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**Batch:** A3

**Aim:** Design & Develop MongoDB Queries using Aggregation and Indexing with suitable example using MongoDB .

Microsoft Windows [Version 10.0.22631.4169]

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C:\Users\hulaw>mongosh

Current Mongosh Log ID: 670ffb1572763107d386b01c

Connecting to:

mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.3.2

Using MongoDB: 8.0.1

Using Mongosh: 2.3.2

For mongosh info see: <https://www.mongodb.com/docs/mongodb-shell/>

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The server generated these startup warnings when booting

2024-10-16T20:29:40.756+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted

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test> show dbs

admin 40.00 KiB

book 40.00 KiB

config 48.00 KiB

customer 60.00 KiB

local 40.00 KiB

test> use customer

switched to db customer

**\*Insert Documents into cust\_table:**

```
customer> db.cust_table.insert({Item_id:1,Cust_Name:"Ram",Product:"Milk",Amount:40});
```

DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.

```
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('670ffb1b72763107d386b01d') }
}
```

```
customer> db.cust_table.insert({Item_id:2,Cust_Name:"Ram",Product:"Parle_G",Amount:50});
```

```
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('670ffb1b72763107d386b01e') }
}
```

```
customer> db.cust_table.insert({Item_id:3,Cust_Name:"Mohan",Product:"Lays Chips",Amount:40});
```

```
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('670ffb1b72763107d386b01f') }
}
```

```
customer> db.cust_table.insert({Item_id:4,Cust_Name:"Shivam",Product:"Mentos",Amount:10});
```

```
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('670ffb1b72763107d386b020') }
}
```

```
customer> db.cust_table.insert({Item_id:5,Cust_Name:"Mohan",Product:"Maggie",Amount:60});
```

```
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('670ffb1b72763107d386b021') }
}
```

## **Aggregation Operations:**

### **\*Sum of Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$sum:"$Amount"}}});  
  
[  
  { _id: 'Ram', total: 180 },  
  { _id: 'Mohan', total: 200 },  
  { _id: 'Shivam', total: 20 }  
]
```

### **\*Average of Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$avg:"$Amount"}}});  
  
[  
  { _id: 'Ram', total: 45 },  
  { _id: 'Mohan', total: 50 },  
  { _id: 'Shivam', total: 10 }  
]
```

### **\*Minimum Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$min:"$Amount"}}});  
  
[  
  { _id: 'Shivam', total: 10 },  
  { _id: 'Mohan', total: 40 },  
  { _id: 'Ram', total: 40 }  
]
```

### **\*Maximum Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$max:"$Amount"}}});  
  
[  
  { _id: 'Ram', total: 50 },  
  { _id: 'Mohan', total: 60 },  
  { _id: 'Shivam', total: 10 }  
]
```

### **\*First Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$first:"$Amount"}}});
```

```
[
  { _id: 'Ram', total: 40 },
  { _id: 'Mohan', total: 40 },
  { _id: 'Shivam', total: 10 }
]
```

**\*Last Amounts by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$last:"$Amount"}}});
```

```
[
  { _id: 'Ram', total: 50 },
  { _id: 'Mohan', total: 60 },
  { _id: 'Shivam', total: 10 }
]
```

**\*Push Amounts into an Array:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$push:"$Amount"}}});
```

```
customer> db.cust_table.aggregate([
... {
...   $group: {
...     _id: "$Cust_Name",
...     total: { $push: "$Amount" }
...   }
... }
... ])

[
  { _id: 'Ram', total: [ 40, 50, 40, 50 ] },
  { _id: 'Mohan', total: [ 40, 60, 40, 60 ] },
  { _id: 'Shivam', total: [ 10, 10 ] }
]
```

**\*Count of Transactions by Customer:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$sum:1}}});
```

```
[
  { _id: 'Ram', total: 4 },

```

```
{ _id: 'Mohan', total: 4 },  
{ _id: 'Shivam', total: 2 }  
]
```

#### **\*Add Unique Amounts to a Set:**

```
customer> db.cust_table.aggregate({$group:{_id:"$Cust_Name","total":{$addToSet:"$Amount"}}});  
  
[  
  { _id: 'Shivam', total: [ 10 ] },  
  { _id: 'Ram', total: [ 40, 50 ] },  
  { _id: 'Mohan', total: [ 40, 60 ] }  
]
```

#### **Index Operations:**

##### **\*Create Indexes:**

```
customer> db.cust_table.createIndex({'Item_id':1})  
  
Item_id_1  
  
customer> db.cust_table.createIndex({'Item_id':2})  
  
Item_id_2  
  
customer> db.cust_table.createIndex({'Item_id':4})  
  
Item_id_4
```

##### **\*Get Indexes:**

```
customer> db.cust_table.getIndexes()  
  
[  
  { v: 2, key: { _id: 1 }, name: '_id_' },  
  { v: 2, key: { Item_id: 2 }, name: 'Item_id_2' },  
  { v: 2, key: { Item_id: 1 }, name: 'Item_id_1' },  
  { v: 2, key: { Item_id: 4 }, name: 'Item_id_4' }  
]
```

##### **\*Drop Indexes:**

```
customer> db.cust_table.dropIndex({'Item_id':4})  
  
{ nIndexesWas: 4, ok: 1 }  
  
customer> db.cust_table.dropIndex({'Item_id':1})  
  
{ nIndexesWas: 3, ok: 1 }
```

**\*Get Indexes After Dropping:**

```
customer> db.cust_table.getIndexes()
```

```
[  
  { v: 2, key: { _id: 1 }, name: '_id_' },  
  { v: 2, key: { Item_id: 2 }, name: 'Item_id_2' }  
]
```

```
customer> db.cust_table.getIndexes()
```

```
[  
  { v: 2, key: { _id: 1 }, name: '_id_' },  
  { v: 2, key: { Item_id: 2 }, name: 'Item_id_2' }  
]
```