ECS 116
Databases for Non-Majors

Discussion 7
(5/23/24) |Spring ‘24

Today's Agenda

1. Quick Updates
2. Mongodb and pymongo
3. Using MongoDb to query the company data set

Quick Updates

Programming Assignment 2

- Due on Friday
- Go to files->Prog-Assmt-2
- All three parts are online

Regrade Request

- If you think your assignment needs to regraded (points 16 - 19 generally) send us an email
- No guarantee
- Make sure to check your result correctness

Files

Today's Files:

1. Download the folder: *Files->Juypter Notebooks->DISC_7_FILES*
2. We will be using the boilerplate: DISC-7-BOILERPLATE-v01.ipynb
3. Completed notebook: *DISC-7-MAIN-v01.ipynb*

Tech Used:

1. Jupyter Notebook
2. Pymongo
3. MongoDB

What is MongoDB?

What is MongoDB?

- MongoDB is a NoSQL, document-oriented database.
- Stores data in JSON-like BSON documents.
- Key Features

Schema flexibility.

- High scalability and performance.
- Rich query language.

Use Cases

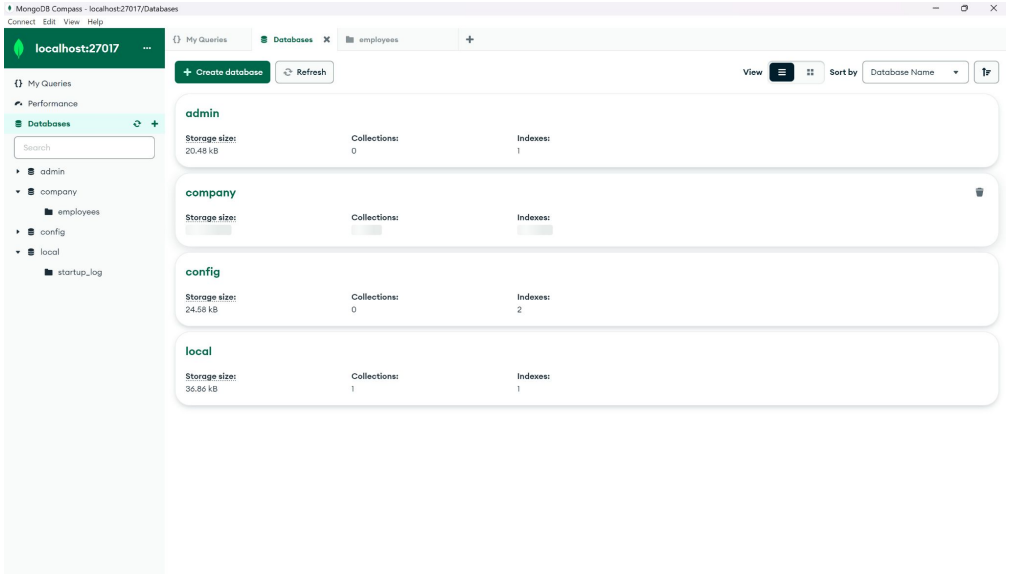
- Content management systems.
- Real-time analytics.
- IoT applications.

```
{
  name: "sue",                          <-- field: value
  age: 26,                              <-- field: value
  status: "A",                          <-- field: value
  groups: [ "news", "sports" ]          <-- field: value
}
```

Installing MongoDb

Installation

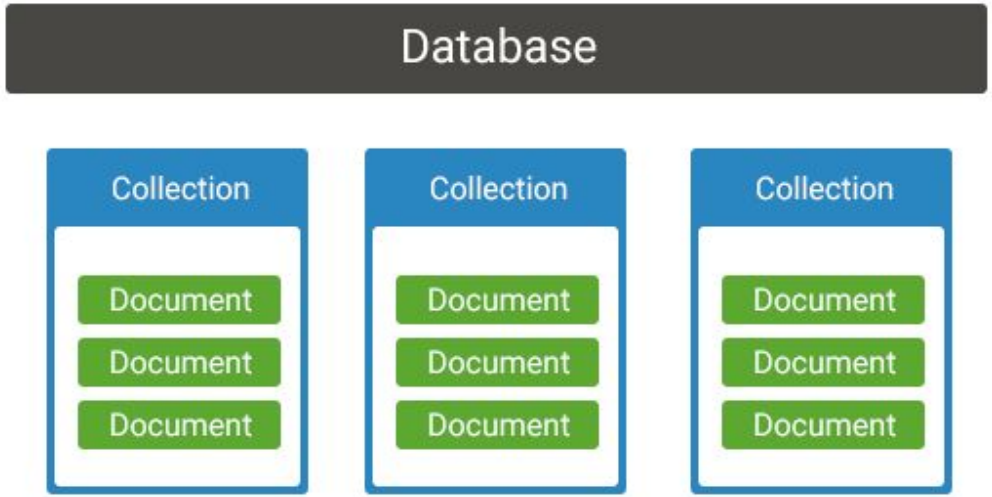
- Download MongoDB
- Follow installation instructions for your OS.
- Ensure MongoDB server is running (mongod command).



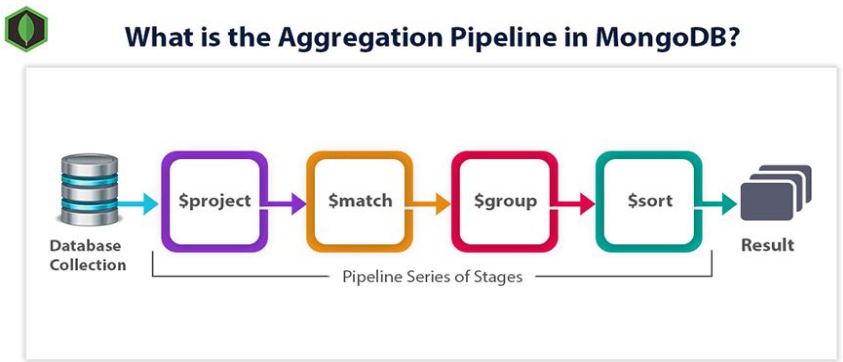
MongoDb Basics

Basic Commands

- db.createCollection
- db.drop
- db.collection.insert
- $eg, $gt, $gte, $not, $or, $exists
- $match
- $group
- $project
- $sort
- $unwind
- $sum



Pipeline in MongoDB




```
db.train.aggregate( [
                    {$match:{class:"first-class"}},
                    {$group:{_id:"id",total:{$sum:"$fare"}}}
                   ])
```

pipeline stages

```
{
    id:"181",
    class:"first-class",
    fare: 1200
}
{
    id:"181",
    class:"first-class",
    fare: 1000
}
{
    id:"181",
    class:"second-class",
    fare: 1000
}
{
    id:"167",
    class:"first-class",
    fare: 1200
}
{
    id:"167",
    class:"second-class",
    fare: 1500
}
```

$match

```
{
    id:"181",
    class:"first-class",
    fare: 1200
}
{
    id:"181",
    class:"first-class",
    fare: 1000
}
{
    id:"167",
    class:"first-class",
    fare: 1200
}
```

$group

```
{
    _id:"181",
    total: 2200
}
{
    _id:"167",
    total: 1200
}
```

What did we learn today?

1. Installing mongoDB
2. Using pymongo to use mongodb
3. Simple queries

Thank You!

See you next Thursday!