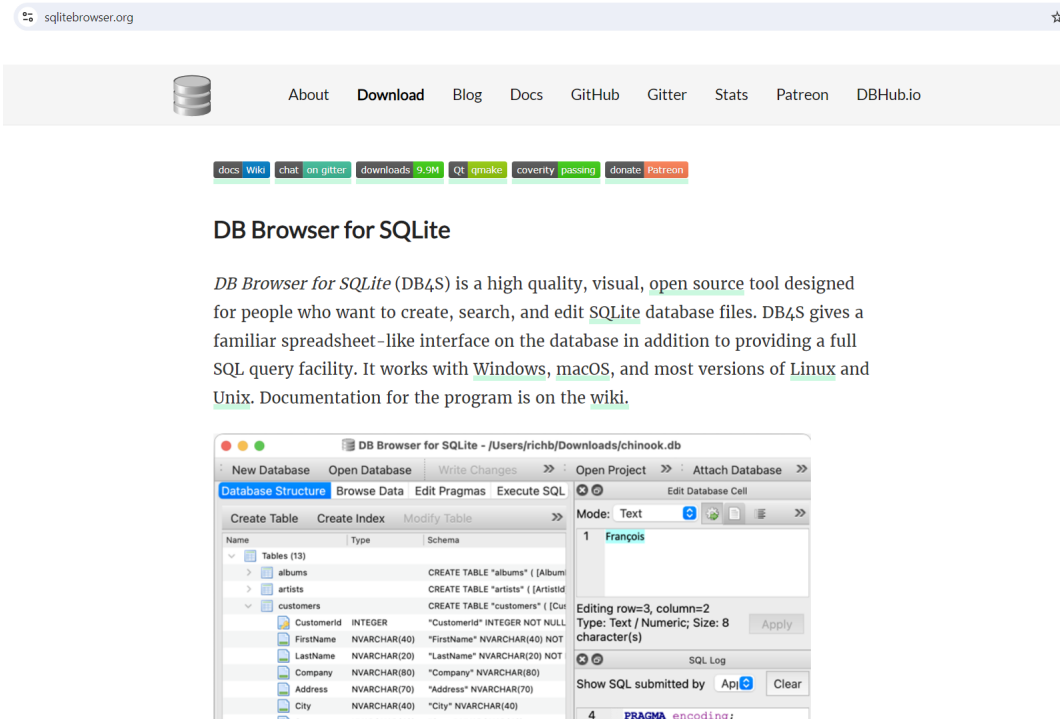
3 What is SQLite?

SQLite provides a lightweight database that you can use on your local machine. It uses a variant of the SQL query language. sqlite3 package comes with Python. If you want to take a look at the data in the SQLite database without using Python, you need to install a browser.

4 Using SQLite3

1. Viewing data from sqlite3 database using browser
   (a) Installation:
   Download database browser for SQlite: `https://sqlitebrowser.org/dl/`

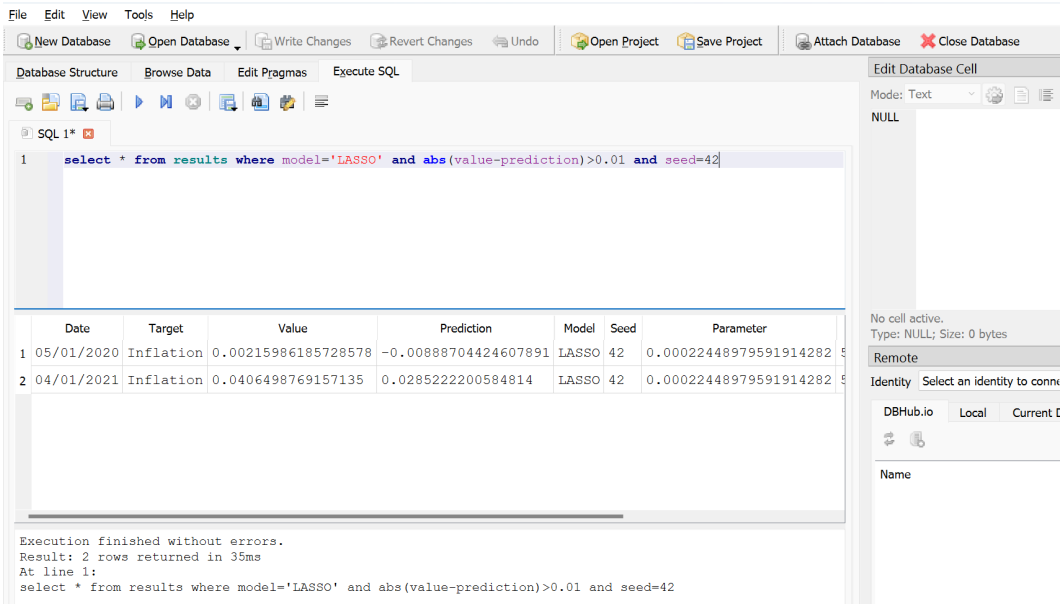
[1] https://cloud.google.com/learn/what-is-a-relational-database
[2] https://www.ibm.com/think/topics/structured-query-language



(b) Open browser:
By default, the browser will have been downloaded on "C:\Program Files\DB Browser for SQLite\DB Browser for SQLite.exe"

(c) Open database:
Click the button "Open Database" and open the database "`\ELL_2024\Inflation_Forecast\Results\database_predict_inflation.db`"

(d) Click "Execute SQL" and type in the sql query. For example, to search for all the data in the table 'RESULTS' from the model LASSO whose prediction is off by more than 0.01 (and with seed number 42):



(e) Press ctrl+enter or shift+F5 or click the ▶or ▶I button.

2. Import data from sqlite3 database to python

   (a) Import libraries 'pandas' and 'sqlite3'

   (b) Connect to database:

   con = sqlite3.connect("Data\database_Zhang_Hamori.db")

   cur = con.cursor()

      i. Get data using pandas:

      query = "SELECT * FROM DATA WHERE country = 'US'"

      data = pd.read_sql(query, con)

      ii. Get data using sqlite:

      query = "select * from RESULTS order by RMSE"

      cur_exec = cur.execute(query)

      data = cur_exec.fetchall()