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### **Task 1**

**1.Insert documents into a sales collection with fields such as item, quantity, price, and date.**

**Query:**

```
> db.sales.insertMany([
  { item: 'Laptop', quantity: 2, price: 1200, date: new Date('2024-07-30') },
  { item: 'Smartphone', quantity: 5, price: 600, date: new Date('2024-07-31') },
  { item: 'Headphones', quantity: 10, price: 150, date: new Date('2024-07-31') }
])
```

**2.Calculate the total sales amount for each item**

**Query:**

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

**Result:**

```
< {
  _id: 'Laptop',
  totalSales: 2400
}
{
  _id: 'Headphones',
  totalSales: 1500
}
{
  _id: 'Smartphone',
  totalSales: 3000
}
```

3.Find the average quantity sold per item.

Query:

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

Result:

```
< {
  _id: 'Smartphone',
  averageQuantity: 5
}
{
  _id: 'Headphones',
  averageQuantity: 10
}
{
  _id: 'Laptop',
  averageQuantity: 2
}
```

4.Group sales by month and calculate the total sales for each month and sort from the largest value.

Query:

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

**Result:**

```
< {
  _id: 7,
  totalSales: 6900
}
```

**5.Display which year has the maximum sales.**

**Query:**

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

**Result:**

```
< {
  _id: 2024,
  totalSales: 6900
}
```