

Data Management and Database Design (DAMG-6210)

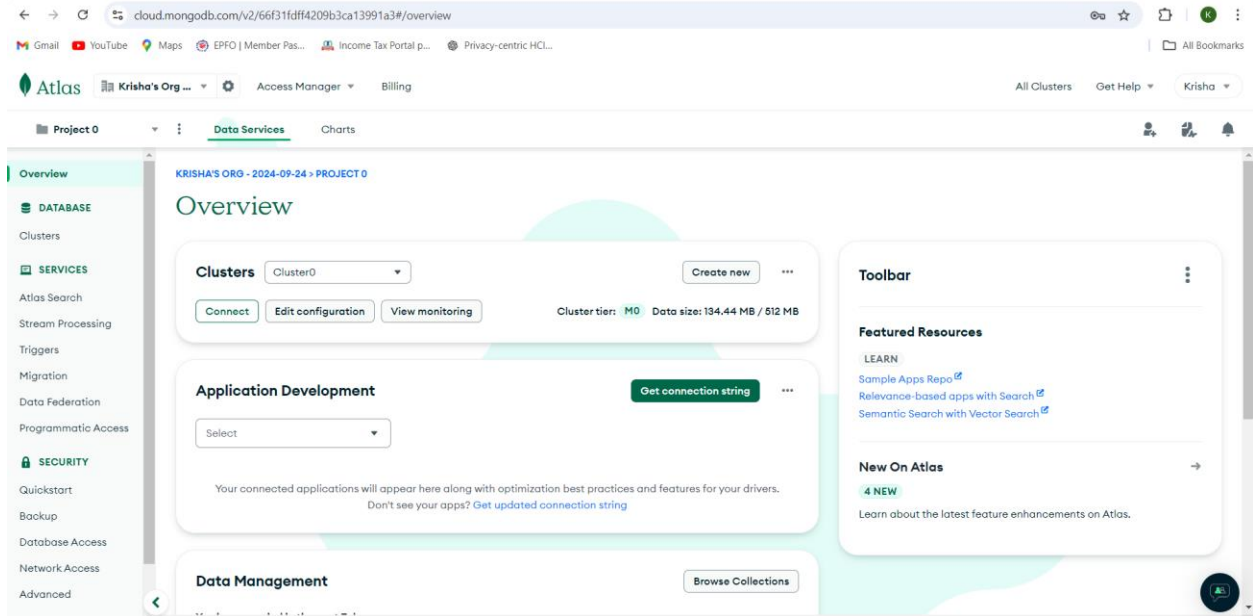
Lab1

Name – Krisha Lakhani

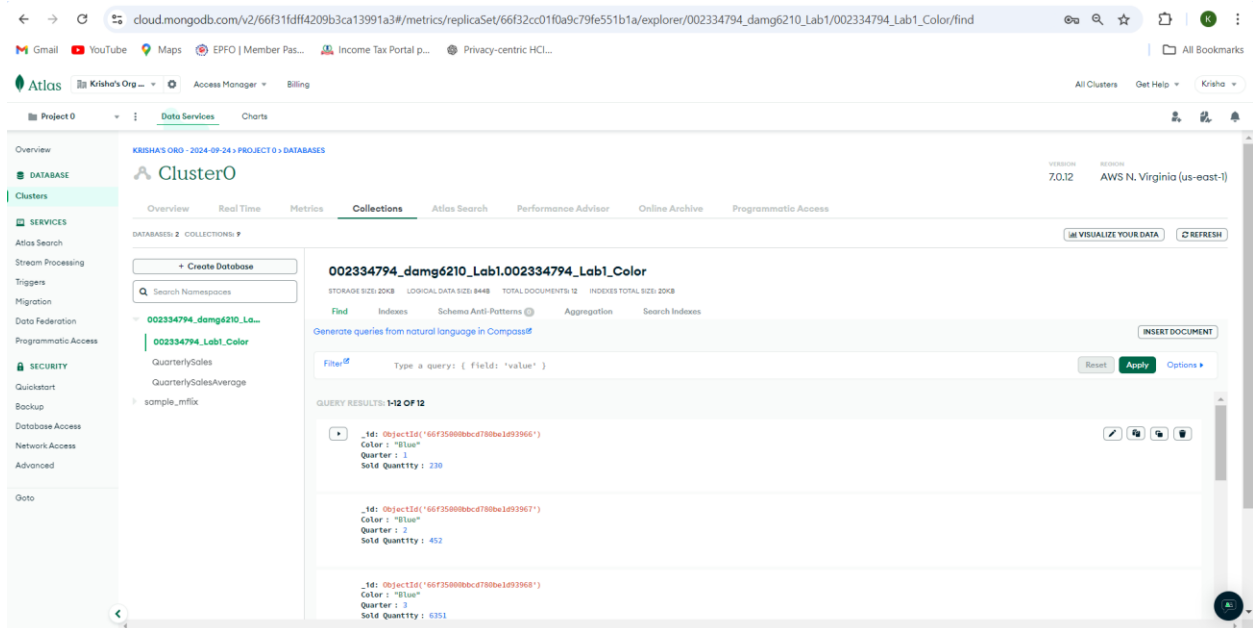
NUID - 002334794

Part 2

1. MongoDB Atlas Cluster0



2. MongoDB Atlas Cluster0 collection



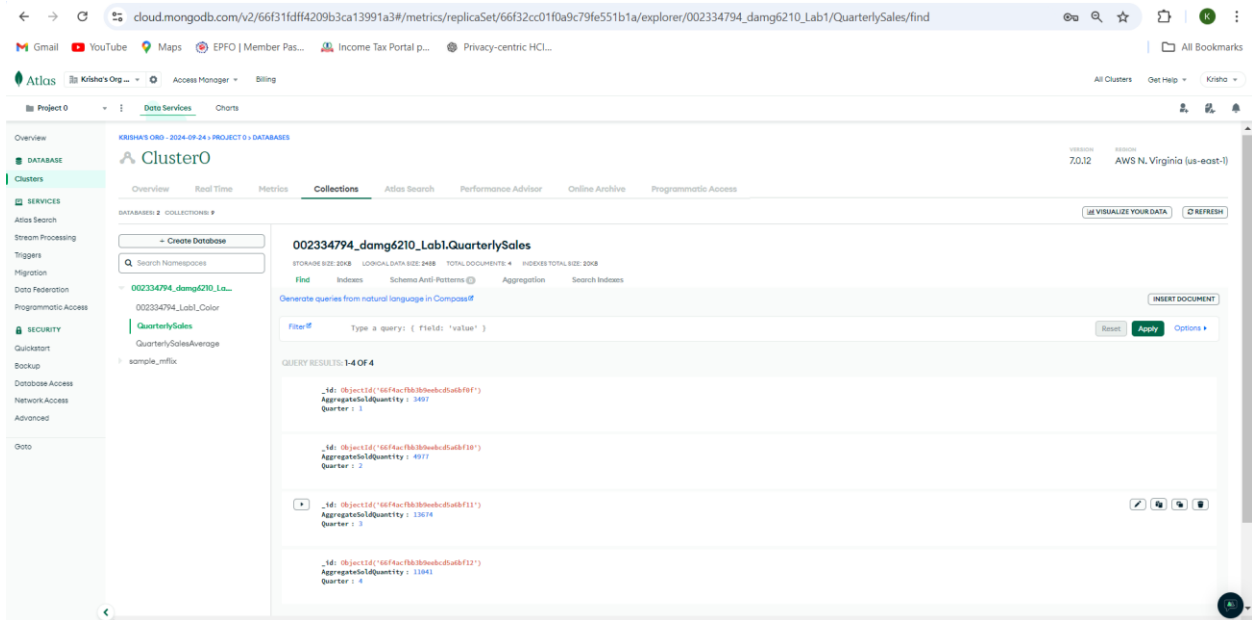
Data Management and Database Design (DAMG-6210)

Lab1

Name – Krisha Lakhani

NUID - 002334794

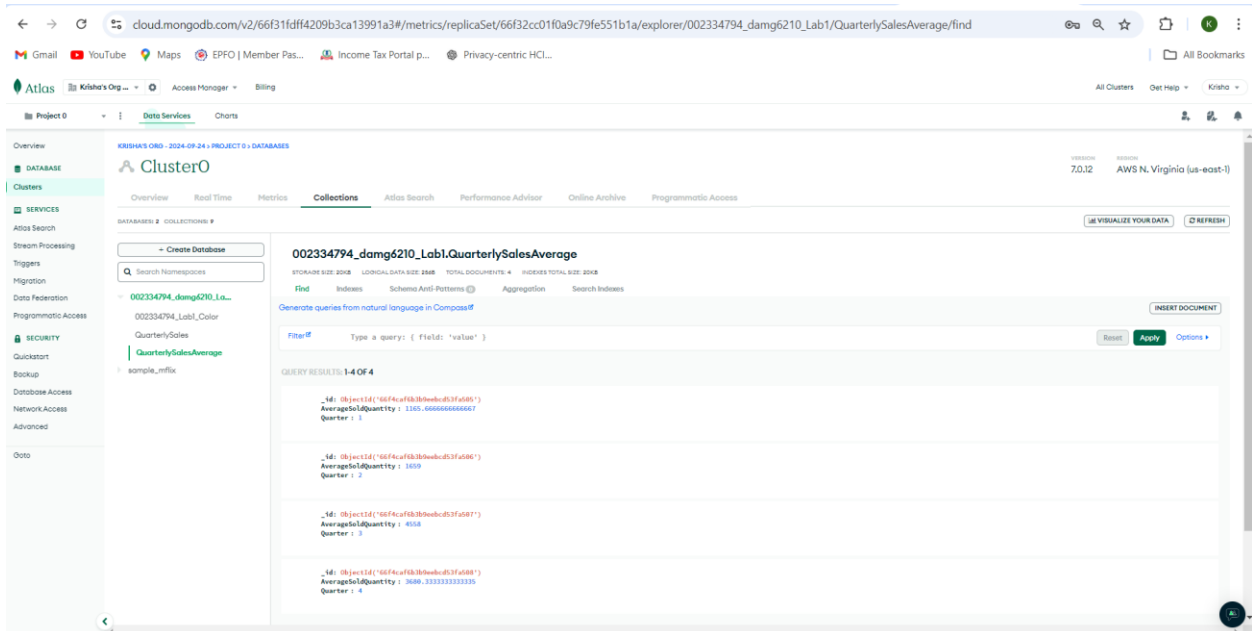
3. MongoDB Atlas Total Quarterly Sales Summary



The screenshot shows the MongoDB Atlas interface for a project named 'KISHAN'S ORG - 2024-09-24'. The 'Cluster0' is located in 'AWS N. Virginia (us-east-1)'. The '002334794_damg6210_Lab1.QuarterlySales' collection is selected, showing 4 documents. The documents are as follows:

_id	AggregateSalesQuantity	Quarter
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	3497	1
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	4977	2
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	13674	3
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	11041	4

4. MongoDB Atlas Average Quarterly Sales



The screenshot shows the MongoDB Atlas interface for the same project. The '002334794_damg6210_Lab1.QuarterlySalesAverage' collection is selected, showing 4 documents. The documents are as follows:

_id	AverageSalesQuantity	Quarter
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	1105.0000000000001	1
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	1609	2
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	4554	3
ObjectId('66f4c8b3b39e551b1a9c79fe551b1a')	3640.3333333333335	4

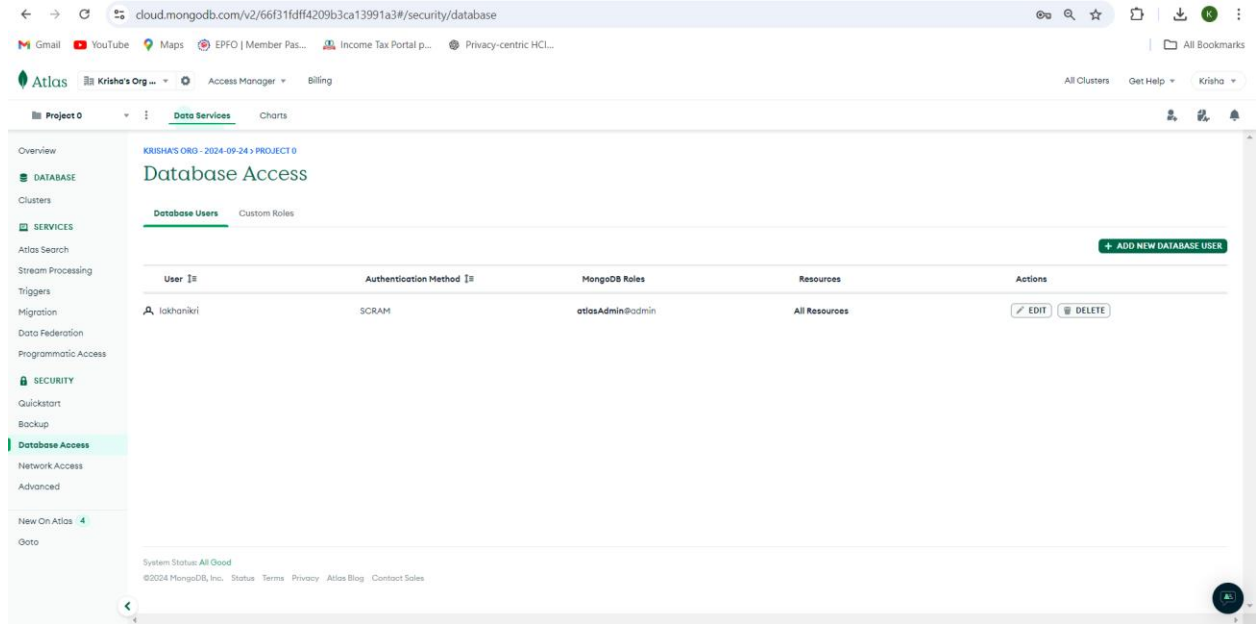
Data Management and Database Design (DAMG-6210)

Lab1

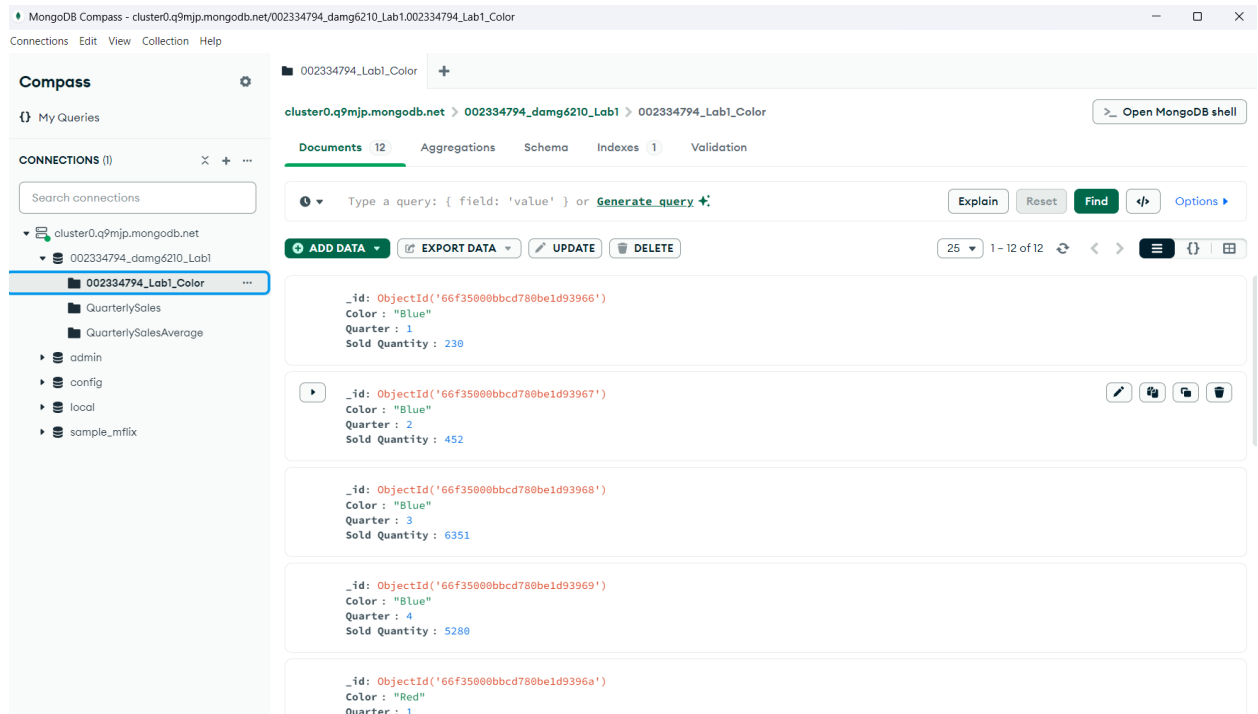
Name – Krisha Lakhani

NUID - 002334794

5. Database User



6. MongoDB Compass Collection



Data Management and Database Design (DAMG-6210)

Lab1

Name – Krisha Lakhani

NUID - 002334794

Referencing

7. Total Quarterly Sales Calculation

The screenshot shows the MongoDB Compass interface with an aggregation pipeline applied to the 'QuarterlySales' collection. The pipeline consists of four stages: \$group, \$sort, \$project, and \$out. The \$group stage groups data by quarter and calculates the sum of sold quantities. The \$sort stage sorts the results by quarter. The \$project stage formats the output. The \$out stage writes the results to a new collection named 'QuarterlySalesAverage'.

```
1 //002334794
2 [
3   {
4     "$group": {
5       "_id": "$Quarter",
6       "AggregateSoldQuantity": {
7         "$sum": "$Sold Quantity"
8       }
9     },
10  },
11  {
12    "$sort": {
13      "_id": 1
14    },
15  },
16  {
17    "$project": {
18      "_id": 0,
19      "Quarter": "$_id",
20      "AggregateSoldQuantity": 1
21    },
22  },
23  {
24    "$out": "QuarterlySalesAverage"
25  }
26 ]
27
28
```

PIPELINE OUTPUT
Sample of 4 documents

AggregateSoldQuantity	Quarter
3497	1
4977	2
13674	3
11841	4

The \$out operator will cause the pipeline to persist the results to the specified location (collection, S3, or Atlas). If the collection exists it will be replaced.

8. Total Quarterly Sales Output

The screenshot shows the MongoDB Compass interface with the 'QuarterlySales' collection selected. The 'Documents' tab displays the output of the aggregation pipeline, showing four documents with their respective quarter and aggregate sold quantity.

_id	AggregateSoldQuantity	Quarter
ObjectId('66f4acfb3b9eebcd5a6bf0f')	3497	1
ObjectId('66f4acfb3b9eebcd5a6bf10')	4977	2
ObjectId('66f4acfb3b9eebcd5a6bf11')	13674	3
ObjectId('66f4acfb3b9eebcd5a6bf12')	11841	4

Data Management and Database Design (DAMG-6210)

Lab1

Name – Krisha Lakhani

NUID - 002334794

Embedding

9. Average Quarterly Sales Calculation

The screenshot shows the MongoDB Compass interface with an aggregation pipeline applied to the 'QuarterlySales' collection. The pipeline uses the \$group operator to calculate the average sold quantity for each quarter, then sorts by quarter and projects the results. The output shows four documents representing the average sales for each quarter.

```
1 //002334794
2 {
3   "$group": {
4     "_id": "$Quarter",
5     "AverageSoldQuantity": {
6       "$avg": "$Sold Quantity"
7     }
8   },
9   "$sort": {
10    "_id": 1
11  },
12  "$project": {
13    "_id": 0,
14    "Quarter": "$_id",
15    "AverageSoldQuantity": 1
16  },
17  "$out": "QuarterlySalesAverage"
18 }
```

PIPELINE OUTPUT
Sample of 4 documents

AverageSoldQuantity	Quarter
1165.6666666666667	1
1659	2
4558	3
3680.3333333333335	4

The \$out operator will cause the pipeline to persist the results to the specified location (collection, S3, or Atlas). If the collection exists it will be replaced.

10. Average Quarterly Sales Output

The screenshot shows the MongoDB Compass interface with the 'QuarterlySalesAverage' collection selected. The collection contains four documents representing the average sales for each quarter, as calculated in the previous step.

_id	AverageSoldQuantity	Quarter
ObjectId('66f4caf6b3b9eebcd53fa505')	1165.6666666666667	1
ObjectId('66f4caf6b3b9eebcd53fa506')	1659	2
ObjectId('66f4caf6b3b9eebcd53fa507')	4558	3
ObjectId('66f4caf6b3b9eebcd53fa508')	3680.3333333333335	4

Data Management and Database Design (DAMG-6210)

Lab1

Name – Krisha Lakhani
NUID - 002334794

11. Normalized and Calculated Total sum using Referencing

The screenshot shows the MongoDB Compass interface with the following details:

- Database:** 002334794_Lab1_Color
- Collection:** ColorsSegregation
- Aggregation Pipeline:**

```
1 //Normalize
2 //002334794
3 {
4   $group: {
5     _id: "$Color"
6   },
7   $project: {
8     _id: 0,
9     color: "$_id"
10  },
11  $out: "ColorsSegregation"
12 }
```
- Pipeline Output:** Sample of 3 documents:
 - color: "Silver"
 - color: "Blue"
 - color: "Red"
- Message:** The \$out operator will cause the pipeline to persist the results to the specified location (collection, S3, or Atlas). If the collection exists it will be replaced.

The screenshot shows the MongoDB Compass interface with the following details:

- Database:** 002334794_Lab1_Color
- Collection:** ColorsSegregation
- Aggregation Pipeline:**

```
1 //
2 //002334794
3 {
4   $lookup: {
5     from: "ColorsSegregation",
6     localField: "Color",
7     foreignField: "color",
8     as: "colorDetails"
9   },
10   $unwind: "$colorDetails"
11 },
12 {
13   $project: {
14     _id: 0,
15     colorId: "$colorDetails._id",
16     quarter: "$Quarter",
17     salesquantity: "$Sold Quantity"
18   },
19   $out: "IndividualQuarterlyQuantity"
20 }
```
- Pipeline Output:** Sample of 10 documents:
 - colorId: ObjectId('66f60409b3b9eebcd5597a28'), quarter: 1, salesquantity: 230
 - colorId: ObjectId('66f60409b3b9eebcd5597a28'), quarter: 2, salesquantity: 452
 - colorId: ObjectId('66f60409b3b9eebcd5597a28'), quarter: 3, salesquantity: 6351
 - colorId: ObjectId('66f60409b3b9eebcd5597a28'), quarter: 4, salesquantity: 6351
- Message:** The \$out operator will cause the pipeline to persist the results to the specified location (collection, S3, or Atlas). If the collection exists it will be replaced.

Data Management and Database Design (DAMG-6210)

Lab1

Name – Krisha Lakhani
NUID - 002334794

MongoDB Compass - cluster0.q9mjp.mongodb.net/002334794_damg6210_Lab1.IndividualQuarterlyQuantity

Connections Edit View Collection Help

Compass

{ My Queries

CONNECTIONS (1)

Search connections

cluster0.q9mjp.mongodb.net

- 002334794_damg6210_Lab1
 - 002334794_Lab1_Color
 - ColorsSegregation
 - IndividualQuarterlyQuantity
 - QuarterlySales
 - QuarterlySalesAverage
 - QuarterlySalesSummary
- admin
- config
- local
- sample_mflix

cluster0.q9mjp.mongodb.net > 002334794_damg6210_Lab1 > IndividualQuarterlyQuantity

Documents 12 Aggregations Schema Indexes 1 Validation

\$group \$sort \$project \$out

Generate aggregation Explain Export Run Options

QuarterlySales... SAVE CREATE NEW EXPORT TO LANGUAGE PREVIEW STAGES TEXT WIZARD

```
1 [
2   {
3     "$group": {
4       "_id": "$quarter",
5       "AggregateSoldQuantity": {
6         "$sum": "$salesquantity"
7       }
8     },
9   },
10  {
11    "$sort": {
12      "_id": 1
13    },
14  },
15  {
16    "$project": {
17      "_id": 0,
18      "Quarter": "$_id",
19      "AggregateSoldQuantity": 1
20    },
21  },
22  {
23    "$out": "QuarterlySalesSummary"
24  }
25 ]
26
```

PIPELINE OUTPUT

Sample of 4 documents

OUTPUT OPTIONS

AggregateSoldQuantity : 3497
Quarter : 1

AggregateSoldQuantity : 4977
Quarter : 2

AggregateSoldQuantity : 13674
Quarter : 3

AggregateSoldQuantity : 11041
Quarter : 4

The \$out operator will cause the pipeline to persist the results to the specified location (collection, \$3, or Atlas). If the collection exists it will be replaced.

MongoDB Compass - cluster0.q9mjp.mongodb.net/002334794_damg6210_Lab1.QuarterlySalesSummary

Connections Edit View Collection Help

Compass

{ My Queries

CONNECTIONS (1)

Search connections

cluster0.q9mjp.mongodb.net

- 002334794_damg6210_Lab1
 - 002334794_Lab1_Color
 - ColorsSegregation
 - IndividualQuarterlyQuantity
 - QuarterlySales
 - QuarterlySalesAverage
 - QuarterlySalesSummary
- admin
- config
- local
- sample_mflix

cluster0.q9mjp.mongodb.net > 002334794_damg6210_Lab1 > QuarterlySalesSummary

Documents 4 Aggregations Schema Indexes 1 Validation

Type a query: { field: 'value' } or Generate query Explain Reset Find Options

ADD DATA EXPORT DATA UPDATE DELETE 25 1 - 4 of 4

_id: ObjectId('66f606fcb3b9eebcd567495d')
AggregateSoldQuantity : 3497
Quarter : 1

_id: ObjectId('66f606fcb3b9eebcd567495e')
AggregateSoldQuantity : 4977
Quarter : 2

_id: ObjectId('66f606fcb3b9eebcd567495f')
AggregateSoldQuantity : 13674
Quarter : 3

_id: ObjectId('66f606fcb3b9eebcd5674960')
AggregateSoldQuantity : 11041
Quarter : 4