

NAME: NIDHI SHETTY

ROLL NO.: 01

PRACTICAL NO.: 06

INDEXING

- Create index in Mongo DB
- Finding the indexes in a collection
- Drop indexes in a collection
- Drop all the indexes

```
mongosh mongodb://127.0.0.1:27017/
C:\Users\Nidhi> mongosh
Current Mongosh Log ID: 65f528fd8d78911125fc3776
Connecting to: mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.4
Using MongoDB: 7.0.5
Using Mongosh: 2.1.4
mongosh 2.2.0 is available for download: https://www.mongodb.com/try/download/shell
For mongosh info see: https://docs.mongodb.com/mongosh-shell/

-----
The server generated these startup warnings when booting
2024-02-24T12:34:21.288+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----

test> use db
switched to db db
dbs> use prac_6
switched to db prac_6
prac_6> db.createCollection("studentgrades")
{ ok: 1 }
prac_6> db.studentgrades.insertMany(
...
... [
...
... {name: "Barry", subject: "Maths", score: 92},
...
... {name: "Kent", subject: "Physics", score: 87},
...
... {name: "Harry", subject: "Maths", score: 99, notes: "Exceptional Performance"},
...
... {name: "Alex", subject: "Literature", score: 78},
...
... {name: "Tom", subject: "History", score: 65, notes: "Adequate"}
...
... ]
...
... )
{ acknowledged: true,
  insertedIds: {
    '0': ObjectId('65f529aa8d78911125fc3777'),
  }
}
```

```
... )
{ acknowledged: true,
  insertedIds: {
    '0': ObjectId('65f529aa8d78911125fc3777'),
    '1': ObjectId('65f529aa8d78911125fc3778'),
    '2': ObjectId('65f529aa8d78911125fc3779'),
    '3': ObjectId('65f529aa8d78911125fc377a'),
    '4': ObjectId('65f529aa8d78911125fc377b')
  }
}
prac_6> db.studentgrades.find({}, {_id:0})
{ name: 'Barry', subject: 'Maths', score: 92 },
{ name: 'Kent', subject: 'Physics', score: 87 },
{ name: 'Harry',
  subject: 'Maths',
  score: 99,
  notes: 'Exceptional Performance' },
{ name: 'Alex', subject: 'Literature', score: 78 },
{ name: 'Tom', subject: 'History', score: 65, notes: 'Adequate' }
prac_6> db.studentgrades.find().pretty()
[
  {
    _id: ObjectId('65f529aa8d78911125fc3777'),
    name: 'Barry',
    subject: 'Maths',
    score: 92
  },
  {
    _id: ObjectId('65f529aa8d78911125fc3778'),
    name: 'Kent',
    subject: 'Physics',
    score: 87
  },
  {
    _id: ObjectId('65f529aa8d78911125fc3779'),
    name: 'Harry',
    subject: 'Maths',
    score: 99,
    notes: 'Exceptional Performance'
  },
  {
    _id: ObjectId('65f529aa8d78911125fc377a'),
    name: 'Alex',
    subject: 'Literature',
    score: 78
  },
  {
    _id: ObjectId('65f529aa8d78911125fc377b'),
    name: 'Tom',
    subject: 'History',
    score: 65,
    notes: 'Adequate'
  }
]
```

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```
mongosh mongodb://127.0.0.1:27017/
{
  "_id": ObjectId("65f529aa8d78911125fc3778"),
  "name": "Kent",
  "subject": "Physics",
  "score": 87
},
{
  "_id": ObjectId("65f529aa8d78911125fc3779"),
  "name": "Harry",
  "subject": "Maths",
  "score": 99,
  "notes": "Exceptional Performance"
},
{
  "_id": ObjectId("65f529aa8d78911125fc377a"),
  "name": "Alex",
  "subject": "Literature",
  "score": 78
},
{
  "_id": ObjectId("65f529aa8d78911125fc377b"),
  "name": "Tom",
  "subject": "History",
  "score": 65,
  "notes": "Adequate"
}
]
prac_6> db.studentgrades.createIndex( {name: 1}, {name: "student name index"} )
student name index
prac_6> db.studentgrades.getIndexes()
[
  { v: 2, key: { _id: 1 }, name: '_id.' },
  { v: 2, key: { name: 1 }, name: 'student name index' }
]
prac_6> db.studentgrades.dropIndex("student name index")
{ nIndexesWas: 2, ok: 1 }
prac_6> db.studentgrades.dropIndex({name:1})
MongoshInternalError[IndexNotFound]: can't find index with key: { name: 1 }
prac_6> index. db.studentgrades.dropIndexes()
ReferenceError: index is not defined
prac_6> db.getIndexes()
TypeError: db.getIndexes is not a function
```

AIRLINE DATASET:

```
MongoDB Compass - localhost:27017/prac_6.airline
Connect Edit View Collection Help

localhost:27017  {} My Queries  prac4  prac4_aggregation  prac4_aggregation  prac_6  airline  +

prac_6.airline  6.2k  1
DOCUMENTS  INDEXES

> MONGODB
> use prac_6
< switched to db prac_6
> db.airline.find({}, {_id:0})
< {
  'Airline ID': -1,
  Name: 'Unknown',
  Alias: '\\N',
  IATA: '-1',
  ICAO: 'N/A',
  Callsign: '\\N',
  Country: '\\N',
  Active: 'Y'
}
{
  'Airline ID': 1,
  Name: 'Private flight',
  Alias: '\\N',
  IATA: '-1',
  ICAO: 'N/A',
  Active: 'Y'
}
{
  'Airline ID': 2,
  Name: '135 Airways',
  Alias: '\\N',
  ICAO: 'GNL',
  Callsign: 'GENERAL'
}
```

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MongoDB Compass - localhost27017/prac_6.airline

Connect Edit View Collection Help

localhost:27017 ...

My Queries prac_6.airline

6.2k 1

>_MONGOSH

```
{
  "Name": "2 Sqn No 1 Elementary Flying Training School",
  "Alias": "\\N",
  "ICAO": "WYT",
  "Country": "United Kingdom",
  "Active": "N"
}
{
  "Airline ID": 5,
  "Name": "213 Flight Unit",
  "Alias": "\\N",
  "ICAO": "TFU",
  "Country": "Russia",
  "Active": "N"
}
{
  "Airline ID": 6,
  "Name": "223 Flight Unit State Airline",
  "Alias": "\\N",
  "ICAO": "CHD",
  "Callsign": "CHKALOVSK-AVIA",
  "Country": "Russia",
  "Active": "N"
}
{
  "Airline ID": 7,
  "Name": "224th Flight Unit",
  "Active": "N"
}
```

28°C Haze

Q Search

ENG IN

11:03 16-03-2024

MongoDB Compass - localhost27017/prac_6.airline

Connect Edit View Collection Help

localhost:27017 ...

My Queries prac_6.airline

6.2k 1

>_MONGOSH

```
{
  "Airline ID": 10,
  "Name": "40-Mile Air",
  "Alias": "\\N",
  "IATA": "QS",
  "ICAO": "MLA",
  "Callsign": "MILE-AIR",
  "Country": "United States",
  "Active": "Y"
}
{
  "Airline ID": 11,
  "Name": "4D Air",
  "Alias": "\\N",
  "ICAO": "QRT",
  "Callsign": "QUARTET",
  "Country": "Thailand",
  "Active": "N"
}
{
  "Airline ID": 12,
  "Name": "611897 Alberta Limited",
  "Alias": "\\N",
  "ICAO": "THD",
  "Callsign": "DONUT",
  "Country": "Canada",
  "Active": "N"
}
```

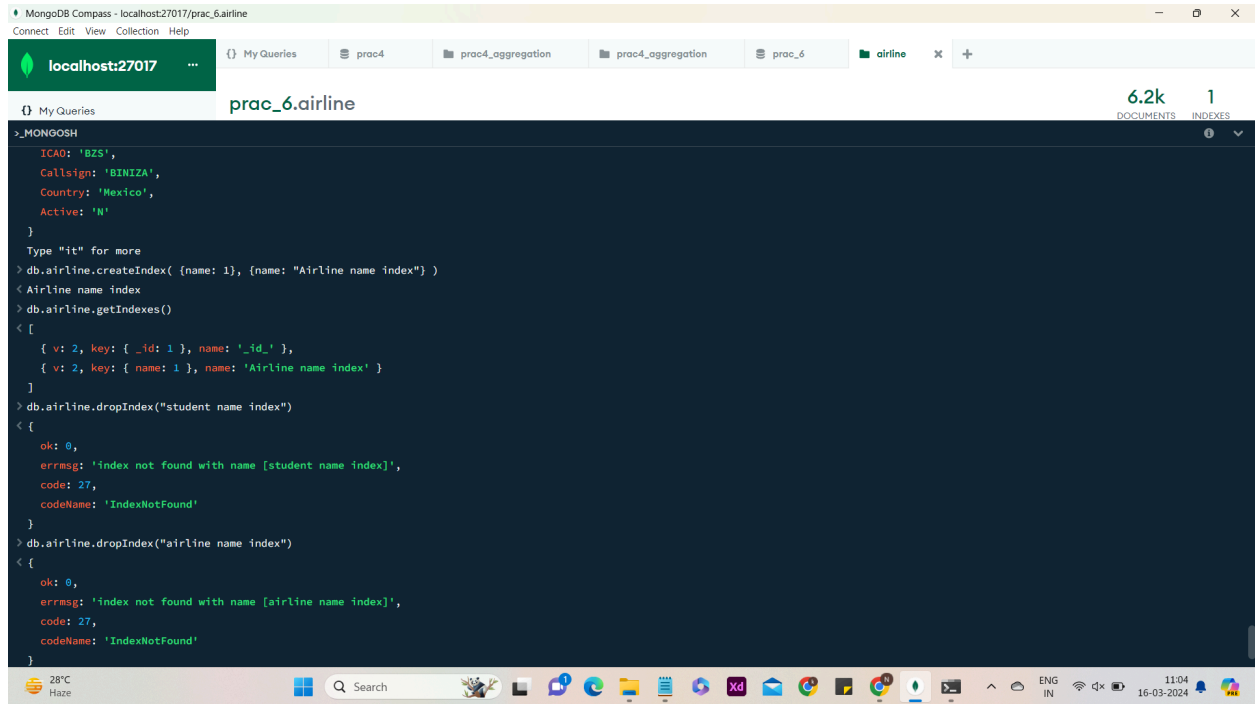
28°C Haze

Q Search

ENG IN

11:03 16-03-2024

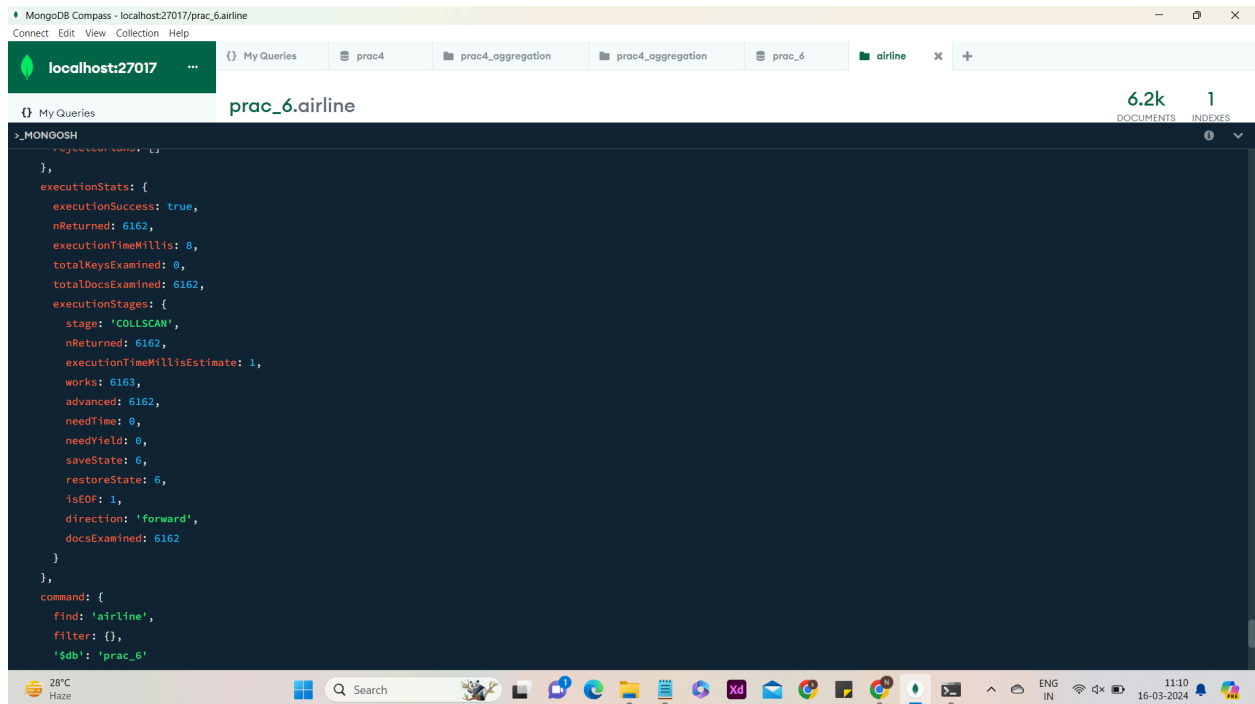
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The screenshot shows the MongoDB Compass application running on localhost:27017. The database is 'prac_6' and the collection is 'airline'. The query in the command window is as follows:

```
>_MONGOSH
ICA0: 'BZS',
Callsign: 'BINIZA',
Country: 'Mexico',
Active: 'N'
}
Type "it" for more
> db.airline.createIndex( {name: 1}, {name: "Airline name index"} )
< Airline name index
> db.airline.getIndexes()
< [
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { name: 1 }, name: 'Airline name index' }
]
> db.airline.dropIndex("student name index")
< {
  ok: 0,
  errmsg: 'index not found with name [student name index]',
  code: 27,
  codeName: 'IndexNotFound'
}
> db.airline.dropIndex("airline name index")
< {
  ok: 0,
  errmsg: 'index not found with name [airline name index]',
  code: 27,
  codeName: 'IndexNotFound'
}
}
```

The interface also shows a taskbar at the bottom with various application icons and system status information like temperature (28°C) and time (11:04).

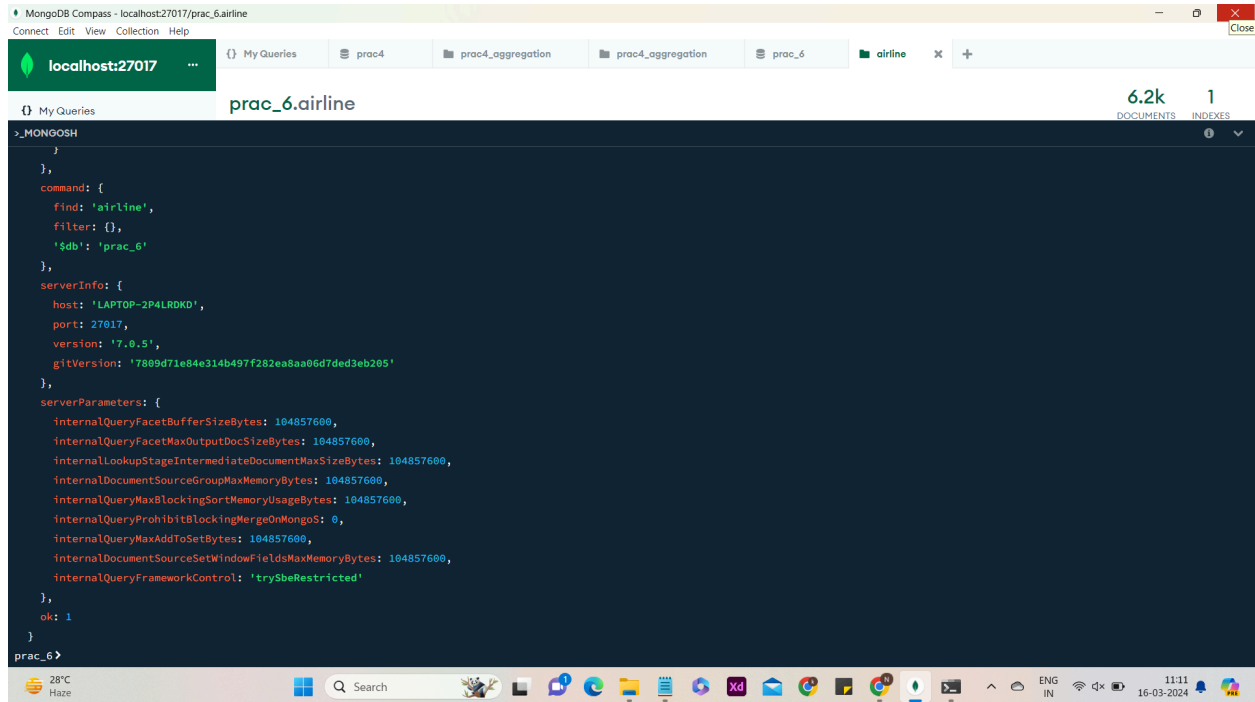


This screenshot shows the execution stats of a query in the MongoDB Compass application. The query is a find operation on the 'airline' collection. The execution stats are as follows:

```
{
  executionStats: {
    executionSuccess: true,
    nReturned: 6162,
    executionTimeMillis: 8,
    totalKeysExamined: 0,
    totalDocsExamined: 6162,
    executionStages: {
      stage: 'COLLSCAN',
      nReturned: 6162,
      executionTimeMillisEstimate: 1,
      works: 6163,
      advanced: 6162,
      needTime: 0,
      needYield: 0,
      saveState: 6,
      restoreState: 6,
      isEOF: 1,
      direction: 'forward',
      docsExamined: 6162
    }
  },
  command: {
    find: 'airline',
    filter: {},
    '$db': 'prac_6'
  }
}
```

The interface also shows a taskbar at the bottom with various application icons and system status information like temperature (28°C) and time (11:10).

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MongoDB Compass - localhost27017/prac_6.airline

Connect Edit View Collection Help

localhost:27017

My Queries

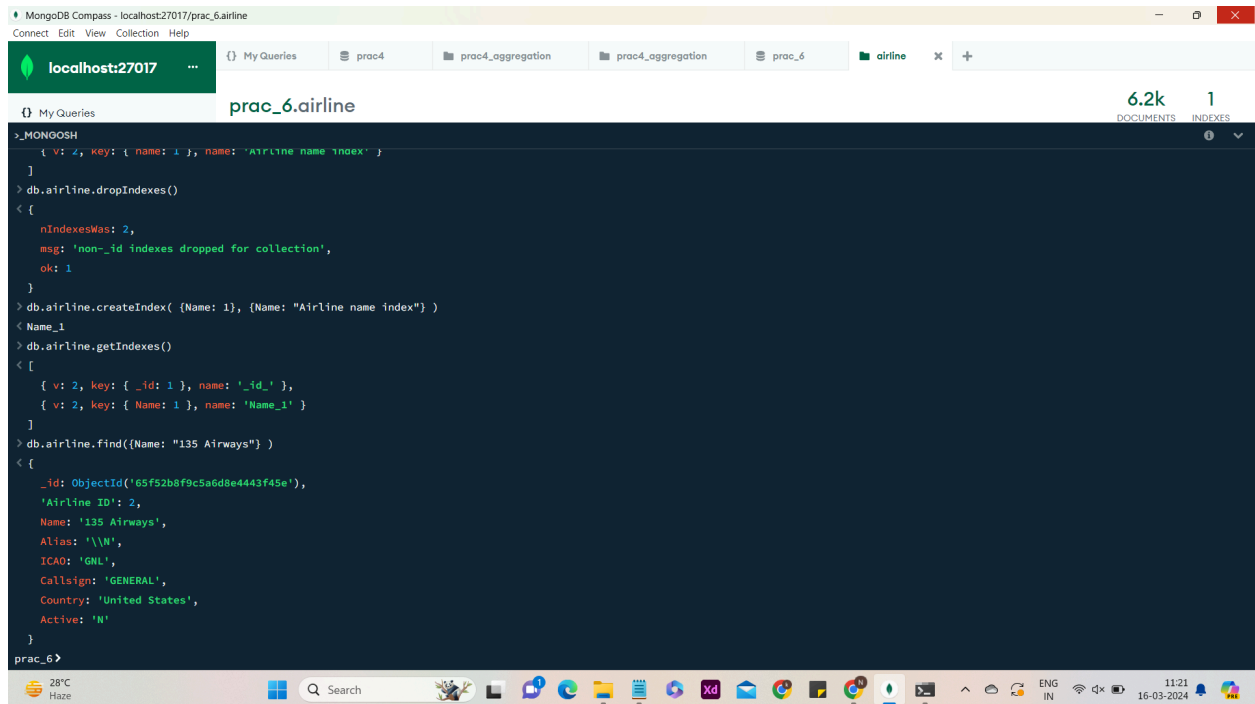
prac_6.airline

6.2k 1

DOCUMENTS INDEXES

```
>_MONGOSH
{
  },
  command: {
    find: 'airline',
    filter: {},
    '$db': 'prac_6'
  },
  serverInfo: {
    host: 'LAPTOP-2P4LRDKD',
    port: 27017,
    version: '7.0.5',
    gitVersion: '7809d71e84e314b497f282ea8aa96d7ded3eb205'
  },
  serverParameters: {
    internalQueryFacetBufferSizeBytes: 104857600,
    internalQueryFacetMaxOutputDocSizeBytes: 104857600,
    internalLookupStageIntermediateDocumentMaxSizeBytes: 104857600,
    internalDocumentSourceGroupMaxMemoryBytes: 104857600,
    internalQueryMaxBlockingSortMemoryUsageBytes: 104857600,
    internalQueryProhibitBlockingMergeOnMongoS: 0,
    internalQueryMaxAddToSetBytes: 104857600,
    internalDocumentSourceSetWindowFieldsMaxMemoryBytes: 104857600,
    internalQueryFrameworkControl: 'trySbeRestricted'
  },
  ok: 1
}
prac_6>
```

28°C Haze



MongoDB Compass - localhost27017/prac_6.airline

Connect Edit View Collection Help

localhost:27017

My Queries

prac_6.airline

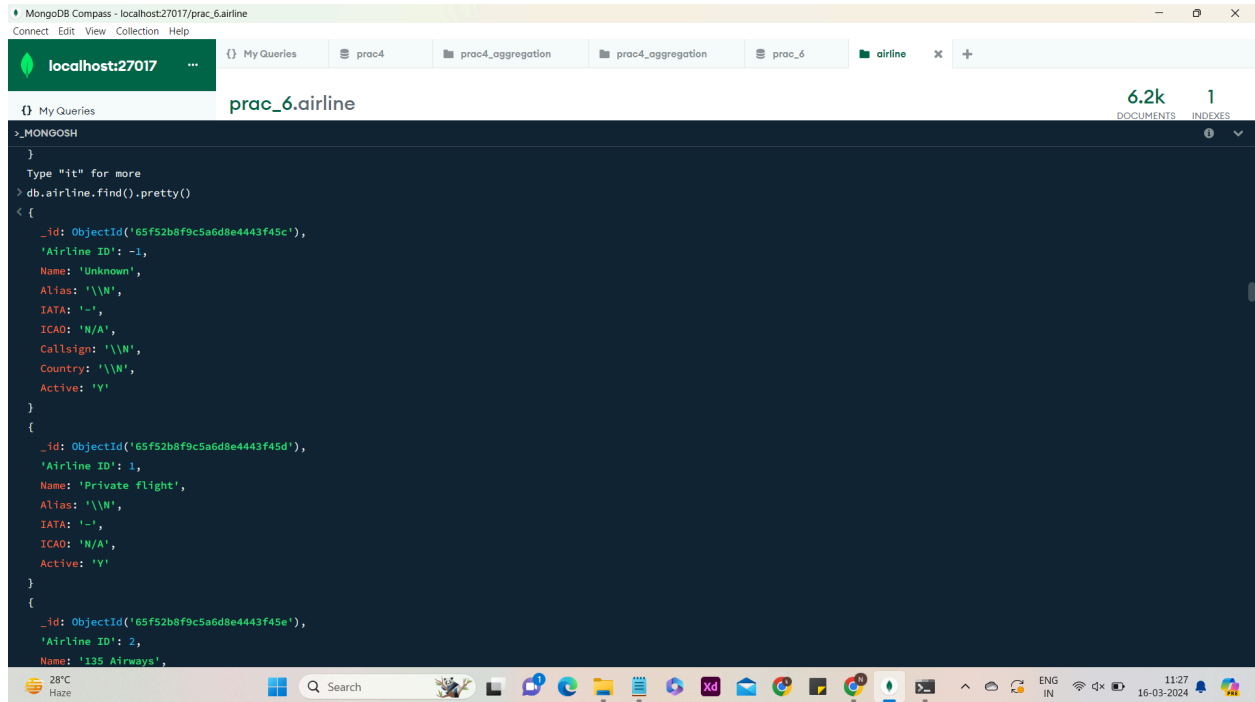
6.2k 1

DOCUMENTS INDEXES

```
>_MONGOSH
{ v: 2, key: { name: 1 }, name: "AIRLINE name index" }
]
> db.airline.dropIndexes()
{
  nIndexesWas: 2,
  msg: 'non-_id indexes dropped for collection',
  ok: 1
}
> db.airline.createIndex( {Name: 1}, {Name: "Airline name index"} )
< Name_1
> db.airline.getIndexes()
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { Name: 1 }, name: 'Name_1' }
]
> db.airline.find({Name: "135 Airways"})
[
  {
    _id: ObjectId('65f52b8f9c5a6d8e4443f45e'),
    'Airline ID': 2,
    Name: '135 Airways',
    Alias: '\\N',
    ICAO: 'GNL',
    Callsign: 'GENERAL',
    Country: 'United States',
    Active: 'N'
  }
]
prac_6>
```

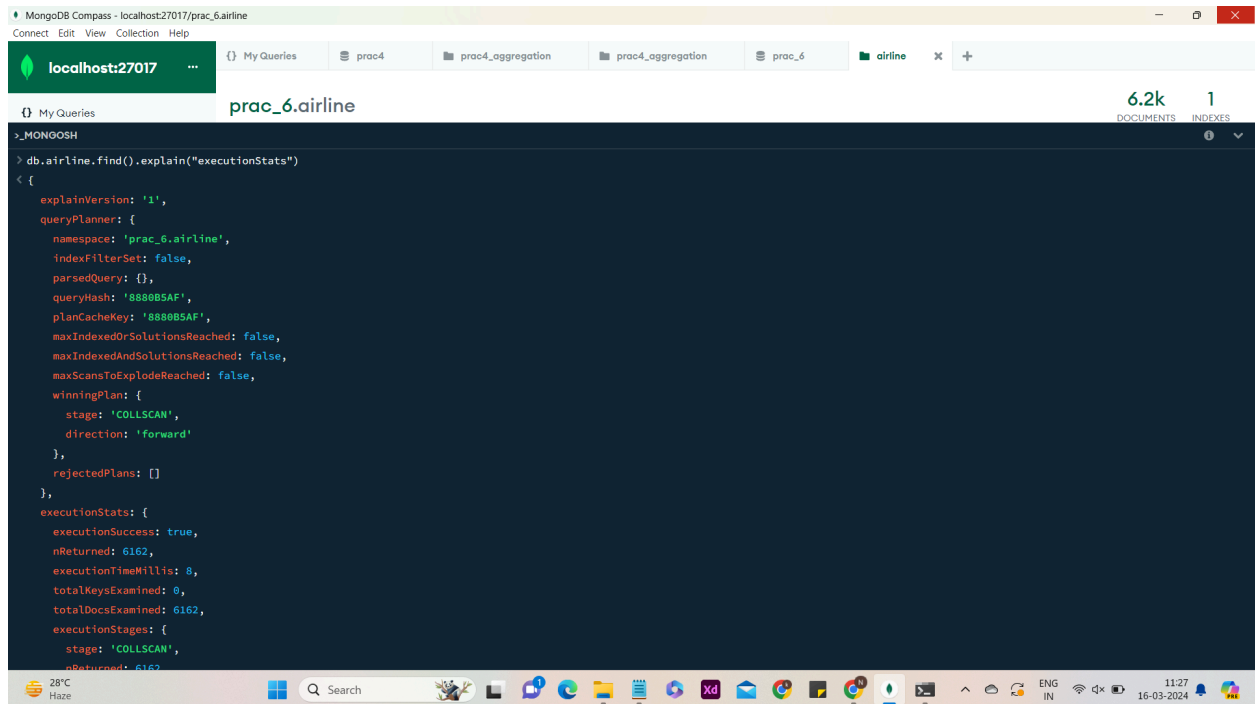
28°C Haze

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The screenshot shows the MongoDB Compass interface. The top bar indicates the connection to 'localhost:27017/prac_6.airline'. The left sidebar shows the database structure with collections 'prac4', 'prac4_aggregation', 'prac_6', and 'airline'. The main panel displays the 'airline' collection with 6.2k documents and 1 index. The command bar shows the query: `db.airline.find().pretty()`. The results pane shows three documents:

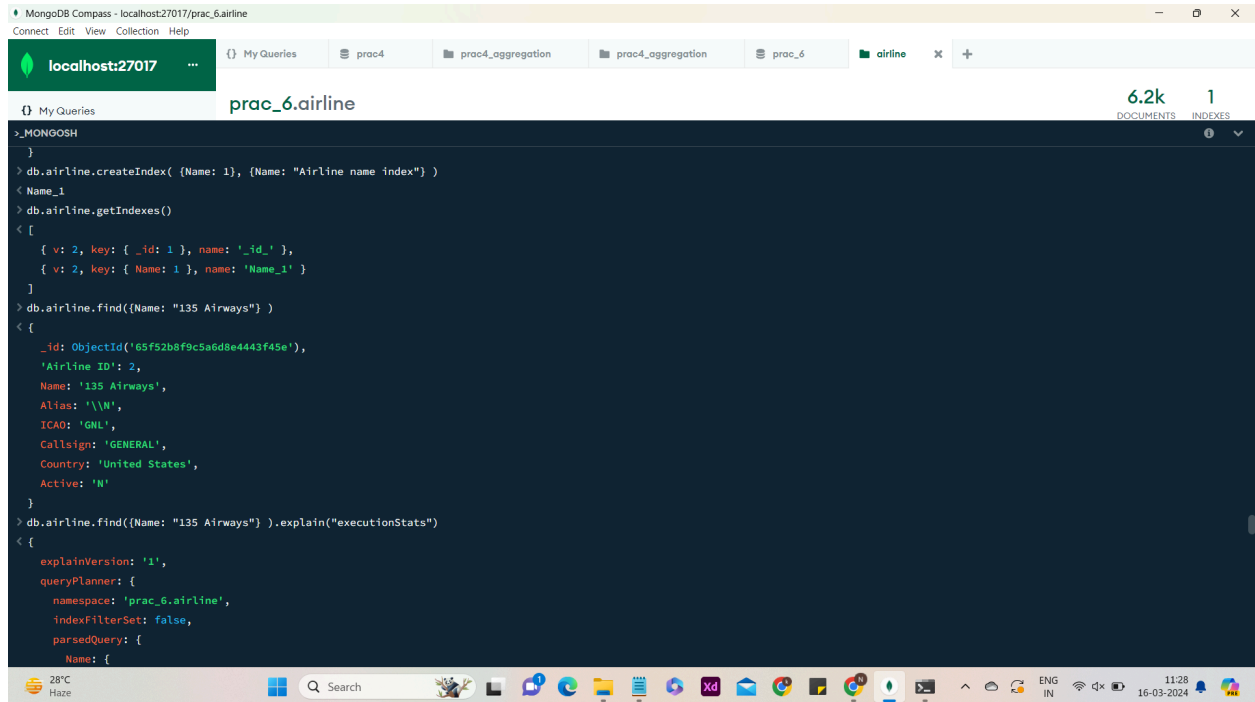
```
>_MONGOSH
}
Type "it" for more
> db.airline.find().pretty()
< {
  _id: ObjectId('65f52b8f9c5a6d8e4443f45c'),
  'Airline ID': -1,
  Name: 'Unknown',
  Alias: '\\N',
  IATA: '-1',
  ICAO: 'N/A',
  Callsign: '\\N',
  Country: '\\N',
  Active: 'Y'
}
{
  _id: ObjectId('65f52b8f9c5a6d8e4443f45d'),
  'Airline ID': 1,
  Name: 'Private flight',
  Alias: '\\N',
  IATA: '-1',
  ICAO: 'N/A',
  Callsign: '\\N',
  Country: '\\N',
  Active: 'Y'
}
{
  _id: ObjectId('65f52b8f9c5a6d8e4443f45e'),
  'Airline ID': 2,
  Name: '13S Airways',
  Alias: '\\N',
  IATA: '-1',
  ICAO: 'N/A',
  Callsign: '\\N',
  Country: '\\N',
  Active: 'Y'
}
```



The screenshot shows the MongoDB Compass interface. The top bar indicates the connection to 'localhost:27017/prac_6.airline'. The left sidebar shows the database structure with collections 'prac4', 'prac4_aggregation', 'prac_6', and 'airline'. The main panel displays the 'airline' collection with 6.2k documents and 1 index. The command bar shows the query: `db.airline.find().explain("executionStats")`. The results pane shows the execution statistics for the query:

```
>_MONGOSH
> db.airline.find().explain("executionStats")
< {
  explainVersion: '1',
  queryPlanner: {
    namespace: 'prac_6.airline',
    indexFilterSet: false,
    parsedQuery: {},
    queryHash: '8880B5AF',
    planCacheKey: '8880B5AF',
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    winningPlan: {
      stage: 'COLLSCAN',
      direction: 'forward'
    },
    rejectedPlans: []
  },
  executionStats: {
    executionSuccess: true,
    nReturned: 6162,
    executionTimeMillis: 8,
    totalKeysExamined: 0,
    totalDocsExamined: 6162,
    executionStages: {
      stage: 'COLLSCAN',
      nReturned: 6162
    }
  }
}
```

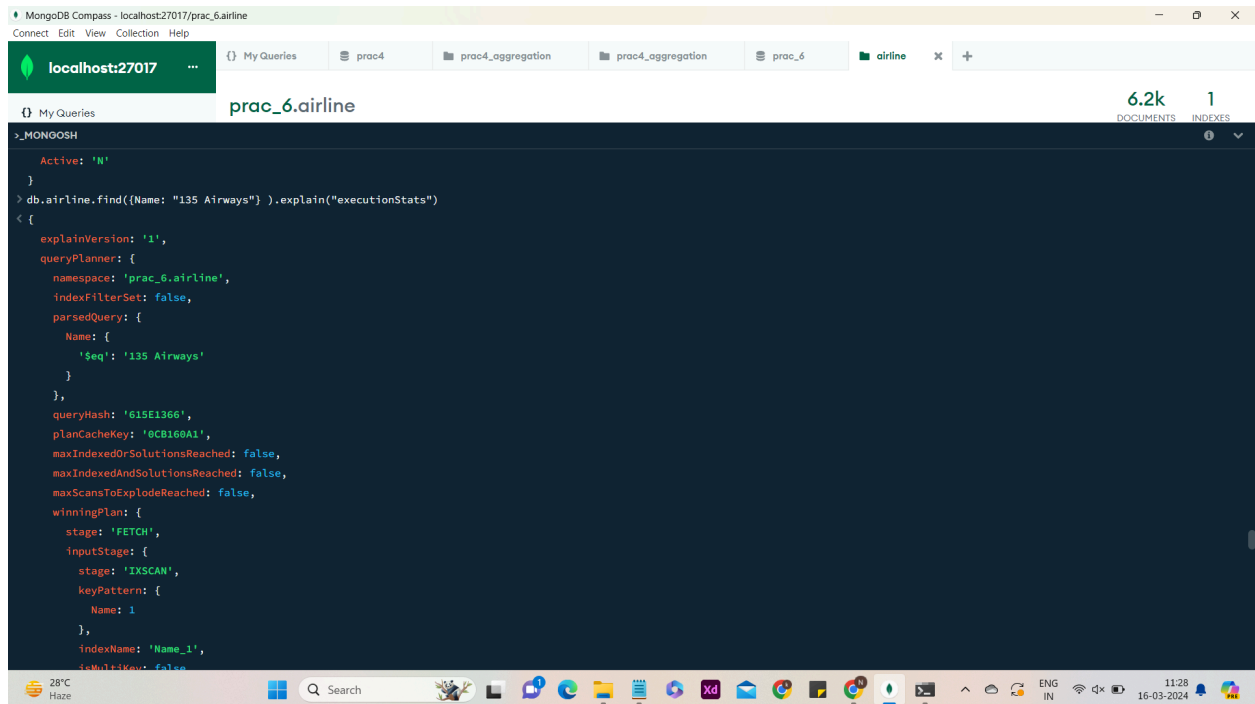
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The screenshot shows the MongoDB Compass application interface. The top bar indicates the connection to 'localhost:27017/prac_6.airline'. The left sidebar shows the database structure with collections 'prac4', 'prac4_aggregation', 'prac_6', and 'airline'. The main panel displays the 'airline' collection with 6.2k documents and 1 index. The command window shows the following operations:

```
>_MONGOSH
>
> db.airline.createIndex( {Name: 1}, {Name: "Airline name index"} )
< Name_1
> db.airline.getIndexes()
< [
  { v: 2, key: { _id: 1 }, name: '_id_1' },
  { v: 2, key: { Name: 1 }, name: 'Name_1' }
]
> db.airline.find({Name: "135 Airways"})
< [
  {
    _id: ObjectId('65f52b8f9c5a6d8e4443f45e'),
    'Airline ID': 2,
    Name: '135 Airways',
    Alias: '\\N',
    ICAO: 'GNL',
    Callsign: 'GENERAL',
    Country: 'United States',
    Active: 'N'
  }
]
> db.airline.find({Name: "135 Airways"}).explain("executionStats")
< {
  explainVersion: '1',
  queryPlanner: {
    namespace: 'prac_6.airline',
    indexFilterSet: false,
    parsedQuery: {
      Name: {
        Name: {

```



This screenshot continues the MongoDB Compass interface, showing the execution statistics for the query. The command window displays the following output:

```
Active: 'N'
}
> db.airline.find({Name: "135 Airways"}).explain("executionStats")
< {
  explainVersion: '1',
  queryPlanner: {
    namespace: 'prac_6.airline',
    indexFilterSet: false,
    parsedQuery: {
      Name: {
        'Seq': '135 Airways'
      }
    }
  },
  queryHash: '615E1366',
  planCacheKey: '0CB160A1',
  maxIndexedOrSolutionsReached: false,
  maxIndexedAndSolutionsReached: false,
  maxScansToExplodeReached: false,
  winningPlan: {
    stage: 'FETCH',
    inputStage: {
      stage: 'IXSCAN',
      keyPattern: {
        Name: 1
      },
      indexName: 'Name_1',
      isMultiKey: false
    }
  }
}
```

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MongoDB Compass - localhost27017/prac_6.airline

Connect Edit View Collection Help

localhost:27017

() My Queries prac4 prac4_aggregation prac4_aggregation prac_6 airline

My Queries prac_6.airline 6.2k 1 DOCUMENTS INDEXES

>_MONGOSH

```
stage: 'COLLSCAN',
nReturned: 6162,
executionTimeMillisEstimate: 0,
works: 6163,
advanced: 6162,
needTime: 0,
needYield: 0,
saveState: 6,
restoreState: 6,
isEOF: 1,
direction: 'forward',
docsExamined: 6162
}
},
command: {
  find: 'airline',
  filter: {},
  '$db': 'prac_6'
},
serverInfo: {
  host: 'LAPTOP-2P4LRDKD',
  port: 27017,
  version: '7.0.5',
  gitVersion: '7809d71e84e314b497f282ea8aa06d7ded3eb205'
},
serverParameters: {
  internalQueryExecBufSizeBytes: 104857600
}
```

28°C Haze

Search

ENG IN

11:28 16-03-2024