**Name:** Shraddha Rajkumar Kotwar

**Class:** TE(Comp) - B

**RollNo:** 18

**Batch:** T1

**Assignment B2 :Indexing and Aggregation**

**Indexing**

**• Create collection – stud with fields (rno, name , class)**

**• Create Single index on field rno in ascending order**

**• Create Unique index on field rno**

**• Create compound index on field rno in ascending order and name in**

**descending order**

**• Display index created on stud collection**

**• Drop index**

**Create collection – stud with fields (rno, name , class)**

> use assb2

switched to db assb2

> db.createCollection("Stud")

{ "ok" : 1 }

> db.Stud.insert({rno:1,name:"Shraddha",class:"TE"})

WriteResult({ "nInserted" : 1 })

> db.Stud.insert({rno:2,name:"Kavita",class:"TE"})

WriteResult({ "nInserted" : 1 })

> db.Stud.insert({rno:3,name:"Rita",class:"BE"})

WriteResult({ "nInserted" : 1 })

> db.Stud.insert({rno:4,name:"Nita",class:"SE"})

WriteResult({ "nInserted" : 1 })

> db.Stud.insert({rno:5,name:"Kirti",class:"FE"})

WriteResult({ "nInserted" : 1 })

> db.Stud.insert({rno:6,name:"gauri",class:"BE"})

WriteResult({ "nInserted" : 1 })

**• Create Single index on field rno in ascending order**

> db.Stud.createIndex({rno:1})

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 1,

"numIndexesAfter" : 2,

"ok" : 1

}

> db.Stud.getIndexes()

[

{

"v" : 1,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1

},

"name" : "rno\_1",

"ns" : "assb2.Stud"

}

]

**Create Unique index on field rno**

> db.Stud.createIndex({rno:1,unique:true})

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 2,

"numIndexesAfter" : 3,

"ok" : 1

}

> db.Stud.getIndexes()

[

{

"v" : 1,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1

},

"name" : "rno\_1",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1,

"unique" : true

},

"name" : "rno\_1\_unique\_true",

"ns" : "assb2.Stud"

}

]

**• Create compound index on field rno in ascending order and name in**

**descending order**

> db.Stud.createIndex({rno:1,name:-1})

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 3,

"numIndexesAfter" : 4,

"ok" : 1

}

* **Display index created on stud collection**

> db.Stud.getIndexes()

[

{

"v" : 1,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1

},

"name" : "rno\_1",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1,

"unique" : true

},

"name" : "rno\_1\_unique\_true",

"ns" : "assb2.Stud"

},

{

"v" : 1,

"key" : {

"rno" : 1,

"name" : -1

},

"name" : "rno\_1\_name\_-1",

"ns" : "assb2.Stud"

}

]

**• Drop index**

> db.Stud.dropIndexes()

{

"nIndexesWas" : 4,

"msg" : "non-\_id indexes dropped for collection",

"ok" : 1

}

> db.Stud.getIndexes()

[

{

"v" : 1,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "assb2.Stud"

}

]

**Aggregation:**

**• Create collection-Product and 8 documents/rows as shown below:**

**{ item:'paste', amount:40, customer:'Mike'},**

**{ item:'Guitar', amount:200, customer:'Tom'},**

**{ item:'milk', amount:60, customer:'Mike'},**

**{ item:'pizza', amount:150, customer:'Kiran'},**

**{ item:'paste', amount:40, customer:'Kiran'},**

**{ item:'pizza', amount:150, customer:'Devika'},**

**{ item:'paste', amount:40, customer:'Mike'},**

**{ item:'paste', amount:40, customer:'Niraj'},**

**{ item:'Guitar', amount:200, customer:'Reena'},**

**{ item:'milk', amount:60, customer:'Mike'},**

**{ item:'pizza', amount:150, customer:'Devika'},**

**{ item:'paste', amount:40, customer:'Devika'},**

**{ item:'pizza', amount:150, customer:'Kiran'},**

**{ item:'paste', amount:40, customer:'Reena'}**

**Perform All Aggregate Operations like: $min, $max, $sum, $avg, $first,**

**$last on above database.**

> use assb2

switched to db assb2

> db.createCollection("Product")

{ "ok" : 1 }

> db.Product.insert({item:"paste",amount:40,customer:"Mike"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Guitar",amount:200,customer:"Tom"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Milk",amount:60,customer:"Mike"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Pizza",amount:150,customer:"Kiran"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Paste",amount:40,customer:"Kiran"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Pizza",amount:150,customer:"Devika"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Paste",amount:40,customer:"Mike"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Paste",amount:40,customer:"Niraj"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Guitar",amount:200,customer:"Reena"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Milk",amount:60,customer:"Mike"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Pizza",amount:150,customer:"Devika"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Paste",amount:40,customer:"Devika"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Pizza",amount:150,customer:"Kiran"})

WriteResult({ "nInserted" : 1 })

> db.Product.insert({item:"Paste",amount:40,customer:"Reena"})

WriteResult({ "nInserted" : 1 })

> db.Product.find()

{ "\_id" : ObjectId("65266fa0970a705fd9391ec8"), "item" : "paste", "amount" : 40, "customer" : "Mike" }

{ "\_id" : ObjectId("65266fc9970a705fd9391ec9"), "item" : "Guitar", "amount" : 200, "customer" : "Tom" }

{ "\_id" : ObjectId("65266fe0970a705fd9391eca"), "item" : "Milk", "amount" : 60, "customer" : "Mike" }

{ "\_id" : ObjectId("65267002970a705fd9391ecb"), "item" : "Pizza", "amount" : 150, "customer" : "Kiran" }

{ "\_id" : ObjectId("65267011970a705fd9391ecc"), "item" : "Paste", "amount" : 40, "customer" : "Kiran" }

{ "\_id" : ObjectId("6526714f970a705fd9391ecd"), "item" : "Pizza", "amount" : 150, "customer" : "Devika" }

{ "\_id" : ObjectId("65267199970a705fd9391ecf"), "item" : "Paste", "amount" : 40, "customer" : "Mike" }

{ "\_id" : ObjectId("652671ab970a705fd9391ed0"), "item" : "Paste", "amount" : 40, "customer" : "Niraj" }

{ "\_id" : ObjectId("652671c8970a705fd9391ed1"), "item" : "Guitar", "amount" : 200, "customer" : "Reena" }

{ "\_id" : ObjectId("652671e1970a705fd9391ed2"), "item" : "Milk", "amount" : 60, "customer" : "Mike" }

{ "\_id" : ObjectId("652671f1970a705fd9391ed3"), "item" : "Pizza", "amount" : 150, "customer" : "Devika" }

{ "\_id" : ObjectId("6526721e970a705fd9391ed4"), "item" : "Paste", "amount" : 40, "customer" : "Devika" }

{ "\_id" : ObjectId("65267236970a705fd9391ed5"), "item" : "Pizza", "amount" : 150, "customer" : "Kiran" }

{ "\_id" : ObjectId("65267244970a705fd9391ed6"), "item" : "Paste", "amount" : 40, "customer" : "Reena" }

**Aggregate Operation: $max**

> db.Product.aggregate([{"$group":{\_id:"$customer",maxamt:{"$max":"$amount"}}}])

{ "\_id" : "Reena", "maxamt" : 200 }

{ "\_id" : "Kiran", "maxamt" : 150 }

{ "\_id" : "Niraj", "maxamt" : 40 }

{ "\_id" : "Devika", "maxamt" : 150 }

{ "\_id" : "Tom", "maxamt" : 200 }

{ "\_id" : "Mike", "maxamt" : 60 }

**Aggregate Operation: $min**

> db.Product.aggregate([{"$group":{\_id:"$customer",minamt:{"$min":"$amount"}}}])

{ "\_id" : "Reena", "minamt" : 40 }

{ "\_id" : "Kiran", "minamt" : 40 }

{ "\_id" : "Niraj", "minamt" : 40 }

{ "\_id" : "Devika", "minamt" : 40 }

{ "\_id" : "Tom", "minamt" : 200 }

{ "\_id" : "Mike", "minamt" : 40 }

**Aggregate Operation: $avg**

> db.Product.aggregate([{"$group":{\_id:"$customer",avgamt:{"$avg":"$amount"}}}])

{ "\_id" : "Reena", "avgamt" : 120 }

{ "\_id" : "Kiran", "avgamt" : 113.33333333333333 }

{ "\_id" : "Niraj", "avgamt" : 40 }

{ "\_id" : "Devika", "avgamt" : 113.33333333333333 }

{ "\_id" : "Tom", "avgamt" : 200 }

{ "\_id" : "Mike", "avgamt" : 50 }

**Aggregate Operation: $first**

> db.Product.aggregate([{"$group":{\_id:"$customer",firstamt:{"$first":"$amount"}}}])

{ "\_id" : "Reena", "firstamt" : 200 }

{ "\_id" : "Kiran", "firstamt" : 150 }

{ "\_id" : "Niraj", "firstamt" : 40 }

{ "\_id" : "Devika", "firstamt" : 150 }

{ "\_id" : "Tom", "firstamt" : 200 }

{ "\_id" : "Mike", "firstamt" : 40 }

**Aggregate Operation: $last**

> db.Product.aggregate([{"$group":{\_id:"$customer",lasttamt:{"$last":"$amount"}}}])

{ "\_id" : "Reena", "lasttamt" : 40 }

{ "\_id" : "Kiran", "lasttamt" : 150 }

{ "\_id" : "Niraj", "lasttamt" : 40 }

{ "\_id" : "Devika", "lasttamt" : 40 }

{ "\_id" : "Tom", "lasttamt" : 200 }

{ "\_id" : "Mike", "lasttamt" : 60 }

**Aggregate Operation: $sum**

> db.Product.aggregate([{"$group":{\_id:"$customer",sumamt:{"$sum":"$amount"}}}])

{ "\_id" : "Reena", "sumamt" : 240 }

{ "\_id" : "Kiran", "sumamt" : 340 }

{ "\_id" : "Niraj", "sumamt" : 40 }

{ "\_id" : "Devika", "sumamt" : 340 }

{ "\_id" : "Tom", "sumamt" : 200 }

{ "\_id" : "Mike", "sumamt" : 200 }