COMS W4111: Introduction to Databases

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 17, 10:00am ET 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!

In [4]:
```
# Print your name, uni, and track below

name = "Zhihao Jiang"
uni = "zj2304"
track = "Programming"

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

```
Zhihao Jiang
zj2304
Programming
```

Anaconda

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

Python Version

In [5]:
```
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 < 5)):
    print("You have an invalid version of Python.")
else:
    print("Your Python version is OK.")
```

```
Python version information: sys.version_info(major=3, minor=8, micro=
8, releaselevel='final', serial=0)

Your Python version is OK.
```

Python Path

In [6]:
```
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.")
```

```
/home/zhihaojiang/Lecture/W4111F21/HomeworkAssignments/ProfessorWorkin
gFiles/W4111_HW0 F21
/home/zhihaojiang/anaconda3/lib/python38.zip
Found anaconda3
Found some kind of Python.
OK. Path is good.

Passed all path tests.
```

Test Conda/Anaconda Version

In [7]:
```
import conda
```

In [8]:
```
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=8, micro=8, releaselevel='final', ser
ial=0)
Conda version information: sys.version_info(major=3, minor=8, micro=8,
releaselevel='final', serial=0)

Your Conda version is OK.
```

Test Pandas

In [9]:
```
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 a
```

```
Your pandas version is  1.2.4
Your version is OK.
```

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

In [19]:
```
!pip install pandas
```

```
Requirement already satisfied: pandas in c:\users\arape\anaconda3\lib
\site-packages (1.2.0)
Requirement already satisfied: pytz>=2017.3 in c:\users\arape\anaconda
3\lib\site-packages (from pandas) (2020.5)
Requirement already satisfied: numpy>=1.16.5 in c:\users\arape\anacond
a3\lib\site-packages (from pandas) (1.19.2)
Requirement already satisfied: python-dateutil>=2.7.3 in c:\users\arap
e\anaconda3\lib\site-packages (from pandas) (2.8.1)
Requirement already satisfied: six>=1.5 in c:\users\arape\anaconda3\li
b\site-packages (from python-dateutil>=2.7.3->pandas) (1.15.0)
```

Install ipython-sql

In [13]:
```
!pip install ipython-sql
```

```
Collecting ipython-sql
  Downloading ipython_sql-0.4.0-py3-none-any.whl (19 kB)
Requirement already satisfied: sqlalchemy>=0.6.7 in /home/zhihaojian
g/anaconda3/lib/python3.8/site-packages (from ipython-sql) (1.4.15)
Requirement already satisfied: six in /home/zhihaojiang/anaconda3/li
b/python3.8/site-packages (from ipython-sql) (1.15.0)
Collecting prettytable<1
  Downloading prettytable-0.7.2.zip (28 kB)
Requirement already satisfied: ipython-genutils>=0.1.0 in /home/zhiha
ojiang/anaconda3/lib/python3.8/site-packages (from ipython-sql) (0.2.
0)
Collecting sqlparse
  Downloading sqlparse-0.4.2-py3-none-any.whl (42 kB)
     |████████████████████████████████| 42 kB 1.6 MB/s  eta 0:00:01
Requirement already satisfied: ipython>=1.0 in /home/zhihaojiang/anac
onda3/lib/python3.8/site-packages (from ipython-sql) (7.22.0)
Requirement already satisfied: pygments in /home/zhihaojiang/anaconda
3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (2.8.
1)
Requirement already satisfied: decorator in /home/zhihaojiang/anacond
a3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (5.0.
6)
Requirement already satisfied: pickleshare in /home/zhihaojiang/anaco
nda3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (0.
7.5)
Requirement already satisfied: setuptools>=18.5 in /home/zhihaojiang/
anaconda3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sq
l) (52.0.0.post20210125)
Requirement already satisfied: prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>
=2.0.0 in /home/zhihaojiang/anaconda3/lib/python3.8/site-packages (fr
om ipython>=1.0->ipython-sql) (3.0.17)
Requirement already satisfied: jedi>=0.16 in /home/zhihaojiang/anacon
da3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (0.1
7.2)
Requirement already satisfied: pexpect>4.3 in /home/zhihaojiang/anaco
nda3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (4.
8.0)
Requirement already satisfied: traitlets>=4.2 in /home/zhihaojiang/an
aconda3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql)
(5.0.5)
Requirement already satisfied: backcall in /home/zhihaojiang/anaconda
3/lib/python3.8/site-packages (from ipython>=1.0->ipython-sql) (0.2.
0)
Requirement already satisfied: parso<0.8.0,>=0.7.0 in /home/zhihaojia
ng/anaconda3/lib/python3.8/site-packages (from jedi>=0.16->ipython>=
1.0->ipython-sql) (0.7.0)
Requirement already satisfied: ptyprocess>=0.5 in /home/zhihaojiang/a
naconda3/lib/python3.8/site-packages (from pexpect>4.3->ipython>=1.0-
>ipython-sql) (0.7.0)
Requirement already satisfied: wcwidth in /home/zhihaojiang/anaconda
3/lib/python3.8/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 /home/zhihaojiang/
anaconda3/lib/python3.8/site-packages (from sqlalchemy>=0.6.7->ipytho
```

```
n-sql) (1.0.0)
Building wheels for collected packages: prettytable
  Building wheel for prettytable (setup.py) ... done
  Created wheel for prettytable: filename=prettytable-0.7.2-py3-none-
any.whl size=13699 sha256=757a1ee025d02b44112e6e8b15032502c3891315558
0ce34aa4c670e68f499af
  Stored in directory: /home/zhihaojiang/.cache/pip/wheels/48/6d/77/9
517cb933af254f51a446f1a5ec9c2be3e45f17384940bce68
Successfully built prettytable
Installing collected packages: sqlparse, prettytable, ipython-sql
Successfully installed ipython-sql-0.4.0 prettytable-0.7.2 sqlparse-
0.4.2
```

- If you got errors, please follow the instructions in the ipython-sql site (https://github.com/catherinedevlin/ipython-sql) 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 [17]:
```
%reload_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

In [18]:
```
!pip install sqlalchemy
!pip install pymysql
```

```
Requirement already satisfied: sqlalchemy in /home/zhihaojiang/anacond
a3/lib/python3.8/site-packages (1.4.15)
Requirement already satisfied: greenlet!=0.4.17 in /home/zhihaojiang/a
naconda3/lib/python3.8/site-packages (from sqlalchemy) (1.0.0)
Collecting pymysql
  Downloading PyMySQL-1.0.2-py3-none-any.whl (43 kB)
     |████████████████████████████████| 43 kB 40 kB/s eta 0:00:011
Installing collected packages: pymysql
Successfully installed pymysql-1.0.2
```

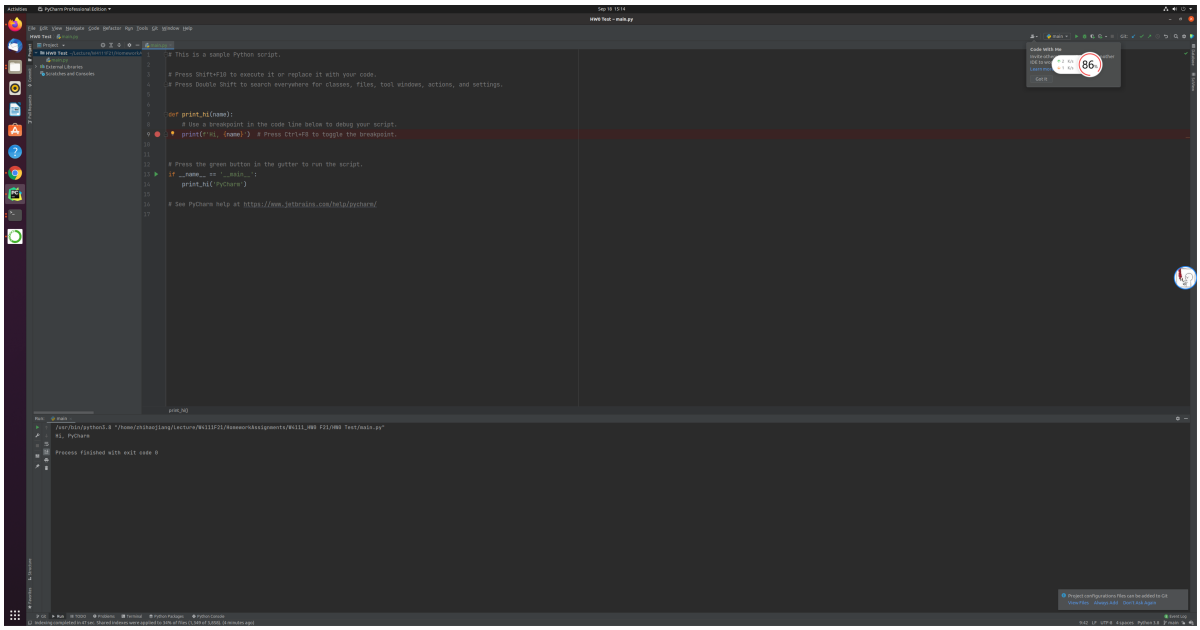
PyCharm

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 [6]:
```
from IPython.display import Image

Image("/home/zhihaojiang/pycScreenshot.png")
```

Out[6]:



AWS

Follow the instructions to setup the AWS MySQL server. Insert your screenshot into the notebook using the cell below. You may have to change the path to the name and/or location of your image.

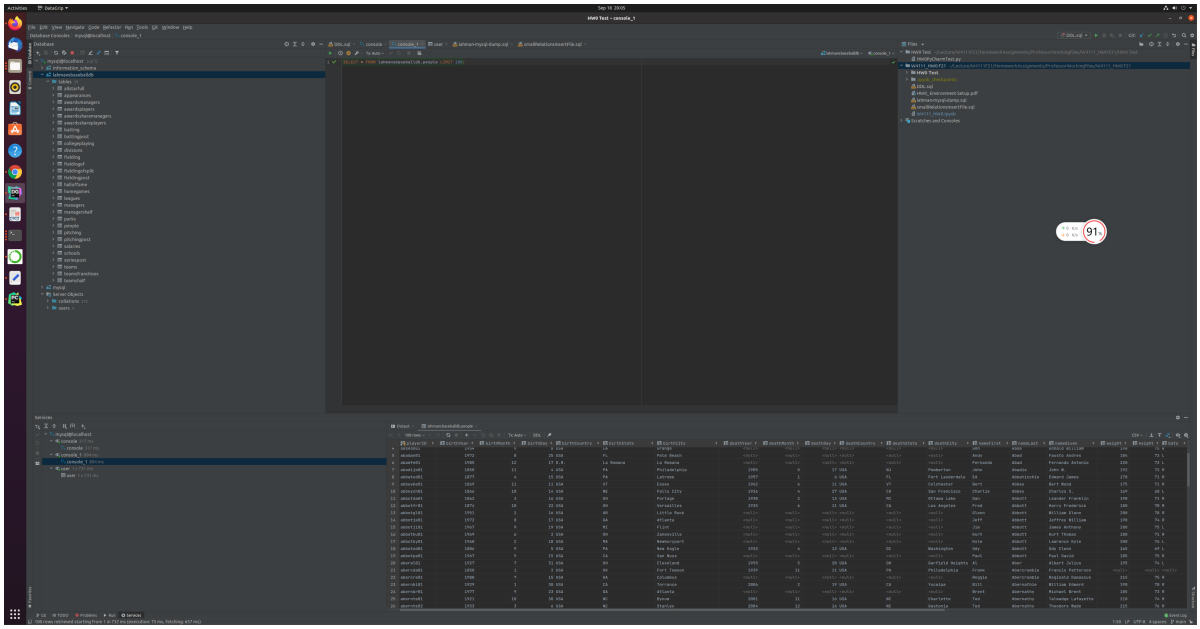
In [ ]:
```
Image("./AWSMySQLScreenshot.png")
```

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 [26]:
```
Image("/home/zhihaojiang/DataGripScreenshot.png")
```

Out[26]:



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 [8]:
```
%load_ext sql
%sql mysql+pymysql://root:d@0h@0g0uSIMA@localhost:3306/lahmansballdb
```

```
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 [9]:
```
%sql SELECT * FROM lahmansbaseballdb.people LIMIT 10;
```

```
 * mysql+pymysql://root:***@localhost:3306/lahmansbaseballdb
10 rows affected.
```

Out[9]:

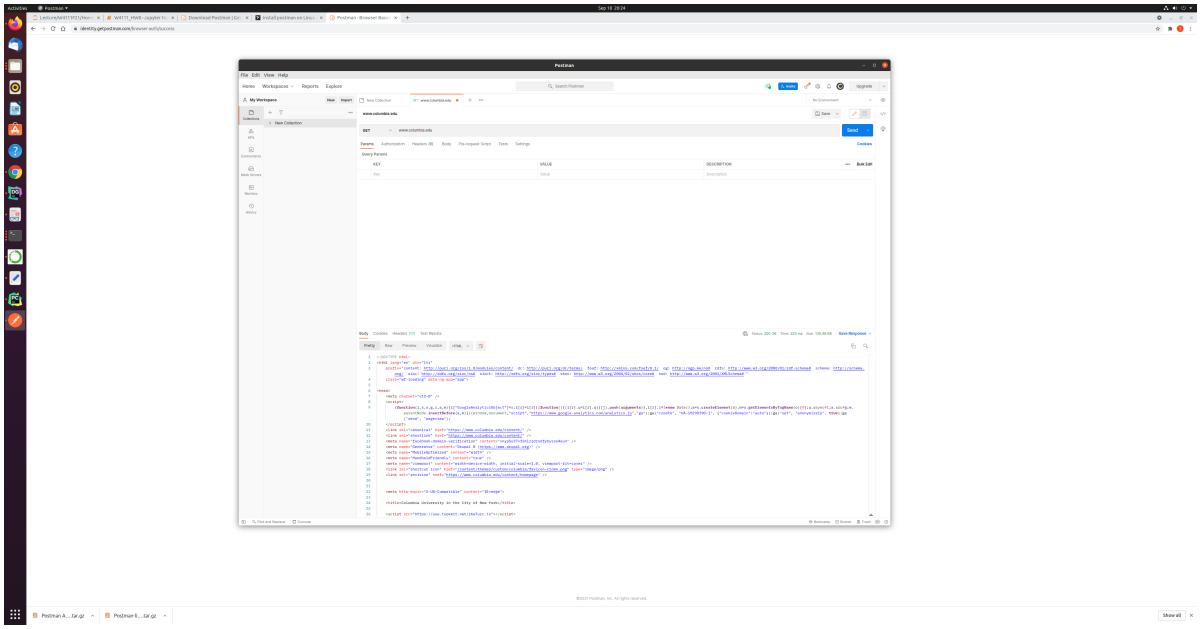
playerID	birthYear	birthMonth	birthDay	birthCountry	birthState	birthCity	deathYear	dea
aardsda01	1981	12	27	USA	CO	Denver	None	
aaronha01	1934	2	5	USA	AL	Mobile	None	
aaronto01	1939	8	5	USA	AL	Mobile	1984	
aasedo01	1954	9	8	USA	CA	Orange	None	
abadan01	1972	8	25	USA	FL	Palm Beach	None	
abadfe01	1985	12	17	D.R.	La Romana	La Romana	None	
abadijo01	1850	11	4	USA	PA	Philadelphia	1905	
abbated01	1877	4	15	USA	PA	Latrobe	1957	
abbeybe01	1869	11	11	USA	VT	Essex	1962	
abbeych01	1866	10	14	USA	NE	Falls City	1926	

Postman

Required for Programming Track only. Follow the instructions to setup Postman. Insert your screenshot of the successful GET request on the website you chose using the cell below. You may have to change the path to the name and/or location of your image.

In [7]:
```
Image("/home/zhihaojiang/Pictures/PostmanScreenshot.png")
```

Out[7]:



In [ ]:
```

```