Lab 6: NoSQL database models

# **PreLab**

* **[Chapter 9, Section 9.1 to 9.6]** Lingras, P. (2016-01-01). Building Cross-Platform Mobile and Web Apps for Engineers and Scientists: An Active Learning Approach. [[VitalSource Bookshelf version]]. Retrieved from vbk://9781305855892
* <https://www.mongodb.com/docs/manual/introduction/>
* <https://www.sqlitetutorial.net/wp-content/uploads/2018/03/sqlite-sample-database-diagram-color.pdf>

# **InLab**

* Install MongoDB Compass. Download here: [MongoDB Compass | MongoDB](https://www.mongodb.com/products/tools/compass). For Ubuntu 64 bit OS, Download here >> <https://downloads.mongodb.com/compass/mongodb-compass_1.41.0_amd64.deb>

Installation:

|  |
| --- |
|  |
|  |
| Search for mongodb |
|  |
|  |
|  |
| Workaround:   * Install MongoDB Community Edition >> [Install MongoDB Community Edition on Ubuntu — MongoDB Manual](https://www.mongodb.com/docs/manual/tutorial/install-mongodb-on-ubuntu/) * Run MongoDB Community Edition >> command: sudo systemctl start mongod |

Sample Python MongoDB operations

|  |  |
| --- | --- |
| Activate softDes virtual environment |  |
| Pip install pymongo |  |
| Inside the python interactive terminal, run the following commands shown in the screengrab.  Note: You need to run the mongodb process before you can connect to your mongodb database.  Command: sudo systemctl start mongod |  |
|  |  |
| Navigate to Lab6 directory and open visual studio code |  |
| Check if you have the chinook database and the customers collections and documents. If you don’t have, open the chinook database and “export as JSON file” the customers table |  |
| Enter the following lines in VS Code:  from pymongo import MongoClient  import pprint  import re  # client = MongoClient(host="localhost", port=27017)  client = MongoClient("mongodb://localhost:27017/")  # Get reference to 'chinook' database  db = client["chinook"]  # Get a reference to the 'customers' collection  customers\_collection = db["customers"]  # print(customers\_collection)  #print first document  doc1 = customers\_collection.find\_one()  print(doc1)  client.close() | \ |
| Print all documents of the customers collection  Comment this  #print first document  # doc1 = customers\_collection.find\_one()  # print(doc1)  And add the following line  #print all documents  for all\_doc in customers\_collection.find():  print(all\_doc) |  |
| #return only the LastName and FirstName  for rec in customers\_collection.find({},{"\_id":0,"LastName": 1, "FirstName": 1}):  print(rec) |  |
| Print all customers with LastName that starts with “G”  rgx = re.compile('^G.\*?$', re.IGNORECASE) # compile the regex  cursor = customers\_collection.find({"LastName":rgx })  num\_docs = 0  for document in cursor:  num\_docs += 1  pprint.pprint(document)  print()  print("# of documents found: " + str(num\_docs)) |  |
|  |  |
|  |  |

References:

* [Python and MongoDB: Connecting to NoSQL Databases – Real Python](https://realpython.com/introduction-to-mongodb-and-python/)
* Installation: [Install MongoDB — MongoDB Manual](https://www.mongodb.com/docs/manual/installation/)
* <https://www.mongodb.com/basics/get-started>
* Perform MongoDB CRUD Operations CRUD operations: [MongoDB CRUD Operations — MongoDB Manual](https://www.mongodb.com/docs/manual/crud/)
* MongoDB CRUD Operations in Python >> [MongoDB CRUD Operations in Python - Learn | MongoDB](https://learn.mongodb.com/learn/course/mongodb-crud-operations-in-python/lesson-1-working-with-mongodb-documents-in-python/learn)

# **PostLab**

Using the ERD shown here >> [Chinook DB ERD](https://www.sqlitetutorial.net/wp-content/uploads/2018/03/sqlite-sample-database-diagram-color.pdf) , create the artists-albums-tracks database in MongoDB compass.