**Query: Find the total no. of all books grouped by their genre.**

> db.books.aggregate([

... {

... $group: {

... \_id: "$genre",

... totalCopies: { $sum: "$availableCopies" }

... }

... }

... ]);

{ "\_id" : "Autobiography", "totalCopies" : 10 }

{ "\_id" : "Fiction", "totalCopies" : 16 }

{ "\_id" : "Historical Fiction", "totalCopies" : 11 }

**Query: Find the average price of books grouped by their authors.**

> db.books.aggregate([

... {

... $group: {

... \_id: "$author",

... avgPrice: { $avg: "$price" }

... }

... }

... ]);

{ "\_id" : "A.P.J. Abdul Kalam", "avgPrice" : 299 }

{ "\_id" : "Salman Rushdie", "avgPrice" : 599 }

{ "\_id" : "Amish Tripathi", "avgPrice" : 399 }

{ "\_id" : "Aravind Adiga", "avgPrice" : 379 }

{ "\_id" : "Rebecca Serle", "avgPrice" : 450 }

{ "\_id" : "Khushwant Singh", "avgPrice" : 299 }

{ "\_id" : "Chitra Banerjee Divakaruni", "avgPrice" : 499 }

**Query: List the books with their prices and available copies in the descending order.**

> db.books.aggregate([

... {

... $project: {

... title: 1,

... price: 1,

... availableCopies: 1

... }

... },

... { $sort: { price: -1 } }

... ]);

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e4"), "title" : "Midnight's Children", "availableCopies" : 3, "price" : 599 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e8"), "title" : "The Palace of Illusions", "availableCopies" : 2, "price" : 499 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e6"), "title" : "In Five Years", "availableCopies" : 7, "price" : 450 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e7"), "title" : "The Immortals of Meluha", "availableCopies" : 6, "price" : 399 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e5"), "title" : "The White Tiger", "availableCopies" : 4, "price" : 379 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e2"), "title" : "Wings of Fire", "availableCopies" : 10, "price" : 299 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e9"), "title" : "Train to Pakistan", "availableCopies" : 5, "price" : 299 }

**Query: Find how many books are there in each genre.**

> db.books.aggregate([

... {

... $group: {

... \_id: "$genre",

... count: { $sum: 1 }

... }

... }

... ]);

{ "\_id" : "Autobiography", "count" : 1 }

{ "\_id" : "Fiction", "count" : 4 }

{ "\_id" : "Historical Fiction", "count" : 2 }

**Query: Find books with available copies more than 3, and sort them in ascending order of no. of copies and limit.**

db.books.aggregate([

{

$match: {

availableCopies: { $gt: 3 }

}

},

{

$sort: { availableCopies: 1 }

},

{

$limit: 5

}

]);

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e5"), "title" : "The White Tiger", "author" : "Aravind Adiga", "genre" : "Fiction", "isbn" : "9781439156961", "availableCopies" : 4, "price" : 379 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e9"), "title" : "Train to Pakistan", "author" : "Khushwant Singh", "genre" : "Historical Fiction", "isbn" : "9780143030965", "availableCopies" : 5, "price" : 299 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e7"), "title" : "The Immortals of Meluha", "author" : "Amish Tripathi", "genre" : "Historical Fiction", "isbn" : "9789380658349", "availableCopies" : 6, "price" : 399 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e6"), "title" : "In Five Years", "author" : "Rebecca Serle", "genre" : "Fiction", "isbn" : "9781982137464", "availableCopies" : 7, "price" : 450 }

{ "\_id" : ObjectId("66ff8bf3490e18fcd47037e2"), "title" : "Wings of Fire", "author" : "A.P.J. Abdul Kalam", "genre" : "Autobiography", "isbn" : "9788173711466", "availableCopies" : 10, "price" : 299 }

**Query: Simple Index.**

> db.books.createIndex({ author: 1 });

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 1,

"numIndexesAfter" : 2,

"ok" : 1

}

**Query: Unique Index.**

> db.books.createIndex({ isbn: 1 }, { unique: true });

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 2,

"numIndexesAfter" : 3,

"ok" : 1

}

**Query: Compound Index.**

> db.books.createIndex({ author: 1, genre: 1 });

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 3,

"numIndexesAfter" : 4,

"ok" : 1

}

**Query: Show Indexes present in the database.**

> db.books.getIndexes();

[

{

"v" : 2,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "db.books"

},

{

"v" : 2,

"key" : {

"author" : 1

},

"name" : "author\_1",

"ns" : "db.books"

},

{

"v" : 2,

"unique" : true,

"key" : {

"isbn" : 1

},

"name" : "isbn\_1",

"ns" : "db.books"

},

{

"v" : 2,

"key" : {

"author" : 1,

"genre" : 1

},

"name" : "author\_1\_genre\_1",

"ns" : "db.books"

}

]

**Query: Explain the execution status of find the author A.P.J Abdul Kalam.**

> db.books.find({ author: "A.P.J. Abdul Kalam" }).explain("executionStats");

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "te31260\_db.books",

"indexFilterSet" : false,

"parsedQuery" : {

"author" : {

"$eq" : "A.P.J. Abdul Kalam"

}

},

"winningPlan" : {

"stage" : "EOF"

},

"rejectedPlans" : [ ]

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 0,

"executionTimeMillis" : 0,

"totalKeysExamined" : 0,

"totalDocsExamined" : 0,

"executionStages" : {

"stage" : "EOF",

"nReturned" : 0,

"executionTimeMillisEstimate" : 0,

"works" : 1,

"advanced" : 0,

"needTime" : 0,

"needYield" : 0,

"saveState" : 0,

"restoreState" : 0,

"isEOF" : 1

}

},

"serverInfo" : {

"host" : "localhost.localdomain",

"port" : 27017,

"version" : "4.2.13",

"gitVersion" : "82dd40f60c55dae12426c08fd7150d79a0e28e23"

},

"ok" : 1

}

**Query: Find the count of authors.**

db.books.aggregate([

{

$group: {

\_id: "$author"

}

},

{

$count: "distinctAuthorsCount"

}

]);

{ "distinctAuthorsCount": 6 }