

Python + SQL

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A few things you are learning in Fall 1...

- What is SQL
- How to use SQL to query data in SQLite/Postgres
- Python
- Pandas

How can we use SQL in Python?



Let's talk about Pandas...

- Pandas is one of the most preferred and widely used tools in data wrangling if not the most used one
- Built in SQL support
- Uses underlying SQLite
- You can treat Pandas dataframes as if they were tables
- Documentation: <https://pypi.org/project/pysqldf/>
- “Do I have to use SQL Pandas?” → https://pandas.pydata.org/docs/getting_started/comparison/comparison_with_sql.html -- Check the R, SAS links as well

Install pandasql

```
In [1]: import pandas as pd
        from pandasql import sqldf
        from pandasql import load_births

        births = load_births()

        print(sqldf("SELECT * FROM births where births > 250000 limit 5;", locals()))
```

```
-----
ImportError                                Traceback (most recent call last)
<ipython-input-1-b72c4429f14a> in <module>()
      1 import pandas as pd
----> 2 from pandasql import sqldf
      3 from pandasql import load_births
      4
      5 births = load_births()

ImportError: No module named 'pandasql'
```

Let's install the library we will need

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base (root)

Python 3

Not installed Channels Update index... pandasql X

Name	Description	Version
<input type="checkbox"/> pandasql	 Sqldf for pandas	0.7.3

1 package available matching "pandasql"

Once it's installed...

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base (root)

Python 3

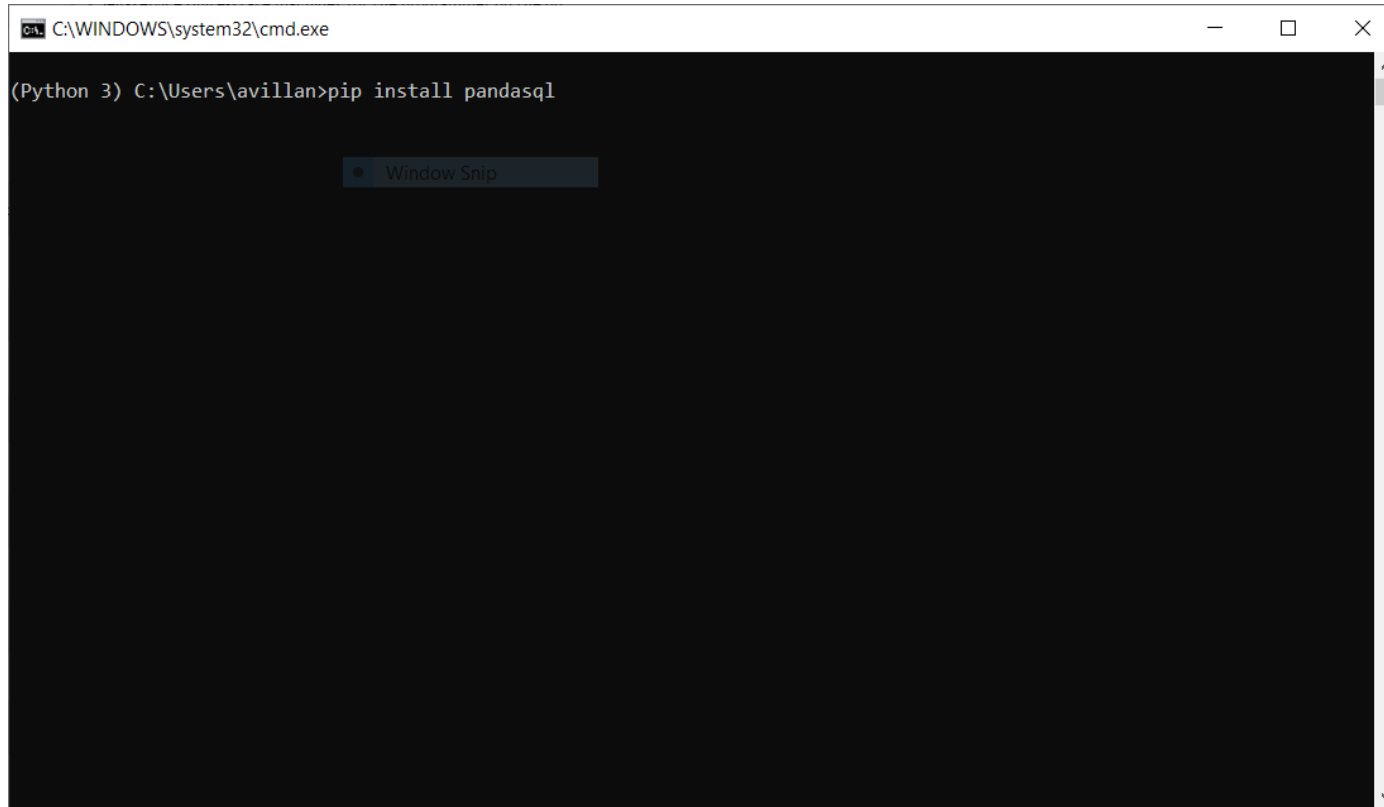
Installed Channels Update index... pandasql X

Name	Description	Version
✓ pandasql	SqlDF for pandas	0.7.3

Window Snip

1 package available matching "pandasql"

Another option: pip install pandasql



```
C:\WINDOWS\system32\cmd.exe
(Python 3) C:\Users\avillan>pip install pandasql
```

The screenshot shows a Windows command prompt window with a black background. The title bar at the top reads "C:\WINDOWS\system32\cmd.exe". The command prompt shows the prompt "(Python 3) C:\Users\avillan>" followed by the command "pip install pandasql". A small "Window Snip" watermark is visible in the center of the window.

If you have Jupiter Notebook opened, closed everything and start again after pip install finishes

Let's go to the lab description...

SQL: Lab 5

On Moodle, download the Lab files needed. Unzip the folder, and you will see 4 files:

- **Pandas + SQL.ipynb**: this is the example that we did during class.
- **Pandas + SQL - Exercise.ipynb**: you will complete this Jupyter Notebook, and upload it to Moodle (Lab 5 Checkout)
- **AWProduct.csv & AWProductSubcategory.csv**: the two files you need to complete the Lab

Good resource to have:

- Pandas Comparison with SQL:
https://pandas.pydata.org/docs/getting_started/comparison/comparison_with_sql.html

Instructions:

1. Complete the **Pandas + SQL - Exercise.ipynb** questions
2. Upload your answers to Moodle Lab 5 Checkout. You should upload the Jupyter Notebook file (.ipynb)