

# W4111 Spring 2026 Homework 1a

## Introduction

### Homework Overview

There are three parts to the homework.

- Part 1 walks you through the setup of your personal computer that is necessary for this course. You demonstrate completion by inserting screenshots or running code cells that demonstrate you successfully completed setup.
- Part 2 is a set of written questions that demonstrate you studied and understand lecture 1 material from the course and from the [lecture 1 slides for the recommended textbook](#).
- Part 3 is a set of practical questions demonstrating basic knowledge of relational algebra and SQL.

**This notebook defines only part 1. We will release the remainder of homework 1 after lecture 2 because the homework requires knowing material from the lecture**

## Part 1 — Setup

### PyCharm

#### Install and Start PyCharm

Install the most recent version of [PyCharm](#). There is online installation documentation and are several tutorials.

Students can signup for/register for a free, [one year license](#) to all JetBrains development tools. Please apply for/register for a license using your Columbia University email. Once your registration is confirmed, please activate PyCharm. The documentation explains how to register your product.

Start PyCharm.

**Note:** You may use a different integrated development environment (IDE) for Python if you prefer. For the HW, simply put the screenshots in the places that request PyCharm screenshots.

## Clone Course Project

Follow the [online instructions](#) for cloning a GitHub project in PyCharm.

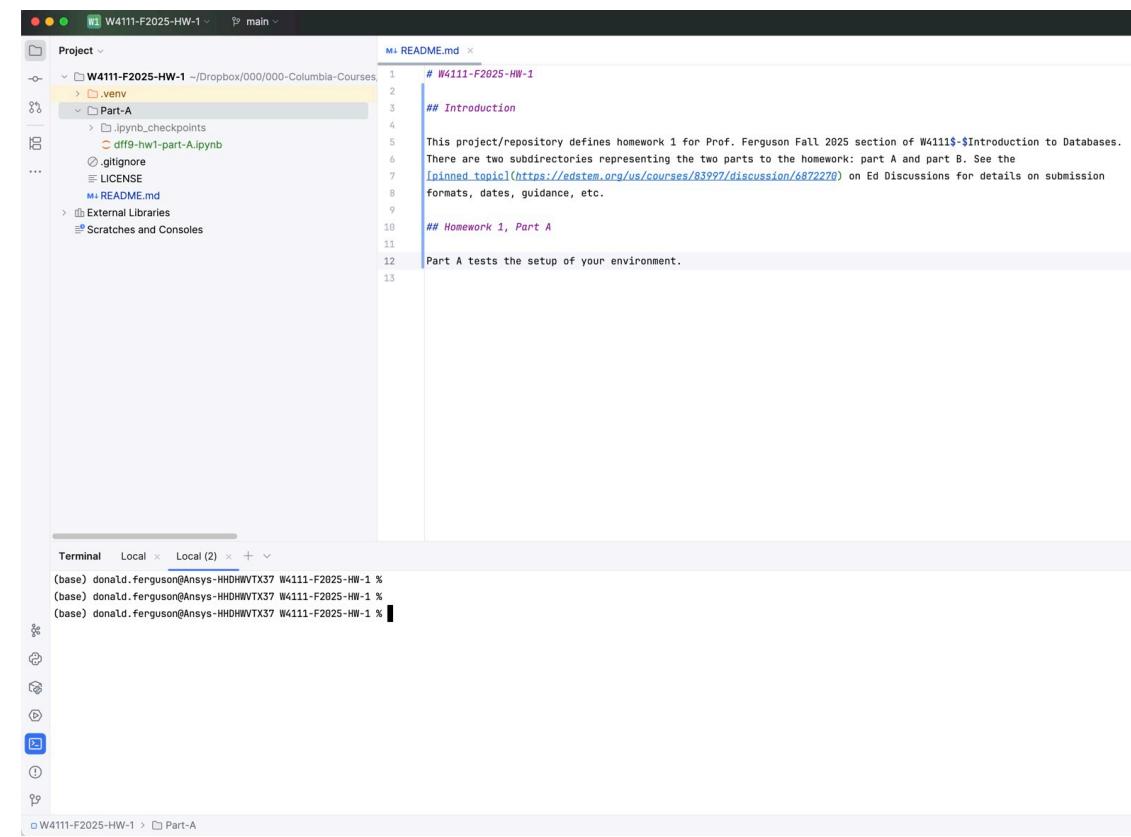
You will choose a local directory where you want to store your clone of the project.

The HTTPS URL for cloning the repository is <https://github.com/donald-f-ferguson/W4111-Intro-to-Databases-Spring-2026>.

## Initialize the Virtual Environment and Jupyter Notebook Environment

Follow the [online instructions](#) to create a new Python environment for the project. Once you have setup the Python environment, open a terminal window inside PyCharm. You can open a terminal window by clicking on the icon in the left sidebar. The icon is highlighted in blue in the image below.

You will see a command prompt. The specific prompt you see will vary based on the operating system you are using.



The screenshot shows the PyCharm interface with the following details:

- Project View:** Shows the project structure under "W4111-F2025-HW-1". It includes a ".venv" folder, a "Part-A" folder containing ".ipynb\_checkpoints" (with a file named "dff9-hw1-part-A.ipynb"), a ".gitignore" file, a "LICENSE" file, a "README.md" file, and "External Libraries" and "Scratches and Consoles" sections.
- Code Editor:** Displays the contents of "README.md". The text includes:

```
# W4111-F2025-HW-1
## Introduction

This project/repository defines homework 1 for Prof. Ferguson Fall 2025 section of W4111-$Introduction to Databases.
There are two subdirectories representing the two parts to the homework: part A and part B. See the
[pinned topic](https://edstem.org/us/courses/83997/discussion/6872270) on Ed Discussions for details on submission
formats, dates, guidance, etc.

## Homework 1, Part A

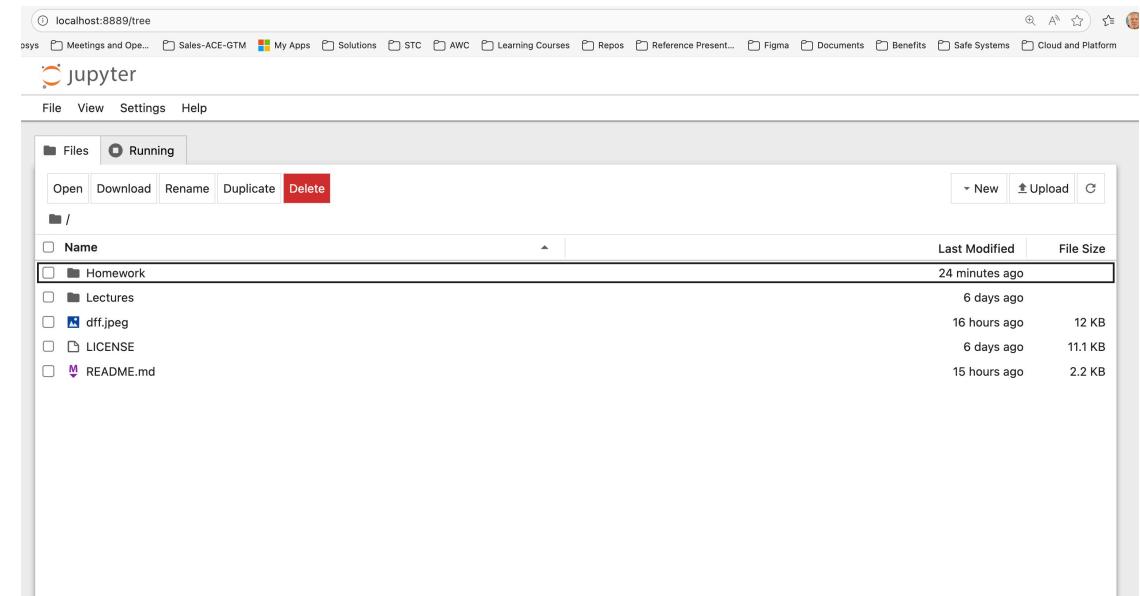
Part A tests the setup of your environment.
```
- Terminal:** At the bottom, there is a terminal window showing the command line:

```
(base) donald.ferguson@Ansys-HHDHWVTX37 W4111-F2025-HW-1 %
(base) donald.ferguson@Ansys-HHDHWVTX37 W4111-F2025-HW-1 %
(base) donald.ferguson@Ansys-HHDHWVTX37 W4111-F2025-HW-1 %
```

PyCharm Terminal Window

In the terminal window, type the command `pip install jupyter`

When the installation completes, type the command `jupyter notebook` This will start a Jupyter Notebook environment on your PC. A browser window will open that should something like ... . . .



### Jupyter Notebook

Navigate to the folder `Homework/HW1` and open the Jupyter Notebook `W4111-Spring-2026-002-HW1a.ipynb`.

**Note:** If you do not see the directories. 1) Stop jupyter notebook. 2) In the terminal window, navigate to your home directory. 3) Start jupyter notebook. 4) In the browser window, navigate to the directory where you cloned the project. 5) Navigate to the folder containing the notebook and open it.

## Using Jupyter Notebook

### Getting Started

There are several good, online introductions to using Jupyter notebooks. For example, [How to Use Jupyter Notebook: A Beginner's Tutorial](#). There are many, many other ones. If you are unfamiliar with Jupyter notebooks, please follow one of the tutorials.

You will complete the homework in the notebook you opened.

### Complete Personal Information

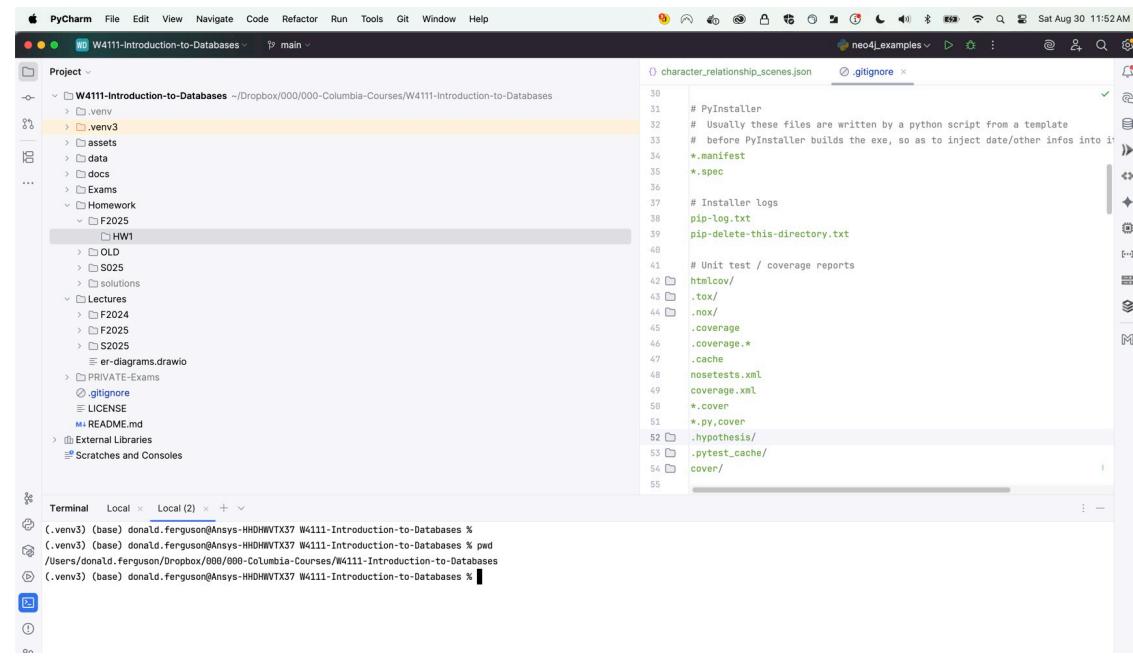
Rename this notebook file to "xyz1234-W4111-Fall-2025-002-HW1.ipynb" where `xyz1234` is your UNI. This replaces `dff9` in the implementation template. We suggest that you accomplish this by making a copy of the notebook and renaming the copy. This allows you to retain the original for reference.

In the table below, replace Professor Ferguson's personal information with your personal information by editing the markdown cell and table.

Field	Value
UNI	dff9
Last name	Ferguson
First name	Donald

# Demonstrate PyCharm

Take a screen capture of your PyCharm window. Copy the file into the same directory as this notebook. Edit the markdown cell below to display your image. **Make sure that the terminal window shows that you are in a directory on your laptop.**



MySQL

Install [MySQL Server Community Edition](#). There are several ways to install and several online tutorials. Follow one of the online tutorials or instructions that are appropriate for

your operating system. *REMEMBER THE USER NAME AND PASSWORD FOR THE ROOT ACCOUNT.*

**Note:** If you have an old version of MacOS, Linux or Windows, *make sure you choose a version of MySQL that is compatible with your operating system version*. You may have to get an older version from the [archive](#) or update your OS version.

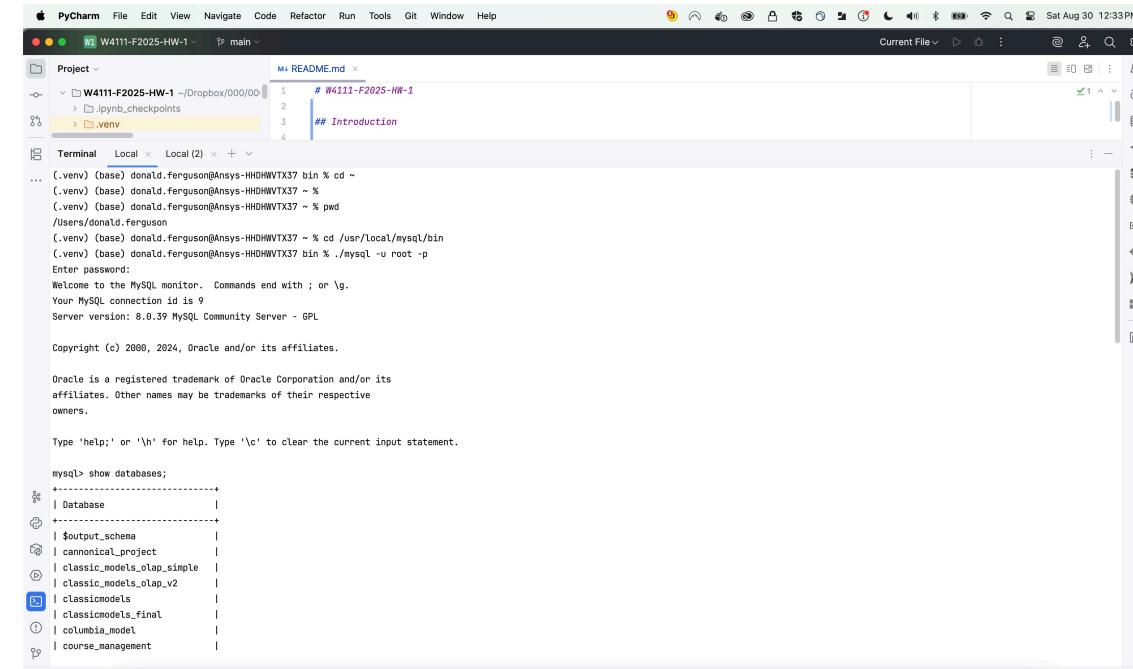
After completing the installation, open a new terminal window. You can use a native window or open a new window in PyCharm.

Type the command `mysql -u root -p`. If the command is not found, you can navigate to the installation directory for MySQL and reenter the command.

- The installation directory on a Mac is usually `/usr/local/mysql/bin`. If you used Homebrew to install, the directory may be different.
- On Windows, the directory is usually `C:\Program Files\MySQL\MySQL Server X.Y\bin` where `X.Y` is the version of MySQL you installed.

Enter the password you set for `root`. This should open a command prompt for MySQL. Enter the command `show databases;` Your list of databases will be much shorter than mine.

Take a screenshot and replace the image below with your screenshot. Please make sure that your screenshot shows a directory indicating that the screenshot was taken on your PC. You can do this by navigating to your home directory and printing the working directory.



The screenshot shows a PyCharm interface with a terminal window open. The terminal output is as follows:

```
(.venv) (base) donald.ferguson@Ansys-HHDHWVTX37 bin % cd ~
(.venv) (base) donald.ferguson@Ansys-HHDHWVTX37 ~ %
(.venv) (base) donald.ferguson@Ansys-HHDHWVTX37 ~ % pwd
/Users/donald.ferguson
(.venv) (base) donald.ferguson@Ansys-HHDHWVTX37 ~ % cd /usr/local/mysql/bin
(.venv) (base) donald.ferguson@Ansys-HHDHWVTX37 bin % ./mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.39 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| $output_schema    |
| canonical_project |
| classic_models_olap_simple |
| classic_models_olap_v2 |
| classicmodels     |
| classicmodels_final |
| columbia_model    |
| course_management |
+--------------------+
```

## ipython-sql

Execute the Python cell below to install [ipython-sql](#). Your status and progress messages will be different from mine. As long as they complete without an error, you should be fine.

There are several online documentation and tutorial pages that explain the installation process.

```
In [13]: %pip install pymysql  
%pip install sqlalchemy  
%pip install ipython-sql
```

```
Requirement already satisfied: pymysql in ./venv/lib/python3.12/site-packages (1.1.2)

[notice] A new release of pip is available: 25.0.1 -> 25.2
[notice] To update, run: pip install --upgrade pip
Note: you may need to restart the kernel to use updated packages.
Requirement already satisfied: sqlalchemy in ./venv/lib/python3.12/site-packages (2.0.43)
Requirement already satisfied: typing-extensions>=4.6.0 in ./venv/lib/python3.12/site-packages (from sqlalchemy) (4.14.1)

[notice] A new release of pip is available: 25.0.1 -> 25.2
[notice] To update, run: pip install --upgrade pip
Note: you may need to restart the kernel to use updated packages.
Requirement already satisfied: ipython-sql in ./venv/lib/python3.12/site-packages (0.5.0)
Requirement already satisfied: prettytable in ./venv/lib/python3.12/site-packages (from ipython-sql) (3.16.0)
Requirement already satisfied: ipython in ./venv/lib/python3.12/site-packages (from ipython-sql) (9.4.0)
Requirement already satisfied: sqlalchemy>=2.0 in ./venv/lib/python3.12/site-packages (from ipython-sql) (2.0.43)
Requirement already satisfied: sqlparse in ./venv/lib/python3.12/site-packages (from ipython-sql) (0.5.3)
Requirement already satisfied: six in ./venv/lib/python3.12/site-packages (from ipython-sql) (1.17.0)
Requirement already satisfied: ipython-genutils in ./venv/lib/python3.12/site-packages (from ipython-sql) (0.2.0)
Requirement already satisfied: typing-extensions>=4.6.0 in ./venv/lib/python3.12/site-packages (from sqlalchemy>=2.0->ipython-sql) (4.14.1)
Requirement already satisfied: decorator in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (5.2.1)
Requirement already satisfied: ipython-pygments-lexers in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (1.1.1)
Requirement already satisfied: jedi>=0.16 in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (0.19.2)
Requirement already satisfied: matplotlib-inline in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (0.1.7)
Requirement already satisfied: pexpect>4.3 in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (4.9.0)
Requirement already satisfied: prompt_toolkit<3.1.0,>=3.0.41 in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (3.0.51)
Requirement already satisfied: pygments>=2.4.0 in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (2.19.2)
Requirement already satisfied: stack_data in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (0.6.3)
Requirement already satisfied: traitlets>=5.13.0 in ./venv/lib/python3.12/site-packages (from ipython->ipython-sql) (5.14.3)
Requirement already satisfied: wcwidth in ./venv/lib/python3.12/site-packages (from prettytable->ipython-sql) (0.2.13)
Requirement already satisfied: parso<0.9.0,>=0.8.4 in ./venv/lib/python3.12/site-packages (from jedi>=0.16->ipython->ipython-sql) (0.8.5)
Requirement already satisfied: ptyprocess>=0.5 in ./venv/lib/python3.12/site-packages (from pexpect>4.3->ipython->ipython-sql) (0.7.0)
Requirement already satisfied: executing>=1.2.0 in ./venv/lib/python3.12/site-packages (from stack_data->ipython->ipython-sql) (2.2.0)
```

```
Requirement already satisfied: asttokens>=2.1.0 in ./venv/lib/python3.12/site-packages (from stack_data->ipython->ipython-sql) (3.0.0)
Requirement already satisfied: pure-eval in ./venv/lib/python3.12/site-packages (from stack_data->ipython->ipython-sql) (0.2.3)

[notice] A new release of pip is available: 25.0.1 -> 25.2
[notice] To update, run: pip install --upgrade pip
Note: you may need to restart the kernel to use updated packages.
```

Execute the following Python cell. Your result may be slightly different. You are fine as long as you do not get an error message.

```
In [1]: %load_ext sql
```

Set the proper root user ID and password for MySQL in the python cell below.

```
In [2]: mysql_root_user = 'root'
mysql_root_password = 'dbuserdbuser'

mysql_url = f"mysql+pymysql://{mysql_root_user}:{mysql_root_password}@localhost"
```

```
In [3]: mysql_url
```

```
Out[3]: 'mysql+pymysql://root:dbuserdbuser@localhost'
```

Run the following cell.

```
In [4]: %sql $mysql_url
```

Run the following cell. Your list of databases should be different.

```
In [5]: %config SqlMagic.style = '_DEPRECATED_DEFAULT'
%sql show databases;
```

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

Out[5]:

**Database**

\$output\_schema

canonical\_project

classic\_models.olap.simple

classic\_models.olap.v2

classicmodels

classicmodels\_final

columbia\_model

course\_management

course\_student\_coupons

courseworks\_videos

db\_book

f2024\_grades

F24\_examples

f24\_GoT

f24\_imdb\_clean

F24\_IMDB\_Raw

f24\_imdb\_raw\_new

f24\_project

f24\_project\_clean

fitness

hw3b4bSolution

hw4

hw5\_common

import\_web\_data

information\_schema

lahmansbaseballdb

lahmansfast

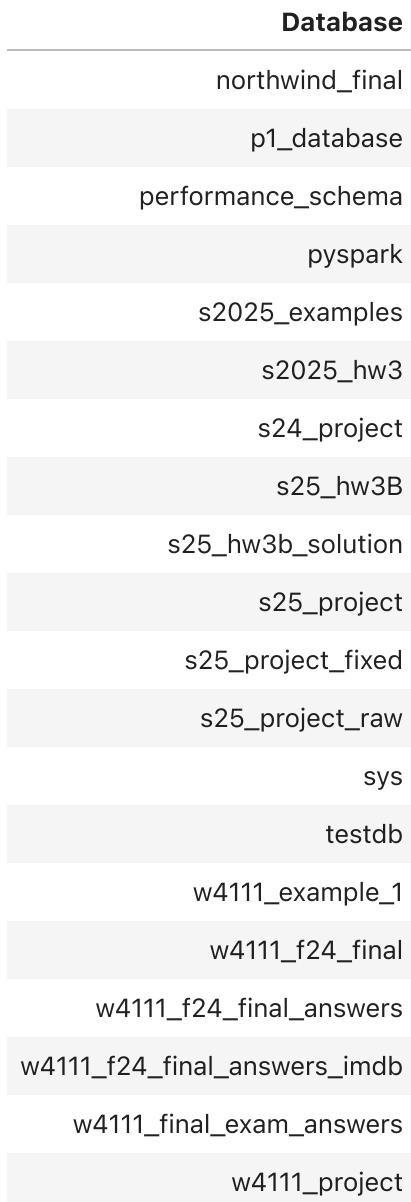
lecture\_3\_examples

lecture\_6

lor\_data

mysql

Northwind



If you get here, `ipython-sql` is installed and working.

## DataGrip

Install [DataGrip](#). There is online documentation and are several tutorials.

Follow the online instructions to register your installation using the ID you set up when getting a free license.

Start DataGrip.

Follow the [online instructions](#) to create a connection to your local instance of MySQL. You may have to choose the option to install the database drivers.

Open a [query console](#) on your local database connection.

In the query console, enter the command. `SHOW VARIABLES WHERE Variable_name = 'hostname';` Take a screenshot and replace the image below with your screenshot. Make sure the image shows the query execution result.

The screenshot shows the DataGrip IDE interface. In the top center, there is a 'console' tab with the query `SHOW VARIABLES WHERE Variable_name = 'hostname';`. Below the query, the results are displayed in a table:

Variable_name	Value
hostname	Ansys-HHDHWVVTX37

The left sidebar shows a 'Database Explorer' with a tree view of databases and tables. The bottom status bar indicates the output is in 'Result 1' and shows file statistics: 1:1 (48 chars), LF, UTF-8, 4 spaces.

DataGrip

## Sample Database

Execute the following ipython-sql cell. You must be successfully connect to MySQL using the previous `%sql` command.

As long as you do not get any error messages, you have successfully create the sample database.

In [6]:

```
%%sql

drop schema if exists db_book;
create schema db_book;
use db_book;

drop table if exists prereq;
drop table if exists time_slot;
drop table if exists advisor;
drop table if exists takes;
drop table if exists student;
drop table if exists teaches;
drop table if exists section;
drop table if exists instructor;
drop table if exists course;
drop table if exists department;
drop table if exists classroom;
```

```

create table classroom
  (building                  varchar(15),
   room_number               varchar(7),
   capacity                  numeric(4,0),
   primary key (building, room_number)
  );

create table department
  (dept_name                 varchar(20),
   building                  varchar(15),
   budget                    numeric(12,2) check (budget > 0),
   primary key (dept_name)
  );

create table course
  (course_id                 varchar(8),
   title                     varchar(50),
   dept_name                 varchar(20),
   credits                   numeric(2,0) check (credits > 0),
   primary key (course_id),
   foreign key (dept_name) references department (dept_name)
     on delete set null
  );

create table instructor
  (ID                        varchar(5),
   name                      varchar(20) not null,
   dept_name                 varchar(20),
   salary                    numeric(8,2) check (salary > 29000),
   primary key (ID),
   foreign key (dept_name) references department (dept_name)
     on delete set null
  );

create table section
  (course_id                 varchar(8),
   sec_id                     varchar(8),
   semester                   varchar(6)
     check (semester in ('Fall', 'Winter', 'Spring', 'Summer')),
   year                       numeric(4,0) check (year > 1701 and year < 2100),
   building                   varchar(15),
   room_number                varchar(7),
   time_slot_id               varchar(4),
   primary key (course_id, sec_id, semester, year),
   foreign key (course_id) references course (course_id)
     on delete cascade,
   foreign key (building, room_number) references classroom (building,
     on delete set null
  );

create table teaches
  (ID                        varchar(5),
   course_id                 varchar(8),

```

```

sec_id          varchar(8),
semester       varchar(6),
year           numeric(4,0),
primary key (ID, course_id, sec_id, semester, year),
foreign key (course_id, sec_id, semester, year) references section
    on delete cascade,
foreign key (ID) references instructor (ID)
    on delete cascade
);

create table student
(ID              varchar(5),
name            varchar(20) not null,
dept_name       varchar(20),
tot_cred        numeric(3,0) check (tot_cred >= 0),
primary key (ID),
foreign key (dept_name) references department (dept_name)
    on delete set null
);

create table takes
(ID              varchar(5),
course_id       varchar(8),
sec_id          varchar(8),
semester        varchar(6),
year            numeric(4,0),
grade           varchar(2),
primary key (ID, course_id, sec_id, semester, year),
foreign key (course_id, sec_id, semester, year) references section
    on delete cascade,
foreign key (ID) references student (ID)
    on delete cascade
);

create table advisor
(s_ID            varchar(5),
i_ID            varchar(5),
primary key (s_ID),
foreign key (i_ID) references instructor (ID)
    on delete set null,
foreign key (s_ID) references student (ID)
    on delete cascade
);

create table time_slot
(time_slot_id    varchar(4),
day             varchar(1),
start_hr        numeric(2) check (start_hr >= 0 and start_hr < 24),
start_min       numeric(2) check (start_min >= 0 and start_min < 60),
end_hr          numeric(2) check (end_hr >= 0 and end_hr < 24),
end_min         numeric(2) check (end_min >= 0 and end_min < 60),
primary key (time_slot_id, day, start_hr, start_min)
);

create table prereq
(course_id       varchar(8),

```

```

prereq_id           varchar(8),
primary key (course_id, prereq_id),
foreign key (course_id) references course (course_id)
    on delete cascade,
foreign key (prereq_id) references course (course_id)
);

delete from prereq;
delete from time_slot;
delete from advisor;
delete from takes;
delete from student;
delete from teaches;
delete from section;
delete from instructor;
delete from course;
delete from department;
delete from classroom;
insert into classroom values ('Packard', '101', '500');
insert into classroom values ('Painter', '514', '10');
insert into classroom values ('Taylor', '3128', '70');
insert into classroom values ('Watson', '100', '30');
insert into classroom values ('Watson', '120', '50');
insert into department values ('Biology', 'Watson', '90000');
insert into department values ('Comp. Sci.', 'Taylor', '100000');
insert into department values ('Elec. Eng.', 'Taylor', '85000');
insert into department values ('Finance', 'Painter', '120000');
insert into department values ('History', 'Painter', '50000');
insert into department values ('Music', 'Packard', '80000');
insert into department values ('Physics', 'Watson', '70000');
insert into course values ('BIO-101', 'Intro. to Biology', 'Biology', '4');
insert into course values ('BIO-301', 'Genetics', 'Biology', '4');
insert into course values ('BIO-399', 'Computational Biology', 'Biology', '3');
insert into course values ('CS-101', 'Intro. to Computer Science', 'Comp. Sci.');
insert into course values ('CS-190', 'Game Design', 'Comp. Sci.', '4');
insert into course values ('CS-315', 'Robotics', 'Comp. Sci.', '3');
insert into course values ('CS-319', 'Image Processing', 'Comp. Sci.', '3');
insert into course values ('CS-347', 'Database System Concepts', 'Comp. Sci.');
insert into course values ('EE-181', 'Intro. to Digital Systems', 'Elec. Eng.');
insert into course values ('FIN-201', 'Investment Banking', 'Finance', '3');
insert into course values ('HIS-351', 'World History', 'History', '3');
insert into course values ('MU-199', 'Music Video Production', 'Music', '3');
insert into course values ('PHY-101', 'Physical Principles', 'Physics', '4');
insert into instructor values ('10101', 'Srinivasan', 'Comp. Sci.', '65000');
insert into instructor values ('12121', 'Wu', 'Finance', '90000');
insert into instructor values ('15151', 'Mozart', 'Music', '40000');
insert into instructor values ('22222', 'Einstein', 'Physics', '95000');
insert into instructor values ('32343', 'El Said', 'History', '60000');
insert into instructor values ('33456', 'Gold', 'Physics', '87000');
insert into instructor values ('45565', 'Katz', 'Comp. Sci.', '75000');
insert into instructor values ('58583', 'Califieri', 'History', '62000');
insert into instructor values ('76543', 'Singh', 'Finance', '80000');
insert into instructor values ('76766', 'Crick', 'Biology', '72000');
insert into instructor values ('83821', 'Brandt', 'Comp. Sci.', '92000');
insert into instructor values ('98345', 'Kim', 'Elec. Eng.', '80000');
insert into section values ('BIO-101', '1', 'Summer', '2017', 'Painter', '51'

```

```

insert into section values ('BIO-301', '1', 'Summer', '2018', 'Painter', '51');
insert into section values ('CS-101', '1', 'Fall', '2017', 'Packard', '101');
insert into section values ('CS-101', '1', 'Spring', '2018', 'Packard', '101');
insert into section values ('CS-190', '1', 'Spring', '2017', 'Taylor', '3128');
insert into section values ('CS-190', '2', 'Spring', '2017', 'Taylor', '3128');
insert into section values ('CS-315', '1', 'Spring', '2018', 'Watson', '120');
insert into section values ('CS-319', '1', 'Spring', '2018', 'Watson', '100');
insert into section values ('CS-319', '2', 'Spring', '2018', 'Taylor', '3128');
insert into section values ('CS-347', '1', 'Fall', '2017', 'Taylor', '3128');
insert into section values ('EE-181', '1', 'Spring', '2017', 'Taylor', '3128');
insert into section values ('FIN-201', '1', 'Spring', '2018', 'Packard', '101');
insert into section values ('HIS-351', '1', 'Spring', '2018', 'Painter', '51');
insert into section values ('MU-199', '1', 'Spring', '2018', 'Packard', '101');
insert into section values ('PHY-101', '1', 'Fall', '2017', 'Watson', '100');
insert into teaches values ('10101', 'CS-101', '1', 'Fall', '2017');
insert into teaches values ('10101', 'CS-315', '1', 'Spring', '2018');
insert into teaches values ('10101', 'CS-347', '1', 'Fall', '2017');
insert into teaches values ('12121', 'FIN-201', '1', 'Spring', '2018');
insert into teaches values ('15151', 'MU-199', '1', 'Spring', '2018');
insert into teaches values ('22222', 'PHY-101', '1', 'Fall', '2017');
insert into teaches values ('32343', 'HIS-351', '1', 'Spring', '2018');
insert into teaches values ('45565', 'CS-101', '1', 'Spring', '2018');
insert into teaches values ('45565', 'CS-319', '1', 'Spring', '2018');
insert into teaches values ('76766', 'BIO-101', '1', 'Summer', '2017');
insert into teaches values ('76766', 'BIO-301', '1', 'Summer', '2018');
insert into teaches values ('83821', 'CS-190', '1', 'Spring', '2017');
insert into teaches values ('83821', 'CS-190', '2', 'Spring', '2017');
insert into teaches values ('83821', 'CS-319', '2', 'Spring', '2018');
insert into teaches values ('98345', 'EE-181', '1', 'Spring', '2017');
insert into student values ('00128', 'Zhang', 'Comp. Sci.', '102');
insert into student values ('12345', 'Shankar', 'Comp. Sci.', '32');
insert into student values ('19991', 'Brandt', 'History', '80');
insert into student values ('23121', 'Chavez', 'Finance', '110');
insert into student values ('44553', 'Peltier', 'Physics', '56');
insert into student values ('45678', 'Levy', 'Physics', '46');
insert into student values ('54321', 'Williams', 'Comp. Sci.', '54');
insert into student values ('55739', 'Sanchez', 'Music', '38');
insert into student values ('70557', 'Snow', 'Physics', '0');
insert into student values ('76543', 'Brown', 'Comp. Sci.', '58');
insert into student values ('76653', 'Aoi', 'Elec. Eng.', '60');
insert into student values ('98765', 'Bourikas', 'Elec. Eng.', '98');
insert into student values ('98988', 'Tanaka', 'Biology', '120');
insert into takes values ('00128', 'CS-101', '1', 'Fall', '2017', 'A');
insert into takes values ('00128', 'CS-347', '1', 'Fall', '2017', 'A-');
insert into takes values ('12345', 'CS-101', '1', 'Fall', '2017', 'C');
insert into takes values ('12345', 'CS-190', '2', 'Spring', '2017', 'A');
insert into takes values ('12345', 'CS-315', '1', 'Spring', '2018', 'A');
insert into takes values ('12345', 'CS-347', '1', 'Fall', '2017', 'A');
insert into takes values ('19991', 'HIS-351', '1', 'Spring', '2018', 'B');
insert into takes values ('23121', 'FIN-201', '1', 'Spring', '2018', 'C+');
insert into takes values ('44553', 'PHY-101', '1', 'Fall', '2017', 'B-');
insert into takes values ('45678', 'CS-101', '1', 'Fall', '2017', 'F');
insert into takes values ('45678', 'CS-101', '1', 'Spring', '2018', 'B+');
insert into takes values ('45678', 'CS-319', '1', 'Spring', '2018', 'B');
insert into takes values ('54321', 'CS-101', '1', 'Fall', '2017', 'A-');
insert into takes values ('54321', 'CS-190', '2', 'Spring', '2017', 'B+');

```

```
insert into takes values ('55739', 'MU-199', '1', 'Spring', '2018', 'A-');
insert into takes values ('76543', 'CS-101', '1', 'Fall', '2017', 'A');
insert into takes values ('76543', 'CS-319', '2', 'Spring', '2018', 'A');
insert into takes values ('76653', 'EE-181', '1', 'Spring', '2017', 'C');
insert into takes values ('98765', 'CS-101', '1', 'Fall', '2017', 'C-');
insert into takes values ('98765', 'CS-315', '1', 'Spring', '2018', 'B');
insert into takes values ('98988', 'BIO-101', '1', 'Summer', '2017', 'A');
insert into takes values ('98988', 'BIO-301', '1', 'Summer', '2018', null);
insert into advisor values ('00128', '45565');
insert into advisor values ('12345', '10101');
insert into advisor values ('23121', '76543');
insert into advisor values ('44553', '22222');
insert into advisor values ('45678', '22222');
insert into advisor values ('76543', '45565');
insert into advisor values ('76653', '98345');
insert into advisor values ('98765', '98345');
insert into advisor values ('98988', '76766');
insert into time_slot values ('A', 'M', '8', '0', '8', '50');
insert into time_slot values ('A', 'W', '8', '0', '8', '50');
insert into time_slot values ('A', 'F', '8', '0', '8', '50');
insert into time_slot values ('B', 'M', '9', '0', '9', '50');
insert into time_slot values ('B', 'W', '9', '0', '9', '50');
insert into time_slot values ('B', 'F', '9', '0', '9', '50');
insert into time_slot values ('C', 'M', '11', '0', '11', '50');
insert into time_slot values ('C', 'W', '11', '0', '11', '50');
insert into time_slot values ('C', 'F', '11', '0', '11', '50');
insert into time_slot values ('D', 'M', '13', '0', '13', '50');
insert into time_slot values ('D', 'W', '13', '0', '13', '50');
insert into time_slot values ('D', 'F', '13', '0', '13', '50');
insert into time_slot values ('E', 'T', '10', '30', '11', '45 ');
insert into time_slot values ('E', 'R', '10', '30', '11', '45 ');
insert into time_slot values ('F', 'T', '14', '30', '15', '45 ');
insert into time_slot values ('F', 'R', '14', '30', '15', '45 ');
insert into time_slot values ('G', 'M', '16', '0', '16', '50');
insert into time_slot values ('G', 'W', '16', '0', '16', '50');
insert into time_slot values ('G', 'F', '16', '0', '16', '50');
insert into time_slot values ('H', 'W', '10', '0', '12', '30');
insert into prereq values ('BIO-301', 'BIO-101');
insert into prereq values ('BIO-399', 'BIO-101');
insert into prereq values ('CS-190', 'CS-101');
insert into prereq values ('CS-315', 'CS-101');
insert into prereq values ('CS-319', 'CS-101');
insert into prereq values ('CS-347', 'CS-101');
insert into prereq values ('EE-181', 'PHY-101');
```







```
1 rows affected.  
1 rows affected.
```

Out[6]: []

Execute the following cell to verify that you have correctly created and loaded the sample database.

In [7]: %sql select \* from db\_book.student where dept\_name='Comp. Sci.'

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

Out[7]:

ID	name	dept_name	tot_cred
00128	Zhang	Comp. Sci.	102
12345	Shankar	Comp. Sci.	32
54321	Williams	Comp. Sci.	54
76543	Brown	Comp. Sci.	58

## Summary

If you were able to accomplish all of the tasks above, you successfully completed part 1 of homework 1.

## Create PDF

1. Use the `File -> Save and Export Notebook as -> HTML` option to save your notebook as an HTML file.
2. Copy the created HTML file to the same directory as the notebook and images you created.
3. Open the HTML file in a browser.
4. Using the *browser's* `File -> Print` option print the HTML file to a PDF. This is your submission format.
5. Follow the submission instructions on Ed Discussion to submit your file to GradeScope.

In [ ]: