Hexaton Class : Package & Framework

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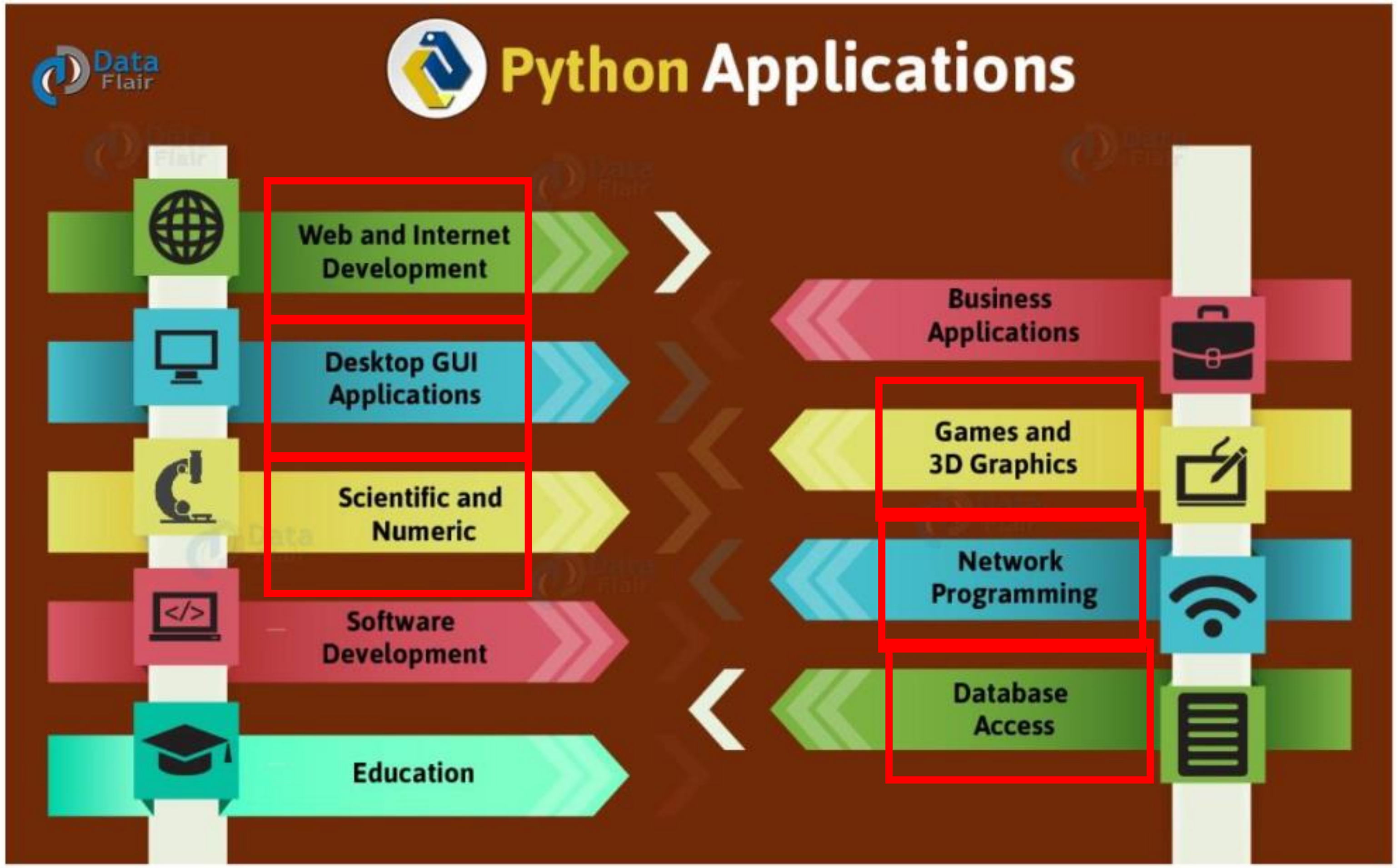
Field


Data Flair
Python Applications
Web and Internet Development
Desktop GUI Applications
Scientific and Numeric
Software Development
Education
Business Applications
Games and 3D Graphics
Network Programming
Database Access

Data Science : Math

NumPy

pandas

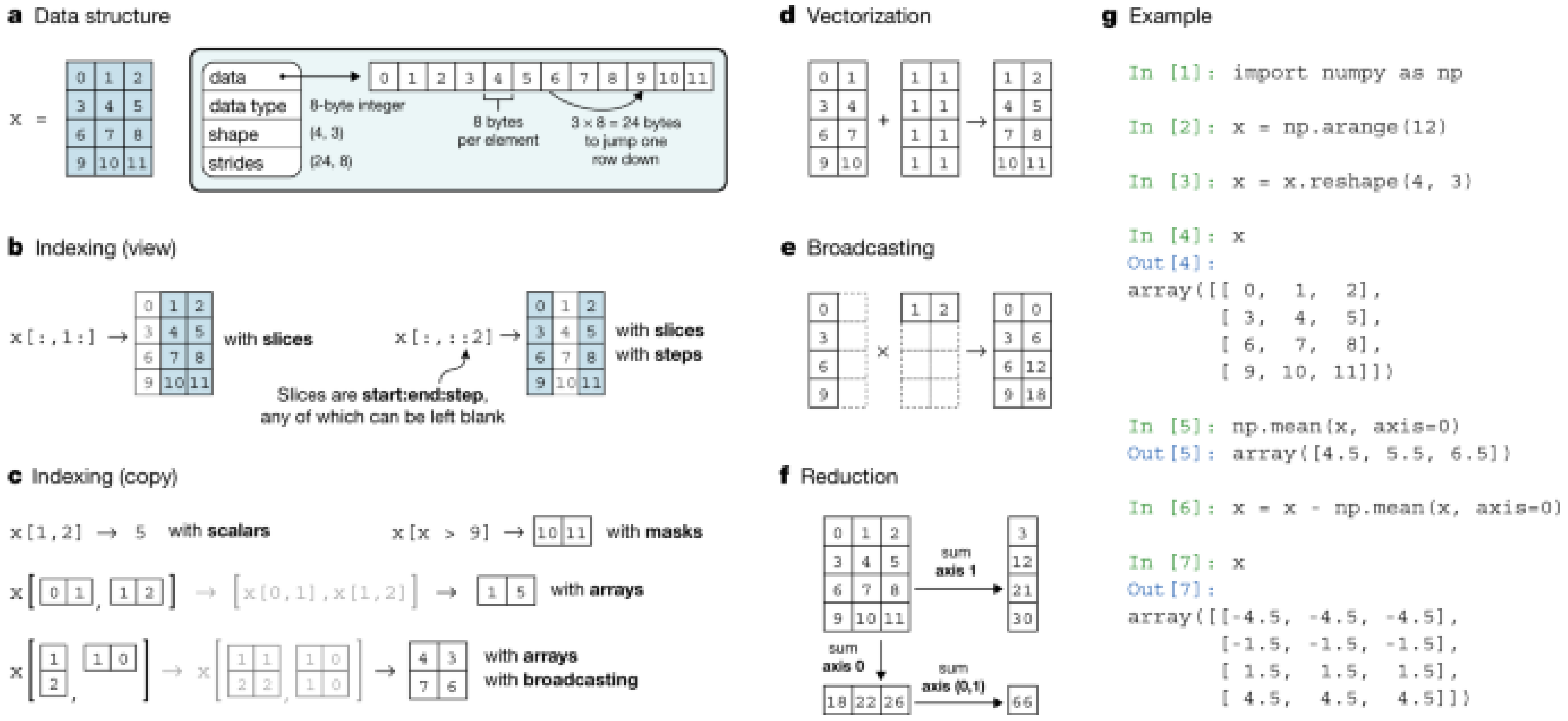
SymPy

SciPy.org

DASK

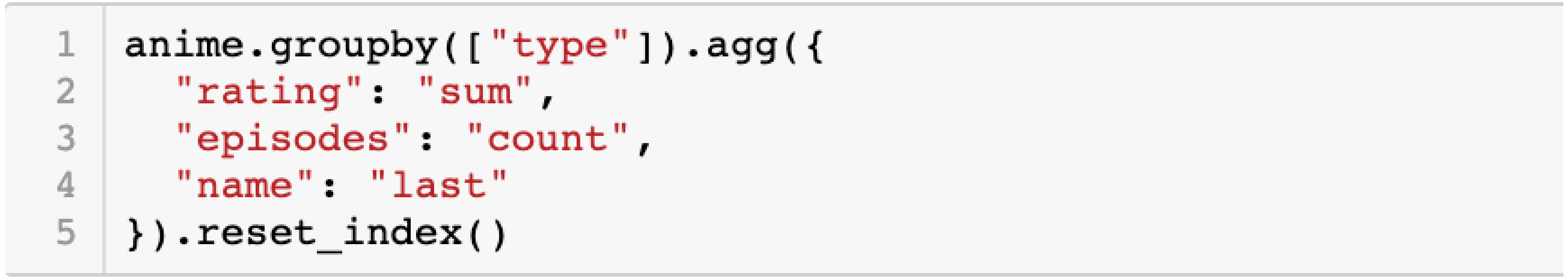
PyMC3

Data Science : Numpy

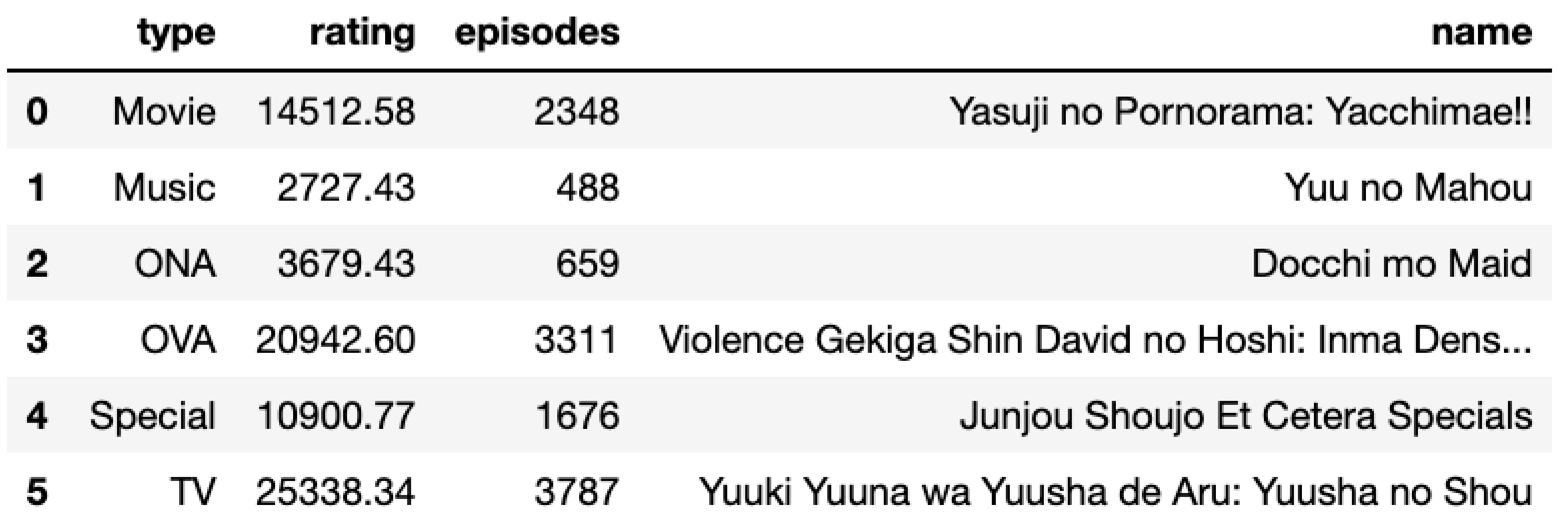


```
In [1]: import numpy as np

In [2]: x = np.arange(12)

In [3]: x = x.reshape(4, 3)

In [4]: x
Out[4]:
array([[ 0,  1,  2],
       [ 3,  4,  5],
       [ 6,  7,  8],
       [ 9, 10, 11]])

In [5]: np.mean(x, axis=0)
Out[5]: array([4.5, 5.5, 6.5])

In [6]: x = x - np.mean(x, axis=0)

In [7]: x
Out[7]:
array([[-4.5, -4.5, -4.5],
       [-1.5, -1.5, -1.5],
       [ 1.5,  1.5,  1.5],
       [ 4.5,  4.5,  4.5]])
```

Data Science : Pandas

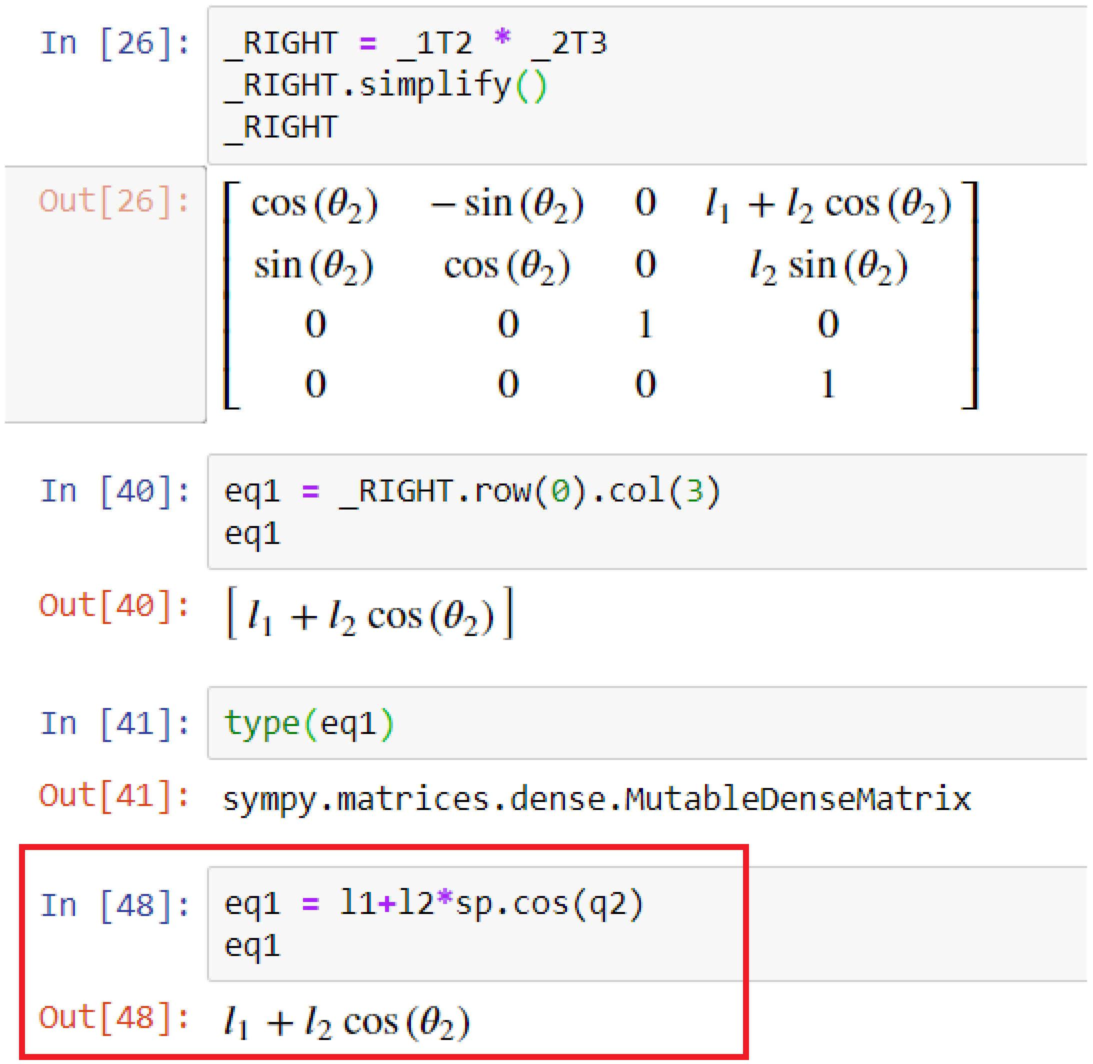


```
anime.groupby(["type"]).agg({
  "rating": "sum",
  "episodes": "count",
  "name": "last"
}).reset_index()
```



	type	rating	episodes	name
0	Movie	14512.58	2348	Yasuji no Pornorama: Yacchimae!!
1	Music	2727.43	488	Yuu no Mahou
2	ONA	3679.43	659	Docchi mo Maid
3	OVA	20942.60	3311	Violence Gekiga Shin David no Hoshi: Inma Dens...
4	Special	10900.77	1676	Junjou Shoujo Et Cetera Specials
5	TV	25338.34	3787	Yuuki Yuuna wa Yuusha de Aru: Yuusha no Shou

Data Science : Scipy, SymPy



```
In [26]: _RIGHT = _1T2 * _2T3
         _RIGHT.simplify()
         _RIGHT
```

Out[26]:

$$\begin{bmatrix} \cos(\theta_2) & -\sin(\theta_2) & 0 & l_1 + l_2\cos(\theta_2) \\ \sin(\theta_2) & \cos(\theta_2) & 0 & l_2\sin(\theta_2) \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

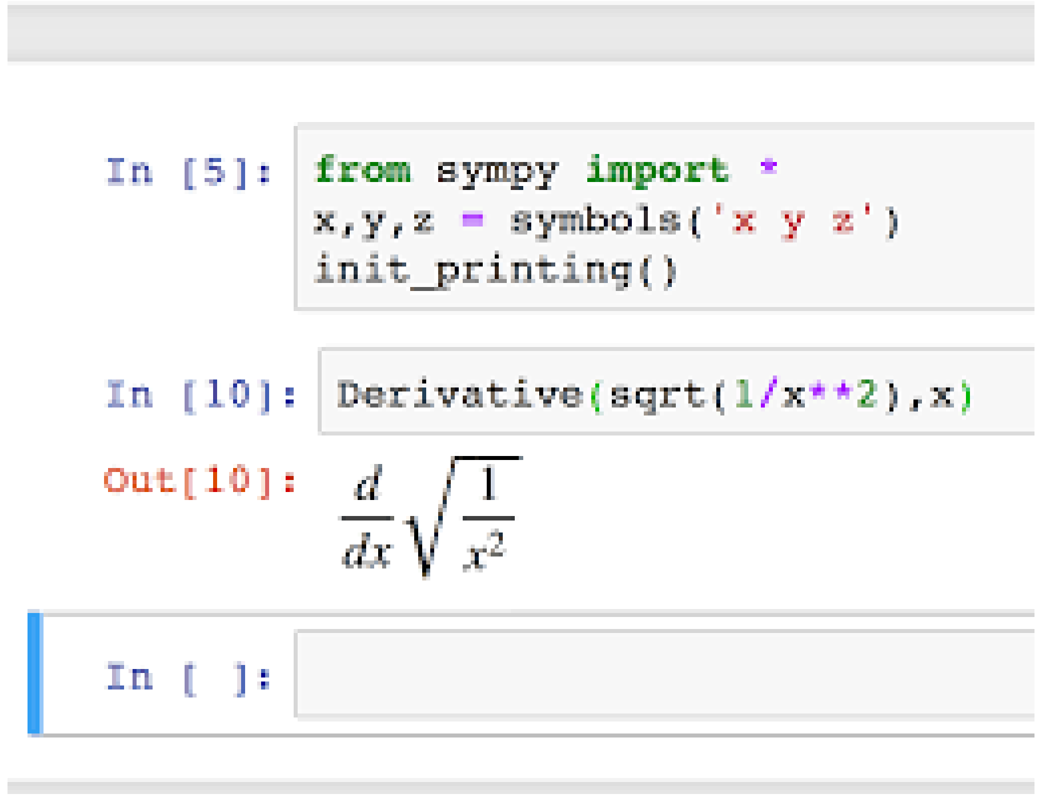
```
In [40]: eq1 = _RIGHT.row(0).col(3)
         eq1
```

Out[40]: $\left[l_1 + l_2\cos(\theta_2) \right]$

```
In [41]: type(eq1)

Out[41]: sympy.matrices.dense.MutableDenseMatrix
```

```
In [48]: eq1 = l1+l2*sp.cos(q2)
         eq1
```

Out[48]: $l_1 + l_2\cos(\theta_2)$



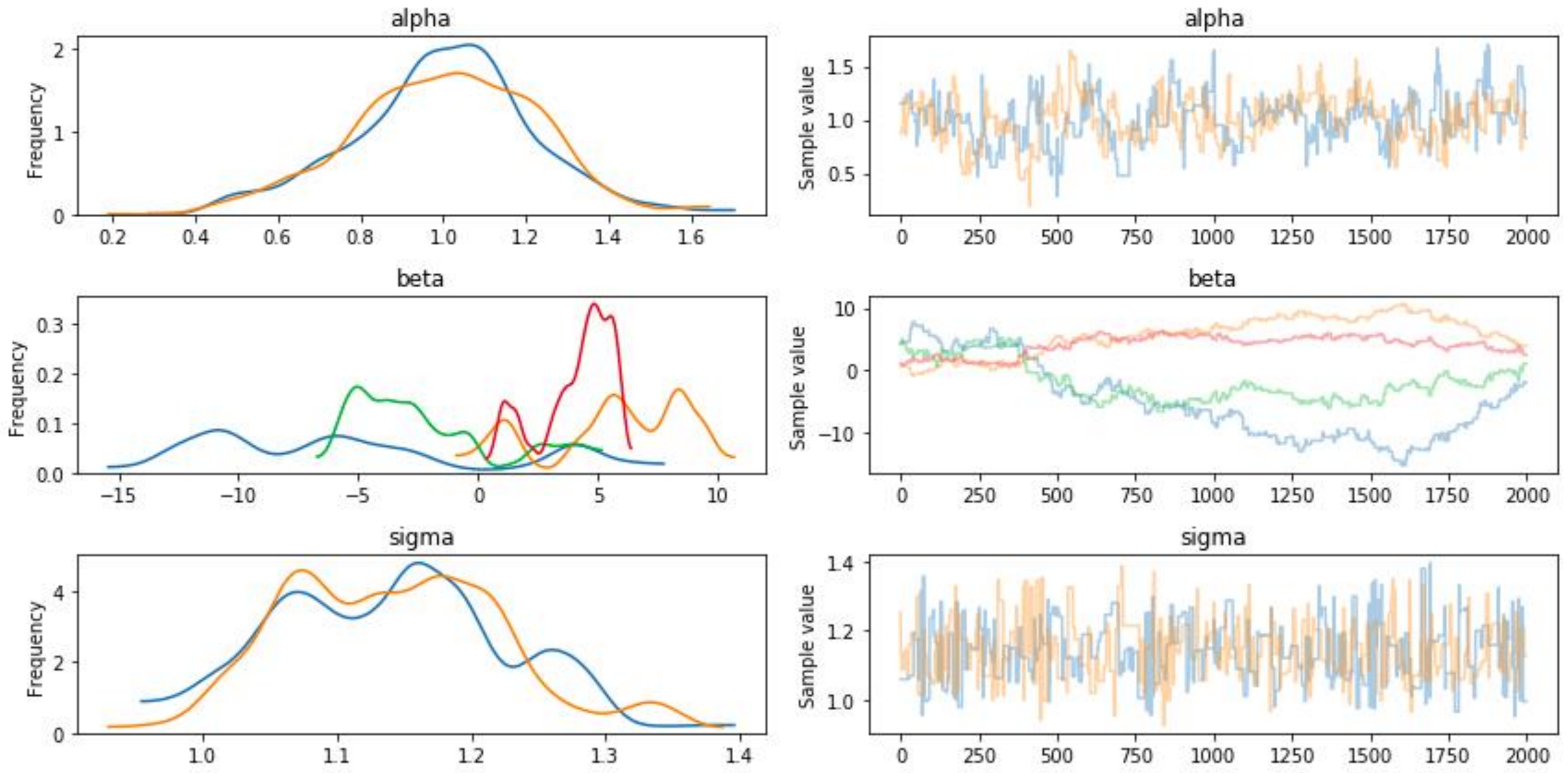
```
In [5]: from sympy import *
        x,y,z = symbols('x y z')
        init_printing()

In [10]: Derivative(sqrt(1/x**2),x)
```

Out[10]: $\frac{d}{dx}\sqrt{\frac{1}{x^2}}$

```
In [ ]:
```

Data Science : PyMC3

```
## Trace Plot of the Metropolis-Hastings Sampler
from pymc3 import traceplot

traceplot(trace_MH)
plt.show()
```

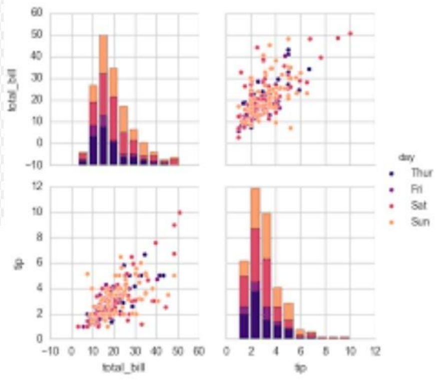


Data Science : Data Visualization

matplotlib

Seaborn

SEABORN PAIRPLOT



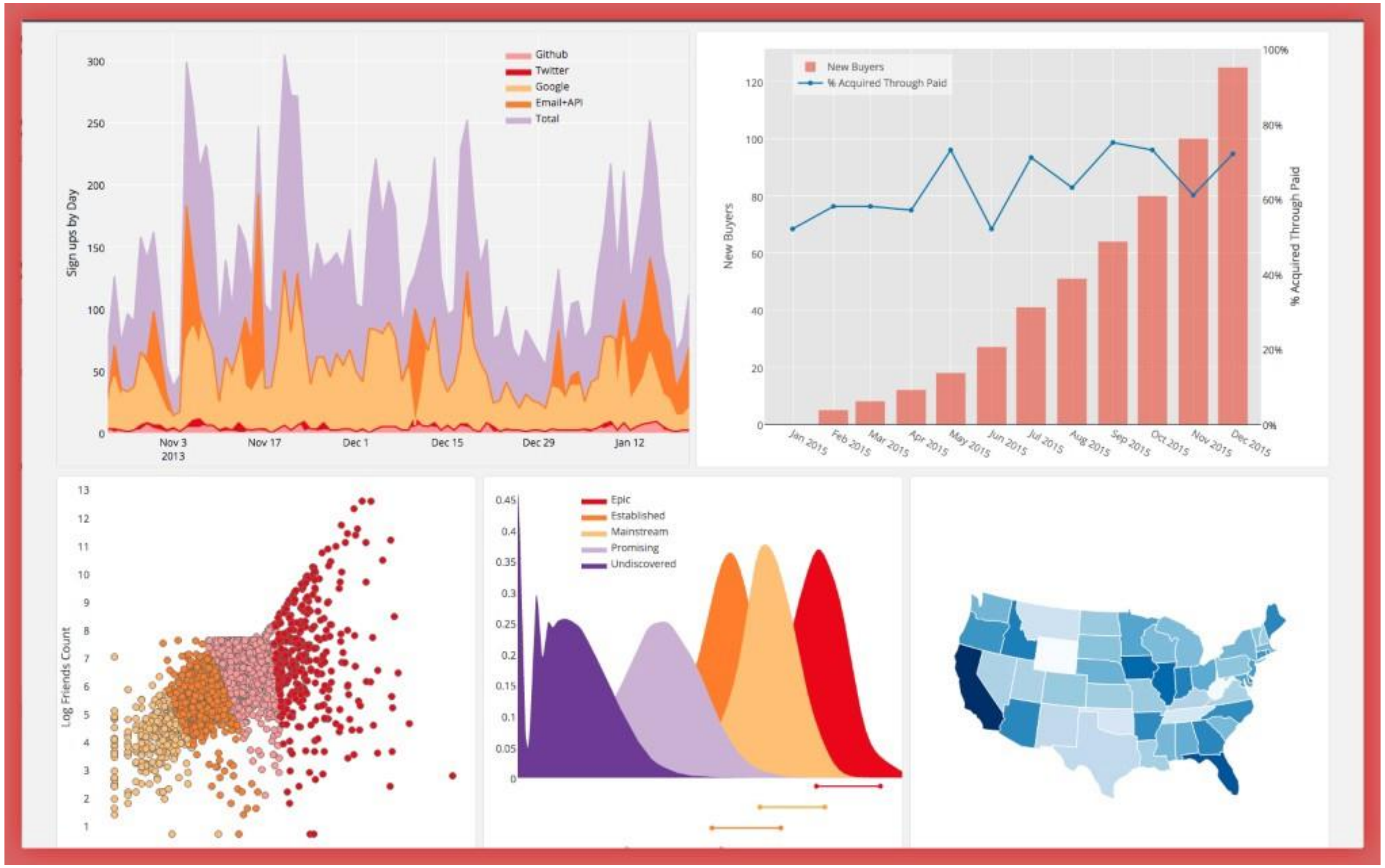
DATA VISUALIZATION PYTHON

kibana

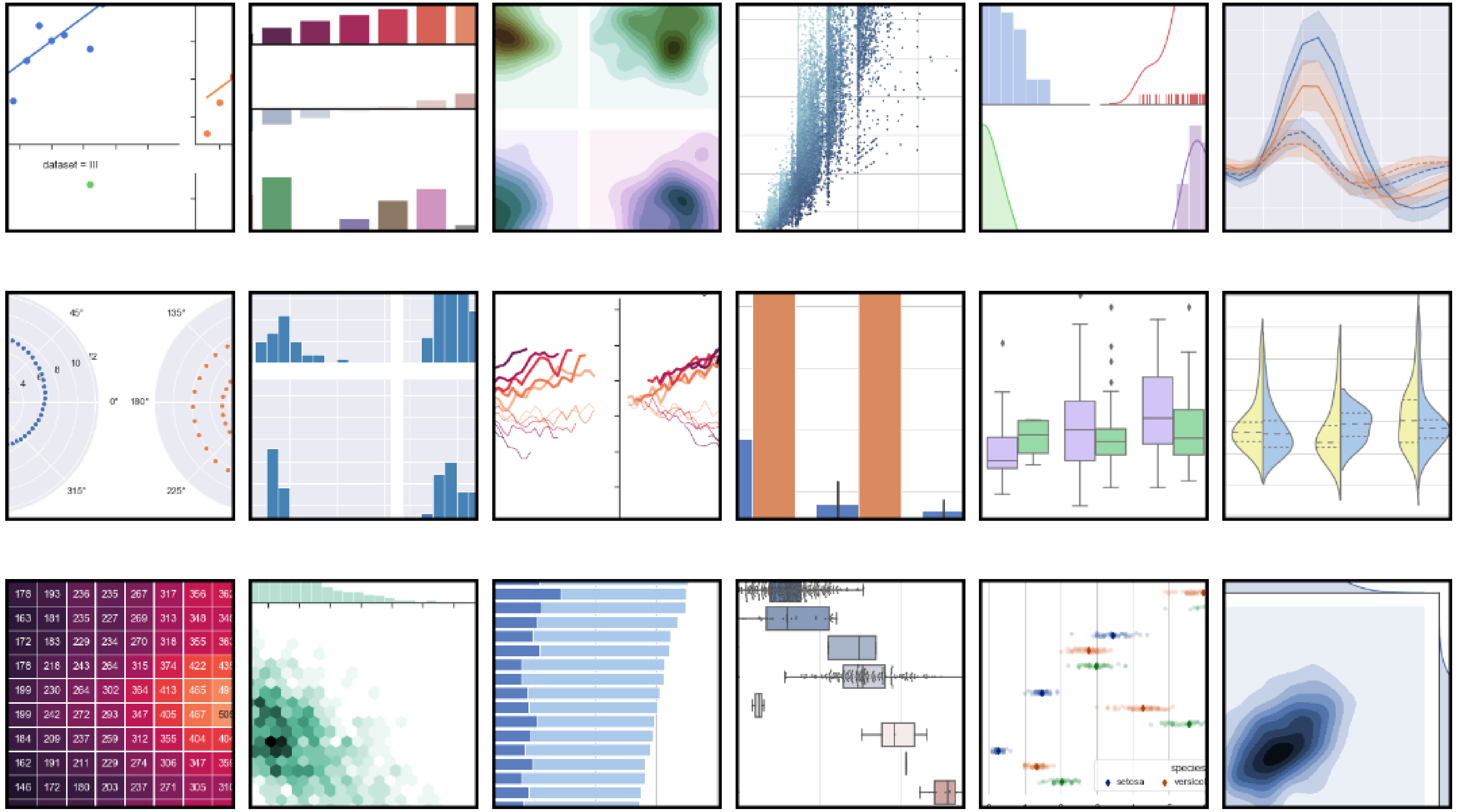
elasticsearch.

NetworkX
Network Analysis in Python

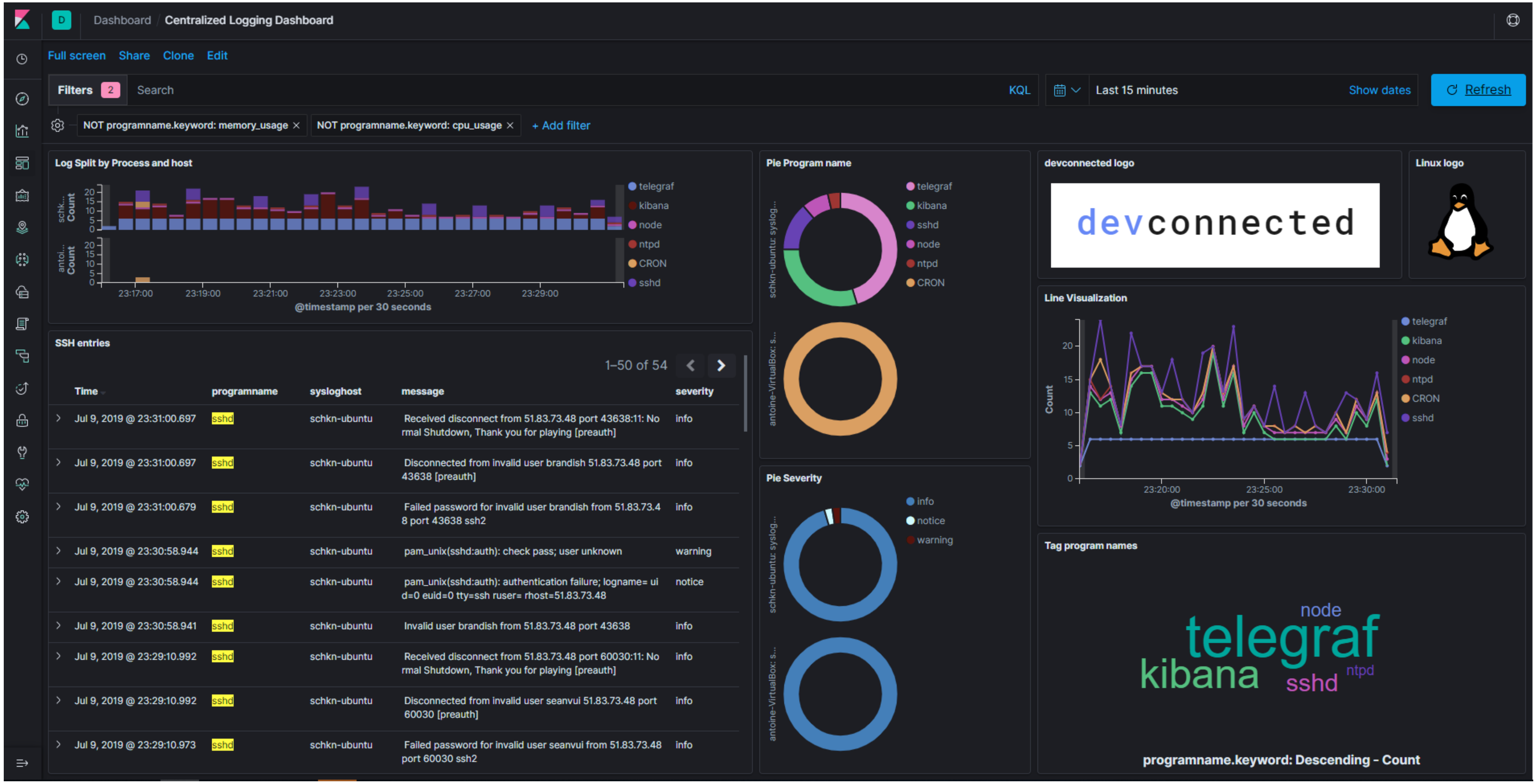
Data Science : Matplotlib



Data Science : Seaborn

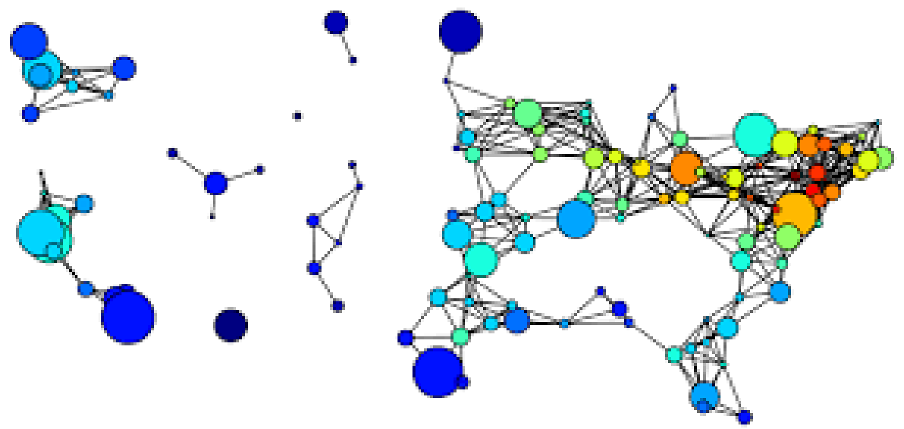


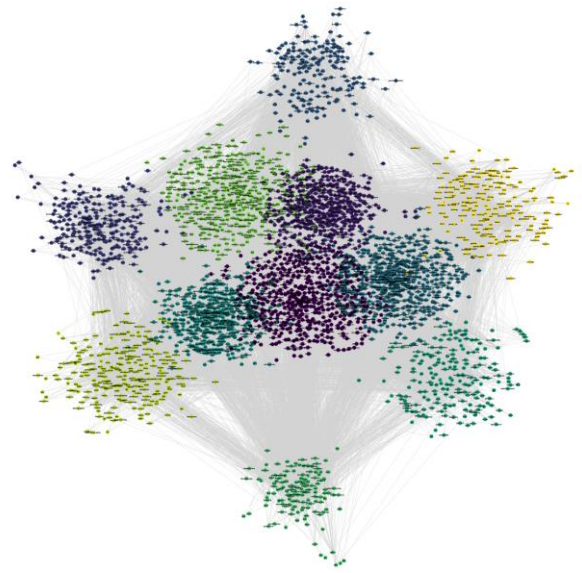
Data Science : Kibana & ElasticSearch

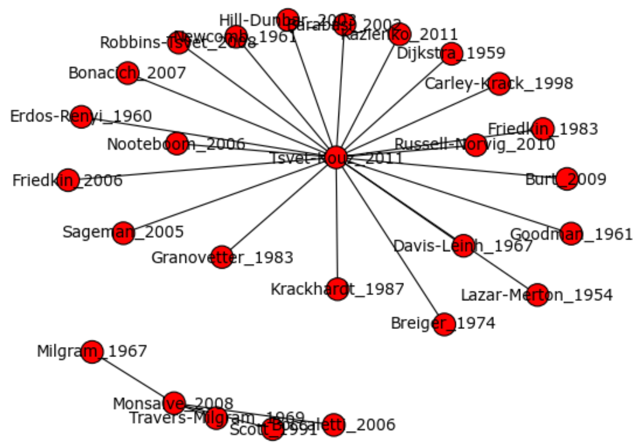


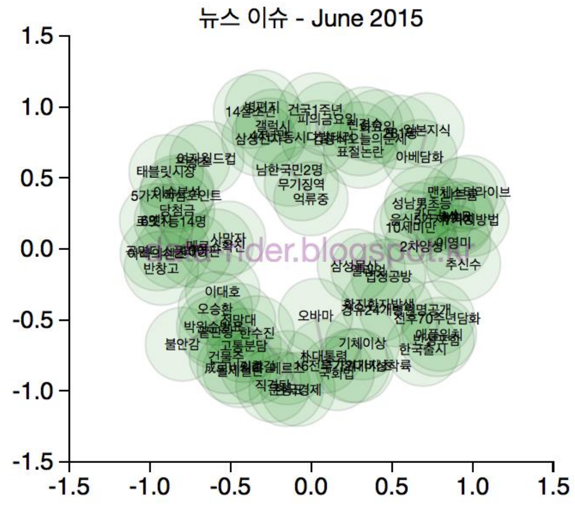
Time	programname	sysloghost	message	severity
Jul 9, 2019 @ 23:31:00.697	sshd	schkn-ubuntu	Received disconnect from 51.83.73.48 port 43638:11: Normal Shutdown, Thank you for playing [preauth]	info
Jul 9, 2019 @ 23:31:00.697	sshd	schkn-ubuntu	Disconnected from invalid user brandish 51.83.73.48 port 43638 [preauth]	info
Jul 9, 2019 @ 23:31:00.679	sshd	schkn-ubuntu	Failed password for invalid user brandish from 51.83.73.48 port 43638 ssh2	info
Jul 9, 2019 @ 23:30:58.944	sshd	schkn-ubuntu	pam_unix(sshd:auth): check pass; user unknown	warning
Jul 9, 2019 @ 23:30:58.944	sshd	schkn-ubuntu	pam_unix(sshd:auth): authentication failure; logname= uid=0 euid=0 tty=ssh ruser= rhost=51.83.73.48	notice
Jul 9, 2019 @ 23:30:58.941	sshd	schkn-ubuntu	Invalid user brandish from 51.83.73.48 port 43638	info
Jul 9, 2019 @ 23:29:10.992	sshd	schkn-ubuntu	Received disconnect from 51.83.73.48 port 60030:11: Normal Shutdown, Thank you for playing [preauth]	info
Jul 9, 2019 @ 23:29:10.992	sshd	schkn-ubuntu	Disconnected from invalid user seanvui 51.83.73.48 port 60030 [preauth]	info
Jul 9, 2019 @ 23:29:10.973	sshd	schkn-ubuntu	Failed password for invalid user seanvui from 51.83.73.48 port 60030 ssh2	info

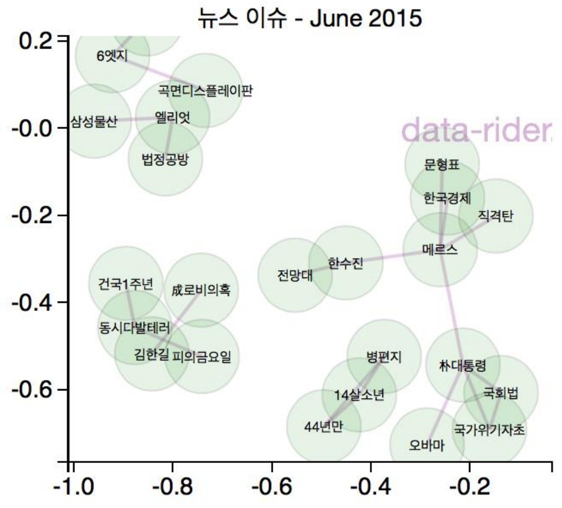
Data Science : NetworkX











Data Science : Machine Learning

LINEAR REGRESSION WITH STATSMODEL

scikit learn

TensorFlow

PyTorch

Spark

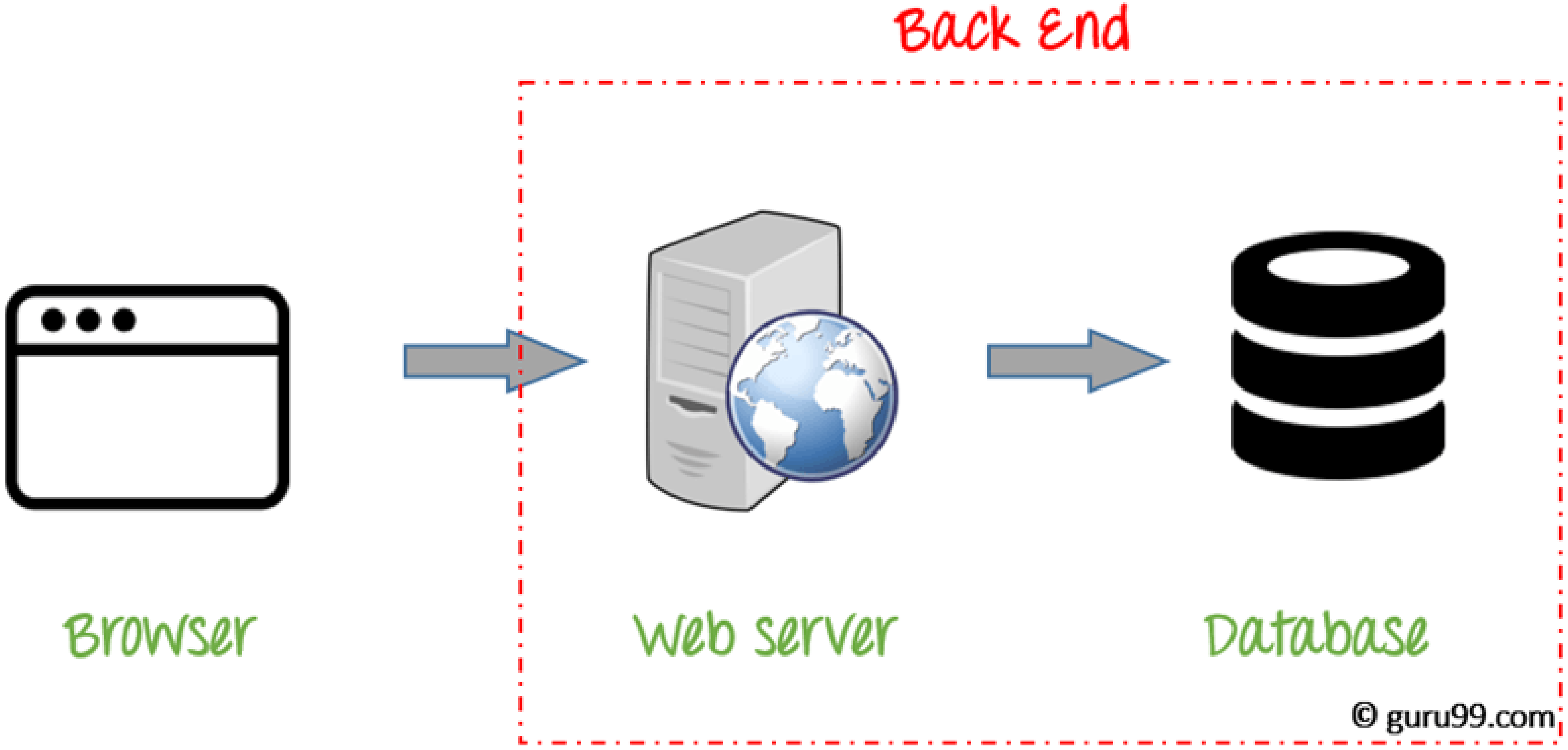
Web Programming

django

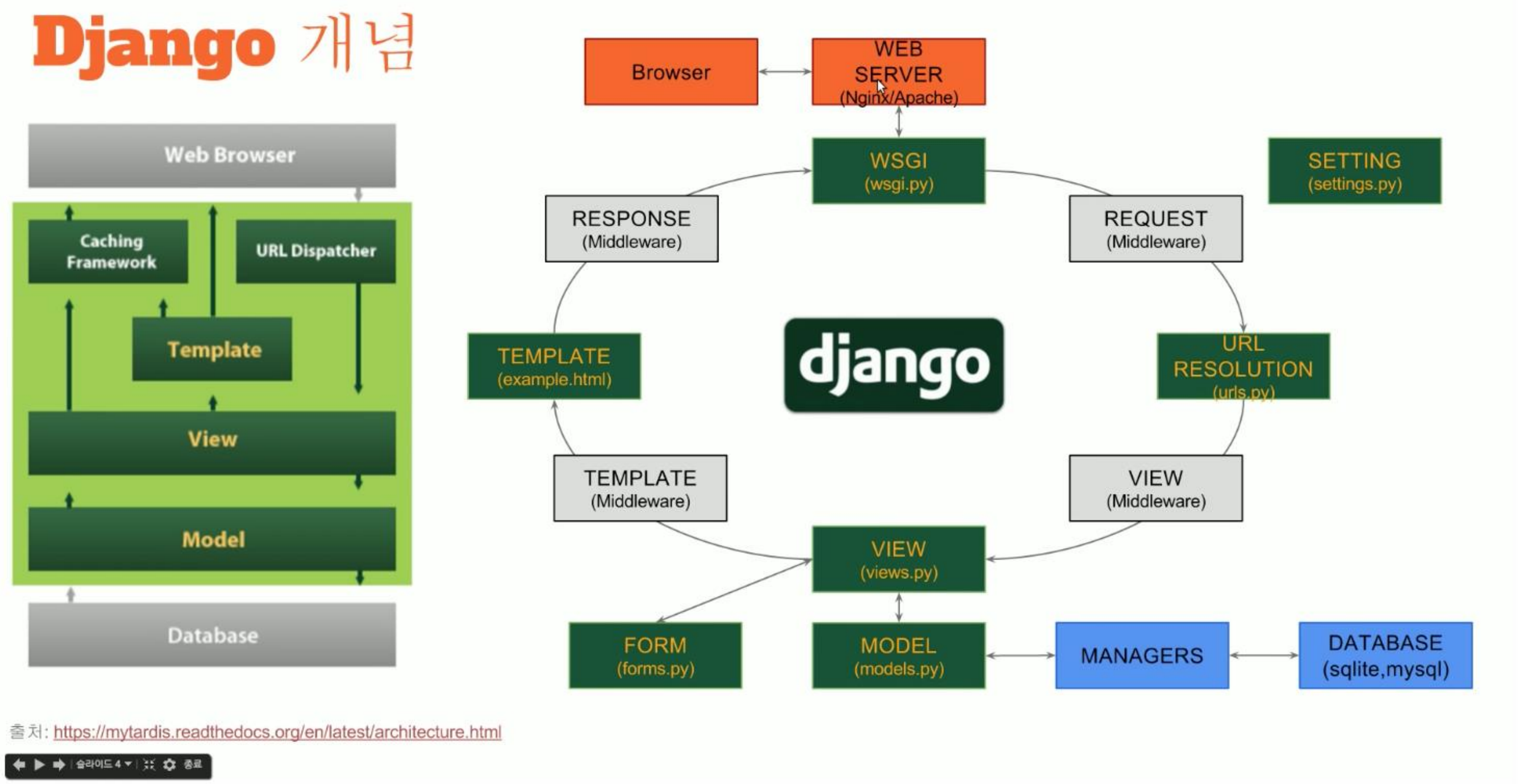
Flask
web development,
one drop at a time

Bottle

Web Programming : Frontend , Backend



Web Programming : Django



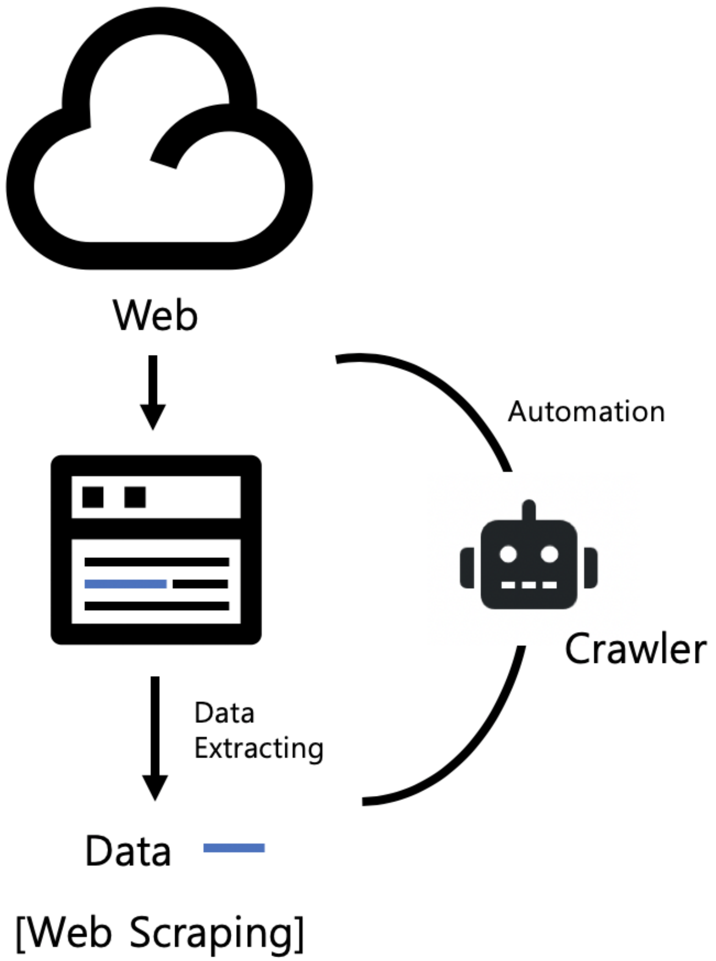
출처: https://mytardis.readthedocs.org/en/latest/architecture.html

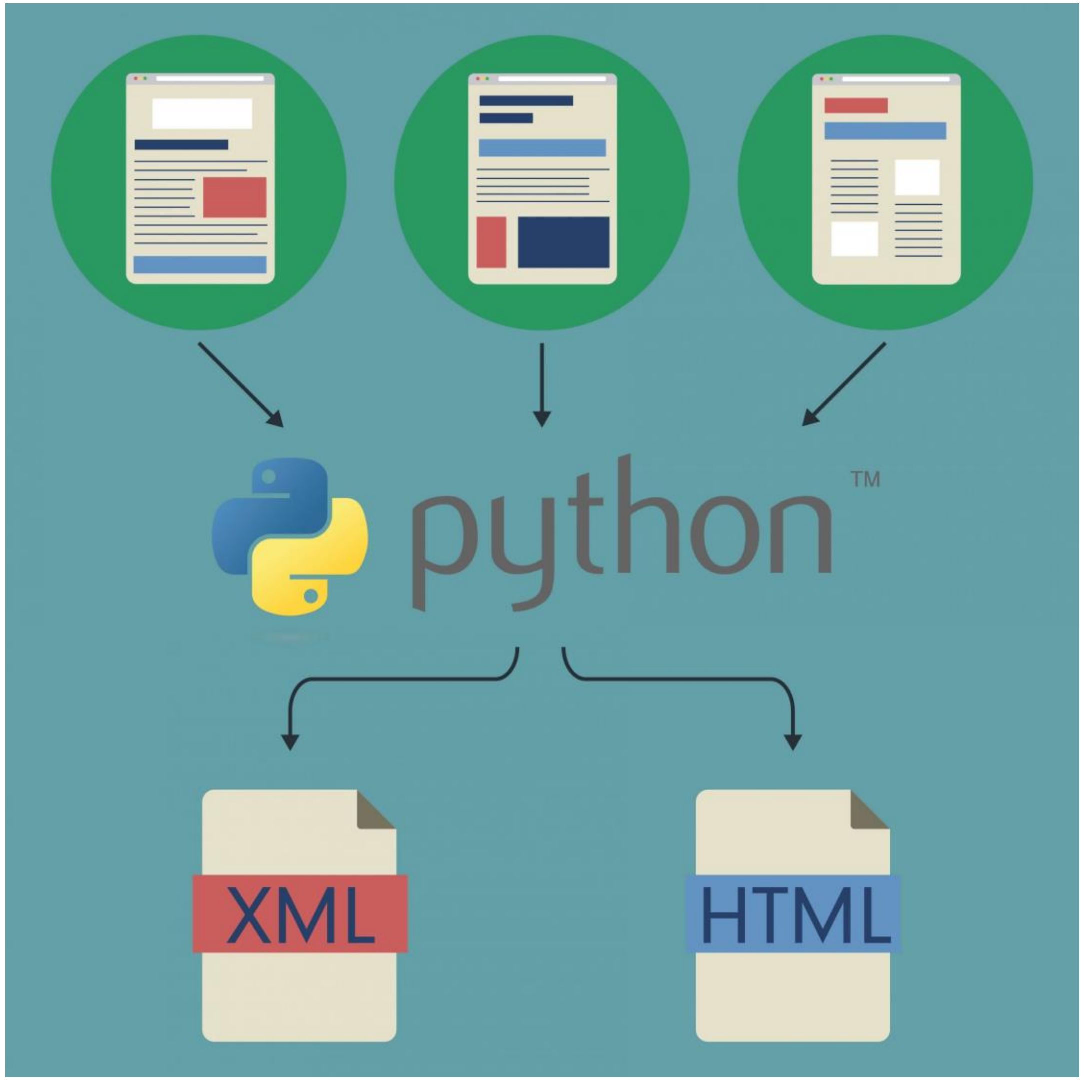
Web Crawling

BeautifulSoup

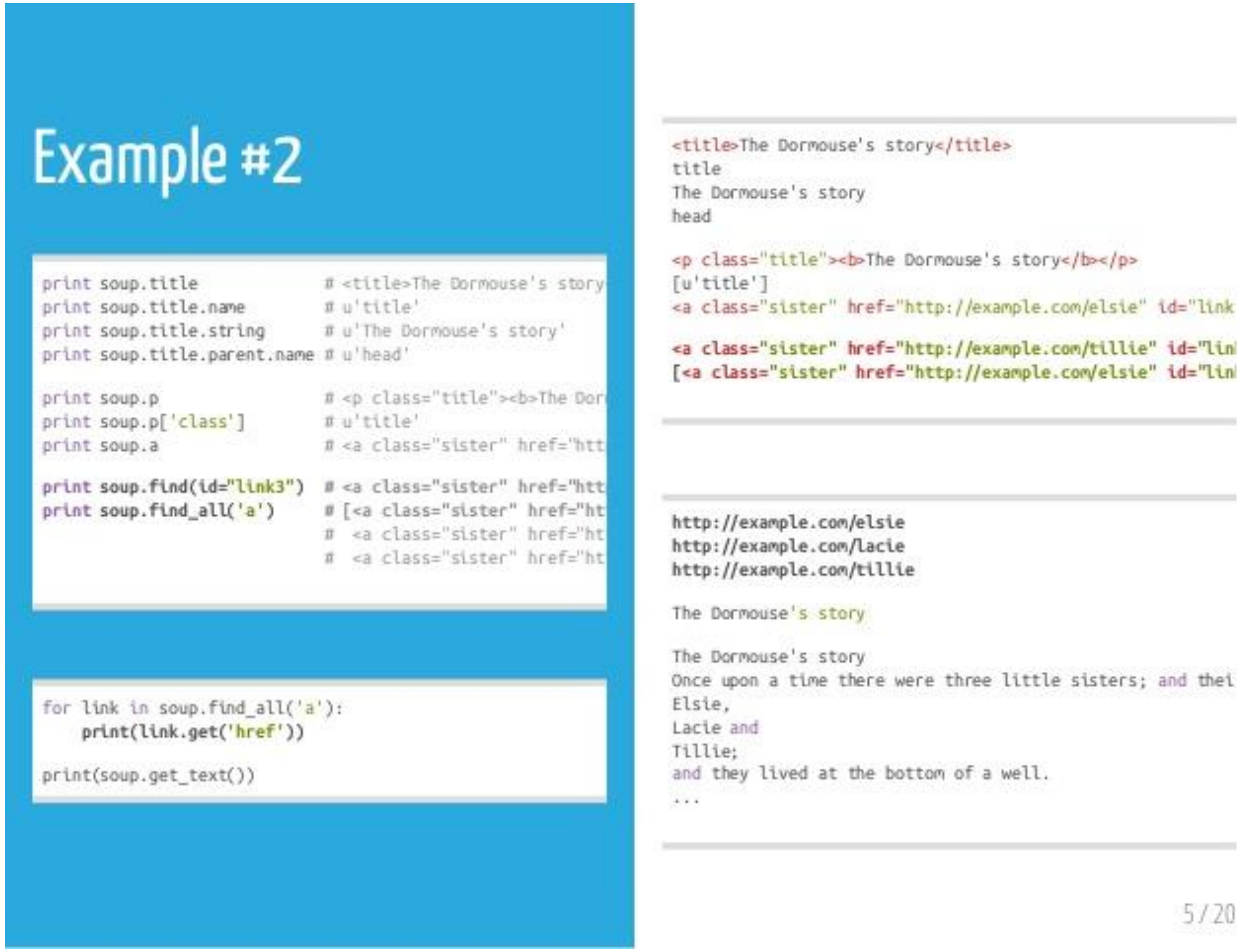
Se

Web Crawling





Web Crawling : BeautifulSoup



Example #2

```
print soup.title              # <title>The Dormouse's story
print soup.title.name         # u'title'
print soup.title.string       # u'The Dormouse's story'
print soup.title.parent.name  # u'head'

print soup.p                  # <p class="title"><b>The Dor
print soup.p['class']         # u'title'
print soup.a                  # <a class="sister" href="htt

print soup.find(id="link3")   # <a class="sister" href="htt
print soup.find_all('a')      # [<a class="sister" href="ht
                              #  <a class="sister" href="ht
                              #  <a class="sister" href="ht
```

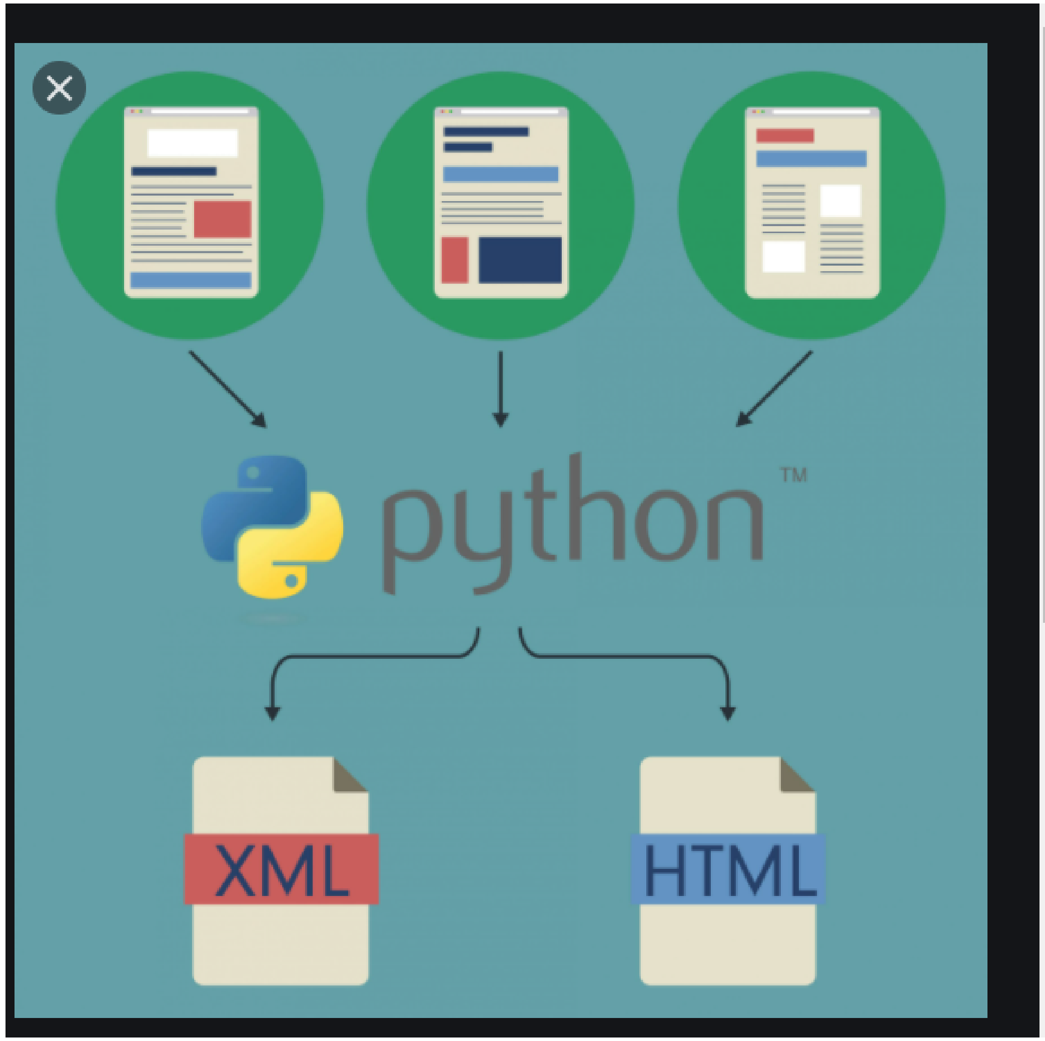
```
for link in soup.find_all('a'):
    print(link.get('href'))

print(soup.get_text())
```

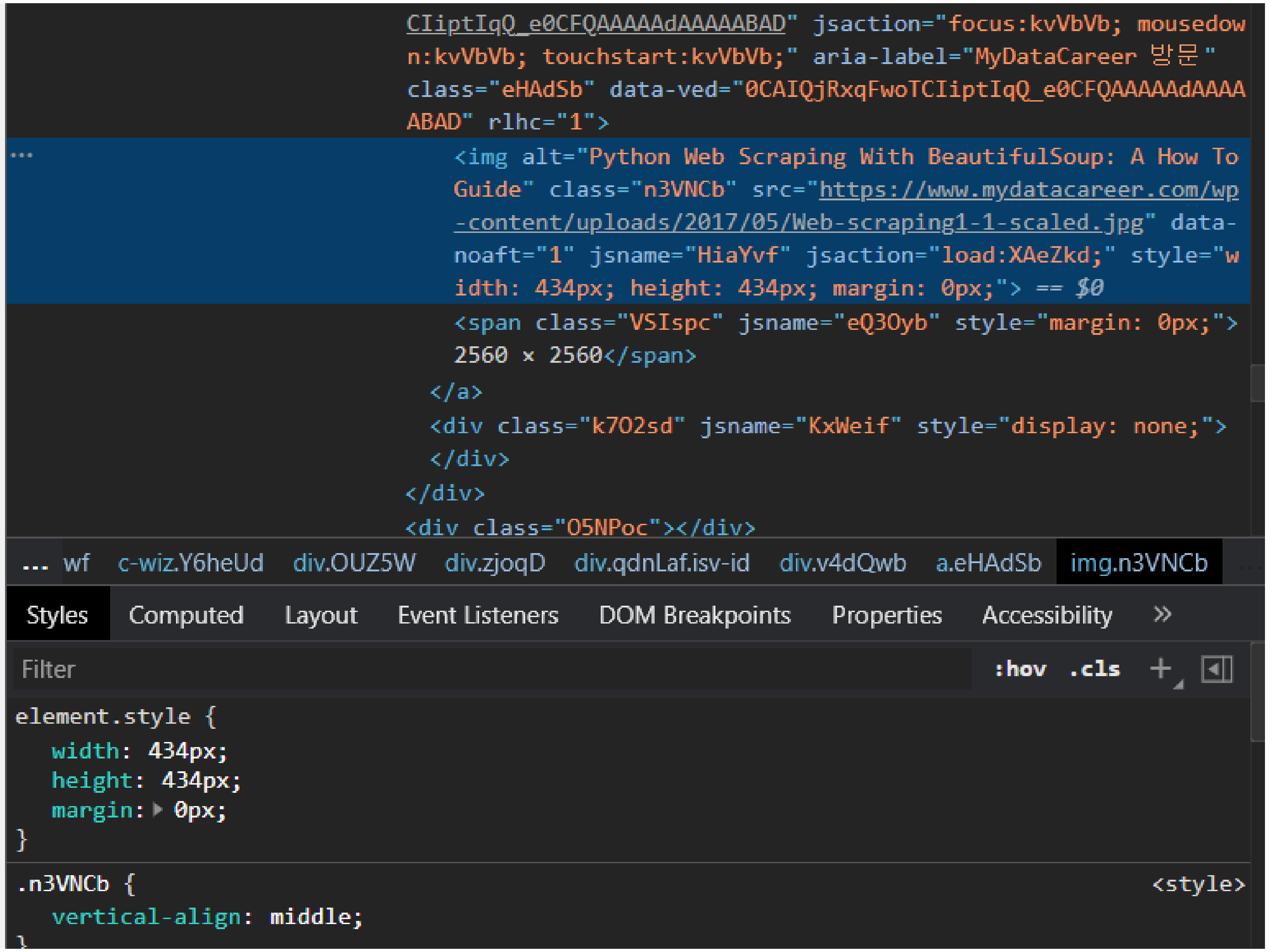
```
<title>The Dormouse's story</title>
title
The Dormouse's story
head

<p class="title"><b>The Dormouse's story</b></p>
[u'title']
<a class="sister" href="http://example.com/elsie" id="link

<a class="sister" href="http://example.com/tillie" id="lin
[<a class="sister" href="http://example.com/elsie" id="lin
```

```
http://example.com/elsie
http://example.com/lacie
http://example.com/tillie

The Dormouse's story

The Dormouse's story
Once upon a time there were three little sisters; and thei
Elsie,
Lacie and
Tillie;
and they lived at the bottom of a well.
...
```

5 / 20

Web Crawling : BeautifulSoup



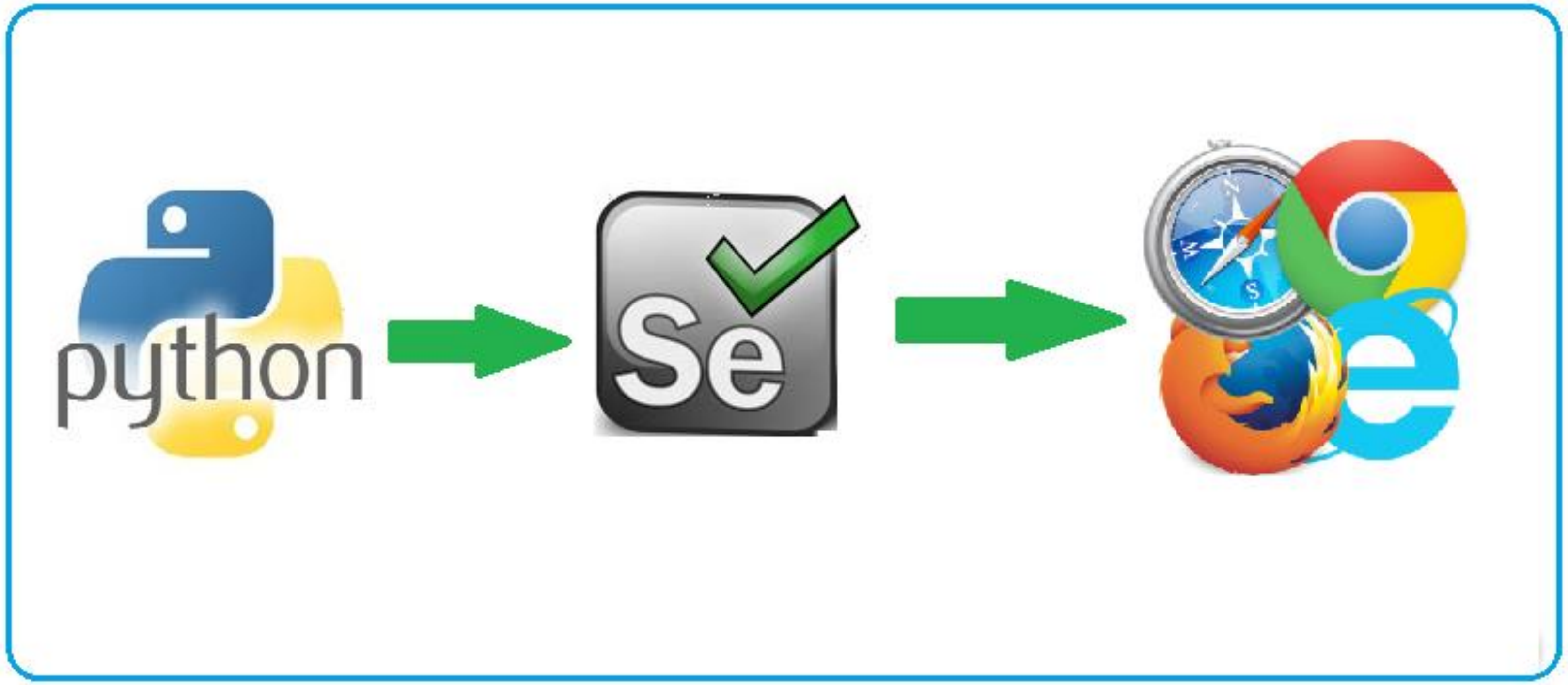


```
CIiptIqQ_e0CFQAAAAAdAAAAABAD" jsaction="focus:kvVbVb; mousedow
n:kvVbVb; touchstart:kvVbVb;" aria-label="MyDataCareer 방문"
class="eHAdSb" data-ved="0CAIQjRxqFwoTCIiptIqQ_e0CFQAAAAAdAAAA
ABAD" rlhc="1">
  <img alt="Python Web Scraping With BeautifulSoup: A How To
  Guide" class="n3VNCb" src="https://www.mydatacareer.com/wp
  -content/uploads/2017/05/Web-scraping1-1-scaled.jpg" data-
  noaft="1" jsname="HiaYvf" jsaction="load:XAeZkd;" style="w
  idth: 434px; height: 434px; margin: 0px;"> == $0
  <span class="VSIspc" jsname="eQ3Oyb" style="margin: 0px;">
  2560 × 2560</span>
 </a>
 <div class="k7O2sd" jsname="KxWeif" style="display: none;">
 </div>
</div>
<div class="O5NPoc"></div>
```

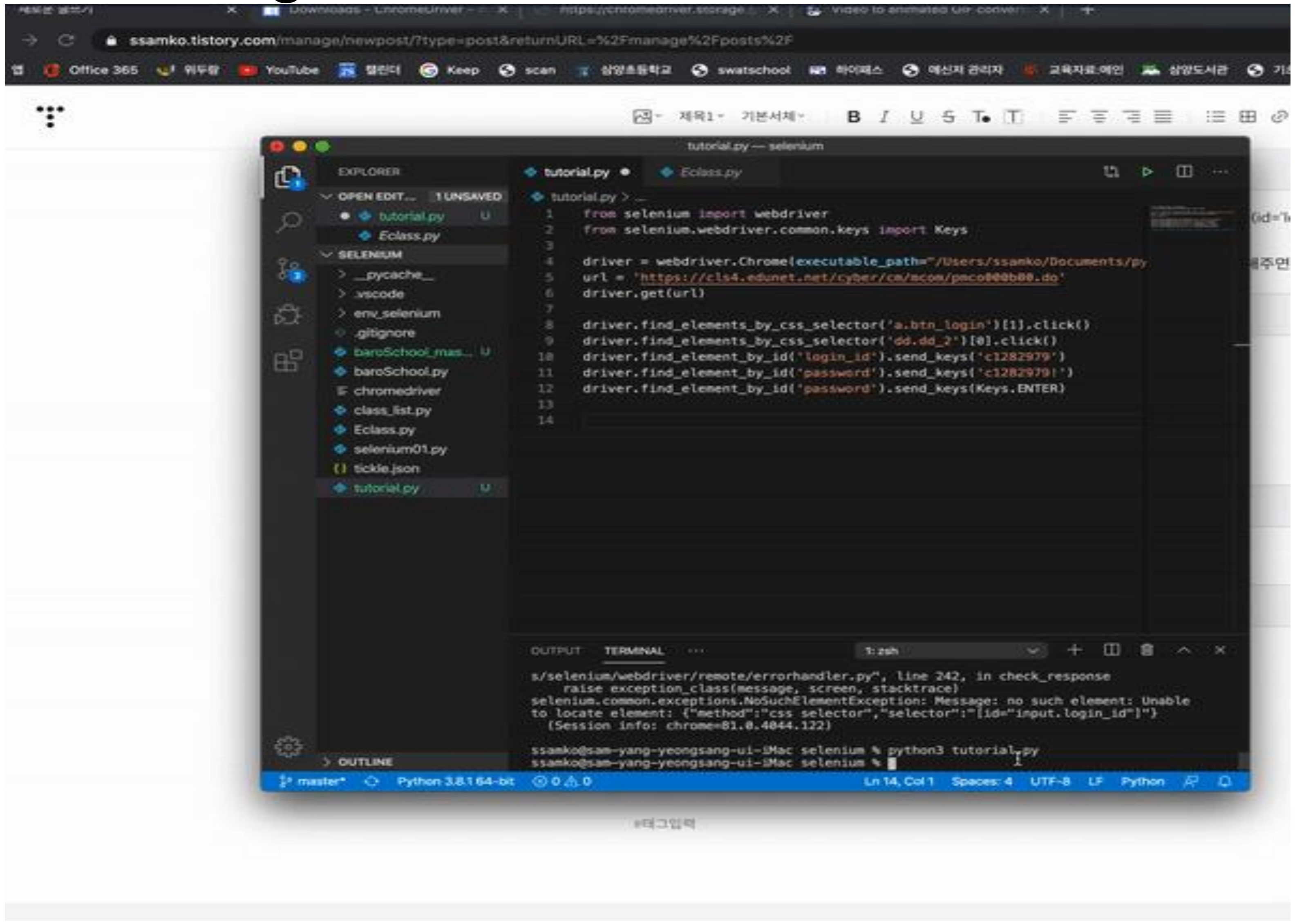
... wf c-wiz.Y6heUd div.OUZ5W div.zjoqD div.qdnLaf.isv-id div.v4dQwb a.eHAdSb img.n3VNCb

```
element.style {
  width: 434px;
  height: 434px;
  margin: ▸ 0px;
}
.n3VNCb {                                          <style>
  vertical-align: middle;
}
```

Web Crawling : Selenium



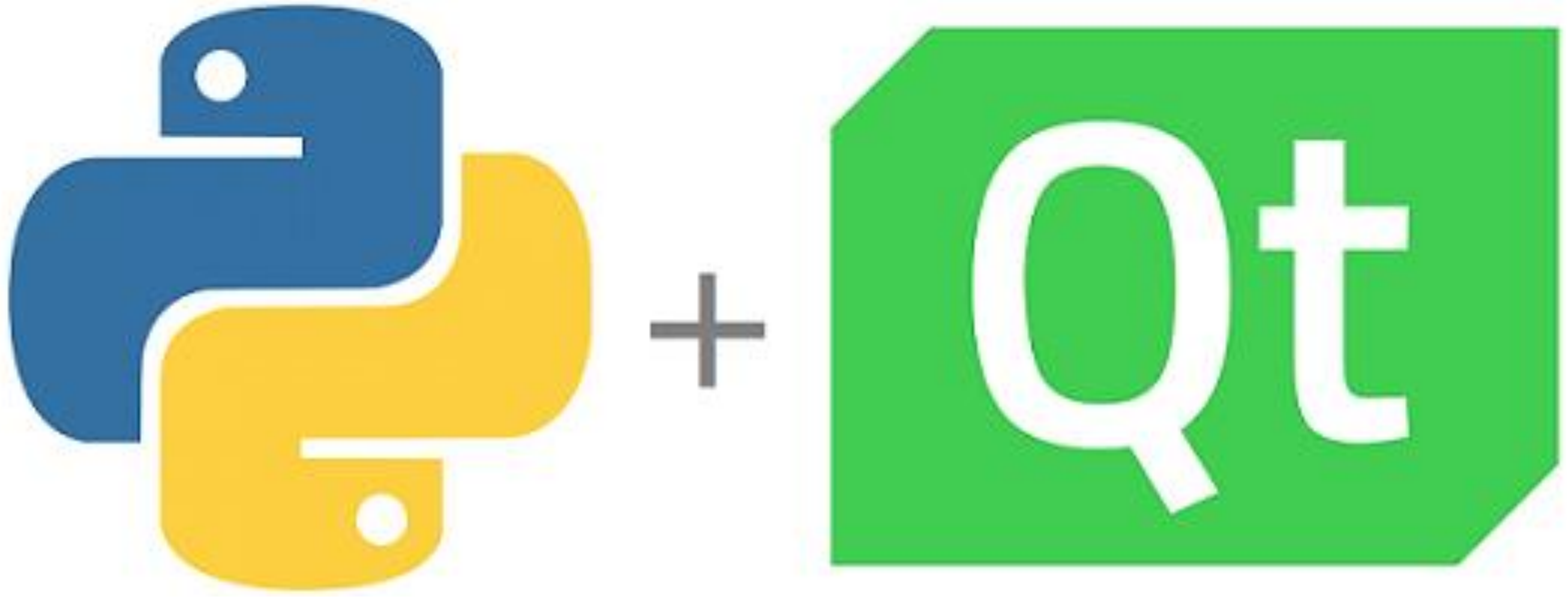
Web Crawling : Selenium



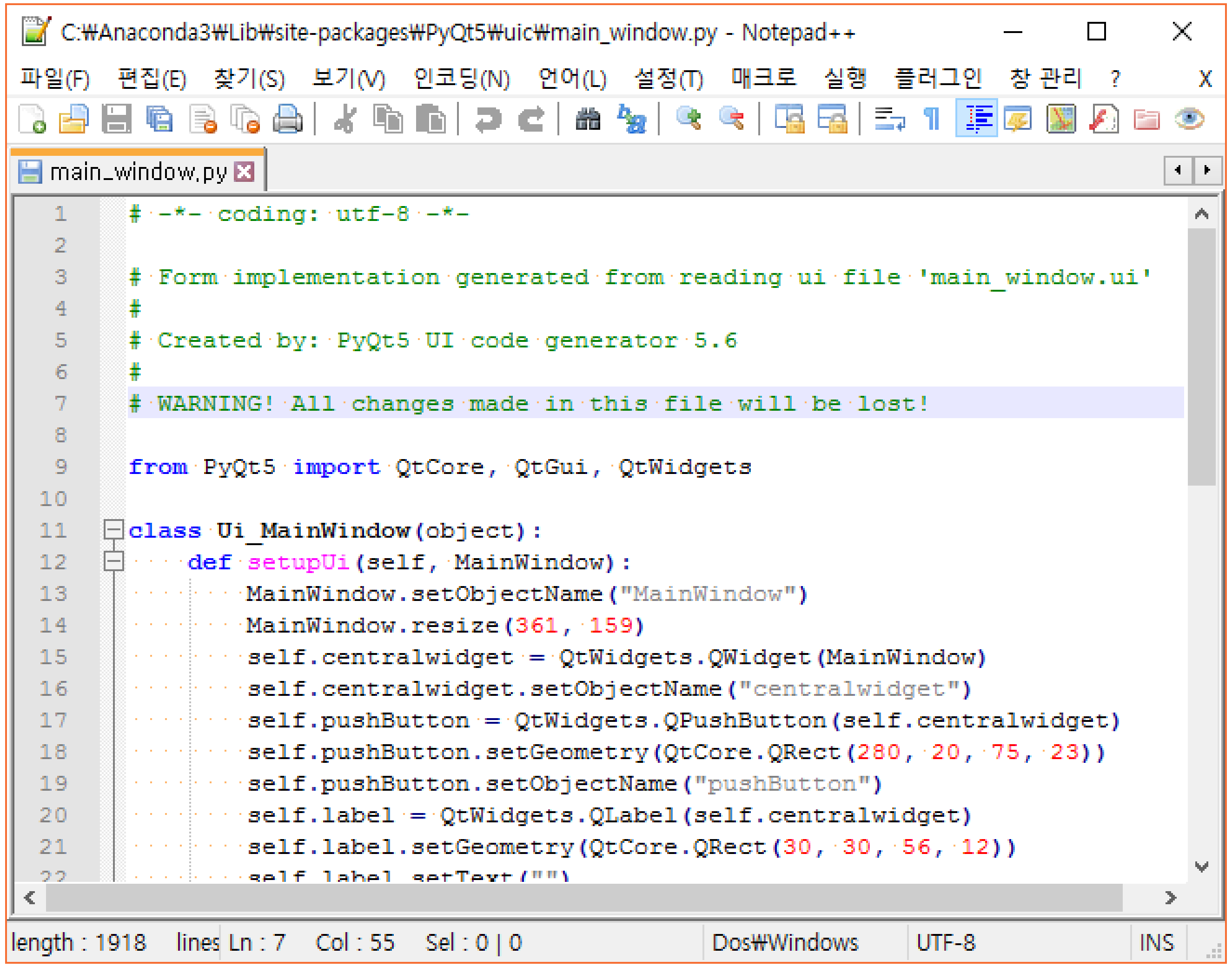
```python
from selenium import webdriver
from selenium.webdriver.common.keys import Keys

driver = webdriver.Chrome(executable_path="/Users/ssamko/Documents/py
url = 'https://cls4.edunet.net/cyber/cm/mcom/pmco000b00.do'
driver.get(url)

driver.find_elements_by_css_selector('a.btn_login')[1].click()
driver.find_elements_by_css_selector('dd.dd_2')[0].click()
driver.find_element_by_id('login_id').send_keys('c1282979')
driver.find_element_by_id('password').send_keys('c1282979!')
driver.find_element_by_id('password').send_keys(Keys.ENTER)
```

```
s/selenium/webdriver/remote/errorhandler.py", line 242, in check_response
    raise exception_class(message, screen, stacktrace)
selenium.common.exceptions.NoSuchElementException: Message: no such element: Unable
to locate element: {"method":"css selector","selector":"[id="input.login_id"]"}
  (Session info: chrome=81.0.4044.122)

ssamko@sam-yang-yeongsang-ui-iMac selenium % python3 tutorial.py
ssamko@sam-yang-yeongsang-ui-iMac selenium % 
```

GUI : PyQT5



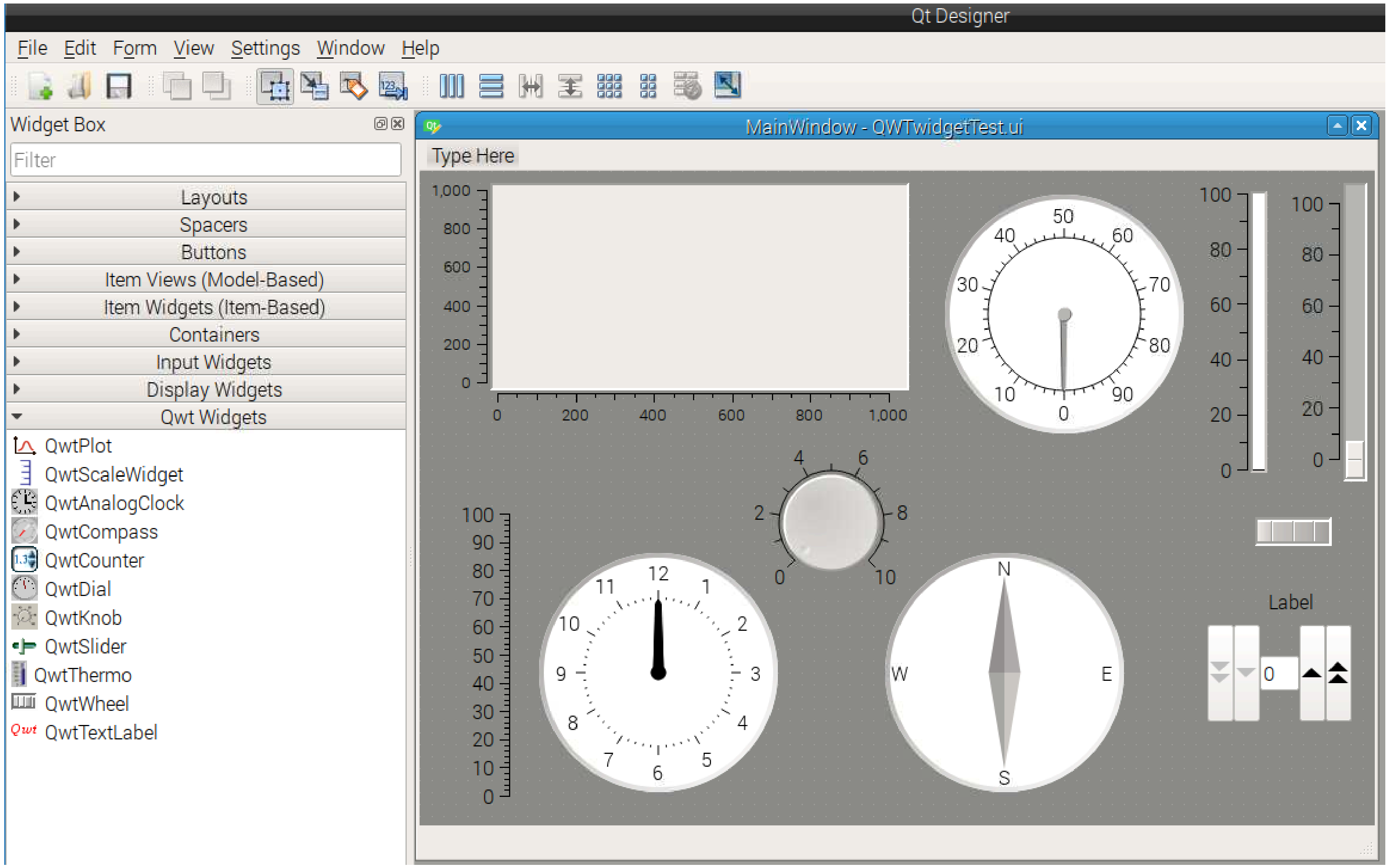
GUI : PyQT5


C:₩Anaconda3₩Lib₩site-packages₩PyQt5₩uic₩main_window.py - Notepad++
파일(F) 편집(E) 찾기(S) 보기(V) 인코딩(N) 언어(L) 설정(T) 매크로 실행 플러그인 창 관리 ?
main_window.py

```python
# -*- coding: utf-8 -*-

# Form implementation generated from reading ui file 'main_window.ui'
#
# Created by: PyQt5 UI code generator 5.6
#
# WARNING! All changes made in this file will be lost!

from PyQt5 import QtCore, QtGui, QtWidgets

class Ui_MainWindow(object):
    def setupUi(self, MainWindow):
        MainWindow.setObjectName("MainWindow")
        MainWindow.resize(361, 159)
        self.centralwidget = QtWidgets.QWidget(MainWindow)
        self.centralwidget.setObjectName("centralwidget")
        self.pushButton = QtWidgets.QPushButton(self.centralwidget)
        self.pushButton.setGeometry(QtCore.QRect(280, 20, 75, 23))
        self.pushButton.setObjectName("pushButton")
        self.label = QtWidgets.QLabel(self.centralwidget)
        self.label.setGeometry(QtCore.QRect(30, 30, 56, 12))
        self.label.setText("")
```

length : 1918 lines Ln : 7 Col : 55 Sel : 0 | 0 Dos₩Windows UTF-8 INS

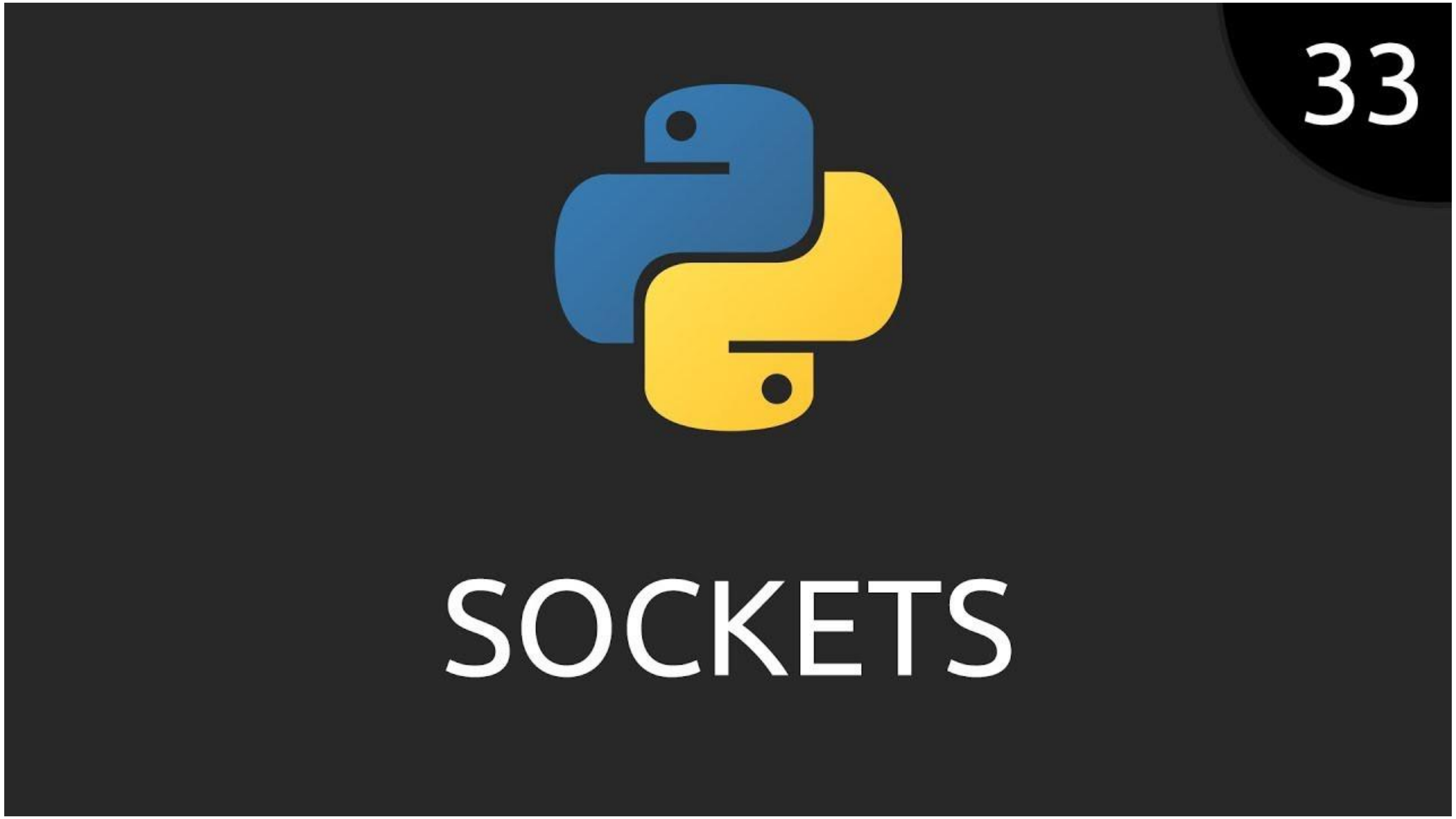
GUI : PyQT5


Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Spacers
Buttons
Item Views (Model-Based)
Item Widgets (Item-Based)
Containers
Input Widgets
Display Widgets
Qwt Widgets
QwtPlot
QwtScaleWidget
QwtAnalogClock
QwtCompass
QwtCounter
QwtDial
QwtKnob
QwtSlider
QwtThermo
QwtWheel
QwtTextLabel
MainWindow - QWTwidgetTest.ui
Type Here
Label

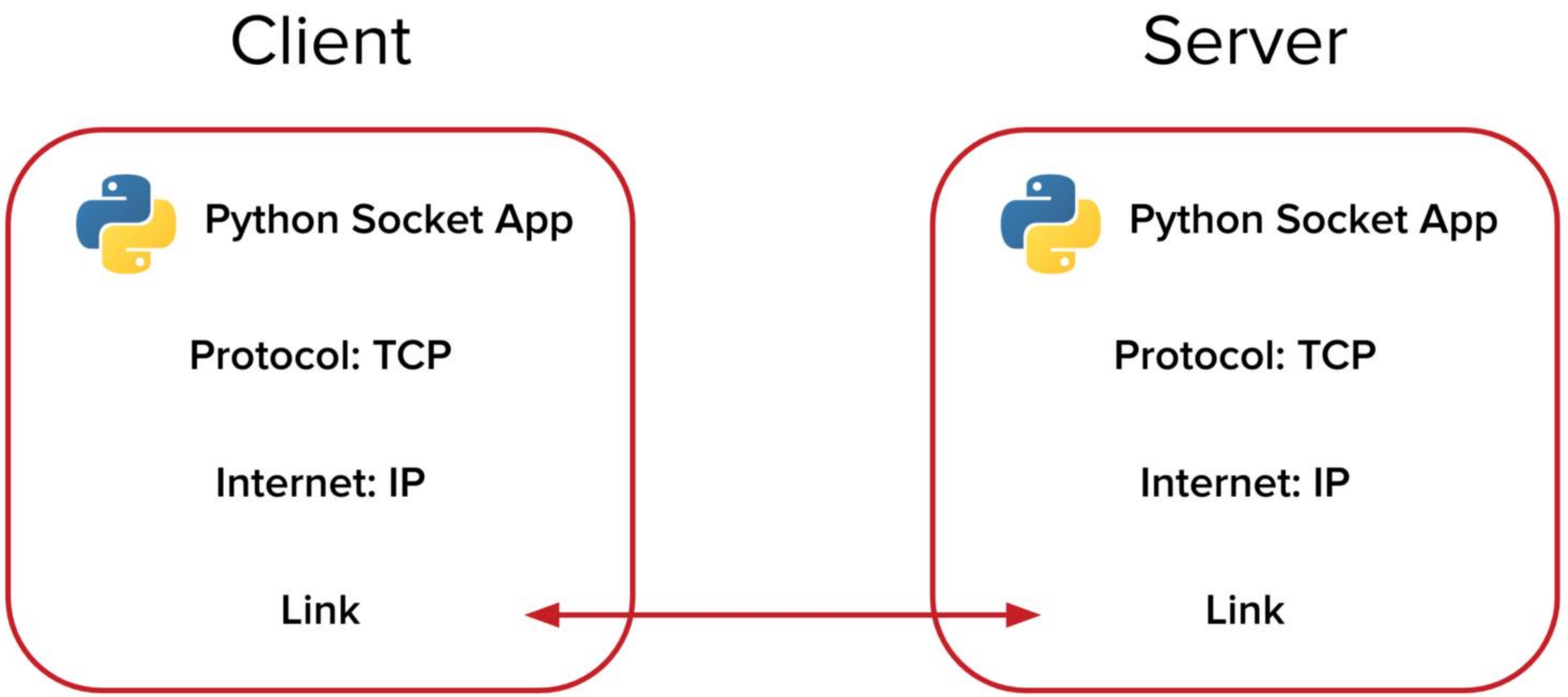
Game : PyGame

Game : PyGame

Network

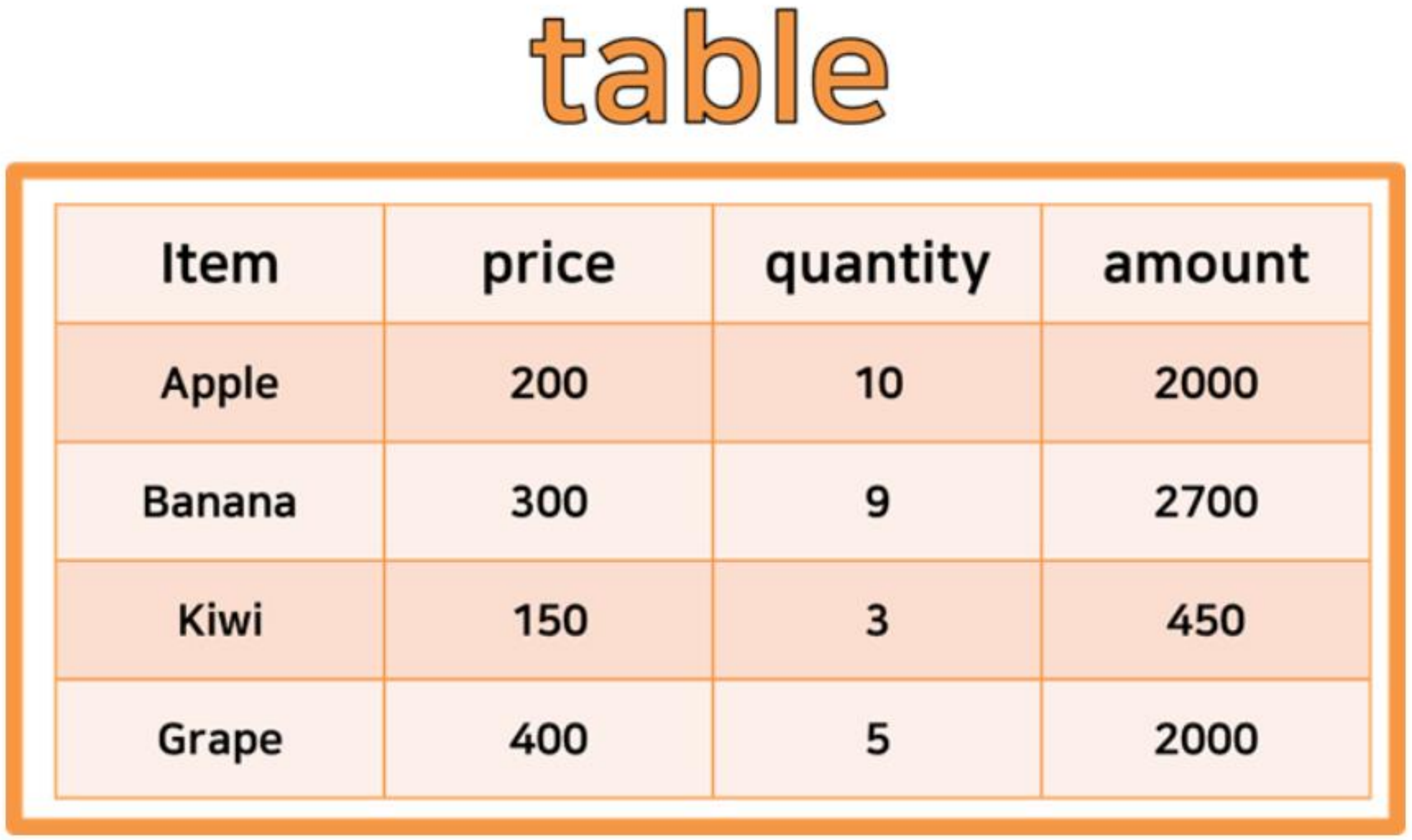


Network


Client
Server
Python Socket App
Protocol: TCP
Internet: IP
Link
Python Socket App
Protocol: TCP
Internet: IP
Link

Database

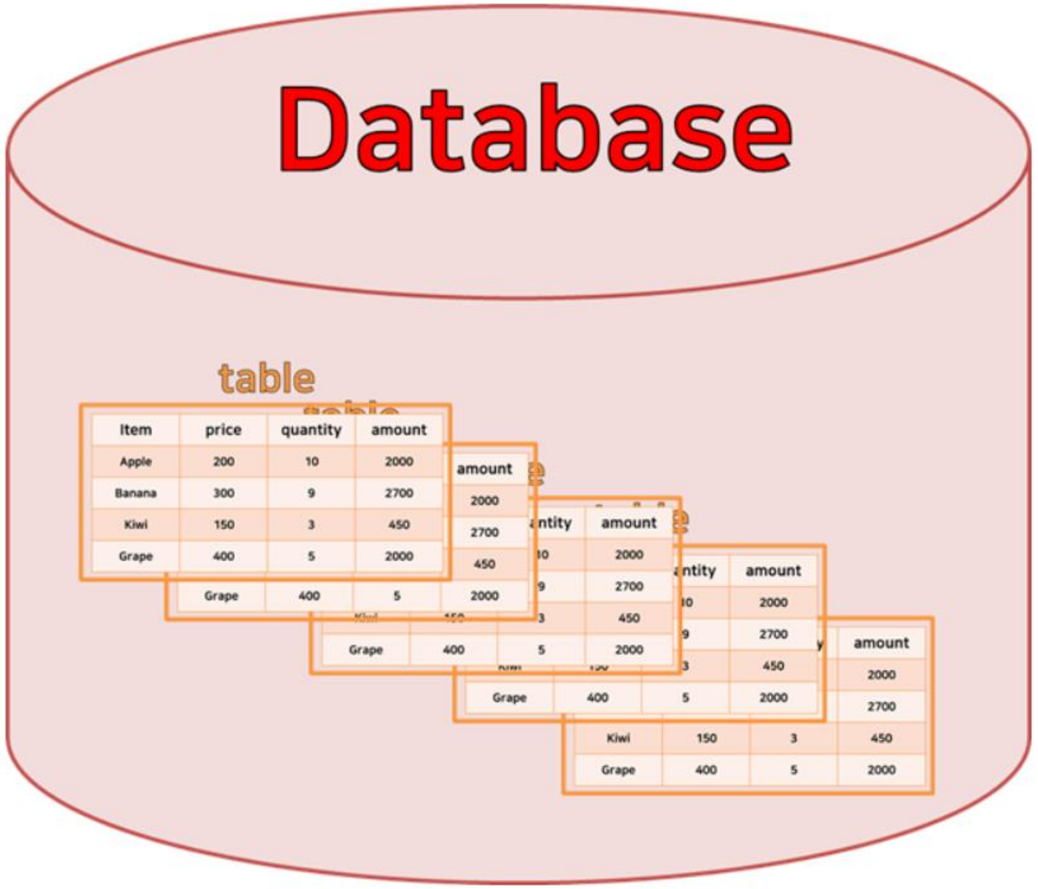
Database : table



table

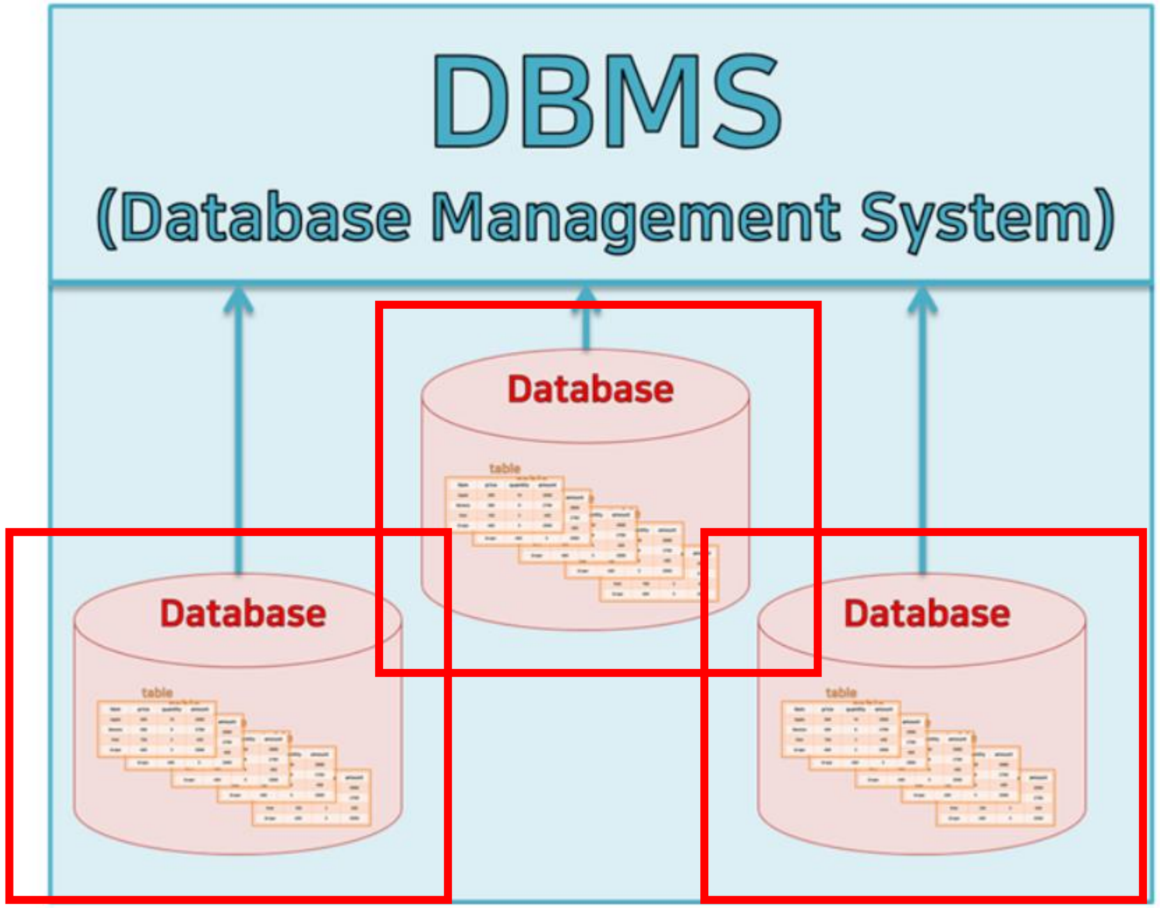
Item	price	quantity	amount
Apple	200	10	2000
Banana	300	9	2700
Kiwi	150	3	450
Grape	400	5	2000

Database : DataBase

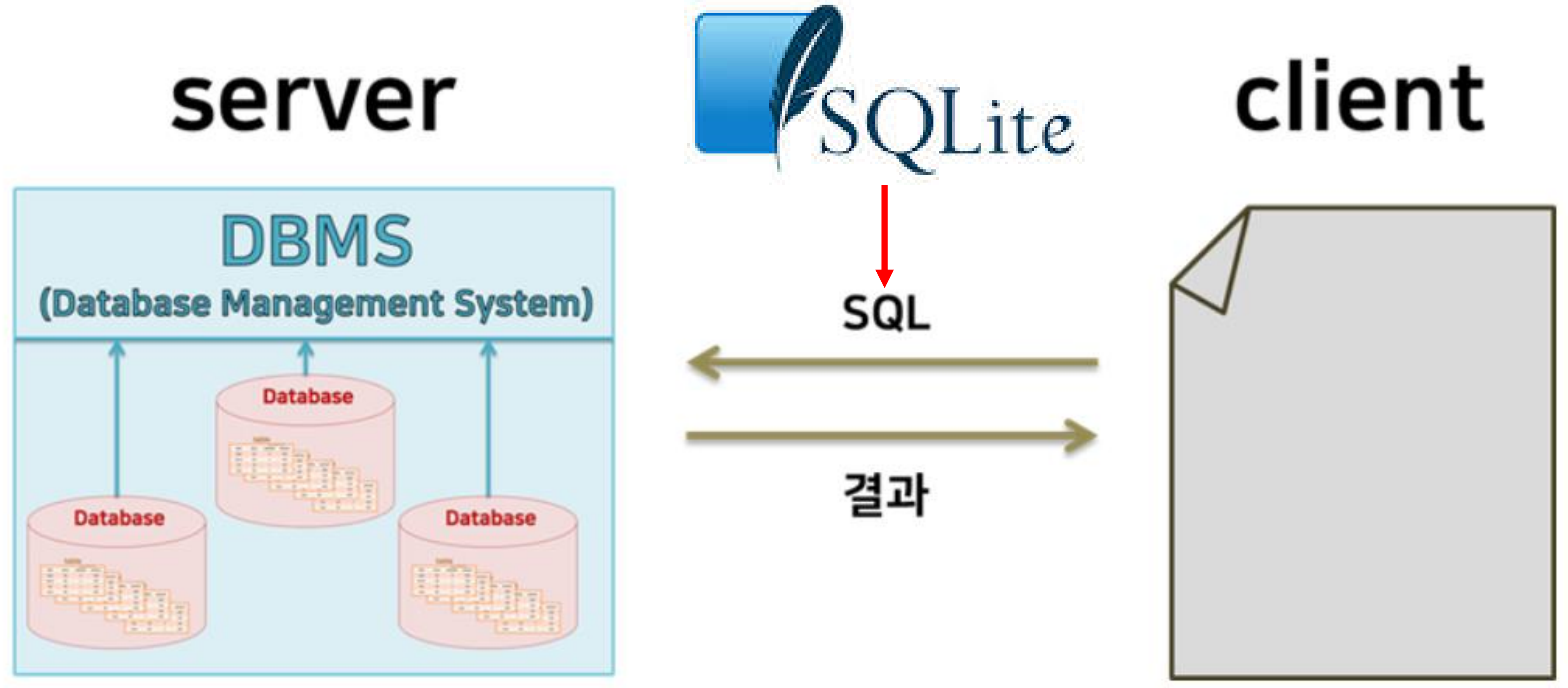


Item	price	quantity	amount
Apple	200	10	2000
Banana	300	9	2700
Kiwi	150	3	450
Grape	400	5	2000

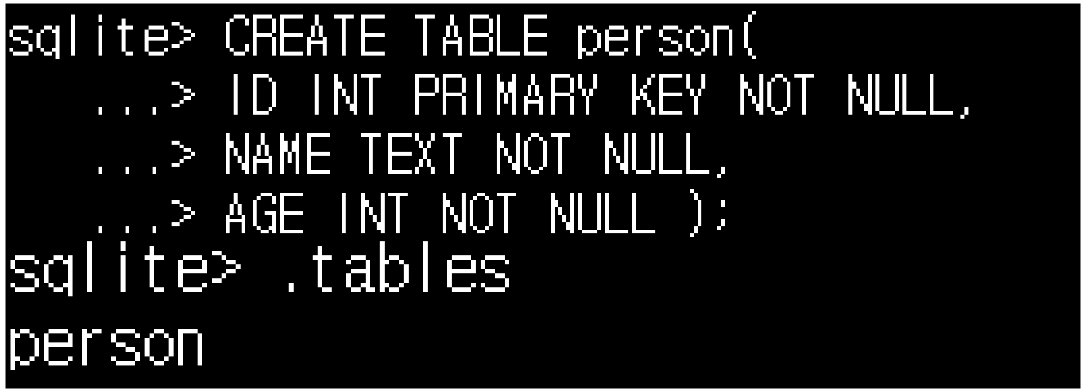
Database : DBMS



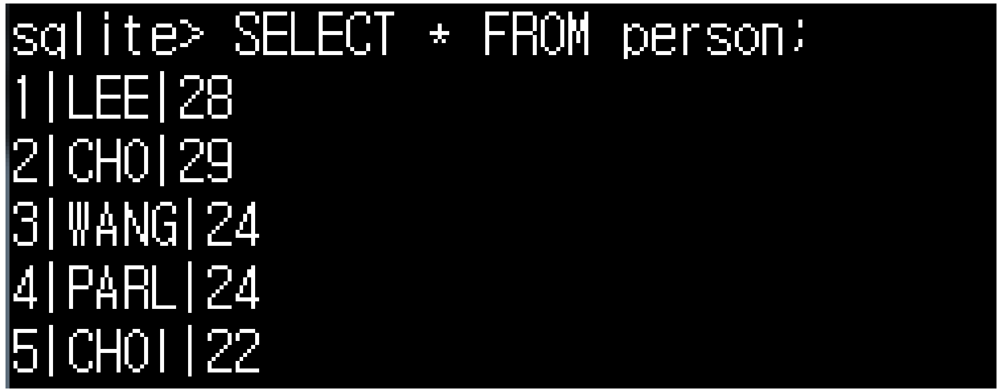
Database : Architecture



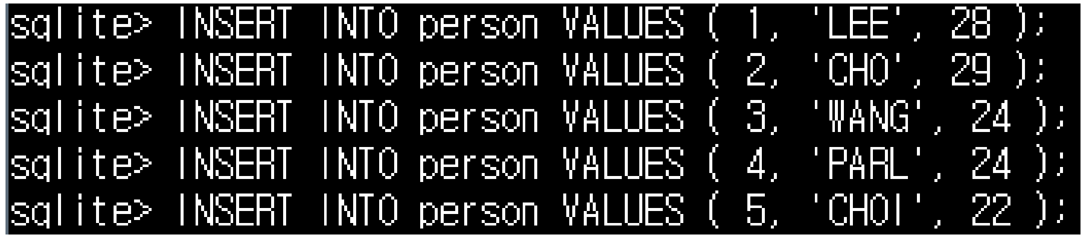
Database : command



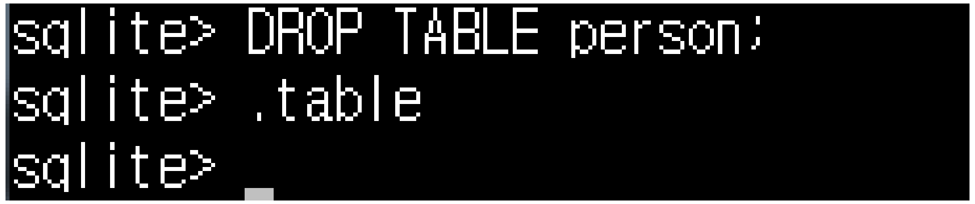
```
sqlite> CREATE TABLE person(
   ...> ID INT PRIMARY KEY NOT NULL,
   ...> NAME TEXT NOT NULL,
   ...> AGE INT NOT NULL );
sqlite> .tables
person
```



```
sqlite> SELECT * FROM person;
1|LEE|28
2|CHO|29
3|WANG|24
4|PARL|24
5|CHOI|22
```

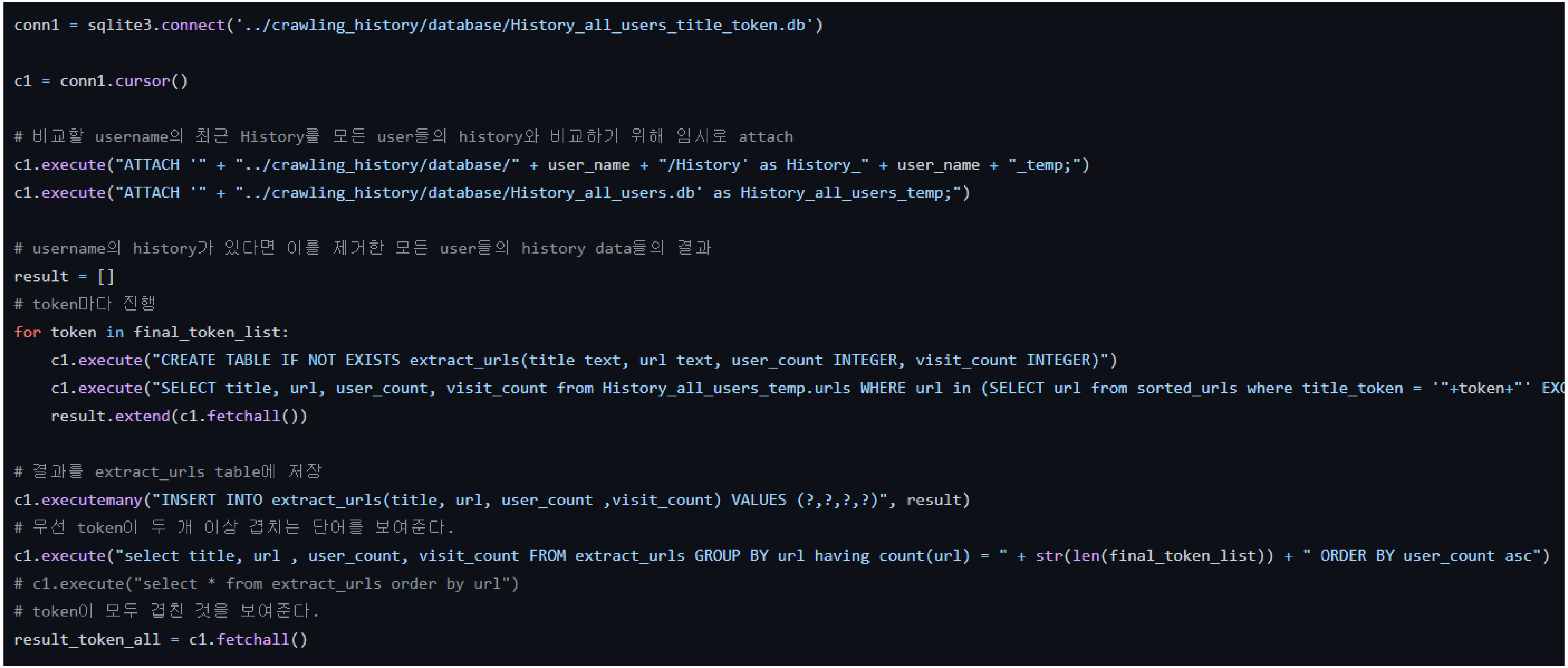


```
sqlite> INSERT INTO person VALUES ( 1, 'LEE', 28 );
sqlite> INSERT INTO person VALUES ( 2, 'CHO', 29 );
sqlite> INSERT INTO person VALUES ( 3, 'WANG', 24 );
sqlite> INSERT INTO person VALUES ( 4, 'PARL', 24 );
sqlite> INSERT INTO person VALUES ( 5, 'CHOI', 22 );
```



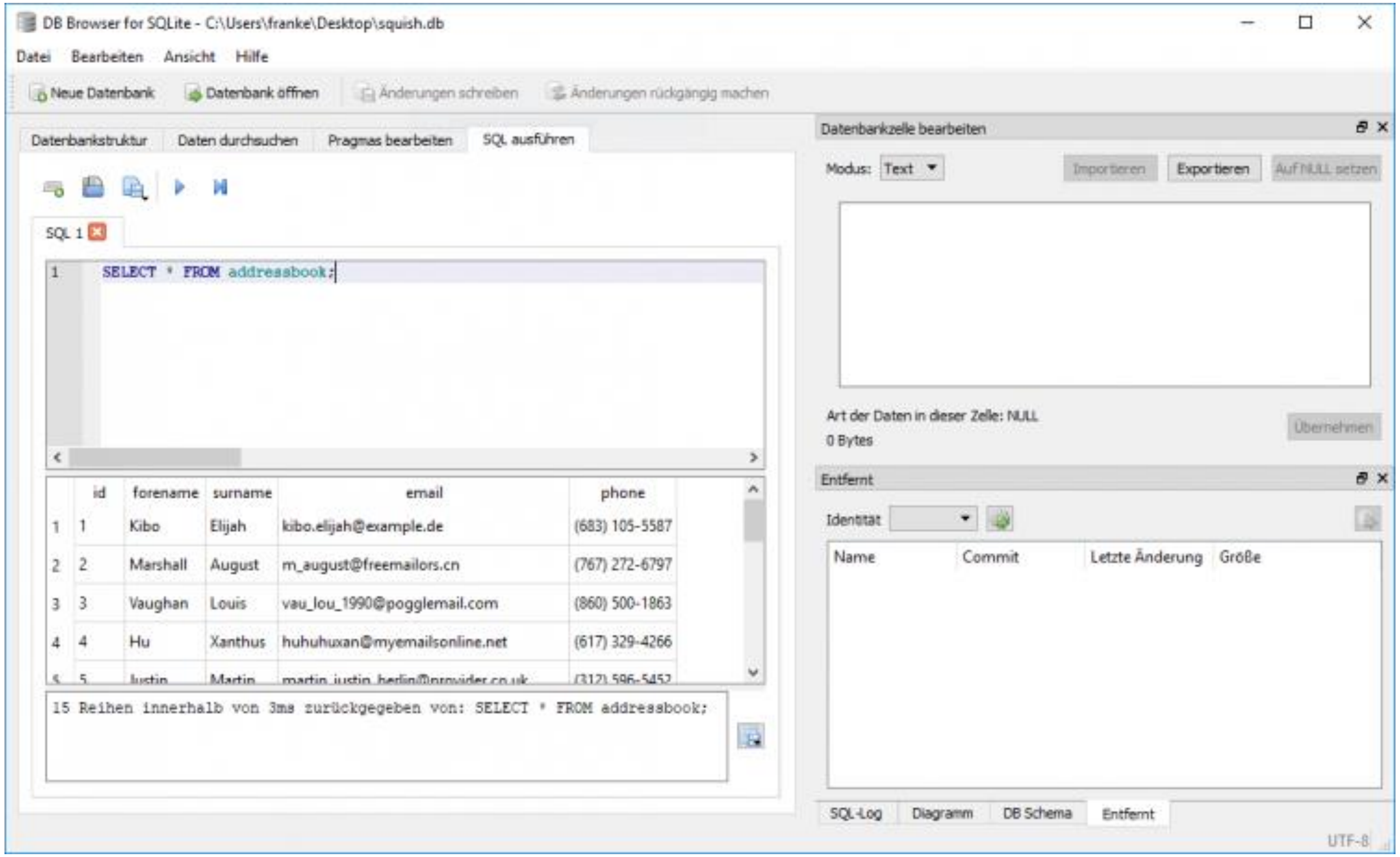
```
sqlite> DROP TABLE person;
sqlite> .table
sqlite>
```

Database : Collaborate with Python



```
conn1 = sqlite3.connect('../crawling_history/database/History_all_users_title_token.db')

c1 = conn1.cursor()

# 비교할 username의 최근 History를 모든 user들의 history와 비교하기 위해 임시로 attach
c1.execute("ATTACH '" + "../crawling_history/database/" + user_name + "/History' as History_" + user_name + "_temp;")
c1.execute("ATTACH '" + "../crawling_history/database/History_all_users.db' as History_all_users_temp;")

# username의 history가 있다면 이를 제거한 모든 user들의 history data들의 결과
result = []
# token마다 진행
for token in final_token_list:
    c1.execute("CREATE TABLE IF NOT EXISTS extract_urls(title text, url text, user_count INTEGER, visit_count INTEGER)")
    c1.execute("SELECT title, url, user_count, visit_count from History_all_users_temp.urls WHERE url in (SELECT url from sorted_urls where title_token = '"+token+"' EXC
    result.extend(c1.fetchall())

# 결과를 extract_urls table에 저장
c1.executemany("INSERT INTO extract_urls(title, url, user_count ,visit_count) VALUES (?,?,?,?)", result)
# 우선 token이 두 개 이상 겹치는 단어를 보여준다.
c1.execute("select title, url , user_count, visit_count FROM extract_urls GROUP BY url having count(url) = " + str(len(final_token_list)) + " ORDER BY user_count asc")
# c1.execute("select * from extract_urls order by url")
# token이 모두 겹친 것을 보여준다.
result_token_all = c1.fetchall()
```

Database : SQLite GUI



```
SELECT * FROM addressbook;
```

	id	forename	surname	email	phone
1	1	Kibo	Elijah	kibo.elijah@example.de	(683) 105-5587
2	2	Marshall	August	m_august@freemailors.cn	(767) 272-6797
3	3	Vaughan	Louis	vau_lou_1990@pogglemail.com	(860) 500-1863
4	4	Hu	Xanthus	huhuhuxan@myemailsonline.net	(617) 329-4266
5	5	Justin	Martin	martin.justin.berlin@provider.co.uk	(312) 596-5452

```
15 Reihen innerhalb von 3ms zurückgegeben von: SELECT * FROM addressbook;
```

Art der Daten in dieser Zelle: NULL
0 Bytes