

Name: Nikhil k

ID NO: SU625MR004

Creating a Products Database in MongoDB

Part A – Database & Collection Setup

- 1. Create a new database named ecommerceDB.**
- 2. Create a collection of products.**
- 3. Insert at least 5 product documents with fields like:**
 - **productId**
 - **name**
 - **category**
 - **price**
 - **stock**
 - **brand**
 - **ratings (array)**
 - **reviews (array of objects)**
 - **addedOn (date)**

OUTPUT :

```
...
ecommerceDB> db.products.insertMany([
... {
...   productId: 1,
...   name: "Basmati Rice",
...   category: "Grains",
...   price: 1200,
...   stock: 80,
...   brand: "Daawat",
...   ratings: [4, 5, 5, 3],
...   reviews: [
...     { user: "Amit", comment: "Good quality rice", rating: 5 },
...     { user: "Neha", comment: "A bit expensive but nice", rating: 4 }
...   ],
...   addedOn: new Date("2025-08-01")
... },
... {
...   productId: 2,
...   name: "Olive Oil",
...   category: "Oils",
...   price: 750,
...   stock: 40,
...   brand: "Figaro",
...   ratings: [5, 4, 4],
...   reviews: [
...     { user: "Ravi", comment: "Healthy and pure", rating: 5 }
...   ],
...   addedOn: new Date("2025-08-05")
... },
... {
...   productId: 3,
...   name: "Dark Chocolate",
...   category: "Snacks",
...   price: 250,
...   stock: 120,
...   brand: "Lindt",
...   ratings: [4, 5, 5, 4],
...   reviews: [
...     { user: "Ananya", comment: "Delicious and smooth", rating: 5 }
...   ],
...   addedOn: new Date("2025-08-10")
... },
... ],
... )
...
... {
...   productId: 4,
...   name: "Almonds",
...   category: "Dry Fruits",
...   price: 950,
...   stock: 60,
...   brand: "Nutraj",
...   ratings: [4, 4, 5],
...   reviews: [
...     { user: "Sahil", comment: "Fresh and crunchy", rating: 4 }
...   ],
...   addedOn: new Date("2025-08-15")
... },
... {
...   productId: 5,
...   name: "Green Tea",
...   category: "Beverages",
...   price: 400,
...   stock: 200,
...   brand: "Tata Tea",
...   ratings: [3, 4, 5],
...   reviews: [
...     { user: "Priya", comment: "Refreshing taste", rating: 4 }
...   ],
...   addedOn: new Date("2025-08-20")
... }
... ]
... )
```

Part B – Queries to Perform

```
ecommerceDB> db.products.find({ category: "Snacks" })
[
  {
    _id: ObjectId('68a7de47b4c6f81486eec4b0'),
    productId: 3,
    name: 'Dark Chocolate',
    category: 'Snacks',
    price: 250,
    stock: 120,
    brand: 'Lindt',
    ratings: [ 4, 5, 5, 4 ],
    reviews: [ { user: 'Ananya', comment: 'Delicious and smooth', rating: 5 } ],
    addedOn: ISODate('2025-08-10T00:00:00.000Z')
  }
]
ecommerceDB> db.products.find({ price: { $lt: 1000 } })
[
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4a9'),
    productId: 1,
    name: 'Organic Apples',
    category: 'Fruits',
    price: 150,
    stock: 120,
    brand: 'FreshFarm',
    ratings: [ 5, 4, 4, 5 ],
    reviews: [
      { user: 'Ayesha', comment: 'Very fresh and tasty', rating: 5 },
      { user: 'Rahul', comment: 'Good but a little pricey', rating: 4 }
    ],
    addedOn: ISODate('2025-08-22T02:29:19.032Z')
  },
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4aa'),
    productId: 2,
    name: 'Brown Rice',
    category: 'Grains',
    price: 900,
    stock: 80,
  }
]
```

```
ecommerceDB> db.products.updateOne(
... { name: "Almonds" },
... { $inc: { stock: -10 } }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
ecommerceDB> db.products.updateMany(
... { category: "Beverages" },
... { $set: { discount: "10%" } }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 2,
  modifiedCount: 2,
  upsertedCount: 0
}
ecommerceDB> db.products.updateOne(
... { name: "Dark Chocolate" },
... {
...   $push: {
...     reviews: { user: "Rahul", comment: "Loved the taste", rating: 5 }
...   }
... }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
ecommerceDB> |
```

```
ecommerceDB> db.products.find().sort({ price: -1 })
[
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4ad'),
    productId: 5,
    name: 'Olive Oil',
    category: 'Oils',
    price: 1200,
    stock: 40,
    brand: 'OlivaPure',
    ratings: [ 5, 4, 5, 5 ],
    reviews: [ { user: 'Ravi', comment: 'High quality oil', rating: 5 } ],
    addedOn: ISODate('2025-08-22T02:29:19.032Z')
  },
  {
    _id: ObjectId('68a7de47b4c6f81486eec4ae'),
    productId: 1,
    name: 'Basmati Rice',
    category: 'Grains',
    price: 1200,
    stock: 80,
    brand: 'Daawat',
    ratings: [ 4, 5, 5, 3 ],
    reviews: [
      { user: 'Amit', comment: 'Good quality rice', rating: 5 },
      { user: 'Neha', comment: 'A bit expensive but nice', rating: 4 }
    ],
    addedOn: ISODate('2025-08-01T00:00:00.000Z')
  },
  {
    _id: ObjectId('68a7de47b4c6f81486eec4b1'),
    productId: 4,
    name: 'Almonds',
    category: 'Dry Fruits',
    price: 950,
    stock: 50,
    brand: 'Nutraj',
    ratings: [ 4, 4, 5 ],
    reviews: [ { user: 'Sahil', comment: 'Fresh and crunchy', rating: 4 } ],
    addedOn: ISODate('2025-08-15T00:00:00.000Z')
  },
]
```

```
ecommerceDB> db.products.find().sort({ price: -1 }).limit(1)
[
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4ad'),
    productId: 5,
    name: 'Olive Oil',
    category: 'Oils',
    price: 1200,
    stock: 40,
    brand: 'OlivaPure',
    ratings: [ 5, 4, 5, 5 ],
    reviews: [ { user: 'Ravi', comment: 'High quality oil', rating: 5 } ],
    addedOn: ISODate('2025-08-22T02:29:19.032Z')
  }
]
ecommerceDB> db.products.find({ price: { $gte: 500, $lte: 2000 } })
[
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4aa'),
    productId: 2,
    name: 'Brown Rice',
    category: 'Grains',
    price: 900,
    stock: 80,
    brand: 'HealthyGrain',
    ratings: [ 4, 5, 3 ],
    reviews: [
      { user: 'Sneha', comment: 'Quality is good', rating: 4 },
      { user: 'Arjun', comment: 'Very healthy option', rating: 5 }
    ],
    addedOn: ISODate('2025-08-22T02:29:19.032Z')
  },
  {
    _id: ObjectId('68a7d5ffb4c6f81486eec4ad'),
    productId: 5,
    name: 'Olive Oil',
    category: 'Oils',
    price: 1200,
    stock: 40,
    brand: 'OlivaPure',
    ratings: [ 5, 4, 5, 5 ],
    reviews: [ { user: 'Ravi', comment: 'High quality oil', rating: 5 } ],
    addedOn: ISODate('2025-08-22T02:29:19.032Z')
  },
]
```

```

ecommerceDB> db.products.aggregate([
...   { $unwind: "$ratings" },
...   { $group: { _id: "$name", avgRating: { $avg: "$ratings" } } }
... ])
[
  { _id: 'Almond Milk', avgRating: 4.666666666666667 },
  { _id: 'Green Tea', avgRating: 4 },
  { _id: 'Whole Wheat Bread', avgRating: 4 },
  { _id: 'Olive Oil', avgRating: 4.571428571428571 },
  { _id: 'Dark Chocolate', avgRating: 4.5 },
  { _id: 'Basmati Rice', avgRating: 4.25 },
  { _id: 'Organic Apples', avgRating: 4.5 },
  { _id: 'Brown Rice', avgRating: 4 },
  { _id: 'Almonds', avgRating: 4.333333333333333 }
]
ecommerceDB> db.products.aggregate([
...   { $group: { _id: "$category", totalProducts: { $sum: 1 } } }
... ])
[
  { _id: 'Dry Fruits', totalProducts: 1 },
  { _id: 'Beverages', totalProducts: 2 },
  { _id: 'Fruits', totalProducts: 1 },
  { _id: 'Grains', totalProducts: 2 },
  { _id: 'Bakery', totalProducts: 1 },
  { _id: 'Oils', totalProducts: 2 },
  { _id: 'Snacks', totalProducts: 1 }
]
ecommerceDB> db.products.aggregate([
...   { $project: { category: 1, stockValue: { $multiply: ["$price", "$stock"] } } },
...   { $group: { _id: "$category", totalStockValue: { $sum: "$stockValue" } } }
... ])
[
  { _id: 'Dry Fruits', totalStockValue: 47500 },
  { _id: 'Beverages', totalStockValue: 92500 },
  { _id: 'Fruits', totalStockValue: 18000 },
  { _id: 'Grains', totalStockValue: 16000 },
  { _id: 'Bakery', totalStockValue: 10000 },
  { _id: 'Oils', totalStockValue: 78000 },
  { _id: 'Snacks', totalStockValue: 30000 }
]
ecommerceDB>

```