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1 .Insert Documents into a Sales Collection

```
sales> db.sales.insertMany([
        { item: "Coffee Mug", quantity: 15, price: 10, date: "2024-01-15" },
        { item: "Notebook", quantity: 30, price: 5, date: "2024-01-20" },
        { item: "Pen", quantity: 100, price: 1, date: "2024-02-05" },
        { item: "Desk Organizer", quantity: 8, price: 25, date: "2024-02-15" },
        { item: "Lamp", quantity: 12, price: 20, date: "2024-03-10" },
        { item: "Calendar", quantity: 25, price: 15, date: "2024-03-15" }
    ]);
```

## 2.Aggregation Pipelines

**Calculate Total Sales Amount for Each Item**

```
sales> db.sales.aggregate([
        {
          $addFields: {
            totalSales: { $multiply: ["$quantity", "$price"] }
          }
        },
        {
          $group: {
            _id: "$item",
            totalSalesAmount: { $sum: "$totalSales" }
          }
        }
    ]);
```

**Output :**

```
{
  _id: 'Calendar',
  totalSalesAmount: 375
}
{
  _id: 'Coffee Mug',
  totalSalesAmount: 150
}
{
  _id: 'Notebook',
  totalSalesAmount: 150
}
{
  _id: 'Desk Organizer',
  totalSalesAmount: 200
}
{
  _id: 'Lamp',
  totalSalesAmount: 240
}
{
  _id: 'Pen',
  totalSalesAmount: 100
}
```

Find the Average Quantity Sold per Item

```
sales> db.sales.aggregate([
      {
         $group: {
           _id: "$item",
           averageQuantity: { $avg: "$quantity" }
         }
      }
    ]);
```

Output :

```
{
  _id: 'Calendar',
  averageQuantity: 25
}
{
  _id: 'Coffee Mug',
  averageQuantity: 15
}
{
  _id: 'Notebook',
  averageQuantity: 30
}
{
  _id: 'Desk Organizer',
  averageQuantity: 8
}
{
  _id: 'Lamp',
  averageQuantity: 12
}
{
  _id: 'Pen',
  averageQuantity: 100
}
```

**Group Sales by Month and Calculate the Total Sales for Each Month**

```
sales> db.sales.aggregate([
    {
      $addFields: {
        month: { $month: "$date" },
        year: { $year: "$date" },
        totalSales: { $multiply: ["$quantity", "$price"] }
      }
    },
    {
      $group: {
        _id: { year: "$year", month: "$month" },
        totalSalesPerMonth: { $sum: "$totalSales" }
      }
    },
    {
      $sort: { totalSalesPerMonth: -1 }
    }
  ]);
```

Output :

```
{
  _id: {
    year: 2024,
    month: 3
  },
  totalSalesPerMonth: 615
}
{
  _id: {
    year: 2024,
    month: 2
  },
  totalSalesPerMonth: 300
}
{
  _id: {
    year: 2024,
    month: 1
  },
  totalSalesPerMonth: 300
}
```

Display Which Year Has the Maximum Sales

```
sales> db.sales.aggregate([
        {
          $addFields: {
            year: { $year: "$date" },
            totalSales: { $multiply: ["$quantity", "$price"] }
          }
        },
        {
          $group: {
            _id: "$year",
            totalSalesPerYear: { $sum: "$totalSales" }
          }
        },
        {
          $sort: { totalSalesPerYear: -1 }
        },
        {
          $limit: 1
        }
      ]);
```

Output :

```
{
  _id: 2024,
  totalSalesPerYear: 1215
}
```