COMS W4111: Introduction to Databases Sections 002, V02 Fall 2022

Homework 0 - Environment Setup

Introduction/Overview

Please consult the HW0: Environment PDF for detailed instructions. Complete all the tests in this notebook and submit only this notebook as a PDF to GradeScope. To convert the jupyter notebook into a pdf you can use either of the following methods:

- File --> Print Preview --> Print --> Save to PDF
- File --> Download As HTML --> Print --> Save to PDF

Due date: September 18, 11:59 PM EDT on GradeScope

Please note: You may NOT use late days for the submission of this assignment. Check Courseworks for GradeScope access.

It is recommended that you put the screenshots into the same folder as this notebook so you do not have to alter the path to include your images.

Please read all the instructions thoroughly!

Add Student Information

1. Replace my name with your full name.
2. Replace my UNI with your UNI.
3. Replace "Cool Track" with either "Programming" or "Non-programming."

In [17]:
```
# Print your name, uni, and track below

name = "KeunWoo Song"
uni = "ks3651"
track = "Programming"

print(name)
print(uni)
print(track)
```

```
KeunWoo Song
ks3651
Programming
```

Testing Anaconda and Python

Run the following cells to ensure that you have the correct version of Python and all necessary packages installed.

Python Version

If you Python version test failed, you installed Anaconda incorrectly. You will have to uninstall and install a correct, recent version.

In [2]:
```
import sys

print("Python version information:", sys.version_info, "\n")
if sys.version_info.major != 3 or \
    ((sys.version_info.major == 3) and (sys.version_info.minor < 7)):
    print("You have an invalid version of Python.")
else:
    print("Your Python version is OK.")
```

```
Python version information: sys.version_info(major=3, minor=9, micro=12,
releaselevel='final', serial=0)

Your Python version is OK.
```

Python Path and Information

In [3]:
```
python_found = False
anaconda_found = False

for p in sys.path:
    print(p)
    if "anaconda3" in p:
        print("Found anaconda3")
        anaconda_found = True
    if "python" in p:
        print("Found some kind of Python.")
        if not anaconda_found:
            print("Found some type of Python other than Anaconda.")
            print("Test fails")
        else:
            print("OK. Path is good.")
            python_found = True
        break

if python_found and anaconda_found:
    print("\nPassed all path tests.")
else:
    print("\nFailed path tests.")
```

```
/Users/keunwoo/Downloads/F22_W4111_HW_0
/Users/keunwoo/opt/anaconda3/lib/python39.zip
Found anaconda3
Found some kind of Python.
OK. Path is good.

Passed all path tests.
```

If you path/environment test failed, you installed Anaconda incorrectly. You will have to uninstall and install a correct, recent version.

Test Conda/Anaconda Version

In [4]:
```
import conda
```

In [5]:
```
conda_version_info =  conda.sys.version_info
print("Your conda version info is\n", conda_version_info)

print("Conda version information:", conda_version_info, "\n")
if conda_version_info.major != 3 or \
    ((conda_version_info.major == 3) and (conda_version_info.minor < 6)):
    print("You have an invalid version of Conda.")
else:
    print("Your Conda version is OK.")
```

```
Your conda version info is
 sys.version_info(major=3, minor=9, micro=12, releaselevel='final', seria
l=0)
Conda version information: sys.version_info(major=3, minor=9, micro=12, r
eleaselevel='final', serial=0)

Your Conda version is OK.
```

If you the version test failed, you installed Anaconda incorrectly. You will have to uninstall and install a correct, recent version.

Test Pandas

In [6]:
```
import pandas
p_version = pandas.__version__
p_nums = p_version.split(".")

print("Your pandas version is ", p_version)
if p_nums[0] != '1':
    print("Your version is invalid.")
else:
    print("Your version is OK.")

# This checks to see if you are on pandas 1.0.5 or 1.2.0 both of which ar
```

```
Your pandas version is  1.4.2
Your version is OK.
```

If you do not have Pandas already you will need to install Pandas using the following cell:

In [7]:
```
!pip install pandas
```

```
Requirement already satisfied: pandas in /Users/keunwoo/opt/anaconda3/lib
/python3.9/site-packages (1.4.2)
Requirement already satisfied: python-dateutil>=2.8.1 in /Users/keunwoo/o
pt/anaconda3/lib/python3.9/site-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /Users/keunwoo/opt/anacond
a3/lib/python3.9/site-packages (from pandas) (2021.3)
Requirement already satisfied: numpy>=1.18.5 in /Users/keunwoo/opt/anacon
da3/lib/python3.9/site-packages (from pandas) (1.21.5)
Requirement already satisfied: six>=1.5 in /Users/keunwoo/opt/anaconda3/l
ib/python3.9/site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
```

Install ipython-sql

In [8]:
```
!pip install ipython-sql
```

```
Requirement already satisfied: ipython-sql in /Users/keunwoo/opt/anaconda
3/lib/python3.9/site-packages (0.4.1)
Requirement already satisfied: six in /Users/keunwoo/opt/anaconda3/lib/py
thon3.9/site-packages (from ipython-sql) (1.16.0)
Requirement already satisfied: ipython>=1.0 in /Users/keunwoo/opt/anacond
a3/lib/python3.9/site-packages (from ipython-sql) (8.2.0)
```

```
Requirement already satisfied: ipython-genutils>=0.1.0 in /Users/keunwoo/
opt/anaconda3/lib/python3.9/site-packages (from ipython-sql) (0.2.0)
Requirement already satisfied: sqlalchemy>=0.6.7 in /Users/keunwoo/opt/an
aconda3/lib/python3.9/site-packages (from ipython-sql) (1.4.32)
Requirement already satisfied: prettytable<1 in /Users/keunwoo/opt/anacon
da3/lib/python3.9/site-packages (from ipython-sql) (0.7.2)
Requirement already satisfied: sqlparse in /Users/keunwoo/opt/anaconda3/l
ib/python3.9/site-packages (from ipython-sql) (0.4.2)
Requirement already satisfied: prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.0
.0 in /Users/keunwoo/opt/anaconda3/lib/python3.9/site-packages (from ipyt
hon>=1.0->ipython-sql) (3.0.20)
Requirement already satisfied: appnope in /Users/keunwoo/opt/anaconda3/li
b/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.1.2)
Requirement already satisfied: pygments>=2.4.0 in /Users/keunwoo/opt/anac
onda3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (2.11.
2)
Requirement already satisfied: pickleshare in /Users/keunwoo/opt/anaconda
3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.7.5)
Requirement already satisfied: jedi>=0.16 in /Users/keunwoo/opt/anaconda3
/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.18.1)
Requirement already satisfied: pexpect>4.3 in /Users/keunwoo/opt/anaconda
3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (4.8.0)
Requirement already satisfied: decorator in /Users/keunwoo/opt/anaconda3/
lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (5.1.1)
Requirement already satisfied: traitlets>=5 in /Users/keunwoo/opt/anacond
a3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (5.1.1)
Requirement already satisfied: setuptools>=18.5 in /Users/keunwoo/opt/ana
conda3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (61.2
.0)
Requirement already satisfied: stack-data in /Users/keunwoo/opt/anaconda3
/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.2.0)
Requirement already satisfied: matplotlib-inline in /Users/keunwoo/opt/an
aconda3/lib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.1
.2)
Requirement already satisfied: backcall in /Users/keunwoo/opt/anaconda3/l
ib/python3.9/site-packages (from ipython>=1.0->ipython-sql) (0.2.0)
Requirement already satisfied: parso<0.9.0,>=0.8.0 in /Users/keunwoo/opt/
anaconda3/lib/python3.9/site-packages (from jedi>=0.16->ipython>=1.0->ipy
thon-sql) (0.8.3)
Requirement already satisfied: ptyprocess>=0.5 in /Users/keunwoo/opt/anac
onda3/lib/python3.9/site-packages (from pexpect>4.3->ipython>=1.0->ipytho
n-sql) (0.7.0)
Requirement already satisfied: wcwidth in /Users/keunwoo/opt/anaconda3/li
b/python3.9/site-packages (from prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.
0.0->ipython>=1.0->ipython-sql) (0.2.5)
Requirement already satisfied: greenlet!=0.4.17 in /Users/keunwoo/opt/ana
conda3/lib/python3.9/site-packages (from sqlalchemy>=0.6.7->ipython-sql)
(1.1.1)
Requirement already satisfied: asttokens in /Users/keunwoo/opt/anaconda3/
lib/python3.9/site-packages (from stack-data->ipython>=1.0->ipython-sql)
(2.0.5)
Requirement already satisfied: executing in /Users/keunwoo/opt/anaconda3/
lib/python3.9/site-packages (from stack-data->ipython>=1.0->ipython-sql)
(0.8.3)
Requirement already satisfied: pure-eval in /Users/keunwoo/opt/anaconda3/
lib/python3.9/site-packages (from stack-data->ipython>=1.0->ipython-sql)
(0.2.2)
```

- If you got errors, please follow the instructions in the ipython-sql site to install the magic.
- **NOTE:** Running the cell above may produce multiple notifications about installing requirements or requirement already satisfied. That is normal.
- Once you get the install to work without errors, run the following cell.

In [9]:
```
%load_ext sql
```

- If you did not get an error response, your test passed.
- If you run the cell twice, your answer should be:

```
The sql extension is already loaded. To reload it, use:
  %reload_ext sql
```

SQLAlchemy/PyMySQL

Install `sqlalchemy` and `pymysql.` These are Python language packages for interacting with SQL and MySQL databases.

In [10]:
```
!pip install sqlalchemy
!pip install pymysql
```

```
Requirement already satisfied: sqlalchemy in /Users/keunwoo/opt/anaconda3
/lib/python3.9/site-packages (1.4.32)
Requirement already satisfied: greenlet!=0.4.17 in /Users/keunwoo/opt/ana
conda3/lib/python3.9/site-packages (from sqlalchemy) (1.1.1)
Requirement already satisfied: pymysql in /Users/keunwoo/opt/anaconda3/li
b/python3.9/site-packages (1.0.2)
```

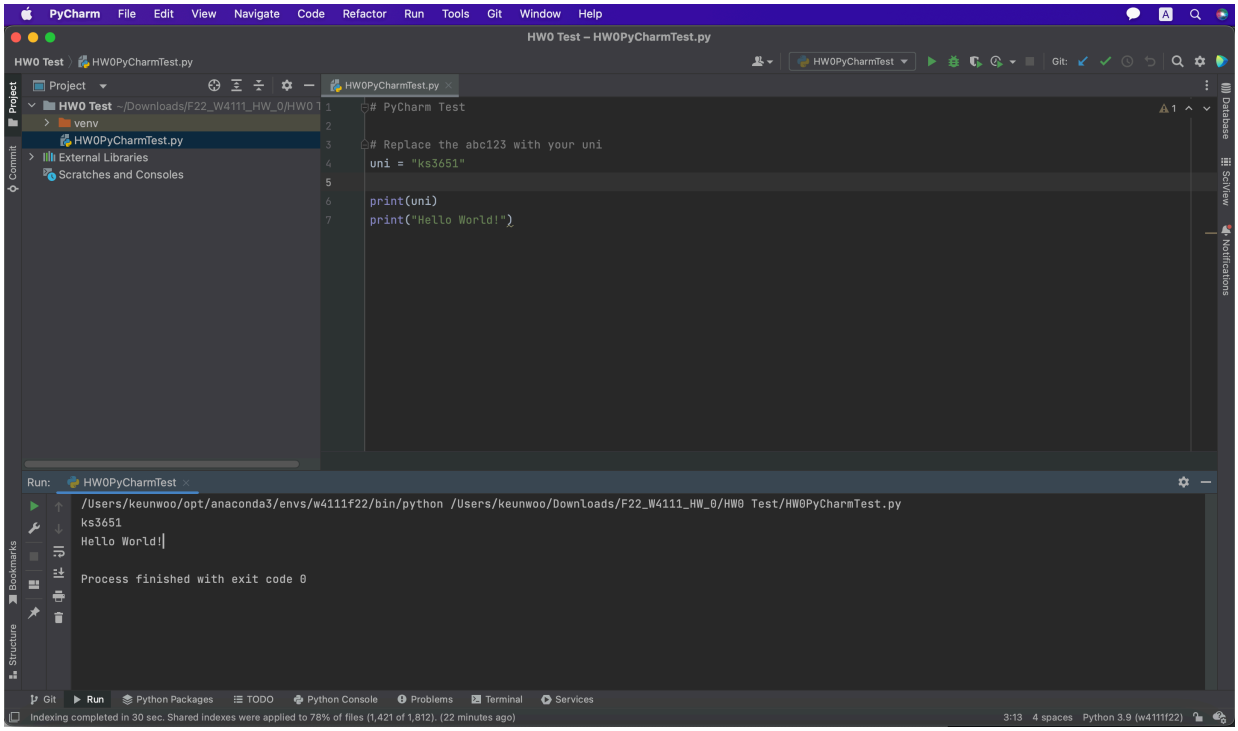
PyCharm

Required for Programming Track only, but recommended for all. Follow the instructions to setup PyCharm and run the test. Take a screenshot and insert it into the notebook using the cell below. You may have to change the path to the name and/or location of your image.

In [16]:
```
from IPython.display import Image

Image("./PyCharmScreenshot.png")
```

Out[16]:

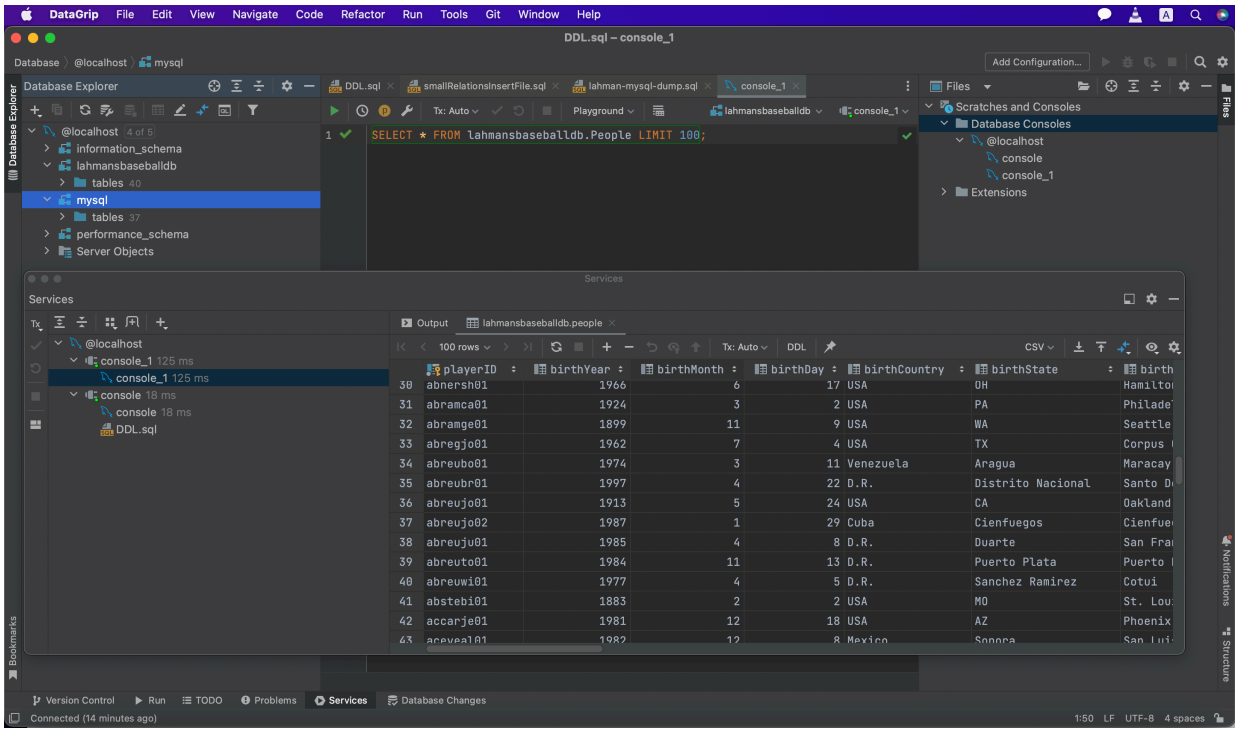


DataGrip

Follow the instructions to setup DataGrip and connect DataGrip to your AWS server. Insert your screenshot of the successful query on the Lahman database into the notebook using the cell below. You may have to change the path to the name and/or location of your image.

In [12]:
```
Image("./DataGripScreenshot.png")
```

Out[12]:



The code below indicates how to connect this notebook to your AWS Database.

You will need to change the username, password, and endpoint to match

In [14]:
```
%load_ext sql
%sql mysql+pymysql://root:dbuserbdbuser@localhost/lahmansbaseballdb
```

```
The sql extension is already loaded. To reload it, use:
  %reload_ext sql
```

Run the cell below to query the AWS database from the notebook:

In [15]:
```
%sql SELECT * FROM lahmansbaseballdb.People LIMIT 10;
```

```
 * mysql+pymysql://root:***@localhost/lahmansbaseballdb
10 rows affected.
```

Out[15]:

playerID	birthYear	birthMonth	birthDay	birthCountry	birthState	birthCity	deathY
aardsda01	1981	12	27	USA	CO	Denver	N
aaronha01	1934	2	5	USA	AL	Mobile	N
aaronto01	1939	8	5	USA	AL	Mobile	19
aasedo01	1954	9	8	USA	CA	Orange	N
abadan01	1972	8	25	USA	FL	Palm Beach	N
abadfe01	1985	12	17	D.R.	La Romana	La Romana	N
abadijo01	1850	11	4	USA	PA	Philadelphia	19
abbated01	1877	4	15	USA	PA	Latrobe	19
abbeybe01	1869	11	11	USA	VT	Essex	19
abbeych01	1866	10	14	USA	NE	Falls City	19

In [ ]:
```
```