Python Guide

Python Installation
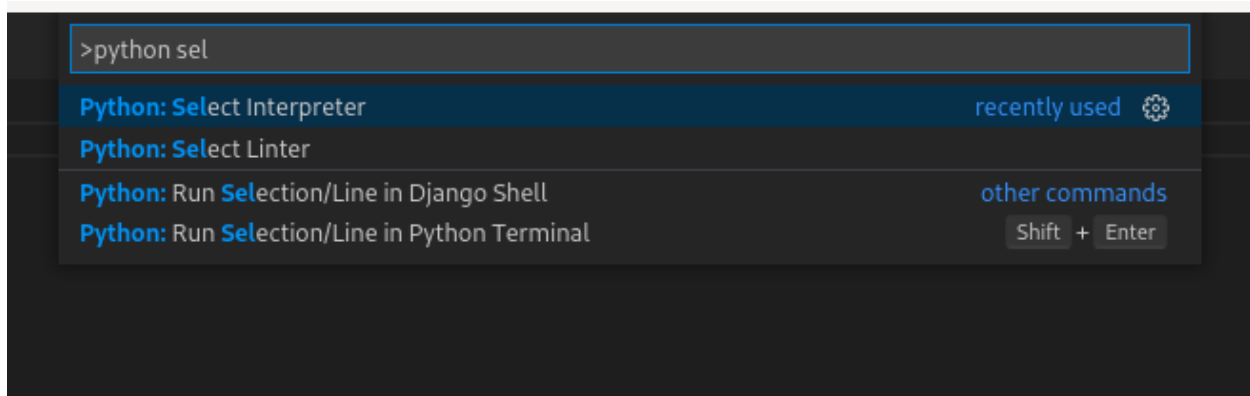
Resources:

- Download: https://www.python.org/downloads/

- Learn Python in 1 Hour: https://youtu.be/kqtD5dpn9C8

- Virtual Environments and Packages: https://docs.python.org/3/tutorial/venv.html
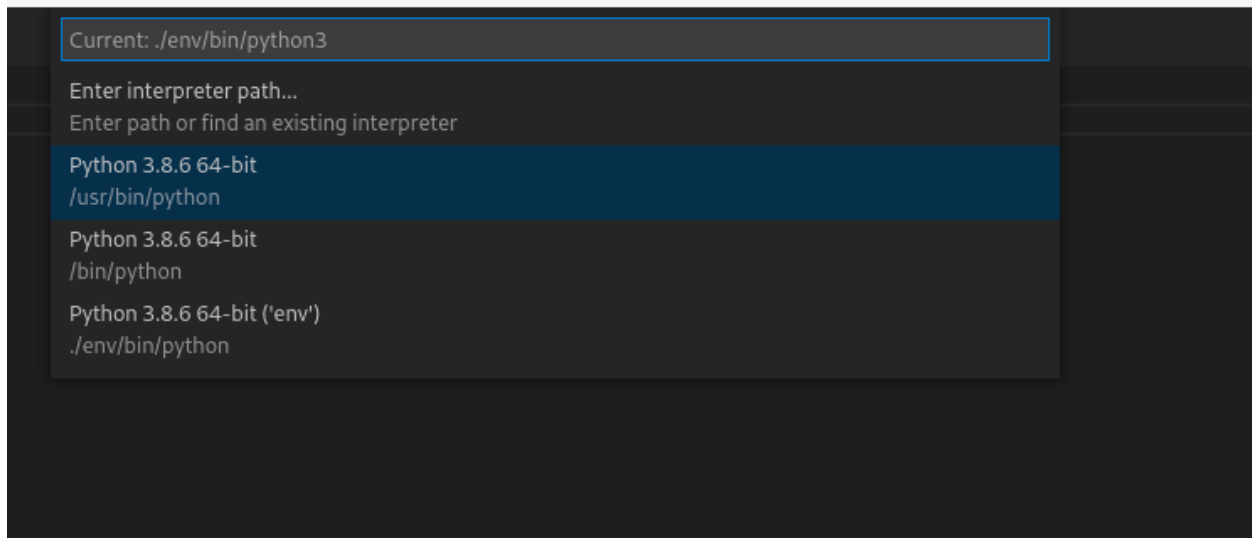
VS Code: Python Interpreter

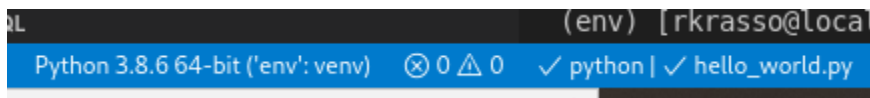Resource: https://code.visualstudio.com/docs/python/environments

1. Open VS Code and enter Ctrl + Shift + P and search for "Python sel" and choose "Python: Select Interpreter."

2. Choose a Python interpreter to connect to.
   a. Special note. If you are using a virtual environment you will need to select "Enter interpreter path…" and navigate to the virtual environment.

```
Current: ./env/bin/python3

Enter interpreter path...
Enter path or find an existing interpreter
Python 3.8.6 64-bit
/usr/bin/python
Python 3.8.6 64-bit
/bin/python
Python 3.8.6 64-bit ('env')
./env/bin/python
```

3. Confirm the interpreter has been activated by viewing the bottom menu bar. You should see "python" as the environment.

```
QL                                               (env) [rkrasso@local
Python 3.8.6 64-bit ('env': venv)   ⊗ 0 ⚠ 0   ✓ python | ✓ hello_world.py
```

Special note. If VS Code prompts you to install a linter, give it permission. See the following link: https://code.visualstudio.com/docs/python/linting
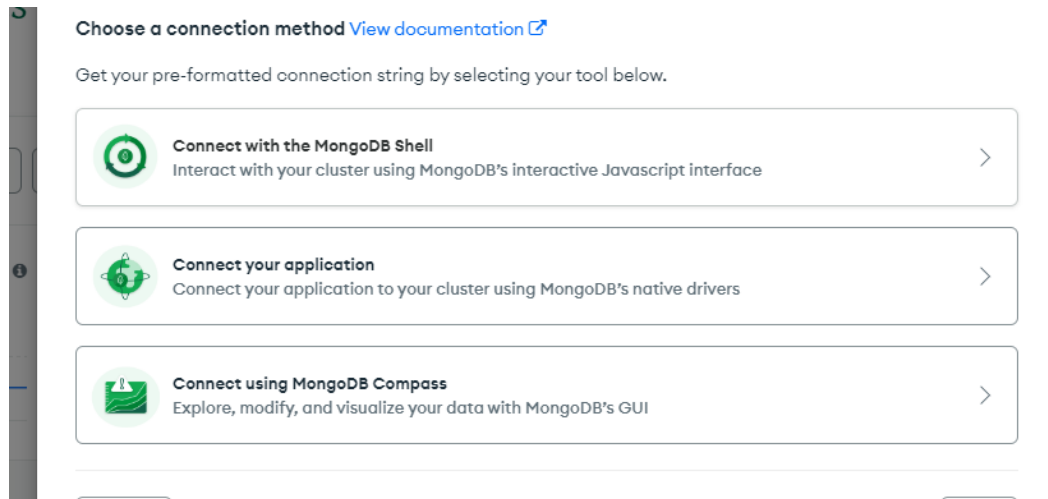
Python pip packages to install
1. pip install pymongo
2. pip install pymongo[srv]

Special note. To view a list of installed pip packages, use pip list. pip is a package manager, similar to NPM, which is responsible for managing dependencies in a Python program. To update pip to the latest version you can run the command python -m pip install --upgrade pip.
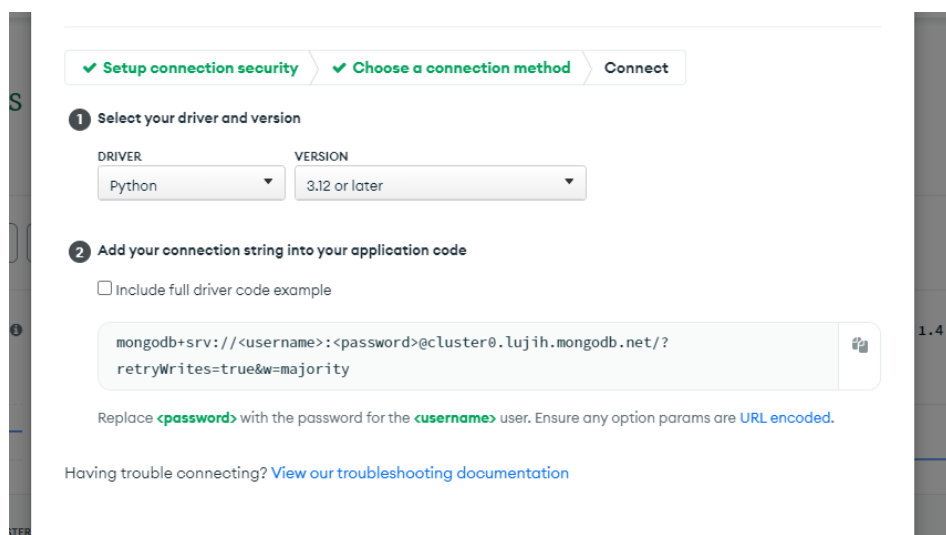
Python: MongoDB Connection
1. Sign-in to your MongoDB Atlas account.
2. Select "Connect."

3. Choose "Connect your application."

4. Copy the connection string under step 2. Make sure you change the driver to Python and the correct version (this is the version you downloaded). Replace the username and password with the database username and password you created for the web335_user. The question mark after mongodb.net/ should be replaced with the database you are connecting to. In our case, it would be web335DB.

pymongo Connection Example:

```python
Week_6 > 🐍 pymongo_conn.py > ...
 1    """
 2        Title: pymongo_conn.py
 3        Author: Professor Krasso
 4        Date: 27 June 2022
 5        Description: Exercise 6.3
 6    """
 7
 8    """ import the MongoClient """
 9    from pymongo import MongoClient
10
11    """ build a connection string to connect to """
12    client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")
13
14    print(client)
```

find_one query example:

```python
Week_6 > 🐍 find_one_ex1.py > ...
 1    """
 2        Title: find_one_ex1.py
 3        Author: Professor Krasso
 4        Date: 27 June 2022
 5        Description: Exercise 6.3
 6    """
 7
 8    """ import the MongoClient """
 9    from pymongo import MongoClient
10
11    """ build a connection string to connect to """
12    client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")
13
14    """ configure a variable to access the web335DB """
15    db = client['web335DB']
16
17    """ call the find_one function to display a user document """
18    print(db.users.find_one())
```

find_one query example with filter:

```python
"""
    Title: find_one_ex2.py
    Author: Professor Krasso
    Date: 27 June 2022
    Description: Exercise 6.3
"""

""" import the MongoClient """
from pymongo import MongoClient
import datetime

""" build a connection string to connect to """
client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")

""" configure a variable to access the web335DB """
db = client['web335DB']

""" call the find_one function to display a user document by id """
print(db.users.find_one({"employeeId": "1007"}))
```

insert_one example:

```python
"""
    Title: insert_one_ex1.py
    Author: Professor Krasso
    Date: 27 June 2022
    Description: Exercise 6.3
"""

""" import the MongoClient """
from pymongo import MongoClient
import datetime

""" build a connection string to connect to """
client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")

""" configure a variable to access the web335DB """
db = client['web335DB']

""" create a new user document and added it to the users collection """
hayden = {
    "firstName": "Joseph",
    "lastName": "Haydn",
    "employeeId": "1013",
    "email": "jhaydn@me.com",
    "dateCreated": datetime.datetime.utcnow()
}

""" insert the document into the users collection """
hayden_user_id = db.users.insert_one(hayden).inserted_id
print(hayden_user_id)

""" prove the insert worked by searching the collection for the document """
print(db.users.find_one({"employeeId": "1013"}))
```

update_one example:

```python
"""
    Title: update_one_ex.py
    Author: Professor Krasso
    Date: 27 June 2022
    Description: Exercise 6.3
"""

""" import the MongoClient """
from pymongo import MongoClient
import datetime

""" build a connection string to connect to """
client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")

""" configure a variable to access the web335DB """
db = client['web335DB']

""" create an update query to change the user's email address """
db.users.update_one(
    {"employeeId": "1013"},
    {
        "$set": {
            "email": "joseph.haydn@me.com"
        }
    }
)

""" prove the update worked by searching the collection for the user by employeeId """
print(db.users.find_one({"employeeId": "1013"}))
```

delete_one example:

```
week_6 > 🐍 delete_one_ex1.py > ...
 1   """
 2       Title: delete_one_ex1.py
 3       Author: Professor Krasso
 4       Date: 27 June 2022
 5       Description: Exercise 6.3
 6   """
 7
 8   """ import the MongoClient """
 9   from pymongo import MongoClient
10   import datetime
11
12   """ build a connection string to connect to """
13   client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")
14
15   """ configure a variable to access the web335DB """
16   db = client['web335DB']
17
18   """ build a query to remove a user document """
19   result = db.users.delete_one({
20       "employeeId": "1013"
21   })
22
23   """ display the results of the query """
24   print(result)
25
26   """ prove the delete worked by searching the collection for the deleted document """
27   print(db.users.find_one({"employeeId": "1013"}))
```

find example:

```
week_6 > 🐍 find_ex1.py > ...
 1   """
 2       Title: find_ex1.py
 3       Author: Professor Krasso
 4       Date: 27 June 2022
 5       Description: Exercise 6.3
 6   """
 7
 8   """ import the MongoClient """
 9   from pymongo import MongoClient
10   import datetime
11
12   """ build a connection string to connect to """
13   client = MongoClient("mongodb+srv://web335_user:s3cret@cluster0.lujih.mongodb.net/web335DBretryWrites=true&w=majority")
14
15   """ configure a variable to access the web335DB """
16   db = client['web335DB']
17
18   """ call the find function to display all of the users in the collection; use projections to only show the first and last names. """
19   for user in db.users.find({}, {"firstName": 1, "lastName": 1}):
20       print(user)
```