

Create the Database (using mongosh, take screenshot)

I have created a database named Legal_Knowlege_Management by using Use database

The screenshot shows the MongoDB Compass interface. On the left sidebar, under 'Databases', there is a new entry for 'Legal_Knowlege_Management'. The main panel displays the 'courtroomScheduling' database, which has a storage size of 36.86 kB, one collection, and one index. Below it, the 'Legal-Knowledge-Management' database is shown with a storage size of 118.78 kB, five collections, and five indexes. Other databases listed are 'local', 'tennis', and 'test'. The bottom status bar indicates the connection is to 'MONGOSH'.

- Create the 5 collections (using mongosh, take screenshot)

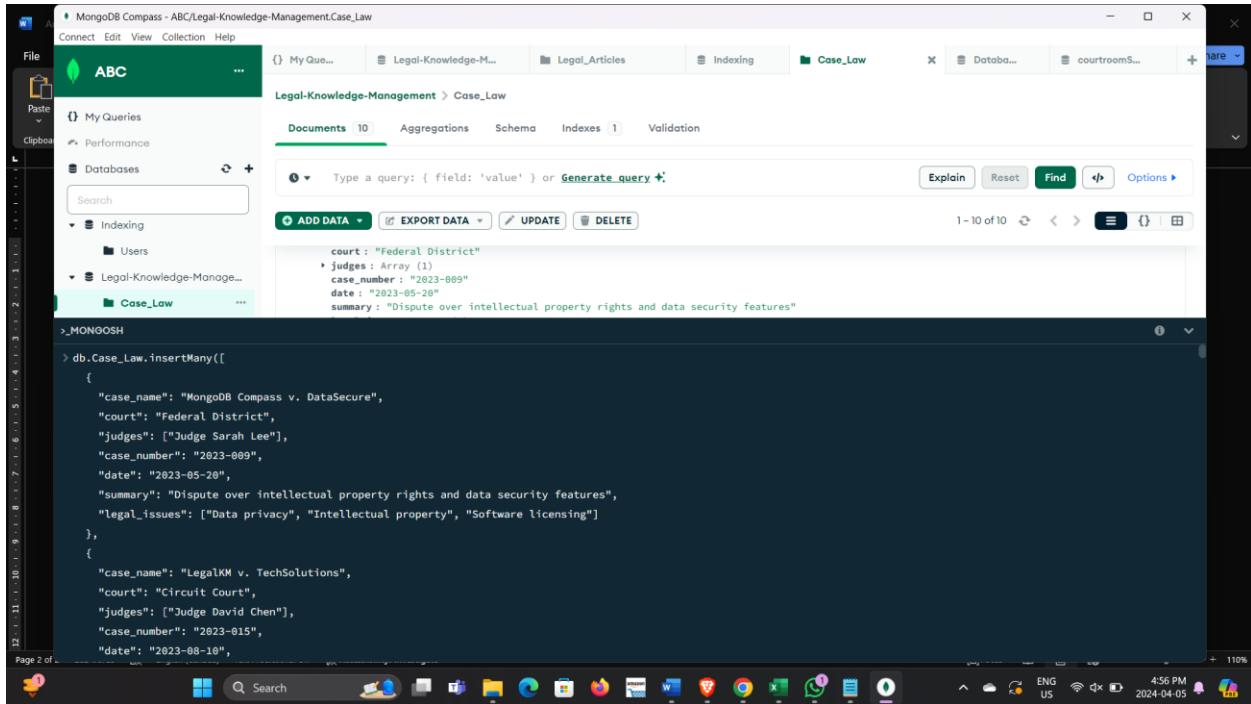
By using db.create collection, 5 collections named (Case_Law, Client_Matters, Legal_Articles, Legal_Research and Legislation)

The screenshot shows the MongoDB Compass interface with the 'Legal_Knowlege_Management' database selected. The left sidebar shows the 'Legal_Knowlege_Management' database expanded, revealing its collections: 'Case_Law', 'Client_Matters', 'Legal_Articles', 'Legal_Research', and 'Legislation'. Each collection is listed with its storage size, number of documents, average document size, and total index size. The bottom status bar indicates the connection is to 'MONGOSH'.

- Create a document in one of the collections using insertOne() (using mongosh, take screenshot)

- Create 2 documents in one of the collection using insertMany() (using mongosh, take screenshot)

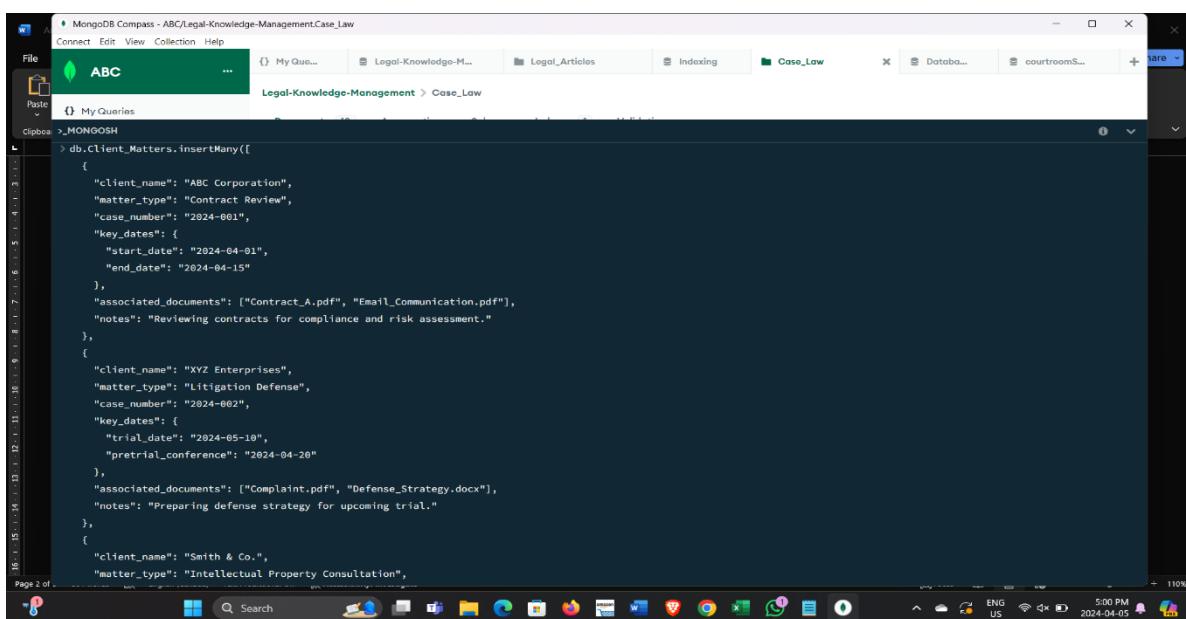
Here, I have inserted 10 documents in Case_Law Collection by using db.Case_Law.insertMany command.



The screenshot shows the MongoDB Compass interface. The left sidebar has 'ABC' selected. Under 'Case_Law', there are 10 documents listed. The top bar shows 'MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law'. The bottom status bar shows 'Page 2 of 10' and the date '2024-04-05'.

```
> db.Case_Law.insertMany([
  {
    "case_name": "MongoDB Compass v. DataSecure",
    "court": "Federal District",
    "judges": ["Judge Sarah Lee"],
    "case_number": "2023-009",
    "date": "2023-05-20",
    "summary": "Dispute over intellectual property rights and data security features",
    "legal_issues": ["Data privacy", "Intellectual property", "Software licensing"]
  },
  {
    "case_name": "LegalKM v. TechSolutions",
    "court": "Circuit Court",
    "judges": ["Judge David Chen"],
    "case_number": "2023-015",
    "date": "2023-06-10",
    "summary": "Dispute over intellectual property rights and data security features"
  }
])
```

After did the same with remaining Collections as well.



The screenshot shows the MongoDB Compass interface. The left sidebar has 'ABC' selected. Under 'Client_Matters', there are multiple documents listed. The top bar shows 'MongoDB Compass - ABC/Legal-Knowledge-Management.Client_Matters'. The bottom status bar shows 'Page 2 of 10' and the date '2024-04-05'.

```
> db.Client_Matters.insertMany([
  {
    "client_name": "ABC Corporation",
    "matter_type": "Contract Review",
    "case_number": "2024-001",
    "key_dates": {
      "start_date": "2024-04-01",
      "end_date": "2024-04-15"
    },
    "associated_documents": ["Contract_A.pdf", "Email_Communication.pdf"],
    "notes": "Reviewing contracts for compliance and risk assessment."
  },
  {
    "client_name": "XYZ Enterprises",
    "matter_type": "Litigation Defense",
    "case_number": "2024-002",
    "key_dates": {
      "trial_date": "2024-05-10",
      "pretrial_conference": "2024-04-20"
    },
    "associated_documents": ["Complaint.pdf", "Defense_Strategy.docx"],
    "notes": "Preparing defense strategy for upcoming trial."
  },
  {
    "client_name": "Smith & Co.",
    "matter_type": "Intellectual Property Consultation",
    "case_number": "2024-003",
    "key_dates": {
      "start_date": "2024-04-15",
      "end_date": "2024-05-05"
    },
    "associated_documents": ["IP_Policy.pdf", "Competitor_Analysis.xlsx"],
    "notes": "Assessing intellectual property rights and potential infringement."
  }
])
```

```
MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law
Connect Edit View Collection Help
File ABC ...
{} My Que... Legal-Knowledge-M... Legal_Articles Indexing Case_Law Database courtroomS...
Clipboard >_MONGOOSH
>_db.Legal_Articles.insertMany([
  {
    "title": "The Role of Legal Knowledge Management in Modern Law Firms",
    "author": "John Smith",
    "publication_date": "2023-05-15",
    "journal": "Legal Insights",
    "keywords": ["Legal Knowledge Management", "Law Firms", "Information Organization"],
    "abstract": "This article explores the importance of Legal Knowledge Management (LKM) in enhancing the efficiency and effectiveness of modern law firms. It discusses strategies for integrating LKM into law firm operations to improve client service and reduce costs.",
    "full_text": "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed eget nunc eu velit fermentum finibus. Integer non ligula ut ipsum volutpat vehicula vel ac risus."
  },
  {
    "title": "Implementing Legal Knowledge Management Systems: Best Practices",
    "author": "Emily Johnson",
    "publication_date": "2023-07-28",
    "journal": "LegalTech Review",
    "keywords": ["Legal Knowledge Management", "Systems Implementation", "Best Practices"],
    "abstract": "This article provides guidance on implementing Legal Knowledge Management (LKM) systems effectively. It outlines best practices for selecting, implementing, and maintaining LKM systems to support law firm operations.",
    "full_text": "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed eget nunc eu velit fermentum finibus. Integer non ligula ut ipsum volutpat vehicula vel ac risus."
  },
  {
    "title": "The Future of Legal Research: Leveraging Technology for Knowledge Discovery",
    "author": "David Chen",
    "publication_date": "2023-09-10",
    "journal": "Legal Innovations",
    "keywords": ["Legal Research", "Technology", "Knowledge Discovery"],
    "abstract": "This article examines the evolving landscape of legal research and the role of technology in facilitating knowledge discovery. It discusses emerging technologies and their impact on legal research processes."
  }
])
Page 3 of 3
ENG US 5:01 PM 2024-04-05
```

```
MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law
Connect Edit View Collection Help
File ABC ...
{} My Que... Legal-Knowledge-M... Legal_Articles Indexing Case_Law Database courtroomS...
Clipboard >_MONGOOSH
>_db.Legal_Research.insertMany([
  {
    "title": "The Evolution of Legal Knowledge Management: Trends and Challenges",
    "author": "Emily Johnson",
    "publication_date": "2023-01-10",
    "journal": "Legal Trends",
    "keywords": ["Legal Knowledge Management", "Trends", "Challenges"],
    "abstract": "This article provides an overview of the evolution of legal knowledge management over the years. It discusses current trends, challenges faced by legal professionals, and best practices for managing knowledge in law firms.",
    "full_text": "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed eget nunc eu velit fermentum finibus. Integer non ligula ut ipsum volutpat vehicula vel ac risus."
  },
  {
    "title": "The Role of Legal Technology in Knowledge Management",
    "author": "Michael Smith",
    "publication_date": "2023-02-20",
    "journal": "LegalTech Review",
    "keywords": ["Legal Technology", "Knowledge Management", "Innovation"],
    "abstract": "This article explores the role of legal technology in enhancing knowledge management practices within law firms and legal departments. It discusses the benefits of using technology to improve knowledge sharing and collaboration.",
    "full_text": "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed eget nunc eu velit fermentum finibus. Integer non ligula ut ipsum volutpat vehicula vel ac risus."
  },
  {
    "title": "Best Practices for Legal Knowledge Sharing",
    "author": "David Chen",
    "publication_date": "2023-03-15",
    "journal": "Legal Insights",
    "keywords": ["Knowledge Sharing", "Best Practices", "Collaboration"],
    "abstract": "This article discusses best practices for fostering knowledge sharing and collaboration within legal organizations. It explores strategies for creating a culture of knowledge sharing and leveraging technology to facilitate collaboration."
  }
])
Page 3 of 3
ENG US 5:02 PM 2024-04-05
```

```

MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law
Connect Edit View Collection Help
File ABC ...
My Queries Legal-Knowledge-Management > Case_Law
Legal_Knowledge_Management > Case_Law
>MONGOOSH
{
  acknowledged: true,
  insertedIds: [
    '$0': ObjectId('66106dbdf7b85c20815c489f'),
    '$1': ObjectId('66106dbdf7b85c20815c48a0'),
    '$2': ObjectId('66106dbdf7b85c20815c48a1'),
    '$3': ObjectId('66106dbdf7b85c20815c48a2'),
    '$4': ObjectId('66106dbdf7b85c20815c48a3'),
    '$5': ObjectId('66106dbdf7b85c20815c48a4'),
    '$6': ObjectId('66106dbdf7b85c20815c48a5'),
    '$7': ObjectId('66106dbdf7b85c20815c48a6'),
    '$8': ObjectId('66106dbdf7b85c20815c48a7'),
    '$9': ObjectId('66106dbdf7b85c20815c48a8')
  ]
}
> db.Legislation.insertMany([
  {
    "title": "Digital Millennium Copyright Act",
    "publication_date": "1998-10-28",
    "jurisdiction": "United States",
    "keywords": ["Copyright", "Digital Rights", "Online Content"],
    "description": "The Digital Millennium Copyright Act (DMCA) is a United States copyright law that implements two 1996 treaties of the World Intellectual Property Organization",
    "link": "https://www.copyright.gov/legislation/dmca.pdf"
  },
  {
    "title": "General Data Protection Regulation (GDPR)",
    "publication_date": "2016-04-27"
  }
])

```

- Create an excel file - give it same fields as your collection. Populate the excel and upload to the collection using **mongoimport** command. (show this to me in class for 1 bonus mark) - please specify fields and data types.

- Populate all the collections with atleast 10 documents each (using mongosh, take screenshot)

Inserting 10 documents in Case_Law Collection

	_id	case_name	court	judges	case_number
1	ObjectId('66106c5ff7b85c2...')	"MongoDB Compass v. DataA"	"Federal District"	[1 elements]	"2023-009"
2	ObjectId('66106c5ff7b85c2...')	"LegalKM v. TechSolutions"	"Circuit Court"	[1 elements]	"2023-015"
3	ObjectId('66106c5ff7b85c2...')	"ComplianceCorp v. Regula..."	"Supreme Court"	[1 elements]	"2024-003"
4	ObjectId('66106c5ff7b85c2...')	"DataPrivacy Coalition v..."	"Appellate Court"	[1 elements]	"2023-022"
5	ObjectId('66106c5ff7b85c2...')	"LitigateLawyers v. Litig..."	"State Supreme"	[1 elements]	"2023-018"
6	ObjectId('66106c5ff7b85c2...')	"TechInnovations v. Config..."	"Federal District"	[1 elements]	"2024-005"
7	ObjectId('66106c5ff7b85c2...')	"OpenSourceOrg v. Copyrig..."	"Circuit Court"	[1 elements]	"2023-012"
8	ObjectId('66106c5ff7b85c2...')	"ContractCompliance v. Ag..."	"Appellate Court"	[1 elements]	"2023-027"
9	ObjectId('66106c5ff7b85c2...')	"DataEthics v. Transparency..."	"Supreme Court"	[1 elements]	"2024-008"
10	ObjectId('66106c5ff7b85c2...')	"LegalTechStartup v. Regul..."	"Federal District"	[1 elements]	"2023-030"

Inserting 10 documents in Client_Matters Collection:

The screenshot shows the MongoDB Compass interface for the 'Client_Matters' collection. The left sidebar displays the database structure under 'ABC'. The main pane shows the 'Client_Matters' collection with 10 documents listed. Each document includes fields: _id, client_name, matter_type, case_number, and key_dates.

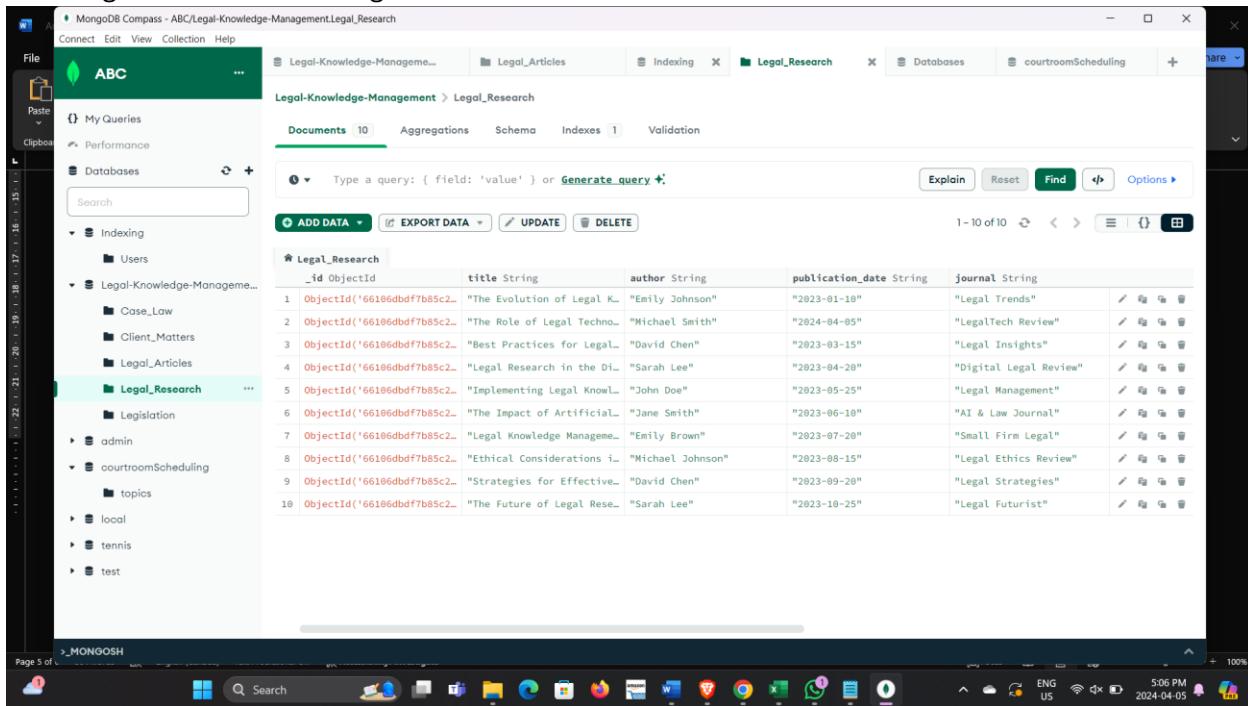
_id	client_name	matter_type	case_number	key_dates
ObjectId('66106c81f7b85c2...')	"ABC Corporation"	"Contract Review"	"2024-001"	{ } 2 fields
ObjectId('66106c81f7b85c2...')	"XYZ Enterprises"	"Litigation Defense"	"2024-002"	{ } 2 fields
ObjectId('66106c81f7b85c2...')	"Smith & Co."	"Intellectual Property Co..."	"2024-003"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Legal Solutions Inc."	"Corporate Governance Rev..."	"2024-004"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Johnson Family Trust"	"Estate Planning"	"2024-005"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Tech Startup Innovations"	"Business Formation"	"2024-006"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Green Energy Solutions"	"Regulatory Compliance"	"2024-007"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Doe Family"	"Real Estate Transaction"	"2024-008"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"Healthcare Innovations L..."	"HIPAA Compliance Consult..."	"2024-009"	{ } 1 fields
ObjectId('66106c81f7b85c2...')	"LegalTech Solutions"	"Legal Software Licensing"	"2024-010"	{ } 1 fields

Inserting 10 documents in Legal_Articles Collection:

The screenshot shows the MongoDB Compass interface for the 'Legal_Articles' collection. The left sidebar displays the database structure under 'ABC'. The main pane shows the 'Legal_Articles' collection with 10 documents listed. Each document includes fields: _id, title, author, publication_date, and journal.

_id	title	author	publication_date	journal
ObjectId('66106d73f7b85c2...')	"Effective Strategies for..."	"John Doe"	"2023-01-15"	"Legal Insights"
ObjectId('66106d73f7b85c2...')	"The Role of Technology i..."	"Jane Smith"	"2023-02-20"	"LegalTech Review"
ObjectId('66106d73f7b85c2...')	"Legal Research in the D..."	"Michael Johnson"	"2023-03-25"	"Legal Innovations"
ObjectId('66106d73f7b85c2...')	"Knowledge Sharing Practi..."	"Emily Brown"	"2023-04-10"	"Legal Trends"
ObjectId('66106d73f7b85c2...')	"The Role of Legal Database..."	"David Chen"	"2023-05-20"	"Legal Gazette"
ObjectId('66106d73f7b85c2...')	"Implementing Legal Knowl..."	"Sarah Lee"	"2023-06-15"	"LegalTech Insights"
ObjectId('66106d73f7b85c2...')	"Legal Project Management..."	"Laura Martinez"	"2023-07-25"	"Legal Management Review"
ObjectId('66106d73f7b85c2...')	"Ethical Considerations in..."	"Maria Garcia"	"2023-08-20"	"Legal Ethics Quarterly"
ObjectId('66106d73f7b85c2...')	"The Impact of Artificial..."	"Andrew Taylor"	"2023-09-15"	"AI & Law Journal"
ObjectId('66106d73f7b85c2...')	"Legal Knowledge Manageme..."	"John Doe"	"2023-10-10"	"Big Data & Law Review"

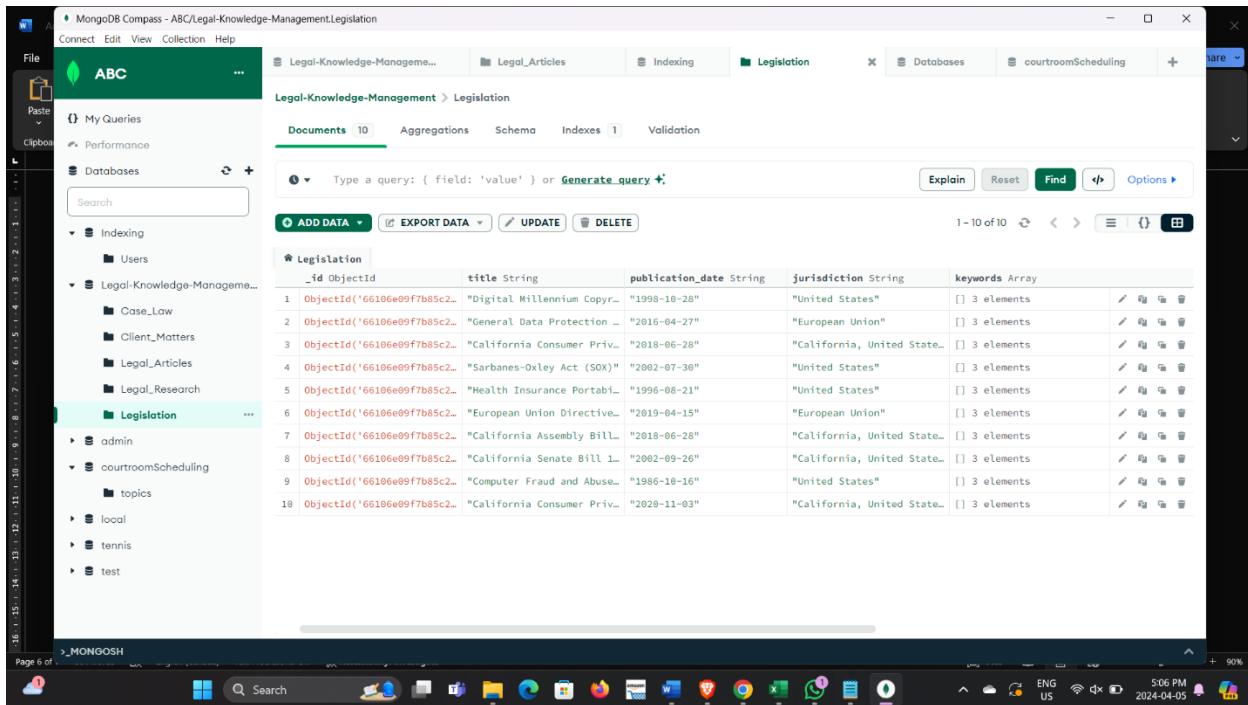
Inserting 10 documents in Legislative Collection:



The screenshot shows the MongoDB Compass interface with the 'Legal_Knowledge_Management' database selected. The 'Legal_Research' collection is currently being viewed, displaying 10 documents. Each document includes fields such as _id, ObjectID, title, author, publication_date, and journal. The documents represent various legal research articles with their respective details.

	_id	ObjectID	title	author	publication_date	journal
1		ObjectId('66106dbdf7b85c2...')	"The Evolution of Legal K...	"Emily Johnson"	"2023-01-10"	"Legal Trends"
2		ObjectId('66106dbdf7b85c2...')	"The Role of Legal Techno...	"Michael Smith"	"2024-04-05"	"LegalTech Review"
3		ObjectId('66106dbdf7b85c2...')	"Best Practices for Legal...	"David Chen"	"2023-03-15"	"Legal Insights"
4		ObjectId('66106dbdf7b85c2...')	"Legal Research in the Di...	"Sarah Lee"	"2023-04-20"	"Digital Legal Review"
5		ObjectId('66106dbdf7b85c2...')	"Implementing Legal Knowl...	"John Doe"	"2023-05-25"	"Legal Management"
6		ObjectId('66106dbdf7b85c2...')	"The Impact of Artificial...	"Jane Smith"	"2023-06-10"	"AI & Law Journal"
7		ObjectId('66106dbdf7b85c2...')	"Legal Knowledge Manageme...	"Emily Brown"	"2023-07-20"	"Small Firm Legal"
8		ObjectId('66106dbdf7b85c2...')	"Ethical Considerations i...	"Michael Johnson"	"2023-08-15"	"Legal Ethics Review"
9		ObjectId('66106dbdf7b85c2...')	"Strategies for Effective...	"David Chen"	"2023-09-20"	"Legal Strategies"
10		ObjectId('66106dbdf7b85c2...')	"The Future of Legal Rese...	"Sarah Lee"	"2023-10-25"	"Legal Futurist"

Inserting 10 documents in Legal_Research Collection:

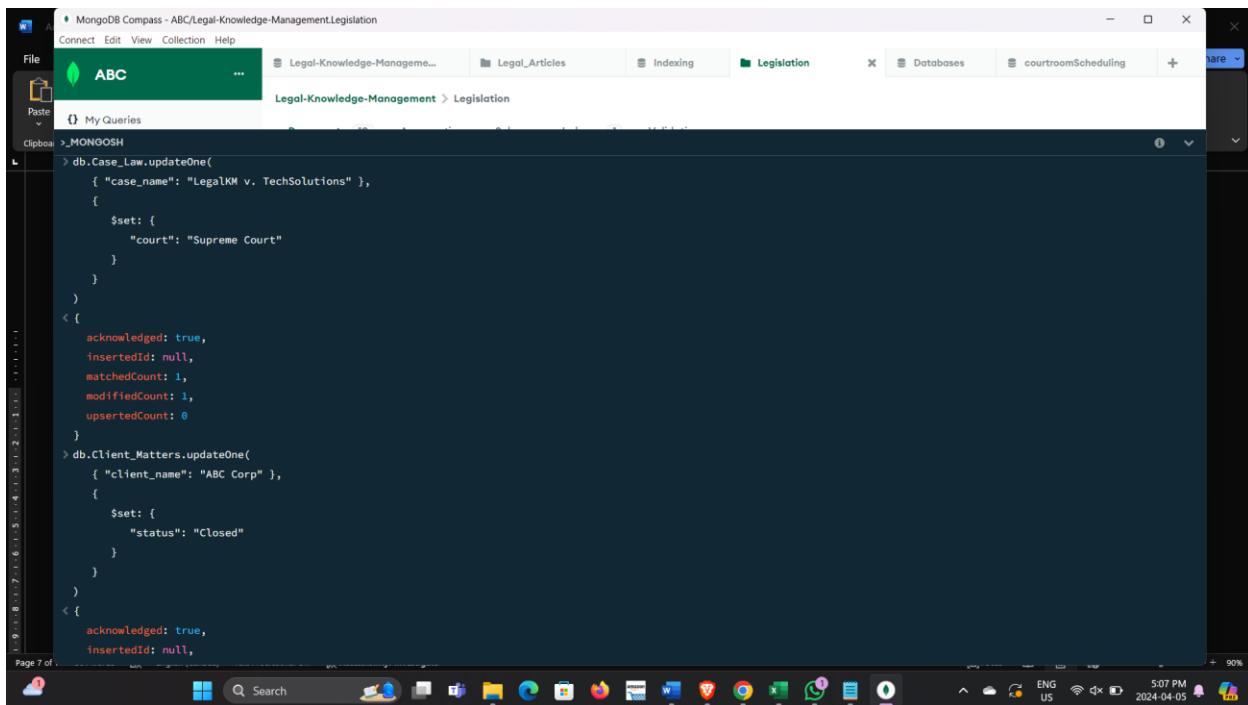


The screenshot shows the MongoDB Compass interface with the 'Legal_Knowledge_Management' database selected. The 'Legislation' collection is currently being viewed, displaying 10 documents. Each document includes fields such as _id, ObjectID, title, publication_date, jurisdiction, and keywords. The documents represent various legal legislation with their respective details.

	_id	ObjectID	title	publication_date	jurisdiction	keywords
1		ObjectId('66106e09ff7b85c2...')	"Digital Millennium Copyr...	"1998-10-28"	"United States"	[] 3 elements
2		ObjectId('66106e09ff7b85c2...')	"General Data Protection ..."	"2016-04-27"	"European Union"	[] 3 elements
3		ObjectId('66106e09ff7b85c2...')	"California Consumer Privat...	"2018-06-28"	"California, United States"	[] 3 elements
4		ObjectId('66106e09ff7b85c2...')	"Sarbanes-Oxley Act (SOX)"	"2002-07-30"	"United States"	[] 3 elements
5		ObjectId('66106e09ff7b85c2...')	"Health Insurance Portability and Accountability Act (HIPAA)"	"1996-08-21"	"United States"	[] 3 elements
6		ObjectId('66106e09ff7b85c2...')	"European Union Directive 2019/1971 on the protection of自然人个人数据的处理"	"2019-04-15"	"European Union"	[] 3 elements
7		ObjectId('66106e09ff7b85c2...')	"California Assembly Bill 32"	"2018-06-28"	"California, United States"	[] 3 elements
8		ObjectId('66106e09ff7b85c2...')	"California Senate Bill 1483"	"2002-09-26"	"California, United States"	[] 3 elements
9		ObjectId('66106e09ff7b85c2...')	"Computer Fraud and Abuse Act (CFAA)"	"1986-10-16"	"United States"	[] 3 elements
10		ObjectId('66106e09ff7b85c2...')	"California Consumer Privacy Act (CCPA)"	"2020-11-03"	"California, United States"	[] 3 elements

- Update 1 document using updateOne() command - (using mongosh, take screenshot)

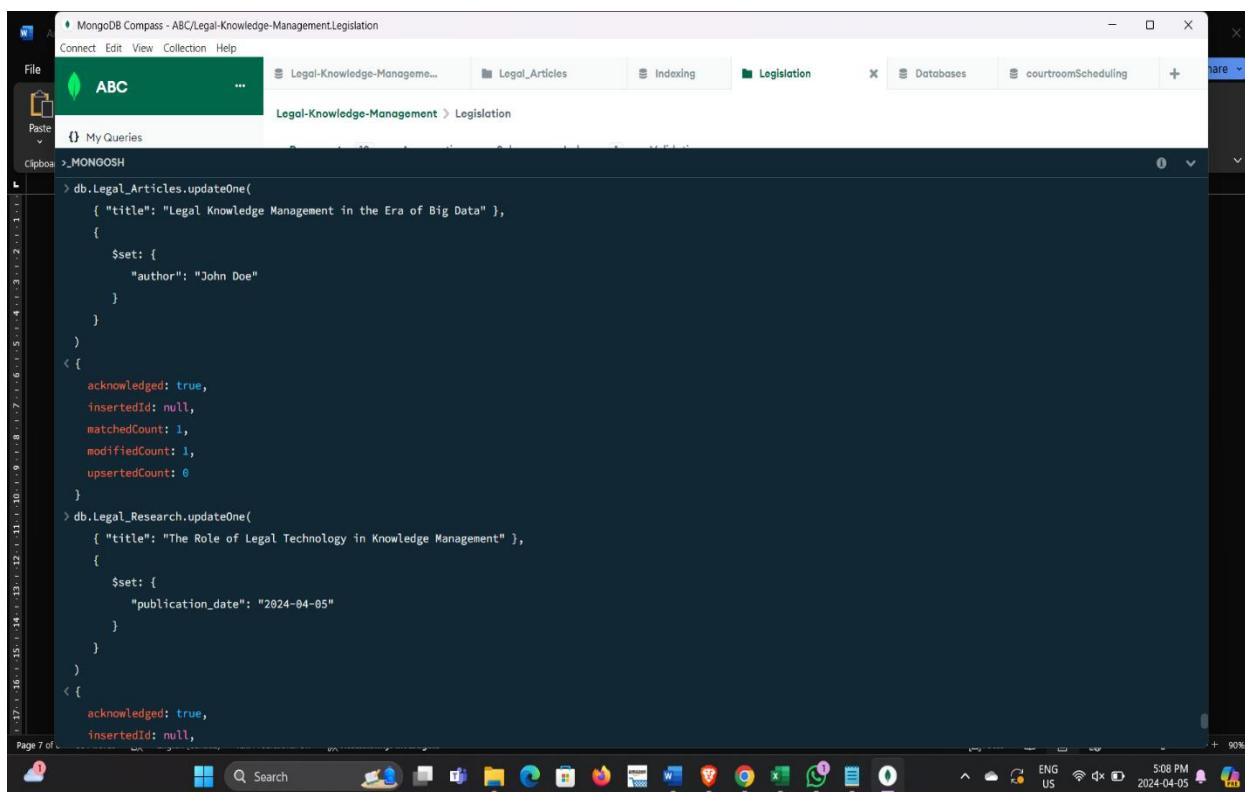
For first collection



The screenshot shows the MongoDB Compass interface with the database 'ABC' selected. The 'Legal-Knowledge-Management' database is open, and the 'Legislation' collection is selected. The query pane displays the following MONGOSH command:

```
> db.Case_Law.updateOne(
  { "case_name": "LegalKM v. TechSolutions" },
  {
    $set: {
      "court": "Supreme Court"
    }
  }
) < {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.Client_Matters.updateOne(
  { "client_name": "ABC Corp" },
  {
    $set: {
      "status": "Closed"
    }
  }
) < {
  acknowledged: true,
  insertedId: null,
```

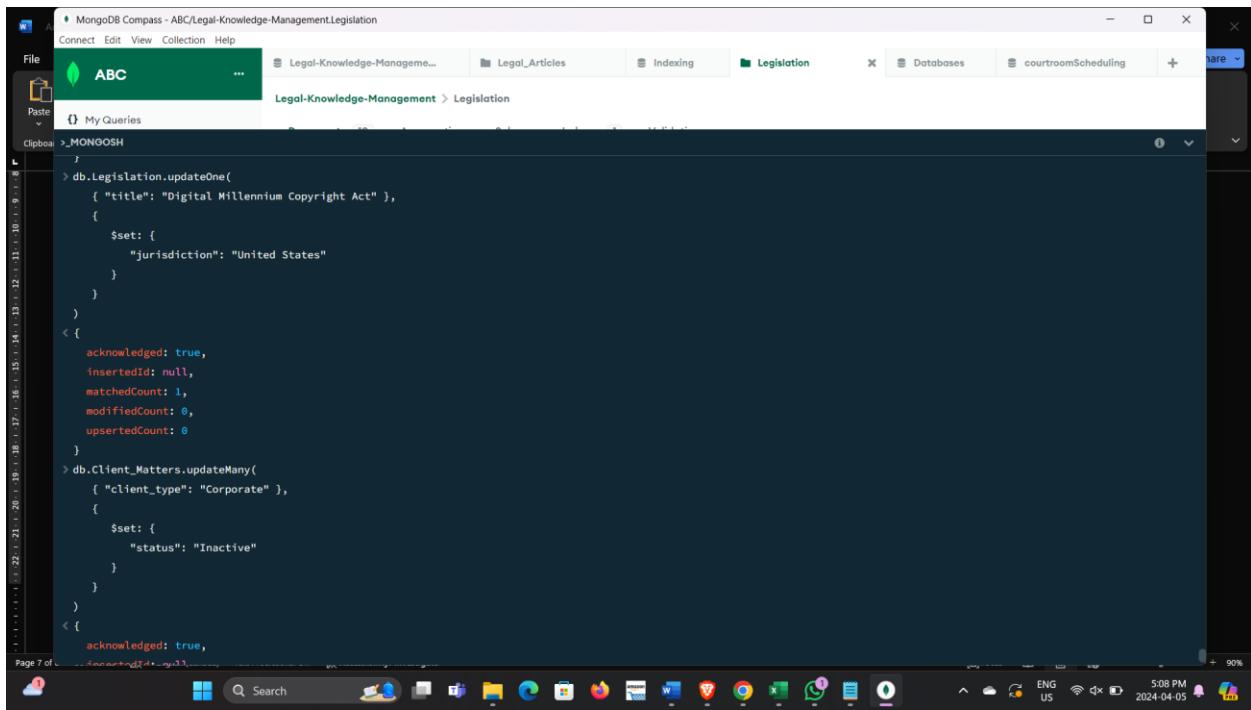
For second collection



The screenshot shows the MongoDB Compass interface with the database 'ABC' selected. The 'Legal-Knowledge-Management' database is open, and the 'Legislation' collection is selected. The query pane displays the following MONGOSH command:

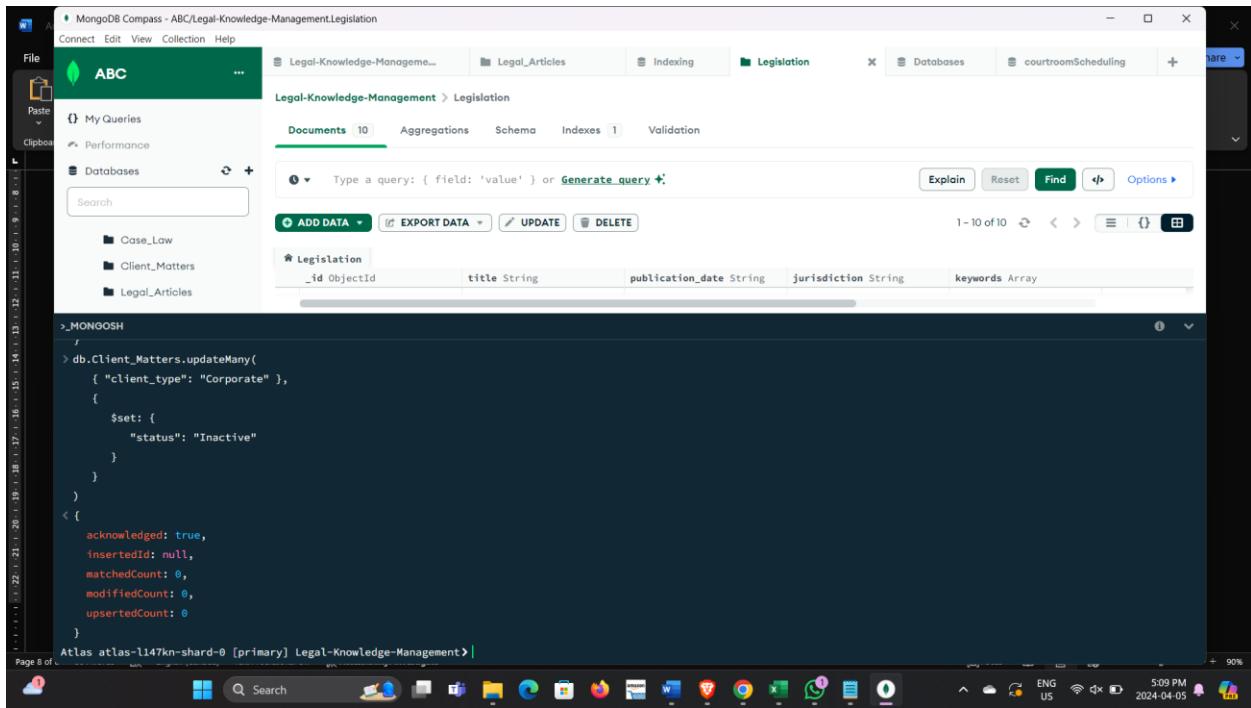
```
> db.Legal_Articles.updateOne(
  { "title": "Legal Knowledge Management in the Era of Big Data" },
  {
    $set: {
      "author": "John Doe"
    }
  }
) < {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.Legal_Research.updateOne(
  { "title": "The Role of Legal Technology in Knowledge Management" },
  {
    $set: {
      "publication_date": "2024-04-05"
    }
  }
) < {
  acknowledged: true,
  insertedId: null,
```

For third collection



```
>_MONGOSH
> db.Legislation.updateOne(
  { "title": "Digital Millennium Copyright Act" },
  {
    $set: {
      "jurisdiction": "United States"
    }
  }
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 0,
  upsertedCount: 0
}
> db.Client_Matters.updateMany(
  { "client_type": "Corporate" },
  {
    $set: {
      "status": "Inactive"
    }
  }
)
< {
  acknowledged: true,
```

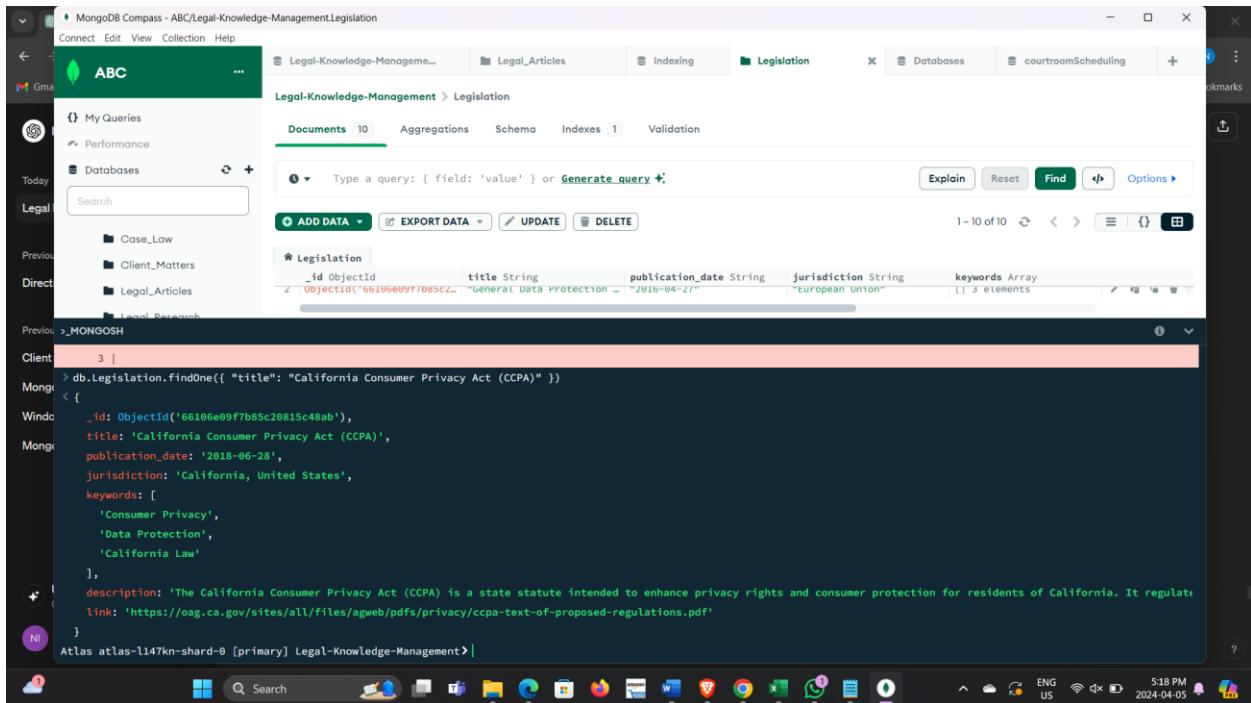
- Update multiple documents using updateMany() command - (using mongosh, take screenshot)



```
Legal-Knowledge-Management > Legislation
Documents 10 Aggregations Schema Indexes 1 Validation
ADD DATA EXPORT DATA UPDATE DELETE
Legislation _id ObjectId title String publication_date String jurisdiction String keywords Array
>_MONGOSH
> db.Client_Matters.updateMany(
  { "client_type": "Corporate" },
  {
    $set: {
      "status": "Inactive"
    }
  }
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 0,
  modifiedCount: 0,
  upsertedCount: 0
}
```

- Read one document using findOne() command - (using mongosh, take screenshot)

Using findone command



The screenshot shows the MongoDB Compass interface. On the left sidebar, under 'MONGOSH', there is a command line. The command entered is:

```
> db.Legislation.findOne({ "title": "California Consumer Privacy Act (CCPA)" })
```

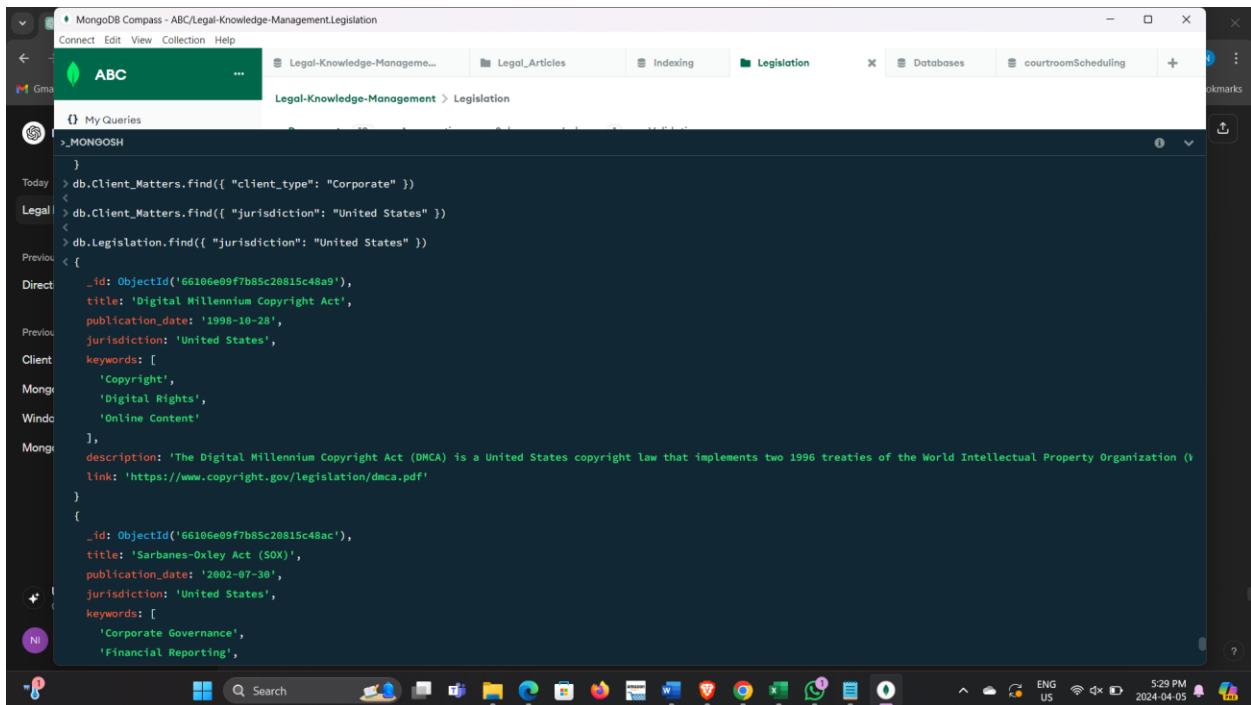
Below the command line, the results are displayed in a table:

_id	ObjectId	title	String	publication_date	String	jurisdiction	String	keywords	Array
	_66106e09f7b85c20815c48ab	"General Data Protection	"	"2016-04-27"		"European Union"		[]	3 elements

The table shows one document with the title 'General Data Protection' and publication date '2016-04-27'. The 'keywords' field is empty.

- Read multiple documents using find() command (using mongosh, take screenshot)

Using find command to find specific documents in database.



The screenshot shows the MongoDB Compass interface. On the left sidebar, under 'MONGOSH', there are several commands entered:

```
>_MONGOSH
>db.Client_Matters.find({ "client_type": "Corporate" })
>db.Client_Matters.find({ "jurisdiction": "United States" })
>db.Legislation.find({ "jurisdiction": "United States" })
< {
  _id: ObjectId('66106e09f7b85c20815c48a9'),
  title: 'Digital Millennium Copyright Act',
  publication_date: '1998-10-28',
  jurisdiction: 'United States',
  keywords: [
    'Copyright',
    'Digital Rights',
    'Online Content'
  ],
  description: 'The Digital Millennium Copyright Act (DMCA) is a United States copyright law that implements two 1996 treaties of the World Intellectual Property Organization (WIPO). It criminalizes certain acts of copyright infringement occurring in the digital environment',
  link: 'https://www.copyright.gov/legislation/dmca.pdf'
}
{
  _id: ObjectId('66106e09f7b85c20815c48ac'),
  title: 'Sarbanes-Oxley Act (SOX)',
  publication_date: '2002-07-30',
  jurisdiction: 'United States',
  keywords: [
    'Corporate Governance',
    'Financial Reporting',
    'Audit Committee'
  ],
  description: 'The Sarbanes-Oxley Act of 2002 (SOX) is a United States federal law that requires public companies to implement certain accounting and internal control measures. It also creates criminal penalties for certain financial market crimes, such as securities fraud and accounting fraud',
  link: 'https://www.sec.gov/legislation/sarbanes-oxley-act'
}
```

The results show two documents: one for the 'Digital Millennium Copyright Act' and one for the 'Sarbanes-Oxley Act (SOX)'. Both documents have 'United States' as their jurisdiction and contain lists of keywords.

- Delete one document using deleteOne() (using mongosh, take screenshot)

```
_MONGOSH
}
> db.Client_Matters.deleteOne({ "client_name": "ABC Corporation" })
< {
  acknowledged: true,
  deletedCount: 1
}
Atlas atlas-l147kn-shard-0 [primary] Legal-Knowledge-Management>
```

- delete multiple documents using deleteMany() (using mongosh, take screenshot) Using “db.collection.deleteMany()” command to delete multiple documents:

```
_MONGOSH
}
> db.Client_Matters.deleteMany({ "Client_name": "ABC Corporation" })
< {
  acknowledged: true,
  deletedCount: 0
}
>
> db.Legislation.deleteMany({ "jurisdiction": "United States" })
< {
  acknowledged: true,
  deletedCount: 4
}
Atlas atlas-l147kn-shard-0 [primary] Legal-Knowledge-Management>
```

Now, it can be seen that the documents that I wanted to delete by using delete many commands are deleted:

MongoDB Compass - ABC/Legal-Knowledge-Management.Legislation

ABC

Legal-Knowledge-Management > Legislation

Documents 10 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or [Generate query](#)

[EXPLAIN](#) [Reset](#) [Find](#) [Options](#)

[ADD DATA](#) [EXPORT DATA](#) [UPDATE](#) [DELETE](#)

1–6 of 6

	_id	ObjectId	title	publication_date	jurisdiction	keywords
1	ObjectId('66106e09f7b85c2...')	"General Data Protection ..."	"2016-04-27"	"European Union"	[3 elements]	[3 elements]
2	ObjectId('66106e09f7b85c2...')	"California Consumer Priv..."	"2018-06-28"	"California, United State..."	[3 elements]	[3 elements]
3	ObjectId('66106e09f7b85c2...')	"European Union Directive..."	"2019-04-15"	"European Uni[California, United States elements"	[3 elements]	[3 elements]
4	ObjectId('66106e09f7b85c2...')	"California Assembly Bill..."	"2018-06-28"	"California, United State[California, United States elements"	[3 elements]	[3 elements]
5	ObjectId('66106e09f7b85c2...')	"California Senate Bill 1..."	"2002-09-26"	"California, United State..."	[3 elements]	[3 elements]
6	ObjectId('66106e09f7b85c2...')	"California Consumer Priv..."	"2020-11-03"	"California, United State..."	[3 elements]	[3 elements]

>MONGOSH

```
deletedCount: 4
}
```

Atlas atlas-l147kn-shard-0 [primary] Legal-Knowledge-Management

- Create Excel file called workload.xlsx. Write down list of common queries (atleast 5). Identify Workloads on excel file. (USE THIS TUTORIAL - <https://learn.mongodb.com/courses/identifying-database-workloads>)

workload - Protected... • Saved to this PC

Protected View Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. [Enable Editing](#)

Identified Workloads

5 MongoDB Queries

Common MongoDB Queries	Identified Workloads
db.collection.find()	Reading data from a MongoDB collection
db.collection.insertOne()	Inserting a single document into a MongoDB collection
db.collection.updateOne()	Updating a single document in a MongoDB collection
db.collection.deleteOne()	Deleting a single document from a MongoDB collection
db.collection.aggregate()	Performing aggregation operations in MongoDB

MongoDB Compass - ABC/Legal-Knowledge-Management.Legislation

File ABC ... Legal-Knowle... Legal_Articles Indexing Legislation Database... courto... Client_Matters + share

My Queries Performance Databases

Search

Indexing Users Legal-Knowledge-Management Case_Law

_MONGOSH

```
> db.legislation.find({jurisdiction: "California, United States"})
< [
  {
    _id: ObjectId('66106e09f7b85c20815c48ab'),
    title: 'California Consumer Privacy Act (CCPA)',
    publication_date: '2018-06-28',
    jurisdiction: 'California, United States',
    keywords: [
      'Consumer Privacy',
      'Data Protection',
      'California Law'
    ],
    description: 'The California Consumer Privacy Act (CCPA) is a state statute intended to enhance privacy rights and consumer protection for residents of California. It regulate',
    link: 'https://oag.ca.gov/sites/all/files/agweb/pdfs/privacy/ccpa-text-of-proposed-regulations.pdf'
  }
]
```

- check execution stats for each query (using mongosh, take screenshot)

MongoDB Compass - ABC/Legal-Knowledge-Management.Legislation

Connect Edit View Collection Help

File

ABC

Paste Clipboar...

My Queries Performance Databases

Search

Indexing Users Legal-Knowledge-Management Case_Law

Legal-Knowledge-Management > Legislation

Documents 10 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or [Generate query](#)

Explain Reset Find Options

ADD DATA EXPORT DATA UPDATE DELETE

1 - 6 of 6

Legislation	_id	ObjectID	title	String	publication_date	String	jurisdiction	String	keywords	Array
...

_MONGOSH

```
link: "https://oag.ca.gov/system/files/attachments/press-docs/CCPA_text_of_regulations.pdf"
}
> db.Legislation.find().explain("executionStats")
< {
  explainVersion: "1",
  queryPlanner: {
    namespace: 'Legal-Knowledge-Management.Legislation',
    indexFilterSet: false,
    parsedQuery: {},
    queryHash: '8880B8AF',
    planCacheKey: '8880B85AF',
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    winningPlan: {
      stage: 'COLLSCAN',
      letExpres...
```

Page 12 of 1100

6:16 PM 2024-04-05 ENG US

File Search

- Create indexes based on the workload excel file.

Creating indexes based on the workload excel file.

```

MongoDB Compass - ABC/Legal-Knowledge-Management.Legislation
Connect Edit View Collection Help
ABC ...
Legal-Knowledge-Management > Legislation
Documents 10 Aggregations Schema Indexes 1 Validation
ADD DATA EXPORT DATA UPDATE DELETE
Legislation _id ObjectId title String publication_date String jurisdiction String keywords Array
>_MONGOSH
},
ok: 1,
'$clusterTime': {
  clusterTime: Timestamp({ t: 1712358953, i: 4 }),
  signature: {
    hash: Binary.createFromBase64('S+2HvlrDcu+T+kY2Pms0rUX9rTY='),
    keyId: 730956063296402200
  }
},
operationTime: Timestamp({ t: 1712358953, i: 4 })
}
>db.Legislation.createIndex({jurisdiction: "1"})
MongoServerError[CannotCreateIndex]: Error in specification { name: "jurisdiction_1", key: { jurisdiction: "1" } } :: caused by :: Unknown index plugin '1'
>db.Legislation.createIndex({jurisdiction: 1})
<jurisdiction_1
Atlas atlas-l147kn-shard-0 [primary] Legal-Knowledge-Management>

```

- check execution stats again for each listed query ((using mongosh, take screenshot))

```

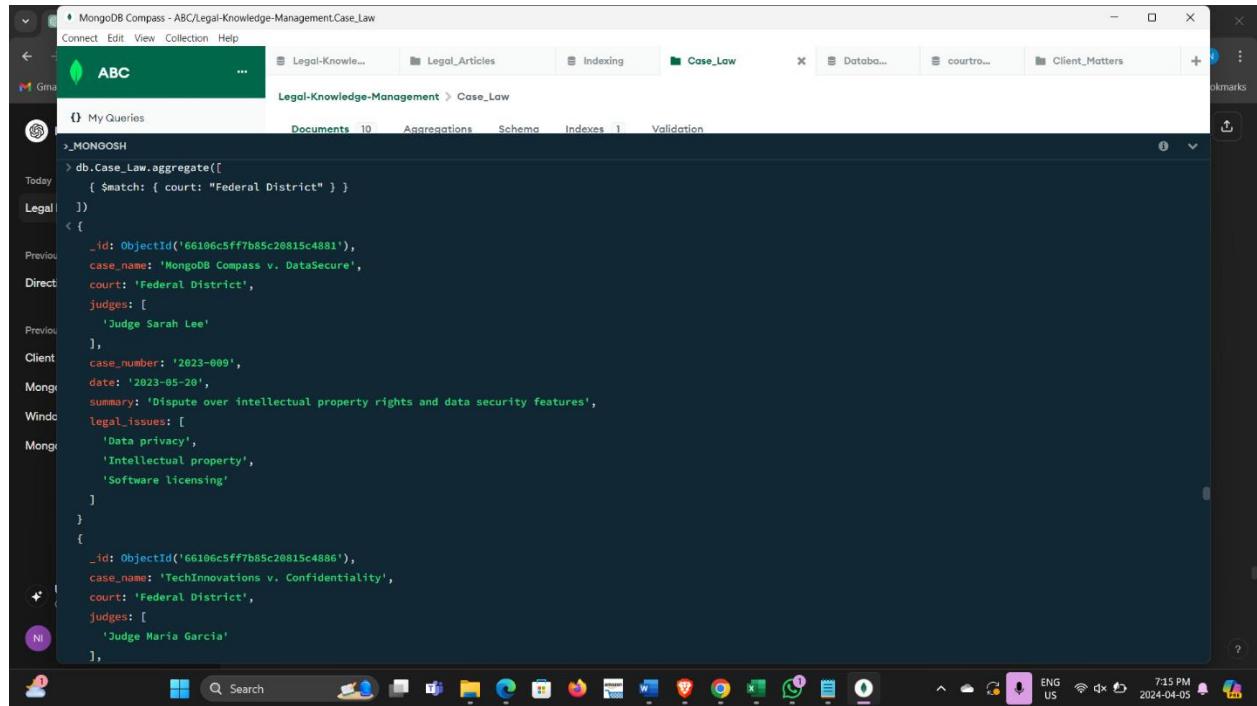
MongoDB Compass - ABC/Legal-Knowledge-Management.Legislation
Connect Edit View Collection Help
ABC ...
Legal-Knowledge-Management > Legislation
Documents 10 Aggregations Schema Indexes 1 Validation
ADD DATA EXPORT DATA UPDATE DELETE
Legislation _id ObjectId title String publication_date String jurisdiction String keywords Array
>_MONGOSH
MongoServerError[CannotCreateIndex]: Error in specification { name: "jurisdiction_1", key: { jurisdiction: "1" } } :: caused by :: Unknown index plugin '1'
>db.Legislation.createIndex({jurisdiction: 1})
<jurisdiction_1
>db.Legislation.find().explain("executionStats")
{
  explainVersion: '1',
  queryPlanner: {
    namespace: 'Legal-Knowledge-Management.Legislation',
    indexFilterSet: false,
    parsedQuery: {},
    queryHash: '8880B5AF',
    planCacheKey: '8880B5AF',
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    winningPlan: {

```

- Show implementation of 7 different mongodb aggregation functions.

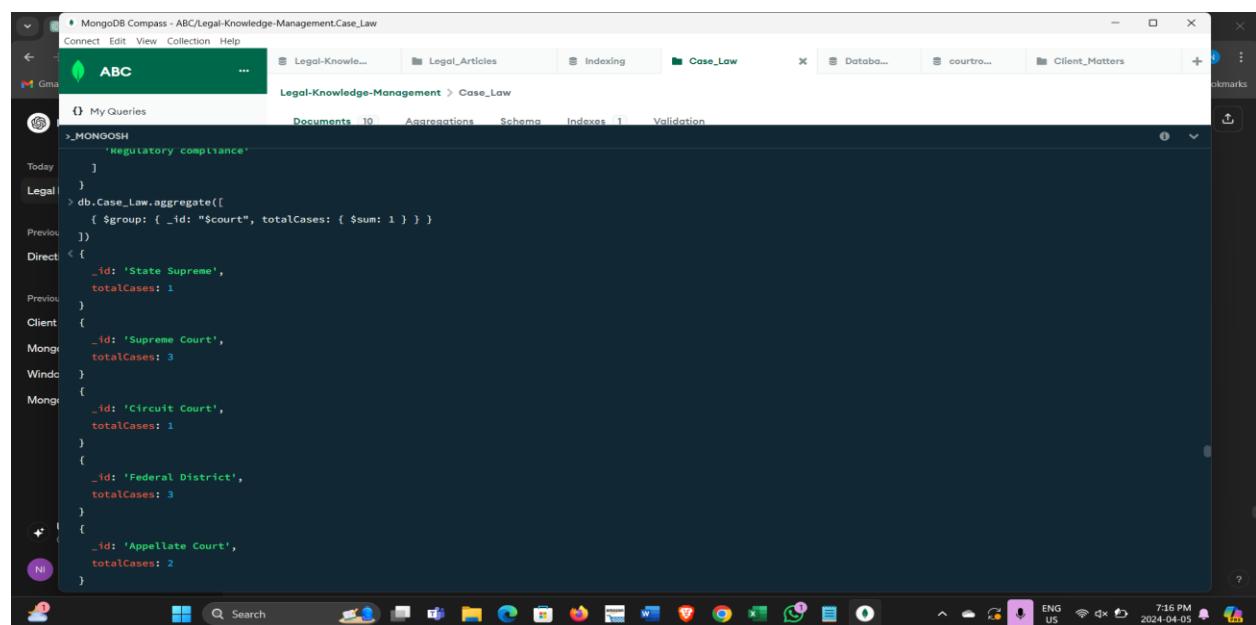
Using distinct MONGODB aggregation functions:

1. **\$match:** Filters documents to pass only the documents that match the specified condition(s).



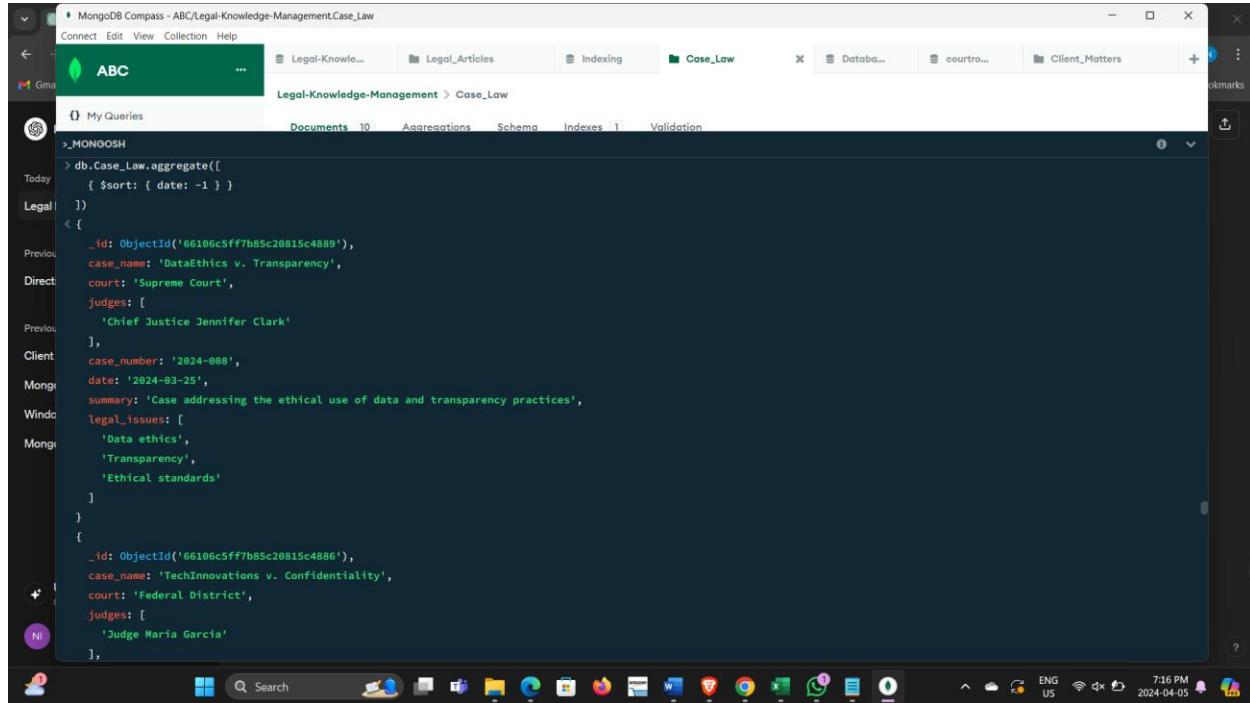
```
>_MONGOSH
>db.Case_Law.aggregate([
  { $match: { court: "Federal District" } }
])
< [
  {
    "_id": ObjectId('66106c5ff7b85c20815c4881'),
    "case_name": 'MongoDB Compass v. DataSecure',
    "court": 'Federal District',
    "judges": [
      'Judge Sarah Lee'
    ],
    "case_number": '2023-009',
    "date": '2023-05-20',
    "summary": 'Dispute over intellectual property rights and data security features',
    "legal_issues": [
      'Data privacy',
      'Intellectual property',
      'Software licensing'
    ]
  },
  {
    "_id": ObjectId('66106c5ff7b85c20815c4886'),
    "case_name": 'TechInnovations v. Confidentiality',
    "court": 'Federal District',
    "judges": [
      'Judge Maria Garcia'
    ],
  }
]
```

2. **\$group:** Groups documents by a specified expression and applies accumulator expressions to each group.



```
>_MONGOSH
"REGULATORY COMPLIANCE"
]
)
>db.Case_Law.aggregate([
  { $group: { _id: "$court", totalCases: { $sum: 1 } } }
])
< [
  {
    "_id": "State Supreme",
    "totalCases": 1
  },
  {
    "_id": "Supreme Court",
    "totalCases": 3
  },
  {
    "_id": "Circuit Court",
    "totalCases": 1
  },
  {
    "_id": "Federal District",
    "totalCases": 3
  },
  {
    "_id": "Appellate Court",
    "totalCases": 2
  }
]
```

3. \$sort: Sorts documents by a specified sort key.



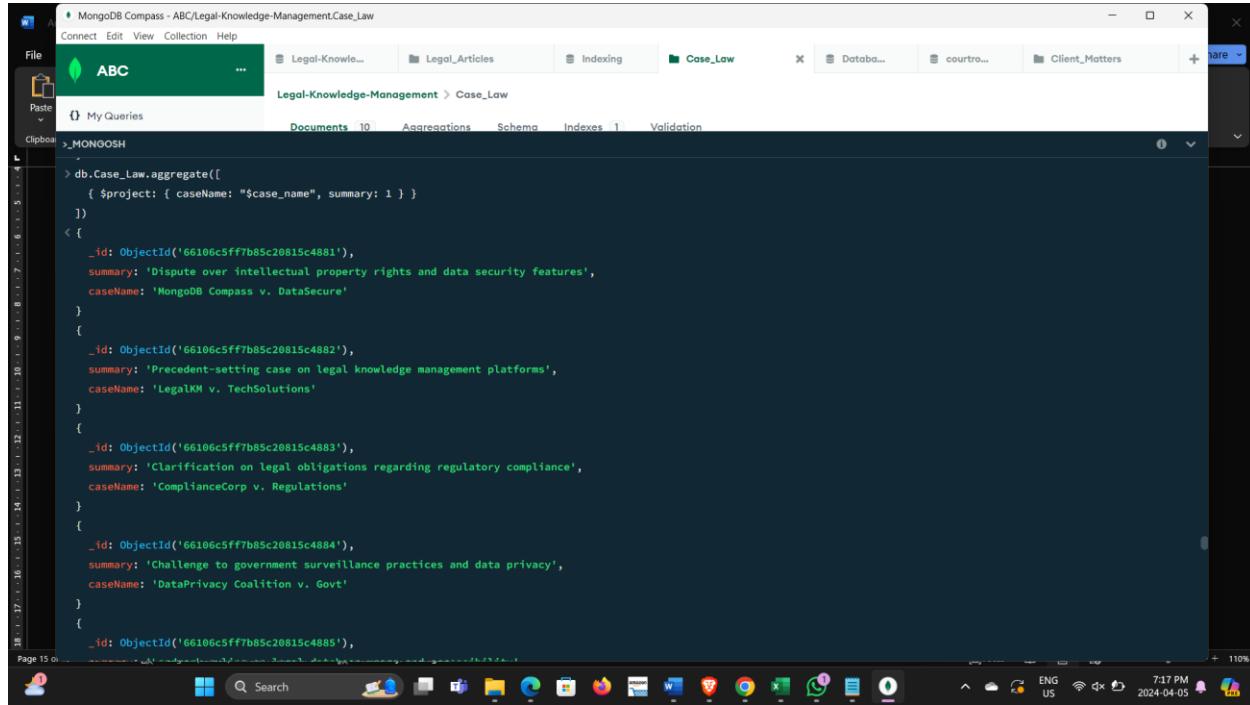
The screenshot shows the MongoDB Compass interface with the database 'Legal-Knowledge-Management' and collection 'Case_Law'. The query in the script panel is:

```
>_MONGOSH
>db.Case_Law.aggregate([
  { $sort: { date: -1 } }
])
```

The results pane displays two documents from the 'Case_Law' collection:

```
{ "_id": ObjectId("66106c5ff7b85c20815c4889"),
  "case_name": "DataEthics v. Transparency",
  "court": "Supreme Court",
  "judges": [
    "Chief Justice Jennifer Clark"
  ],
  "case_number": "2024-008",
  "date": "2024-03-25",
  "summary": "Case addressing the ethical use of data and transparency practices",
  "legal_issues": [
    "Data ethics",
    "Transparency",
    "Ethical standards"
  ]
}, {
  "_id": ObjectId("66106c5ff7b85c20815c4886"),
  "case_name": "TechInnovations v. Confidentiality",
  "court": "Federal District",
  "judges": [
    "Judge Maria Garcia"
  ],
}
```

4. \$project: Reshapes documents by including, excluding, or adding fields.



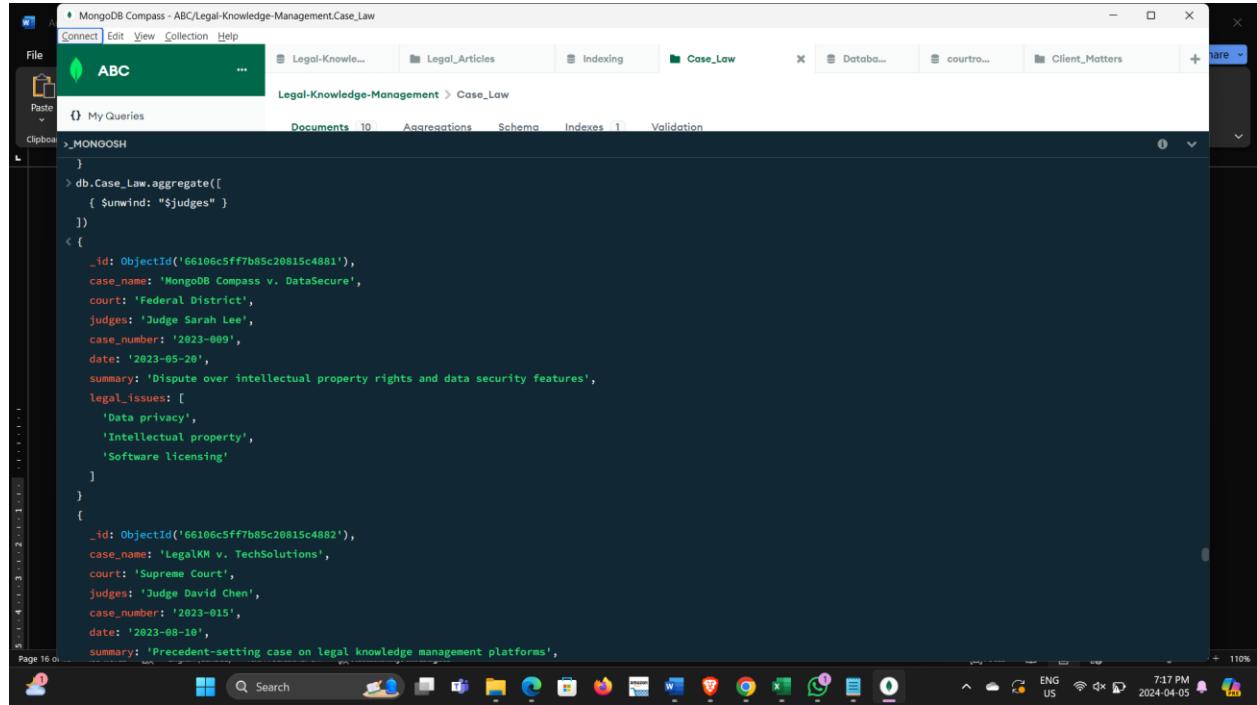
The screenshot shows the MongoDB Compass interface with the database 'Legal-Knowledge-Management' and collection 'Case_Law'. The query in the script panel is:

```
>_MONGOSH
>db.Case_Law.aggregate([
  { $project: { caseName: "$case_name", summary: 1 } }
])
```

The results pane displays the reshaped documents from the 'Case_Law' collection:

```
{ "caseName": "DataEthics v. Transparency", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "TechInnovations v. Confidentiality", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "MongoDB Compass v. DataSecure", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "LegalKM v. TechSolutions", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "ComplianceCorp v. Regulations", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "DataPrivacy Coalition v. Govt", "summary": "Case addressing the ethical use of data and transparency practices" },
{ "caseName": "Client_Matters", "summary": "Case addressing the ethical use of data and transparency practices" }
```

5. **\$unwind:** Deconstructs an array field from the input documents to output a document for each element.

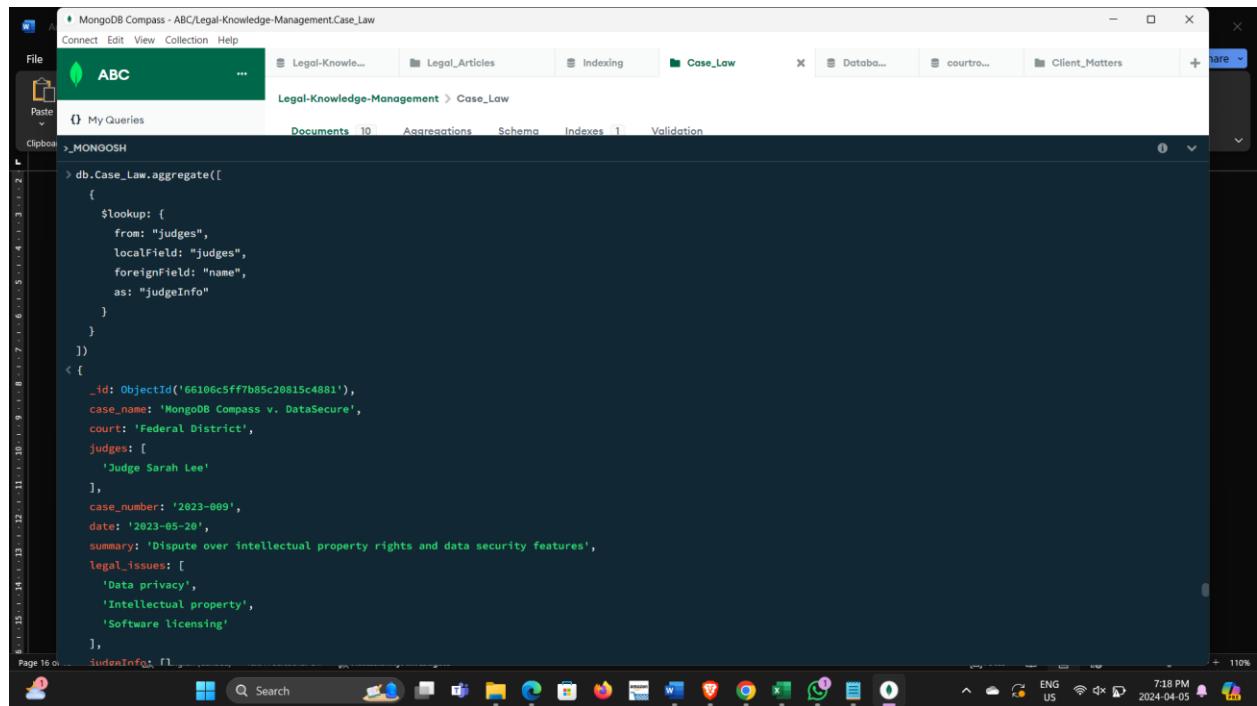


```

MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law
File Connect Edit View Collection Help
ABC ...
Legal-Knowledge-Management > Case_Law
My Queries Documents 10 Aggregations Schema Indexes 1 Validation
>_MONGOSH
)
> db.Case_Law.aggregate([
  { $unwind: "$judges" }
])
< [
  {
    _id: ObjectId('66106c5ff7b85c20815c4881'),
    case_name: 'MongoDB Compass v. DataSecure',
    court: 'Federal District',
    judges: 'Judge Sarah Lee',
    case_number: '2023-009',
    date: '2023-05-20',
    summary: 'Dispute over intellectual property rights and data security features',
    legal_issues: [
      'Data privacy',
      'Intellectual property',
      'Software licensing'
    ]
  },
  {
    _id: ObjectId('66106c5ff7b85c20815c4882'),
    case_name: 'LegalKM v. TechSolutions',
    court: 'Supreme Court',
    judges: 'Judge David Chen',
    case_number: '2023-015',
    date: '2023-08-10',
    summary: 'Precedent-setting case on legal knowledge management platforms',
  }
]

```

6. **\$lookup:** Performs a left outer join to another collection in the same database to filter in documents from the "joined" collection for processing.

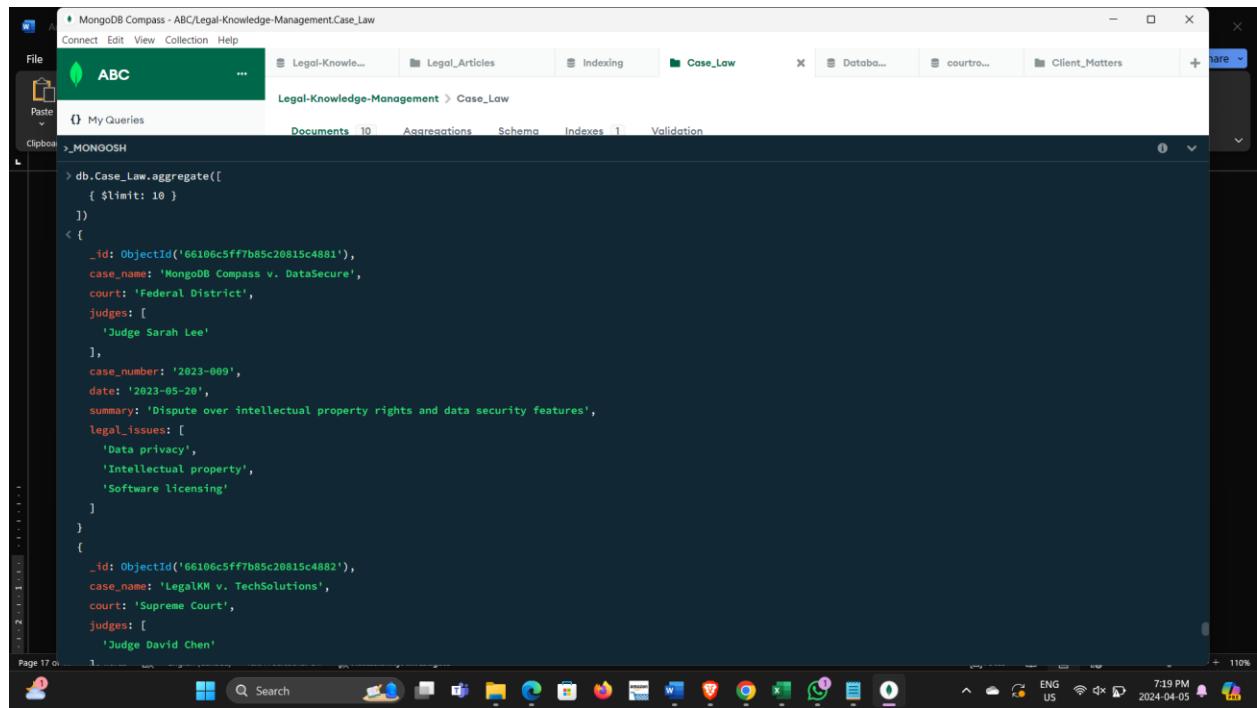


```

MongoDB Compass - ABC/Legal-Knowledge-Management.Case_Law
File Connect Edit View Collection Help
ABC ...
Legal-Knowledge-Management > Case_Law
My Queries Documents 10 Aggregations Schema Indexes 1 Validation
>_MONGOSH
)
> db.Case_Law.aggregate([
  {
    $lookup: {
      from: "judges",
      localField: "judges",
      foreignField: "name",
      as: "judgeInfo"
    }
  }
])
< [
  {
    _id: ObjectId('66106c5ff7b85c20815c4881'),
    case_name: 'MongoDB Compass v. DataSecure',
    court: 'Federal District',
    judges: [
      'Judge Sarah Lee'
    ],
    case_number: '2023-009',
    date: '2023-05-20',
    summary: 'Dispute over intellectual property rights and data security features',
    legal_issues: [
      'Data privacy',
      'Intellectual property',
      'Software licensing'
    ],
    judgeInfo: [
      {
        name: 'Sarah Lee',
        title: 'Judge'
      }
    ]
  }
]

```

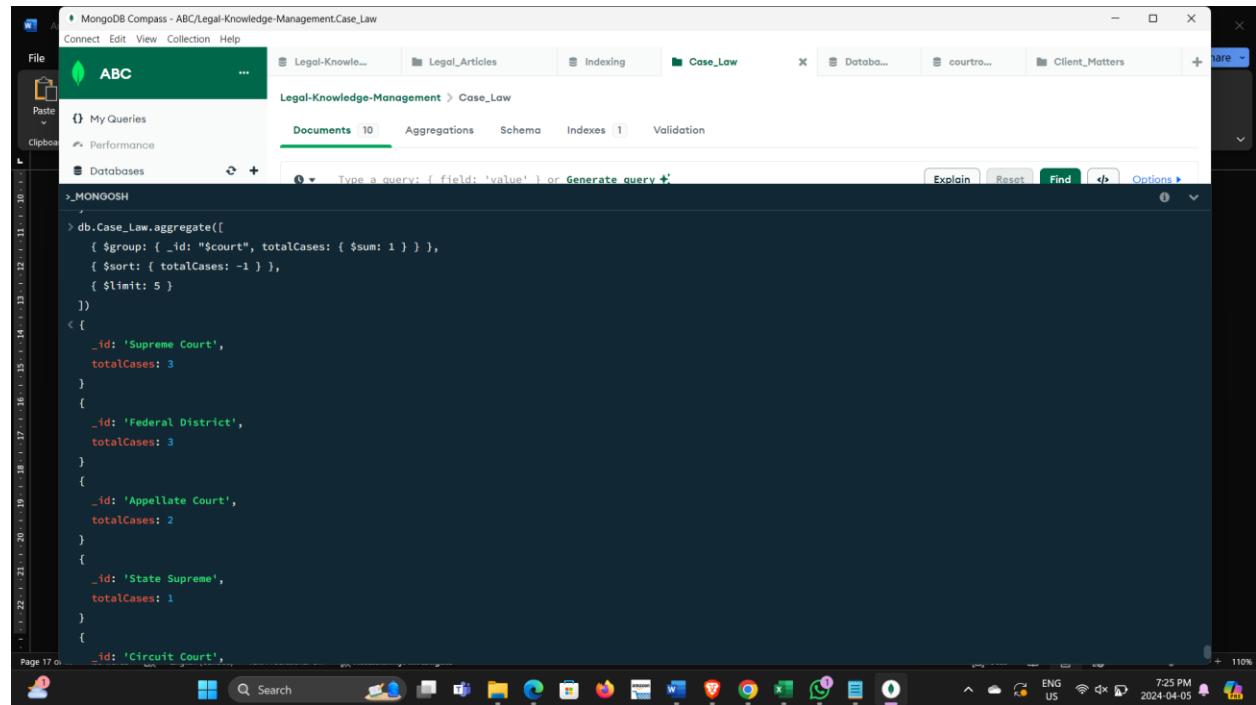
7. `$limit`: Limits the number of documents passed to the next stage in the pipeline.



```
>_MONGOOSH
> db.Case_Law.aggregate([
  { $limit: 10 }
])
< [
  {
    _id: ObjectId('66106c5ff7b85c20815c4881'),
    case_name: 'MongoDB Compass v. DataSecure',
    court: 'Federal District',
    judges: [
      'Judge Sarah Lee'
    ],
    case_number: '2023-009',
    date: '2023-05-20',
    summary: 'Dispute over intellectual property rights and data security features',
    legal_issues: [
      'Data privacy',
      'Intellectual property',
      'Software licensing'
    ]
  },
  {
    _id: ObjectId('66106c5ff7b85c20815c4882'),
    case_name: 'LegalKM v. TechSolutions',
    court: 'Supreme Court',
    judges: [
      'Judge David Chen'
    ]
  }
]
```

- Show at least 3 different aggregation pipelines using MongoDB - show a chain of at least 3 different functions in each pipeline

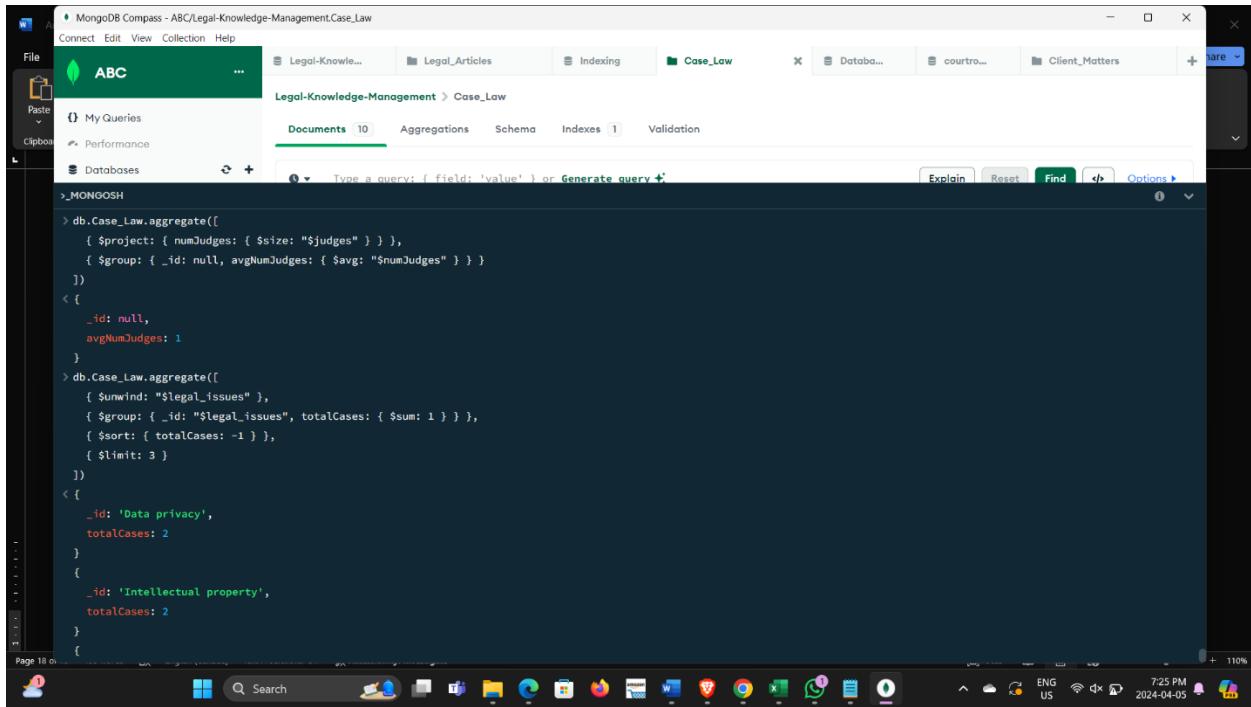
Pipeline 1: Aggregate total number of cases by court



```
>_MONGOOSH
> db.Case_Law.aggregate([
  { $group: { _id: "$court", totalCases: { $sum: 1 } } },
  { $sort: { totalCases: -1 } },
  { $limit: 5 }
])
< [
  {
    _id: 'Supreme Court',
    totalCases: 3
  },
  {
    _id: 'Federal District',
    totalCases: 3
  },
  {
    _id: 'Appellate Court',
    totalCases: 2
  },
  {
    _id: 'State Supreme',
    totalCases: 1
  },
  {
    _id: 'Circuit Court',
    totalCases: 1
  }
]
```

Pipeline 2: Calculate average number of judges per case and filter results

Pipeline 3: Find top 3 legal issues with the most cases associated



The screenshot shows the MongoDB Compass interface with two pipelines defined in the query editor.

```
>_MONGOSH
> db.Case_Law.aggregate([
  { $project: { numJudges: { $size: "$judges" } } },
  { $group: { _id: null, avgNumJudges: { $avg: "$numJudges" } } }
])
< [
  {
    _id: null,
    avgNumJudges: 1
  }
]
> db.Case_Law.aggregate([
  { $unwind: "$legal_issues" },
  { $group: { _id: "$legal_issues", totalCases: { $sum: 1 } } },
  { $sort: { totalCases: -1 } },
  { $limit: 3 }
])
< [
  {
    _id: 'Data privacy',
    totalCases: 2
  },
  {
    _id: 'Intellectual property',
    totalCases: 2
  },
  {
    _id: 'Contract law',
    totalCases: 2
  }
]
```

The interface includes tabs for Legal-Knowle..., Legal_Articles, Indexing, Case_Law, Datab..., courtr..., and Client_Matters. The Case_Law tab is active. The bottom status bar shows the date and time as 2024-04-05 7:25 PM.