

Run MongoDB as a Docker Container:

```
docker run -d -p 27017:27017 --name MONGO_CONTAINER mongo:latest
```

Start the MongoDB shell:

```
docker exec -it MONGO_CONTAINER bash
```

mongosh command

```
administrator@administrator-virtual-machine:~$ mongosh
Current Mongosh Log ID: 61be6fe8a257c066584fc209
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
Using MongoDB:      5.0.5
Using Mongosh:      1.1.7

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

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The server generated these startup warnings when booting:
2021-12-18T23:29:38.863+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2021-12-18T23:29:41.386+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----
test> 
```

Show dbs → we select the database.

Create and use a new database warehouse.

```
test> show dbs
admin      41 kB
config     61.4 kB
lab        8.19 kB
local     73.7 kB
test> use lab
switched to db lab
lab> use warehouse
switched to db warehouse
warehouse> 
```

Create a new collection named Items.

```
switched to db lab
lab> use warehouse
switched to db warehouse
warehouse> db.createCollection('items')
{ ok: 1 }
warehouse> 
```

Add a document in the collection:

```
warehouse> db.createCollection('items')
warehouse> db.items.insertMany([{name: "item2", qty: 12}, {name: "item3", qty: 3}])
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("61be737bfc83bf69491d31d5"),
    '1': ObjectId("61be737bfc83bf69491d31d6")
  }
}
warehouse>
```

Show all documents in the collection:

```
}
warehouse> db.items.find
[Function: find] AsyncFunction {
  returnsPromise: true,
  apiVersions: [ 1, Infinity ],
  returnType: 'Cursor',
  serverVersions: [ '0.0.0', '999.999.999' ],
  topologies: [ 'ReplSet', 'Sharded', 'LoadBalanced', 'Standalone' ],
  deprecated: false,
  platforms: [ 0, 1, 2 ],
  isDirectShellCommand: false,
  acceptsRawInput: false,
  shellCommandCompleter: undefined,
  help: [Function (anonymous)] Help
}
warehouse>
```

Find a single document by name:

```
warehouse> db.items.findOne({name: "item2"})
{ _id: ObjectId("61be737bfc83bf69491d31d5"), name: 'item2', qty: 12 }
warehouse> █
```

Import the books data set.

```
administrator@administrator-virtual-machine:~$ wget -qO- https://raw.githubusercontent.com/stavmars/MongoDB_Lab/main/books.json | mongoimport -d warehouse -c books --drop
2021-12-19T02:11:53.394+0200    connected to: mongod://localhost/
2021-12-19T02:11:53.395+0200    dropping: warehouse.books
2021-12-19T02:11:53.837+0200    431 document(s) imported successfully. 0 document(s) failed to import.
administrator@administrator-virtual-machine:~$
```

db.books.find().limit(1)

```
warehouse> db.books.find().limit(1)
[
  {
    _id: 1,
    title: 'Unlocking Android',
    isbn: '1933988673',
    pageCount: 416,
    publishedDate: ISODate("2009-04-01T07:00:00.000Z"),
    thumbnailUrl: 'https://s3.amazonaws.com/AKIAJCSRLADLUMVRPFQ0.book-thumb-images/ablesen.jpg',
    shortDescription: 'Unlocking Android: A Developer's Guide provides concise, hands-on instruction for the Android operating system and development tools. This book teaches important architectural concepts in a straightforward writing style and builds on this with practical and useful examples throughout.',
    longDescription: 'Android is an open source mobile phone platform based on the Linux operating system and developed by the Open Handset Alliance, a consortium of over 30 hardware, software and telecommunications companies that focus on open standards for mobile devices. Led by search giant, Google, Android is designed to deliver a better and more open and cost effective mobile experience. Unlocking Android: A Developer's Guide provides concise, hands-on instruction for the Android operating system and development tools. This book teaches important architectural concepts in a straightforward writing style and builds on this with practical and useful examples throughout. Based on his mobile development experience and his deep knowledge of the arcane Android technical documentation, the author conveys the know-how you need to develop practical applications that build upon or replace any of Android's features, however small. Unlocking Android: A Developer's Guide prepares the reader to embrace the platform in easy-to-understand language and builds on this foundation with re-usable Java code examples. It is ideal for corporate and hobbyists alike who have an interest, or a mandate, to deliver software functionality for cell phones. WHAT'S INSIDE: * Android's place in the market * Using the Eclipse environment for Android development * The Intents - how and why they are used * Application classes: o Activity o Service o IntentReceiver * User interface design * Using the ContentProvider to manage data * Persisting data with the SQLite database * Networking examples * Telephony applications * Notification methods * OpenGL, animation & multimedia * Sample Applications',
    status: 'PUBLISHED',
    authors: [ 'W. Frank Ableson', 'Charlie Collins', 'Robi Sen' ],
    categories: [ 'Open Source', 'Mobile' ]
  }
]
warehouse>
```

To find the books with a number of pages that is greater or equal than 400 but less than 500, sort them by their publication date descending and print their titles, page counts and date they were published

```
warehouse> db.books.find({pageCount: {$lt: 500, $gte:400}}, {_id: 0, title: 1, pageCount: 1, publishedDate: 1}).sort({publishedDate: -1})
[
  {
    title: 'Restlet in Action',
    pageCount: 450,
    publishedDate: ISODate("2012-09-26T07:00:00.000Z")
  },
  {
    title: 'Spring Integration in Action',
    pageCount: 400,
    publishedDate: ISODate("2012-09-19T07:00:00.000Z")
  },
  {
    title: 'ASP.NET MVC 4 in Action',
    pageCount: 450,
    publishedDate: ISODate("2012-05-25T07:00:00.000Z")
  },
  {
    title: 'Lift in Action',
    pageCount: 450,
    publishedDate: ISODate("2011-11-18T08:00:00.000Z")
  },
  {
    title: 'Clojure in Action',
    pageCount: 475,
    publishedDate: ISODate("2011-11-15T08:00:00.000Z")
  },
  {
    title: 'Rails 3 in Action',
    pageCount: 425,
    publishedDate: ISODate("2011-09-20T07:00:00.000Z")
  }
]
```

```
},
{
  title: 'Spring in Action, Third Edition',
  pageCount: 424,
  publishedDate: ISODate("2011-06-21T07:00:00.000Z")
},
{
  title: 'SharePoint 2010 Web Parts in Action',
  pageCount: 448,
  publishedDate: ISODate("2011-04-24T07:00:00.000Z")
},
{
  title: 'ActiveMQ in Action',
  pageCount: 408,
  publishedDate: ISODate("2011-03-31T07:00:00.000Z")
},
{
  title: 'Tuscany SCA in Action',
  pageCount: 472,
  publishedDate: ISODate("2011-02-12T08:00:00.000Z")
},
{
  title: 'Ext JS in Action',
  pageCount: 425,
  publishedDate: ISODate("2010-12-05T08:00:00.000Z")
},
{
  title: 'Azure in Action',
  pageCount: 425,
  publishedDate: ISODate("2010-10-22T07:00:00.000Z")
},
{
  title: 'Silverlight 4 in Action, Revised Edition',
  pageCount: 425,
  publishedDate: ISODate("2010-10-04T07:00:00.000Z")
},
{
  title: 'Spring Dynamic Modules in Action',
  pageCount: 450,
  publishedDate: ISODate("2010-09-04T07:00:00.000Z")
},
{
  title: 'iPhone and iPad in Action',
  pageCount: 450,
  publishedDate: ISODate("2010-08-01T07:00:00.000Z")
}
```

To find all Python books and print their titles and categories we run the following query