

3.Aim: Implement aggregation and indexing with suitable example using MongoDB

Problem statement: Create a collection named “**ORDERS**” that contain documents of the following prototype and solve the following queries:

```
{
  cust_id: "abc123",
  ord_date: new Date("Oct 04, 2012"),
  status: 'A',
  price: 50,
  items: [ { sku: "xxx", qty: 25, price: 1 },
           { sku: "yyy", qty: 25, price: 1 } ]
}
```

```
> db.orders.insert({cust_id:"abc123",ord_date:new Date("Oct
04,2012"),status:'A',price:50,items:[{sku:"xxx",qty:25,price:1},{sku:"yyy",qty:25,price:1}]});
WriteResult({ "nInserted" : 1 })
> db.orders.find().pretty();
{
  "_id" : ObjectId("6538ad6ad2224cb9b39f1053"),
  "cust_id" : "abc123",
  "ord_date" : ISODate("2012-10-03T18:30:00Z"),
  "status" : "A",
  "price" : 50,
  "items" : [
    {
      "sku" : "xxx",
      "qty" : 25,
      "price" : 1
    },
    {
      "sku" : "yyy",
      "qty" : 25,
      "price" : 1
    }
  ]
}
> db.orders.insert({cust_id:"harshada123",ord_date:new Date("Oct
05,2012"),status:'A',price:10,items:[{sku:"aaa",qty:20,price:10},{sku:"bbb",qty:20,price:10}]});
WriteResult({ "nInserted" : 1 })
> db.orders.insert({cust_id:"mugdha123",ord_date:new Date("Oct
06,2012"),status:'B',price:20,items:[{sku:"ccc",qty:30,price:20},{sku:"ddd",qty:30,price:20}]});
WriteResult({ "nInserted" : 1 })
> db.orders.insert({cust_id:"vaibhavi123",ord_date:new Date("Oct
07,2012"),status:'B',price:30,items:[{sku:"eee",qty:40,price:30},{sku:"fff",qty:40,price:30}]});
WriteResult({ "nInserted" : 1 })
> db.orders.insert({cust_id:"shweta123",ord_date:new Date("Oct
08,2012"),status:'C',price:40,items:[{sku:"ggg",qty:50,price:40},{sku:"hhh",qty:50,price:40}]});
WriteResult({ "nInserted" : 1 })
```

```

> db.orders.insert({ cust_id:"shweta123",ord_date:new Date("Oct
08,2012"),status:'C',price:40,items:[{sku:"ggg",qty:50,price:70},{sku:"hhh",qty:50,price:70}]});
WriteResult({ "nInserted" : 1 })
> db.orders.find().pretty();
{
  "_id" : ObjectId("6538ad6ad2224cb9b39f1053"),
  "cust_id" : "abc123",
  "ord_date" : ISODate("2012-10-03T18:30:00Z"),
  "status" : "A",
  "price" : 50,
  "items" : [
    {
      "sku" : "xxx",
      "qty" : 25,
      "price" : 1
    },
    {
      "sku" : "yyy",
      "qty" : 25,
      "price" : 1
    }
  ]
}
{
  "_id" : ObjectId("6538af09d2224cb9b39f1054"),
  "cust_id" : "harshada123",
  "ord_date" : ISODate("2012-10-04T18:30:00Z"),
  "status" : "A",
  "price" : 10,
  "items" : [
    {
      "sku" : "aaa",
      "qty" : 20,
      "price" : 10
    },
    {
      "sku" : "bbb",
      "qty" : 20,
      "price" : 10
    }
  ]
}
{
  "_id" : ObjectId("6538afafd2224cb9b39f1055"),
  "cust_id" : "mugdha123",
  "ord_date" : ISODate("2012-10-05T18:30:00Z"),
  "status" : "B",
  "price" : 20,
  "items" : [
    {
      "sku" : "ccc",
      "qty" : 30,

```

```

        "price" : 20
    },
    {
        "sku" : "ddd",
        "qty" : 30,
        "price" : 20
    }
]
}
{
    "_id" : ObjectId("6538afeed2224cb9b39f1056"),
    "cust_id" : "vaibhavi123",
    "ord_date" : ISODate("2012-10-06T18:30:00Z"),
    "status" : "B",
    "price" : 30,
    "items" : [
        {
            "sku" : "eee",
            "qty" : 40,
            "price" : 30
        },
        {
            "sku" : "fff",
            "qty" : 40,
            "price" : 30
        }
    ]
}
{
    "_id" : ObjectId("6538b036d2224cb9b39f1057"),
    "cust_id" : "shweta123",
    "ord_date" : ISODate("2012-10-07T18:30:00Z"),
    "status" : "C",
    "price" : 40,
    "items" : [
        {
            "sku" : "ggg",
            "qty" : 50,
            "price" : 40
        },
        {
            "sku" : "hhh",
            "qty" : 50,
            "price" : 40
        }
    ]
}
{
    "_id" : ObjectId("6538b424d2224cb9b39f1058"),
    "cust_id" : "shweta123",
    "ord_date" : ISODate("2012-10-07T18:30:00Z"),
    "status" : "C",

```

```

    "price" : 40,
    "items" : [
      {
        "sku" : "ggg",
        "qty" : 50,
        "price" : 70
      },
      {
        "sku" : "hhh",
        "qty" : 50,
        "price" : 70
      }
    ]
  }
}

```

```

> db.orders.count();
6

```

a. Count all records from orders

```

> db.orders.aggregate([{$group:{_id:null,total:{$sum:1}}}] );
{ "_id" : null, "total" : 6 }

```

b. Sum the price field from orders

```

> db.orders.aggregate([{$group:{_id:null,total_amount:{$sum:"$price"}}}] );
{ "_id" : null, "total_amount" : 190 }

```

C. For each unique cust_id, sum the price field.

```

> db.orders.aggregate([{$group:{_id:"$cust_id",total_amount:{$sum:"$price"}}}] );
{ "_id" : "shweta123", "total_amount" : 80 }
{ "_id" : "vaibhavi123", "total_amount" : 30 }
{ "_id" : "mugdha123", "total_amount" : 20 }
{ "_id" : "harshada123", "total_amount" : 10 }
{ "_id" : "abc123", "total_amount" : 50 }

```

d. For each unique cust_id, sum the price field, results sorted by sum.

```

>
db.orders.aggregate([{$group:{_id:"$cust_id",total_amount:{$sum:"$price"}}},{ $sort:{total_amo
nt:1}}]);
{ "_id" : "harshada123", "total_amount" : 10 }
{ "_id" : "mugdha123", "total_amount" : 20 }
{ "_id" : "vaibhavi123", "total_amount" : 30 }
{ "_id" : "abc123", "total_amount" : 50 }
{ "_id" : "shweta123", "total_amount" : 80 }

>
db.orders.aggregate([{$group:{_id:"$cust_id",total_amount:{$sum:"$price"}}},{ $sort:{total_amo
nt:-1}}]);
{ "_id" : "shweta123", "total_amount" : 80 }

```

```
{ "_id" : "abc123", "total_amount" : 50 }
{ "_id" : "vaibhavi123", "total_amount" : 30 }
{ "_id" : "mugdha123", "total_amount" : 20 }
{ "_id" : "harshada123", "total_amount" : 10 }
```

e. For each unique cust_id, ord_date grouping, sum the price field.

>

```
db.orders.aggregate([{$group:{_id:{cust_id:"$cust_id",ord_date:"$ord_date"},total_amount:{$sum:
"$price"}}}]);
{ "_id" : { "cust_id" : "shweta123", "ord_date" : ISODate("2012-10-07T18:30:00Z") },
"total_amount" : 80 }
{ "_id" : { "cust_id" : "vaibhavi123", "ord_date" : ISODate("2012-10-06T18:30:00Z") },
"total_amount" : 30 }
{ "_id" : { "cust_id" : "mugdha123", "ord_date" : ISODate("2012-10-05T18:30:00Z") },
"total_amount" : 20 }
{ "_id" : { "cust_id" : "harshada123", "ord_date" : ISODate("2012-10-04T18:30:00Z") },
"total_amount" : 10 }
{ "_id" : { "cust_id" : "abc123", "ord_date" : ISODate("2012-10-03T18:30:00Z") },
"total_amount" : 50 }
```

f. For cust_id with multiple records, return the cust_id and the corresponding record count.

```
>db.orders.aggregate([{$group:{_id:{cust_id:"$cust_id"},count:{$sum:1}}},{ $match:{count:{$gt:1
}}});
{ "_id" : { "cust_id" : "shweta123" }, "count" : 2 }
```

g. For each unique cust_id, ord_date grouping, sum the price field and return only where the sum is greater than 250.

```
>db.orders.aggregate([{$group:{_id:{cust_id:"$cust_id",ord_date:"$ord_date"},total:{$sum:"$price
"}},{ $match:{total:{$gt:50}}});
{ "_id" : { "cust_id" : "shweta123", "ord_date" : ISODate("2012-10-07T18:30:00Z") }, "total" :
80 }
```

h. For each unique cust_id with status A, sum the price field.

```
> db.orders.aggregate([{$match:{status:"A"}},{ $group:{_id:"$cust_id",total:{$sum:"$price"}}});
{ "_id" : "harshada123", "total" : 10 }
{ "_id" : "abc123", "total" : 50 }
```