Accessing SQL Databases from Python

SQLAlchemy

SQLAlchemy

SQLAlchemy is a SQL toolkit for Python and can be used to connect to SQL databases.

To work with postgres, you'll need to install *psycopg2*

To connect, we need to create a connection string. The format is

```
<dialect(+driver)>://<username>:<password>@<hostname>:<port>/<database>
```

```
from sqlalchemy import create_engine
connection_string = "postgres://postgres:postgres@localhost:5432/ecd"
```

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First create an Engine, then a Connection

```
engine = create_engine(connection_string)
conn = engine.connect()
result = conn.execute('select * from ecd limit 5;')
result.fetchone()
```

After that, you can execute a query and fetch the results.

```
Out[8]: ("ALSAC St Jude Children's", datetime.date(2016, 11, 30), '$1,000,000,000.00', 1800, 'Expansion', 'Shelby', 2, Non
        e, None, '$36,000,000.00', '$36,000,000.00')
```

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sqlalchemy also plays nicely with *pandas*

ecd = pd.read_sql('select * from ecd', con = conn)

```
In [11]: ecd.head()
Out[11]:
```

	company	landed	capital_investment	new_jobs	project_type	county	county_tier	fjtap	fidp	ed	grants_tota
0	ALSAC St Jude Children's	2016-11-30	$1,000,000,000.00	1800	Expansion	Shelby	2	None	None	$36,000,000.00	$36,000,000.0
1	Hankook Tire Co., Ltd	2013-10-14	$800,000,000.00	1800	Recruitment	Montgomery	1	$16,000,000.00	$19,600,000.00	None	$35,600,000.0
2	Tyson Foods, Inc.	2017-11-20	$320,000,000.00	1600	Expansion New Location	Gibson	3	None	$14,000,000.00	$6,000,000.00	$20,000,000.0
3	Denso Manufacturing Tennessee, Inc.	2017-10-06	$1,000,000,000.00	1000	Expansion	Blount	1	None	None	$20,000,000.00	$20,000,000.0
4	Eastman Chemical Company	2013-05-29	$1,600,000,000.00	300	Expansion	Sullivan	2	None	None	$20,000,000.00	$20,000,000.0

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For much more information about SQLAlchemy and to see a more "Pythonic" way to execute queries, see *Introduction to Databases in Python:*
https://www.datacamp.com/courses/introduction-to-relational-databases-in-python

See also this article:

https://towardsdatascience.com/sqlalchemy-python-tutorial-79a577141a91