**1. Install, Set Up, and Connect to MongoDB using PyMongo**

**Installation**

Ensure MongoDB is installed and running. Then, install PyMongo using pip:

pip install pymongo

**Connect to MongoDB**

from pymongo import MongoClient

# Connect to the MongoDB server (default port: 27017)

client = MongoClient("mongodb://localhost:27017/")

# Check available databases

print(client.list\_database\_names())

**2. Make a Database Connection and Get a Collection**

**Get a Database**

db = client["mydatabase"] # Create or connect to an existing database

**Get a Collection**

collection = db["users"] # Create or get a collection (table equivalent)

**3. Insert, Query, Update, and Delete Data**

**Insert Data**

user\_data = {"name": "Alice", "age": 25, "city": "New York"}

insert\_result = collection.insert\_one(user\_data)

print("Inserted ID:", insert\_result.inserted\_id)

**Insert Multiple Documents**

users = [

{"name": "Bob", "age": 30, "city": "Chicago"},

{"name": "Charlie", "age": 22, "city": "San Francisco"}

]

collection.insert\_many(users)

**Query Data**

**Find One Document**

user = collection.find\_one({"name": "Alice"})

print(user)

**Find Multiple Documents**

for user in collection.find({"age": {"$gte": 25}}): # Users with age >= 25

print(user)

**Update Data**

collection.update\_one({"name": "Alice"}, {"$set": {"age": 26}})

**Update Multiple Documents**

collection.update\_many({"city": "Chicago"}, {"$set": {"country": "USA"}})

**Delete Data**

collection.delete\_one({"name": "Alice"})

**Delete Multiple Documents**

collection.delete\_many({"city": "Chicago"})

**4. Query by ObjectId and Use find & find\_one**

**Find Document by ObjectId**

from bson.objectid import ObjectId

obj\_id = ObjectId("INSERT\_OBJECT\_ID\_HERE") # Replace with an actual ObjectId

document = collection.find\_one({"\_id": obj\_id})

print(document)

**5. Install and Use the Python GridFS Package**

GridFS is used to store and retrieve large files (e.g., images, videos).

**Install GridFS**

pip install pymongo

**Import GridFS**

import gridfs

fs = gridfs.GridFS(db) # Initialize GridFS

**6. Create, Delete, and Manipulate Files in GridFS**

**Upload a File**

with open("example.txt", "rb") as f:

file\_id = fs.put(f, filename="example.txt")

print("File ID:", file\_id)

**Find a File in GridFS**

file\_data = fs.find\_one({"filename": "example.txt"})

print(file\_data)

**Delete a File**

fs.delete(file\_id)

**7. Query Data and Find Files in GridFS**

**List All Files**

for file in fs.find():

print(file.filename)

**8. Use Streaming to Upload and Download Files**

**Upload File Using Streaming**

with open("large\_video.mp4", "rb") as f:

file\_id = fs.put(f, filename="large\_video.mp4")

print("Uploaded File ID:", file\_id)

**Download File Using Streaming**

file\_data = fs.get(file\_id)

with open("downloaded\_video.mp4", "wb") as f:

f.write(file\_data.read())

print("Download Complete!")

**9. Use Python to Connect and Interact with MongoDB**

All the above steps summarize how to use **Python (PyMongo)** to **connect, interact, query, update, delete, and handle files in MongoDB**.