ISGB 79AA - Advanced Python for Financial Programming
Assignment 2 – Querying a Database with Python

This assignment has 4 parts. All parts involve using Python to query a SQLite database, dj.db. Use the database provided with the assignment. There are two tables in this database, described in the appendix. The file dj.db should be placed in the same directory as your Notebook.

You should submit 1 notebook for this assignment, that includes answers to all 4 parts. You can use one or more cells for each part. Name your notebook like: LastnameFirstnameAsn2, for example, SmithJohnAsn2. Include in each cell of your notebook a Python comment at the start of the cell, describing the cell's statements.

Part A – Query tickers with fetchall()

Write Python statements to query the tickers table in the dj.db database. Use the SQL statement:

```
SELECT id, ticker, name FROM tickers
```

Place the results in a pandas DataFrame, using the ticker field as the DataFrame row index. Display the DataFrame.

Part B – Determine the date span of the data

Write Python statements to query the daily_measures table in the dj.db database, and determine the earliest and latest date of the data in this table. Use the SQL statement:

```
SELECT min(date) as first, max(date) as last FROM daily_measures
```

Part C – Query price history with for and Cursor

Write Python statements to query the daily_measures table in the dj.db database, and based on the returned data, determine the date and closing price of the highest price for Apple stock during the data available in the database. Use the SQL statement:

```
SELECT date, closing FROM daily_measures WHERE ticker_id=3 ORDER BY date
```

Part D – Query price history to determine largest 1-day price percentage moves

Write Python statements to determine the date and price when Apple had the highest one-day percent change. Use the same SQL statement as in part C, and additional Python (and possibly pandas) statements to find the result.

Appendix A – The dj.db Database

dj.db is a SQLite database file with these two tables:

Table: tickers – information about the 30 companies of the Dow Jones Industrials Index

field	type	description
id	int	Numeric id for company
ticker	text	Ticker for company
name	text	Name of company

Table: daily_measures – daily prices and trading volume for the Dow Jones Industrials Index

field	type	description
ticker_id	int	Numeric id for company
Date	date	Date of price data
opening	numeric(12,6)	Opening price for day
high	numeric(12,6)	High price for day
low	numeric(12,6)	Low price for day
closing	numeric(12,6)	Closing price for day
volume	numeric(12,6)	Trading volume for day