**NoSQL of Online New Bank Transaction System**

**Milestone: implementation in NoSQL**

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Web:

<https://www.pdbmbook.com/playground/mongo/wine/view/pgdb____1681759774_643d9e1e86e40>

# **1. A simple query**

## Query1: retrieve all the data of customer collection.

**Collection1: customer**

db.createCollection("customer")

db.customer.insertMany([

{custid: 1000000, ssn: 196299581, custname: "Talya Iapico", gender: "F", address: "Apt 292", phonenr: 4614342092},

{custid: 1000001, ssn: 549526670, custname: "Carline Greenside", gender: "F", address: "PO Box 2558", phonenr: 7728259933},

{custid: 1000002, ssn: 165180652, custname: "Ed Cariss", gender: "M", address: "Room 38", phonenr: 5562718256},

{custid: 1000003, ssn: 785596775, custname: "Zelda Bengall", gender: "M", address: "Room 1532", phonenr: 4862459086},

{custid: 1000004, ssn: 386422830, custname: "Abby Bollom", gender: "F", address: "Apt 494", phonenr: 8832850992},

{custid: 1000005, ssn: 335314621, custname: "Elihu Copland", gender: "M", address: "Room 844", phonenr: 8539392921},

{custid: 1000006, ssn: 679276673, custname: "Olive Buttel", gender: "F", address: "13th Floor", phonenr: 3288386718},

{custid: 1000007, ssn: 435107029, custname: "Babb Bediss", gender: "M", address: "Apt 708", phonenr: 8187647420},

{custid: 1000008, ssn: 590426837, custname: "Andreas Andree", gender: "M", address: "Apt 1302", phonenr: 3861221450},

{custid: 1000009, ssn: 250324770, custname: "Antonio Kuhle", gender: "M", address: "Apt 567", phonenr: 7152585618},

{custid: 1000010, ssn: 105663671, custname: "Gerri Chin", gender: "M", address: "Room 24", phonenr: 9003790764}

])

db.customer.find()

## Query2: update the opendate of accoutnr 491709.

**Collection2: account\_cust**

**Step 1**

db.createCollection("account\_cust")

db.account\_cust.insertMany([

{ accountnr: 491709, opendate: "4/26/22", stopdate: "12/21/99", custid: 1000000, bbroutingnumber: 30965759 },

{ accountnr: 304556, opendate: "5/25/22", stopdate: "12/21/99", custid: 1000001, bbroutingnumber: 30965759 },

{ accountnr: 511324, opendate: "8/3/22", stopdate: "12/21/99", custid: 1000002, bbroutingnumber: 30965759 },

{ accountnr: 116980, opendate: "3/19/22", stopdate: "12/21/99", custid: 1000003, bbroutingnumber: 30965759 },

{ accountnr: 470214, opendate: "8/4/22", stopdate: "12/21/99", custid: 1000004, bbroutingnumber: 30965759 },

{ accountnr: 451651, opendate: "6/29/22", stopdate: "12/21/99", custid: 1000005, bbroutingnumber: 30965759 },

{ accountnr: 637280, opendate: "2/23/23", stopdate: "12/21/99", custid: 1000006, bbroutingnumber: 30965759 },

{ accountnr: 825575, opendate: "3/23/22", stopdate: "12/21/99", custid: 1000007, bbroutingnumber: 30965759 },

{ accountnr: 664357, opendate: "6/18/22", stopdate: "12/21/99", custid: 1000008, bbroutingnumber: 30965759 },

{ accountnr: 754797, opendate: "1/25/23", stopdate: "12/21/99", custid: 1000009, bbroutingnumber: 30965759 },

{ accountnr: 582011, opendate: "1/11/23", stopdate: "12/21/99", custid: 1000010, bbroutingnumber: 30965759 },

{ accountnr: 198772, opendate: "5/25/22", stopdate: "12/21/99", custid: 1000001, bbroutingnumber: 30965759 },

{ accountnr: 224134, opendate: "8/3/22", stopdate: "12/21/99", custid: 1000002, bbroutingnumber: 30965759 },

{ accountnr: 253561, opendate: "3/19/22", stopdate: "12/21/99", custid: 1000003, bbroutingnumber: 30965759 },

{ accountnr: 664400, opendate: "8/4/22", stopdate: "12/21/99", custid: 1000004, bbroutingnumber: 30965759 },

{ accountnr: 713197, opendate: "6/29/22", stopdate: "12/21/99", custid: 1000005, bbroutingnumber: 30965759 },

{ accountnr: 651588, opendate: "2/23/23", stopdate: "12/21/99", custid: 1000006, bbroutingnumber: 30965759 },

{ accountnr: 151512, opendate: "3/23/22", stopdate: "12/21/99", custid: 1000007, bbroutingnumber: 30965759 },

{ accountnr: 761658, opendate: "6/18/22", stopdate: "12/21/99", custid: 1000008, bbroutingnumber: 30965759 },

{ accountnr: 624384, opendate: "1/25/23", stopdate: "12/21/99", custid: 1000009, bbroutingnumber: 30965759 },

{ accountnr: 197240, opendate: "1/11/23", stopdate: "12/21/99", custid: 1000010, bbroutingnumber: 30965759 }

])

STEP 2

db.account\_cust.updateOne( { accountnr: 491709}, { $set: { opendate: "12/19/22"} } )

db.account\_cust.find({accountnr: 491709} )

# **2.more complex query**

## Query3: retrieve all the custid with samount between 2000 and 3000.

**Collection3:** saving

**Step 1**

db.createCollection("saving")

db.saving.insertMany([

{ custid: 1000000, samount: 2524, savinginterest: 95.91, savingrateid: 106, accountnr: 491709 },

{ custid: 1000001, samount: 3538, savinginterest: 161.69, savingrateid: 109, accountnr: 304556 },

{ custid: 1000002, samount: 3194, savinginterest: 101.57, savingrateid: 112, accountnr: 511324 },

{ custid: 1000003, samount: 3455, savinginterest: 236.67, savingrateid: 118, accountnr: 116980 },

{ custid: 1000004, samount: 2607, savinginterest: 99.07, savingrateid: 124, accountnr: 470214 },

{ custid: 1000005, samount: 2928, savinginterest: 133.81, savingrateid: 130, accountnr: 451651 },

{ custid: 1000006, samount: 3482, savinginterest: 110.73, savingrateid: 136, accountnr: 637280 },

{ custid: 1000007, samount: 2881, savinginterest: 197.35, savingrateid: 148, accountnr: 825575 },

{ custid: 1000008, samount: 3903, savinginterest: 148.31, savingrateid: 160, accountnr: 664357 },

{ custid: 1000009, samount: 1336, savinginterest: 61.06, savingrateid: 212, accountnr: 754797 },

{ custid: 1000010, samount: 2242, savinginterest: 71.3, savingrateid: 224, accountnr: 582011 }

])

STEP 2

db.saving.find({ samount: { $gt: 2000, $lt: 3000 } })

# **3. aggregate query**

## Query4: Write a query using a **aggregate** to get **the sum of saving amount, saving interest** for **savingrate id**(product), and calculate the saving ratio.

**Collection3:** saving

**Step 1**

db.createCollection("saving")

db.saving.insertMany([

{ custid: 1000000, samount: 2524, savinginterest: 95.91, savingrateid: 106, accountnr: 491709 },

{ custid: 1000001, samount: 3538, savinginterest: 161.69, savingrateid: 106, accountnr: 304556 },

{ custid: 1000002, samount: 3194, savinginterest: 101.57, savingrateid: 112, accountnr: 511324 },

{ custid: 1000003, samount: 3455, savinginterest: 236.67, savingrateid: 112, accountnr: 116980 },

{ custid: 1000004, samount: 2607, savinginterest: 99.07, savingrateid: 112, accountnr: 470214 },

{ custid: 1000005, samount: 2928, savinginterest: 133.81, savingrateid: 130, accountnr: 451651 },

{ custid: 1000006, samount: 3482, savinginterest: 110.73, savingrateid: 130, accountnr: 637280 },

{ custid: 1000007, samount: 2881, savinginterest: 197.35, savingrateid: 148, accountnr: 825575 },

{ custid: 1000008, samount: 3903, savinginterest: 148.31, savingrateid: 148, accountnr: 664357 },

{ custid: 1000009, samount: 1336, savinginterest: 61.06, savingrateid: 212, accountnr: 754797 },

{ custid: 1000010, samount: 2242, savinginterest: 71.3, savingrateid: 212, accountnr: 582011 }

])

**Step 2**

db.saving.aggregate([

{

$group: {

\_id: "$savingrateid",

sum\_savingamount: { $sum: "$samount" },

sum\_savinginterest: { $sum: "$savinginterest" }

}

},

{

$project: {

\_id: 1,

sum\_savingamount: 1,

sum\_savinginterest: 1,

saving\_ratio: { $divide: [ "$sum\_savinginterest" , "$sum\_savingamount"] }

}

}

])

# **4.MapReduce**

## Query5. Write a query using a map-reduce pipeline to get the sum of saving amount for each savingrateid (product).

**Collection3:** saving

**Step 1**

db.createCollection("saving")

db.saving.insertMany([

{ custid: 1000000, samount: 2524, savinginterest: 95.91, savingrateid: 106, accountnr: 491709 },

{ custid: 1000001, samount: 3538, savinginterest: 161.69, savingrateid: 106, accountnr: 304556 },

{ custid: 1000002, samount: 3194, savinginterest: 101.57, savingrateid: 112, accountnr: 511324 },

{ custid: 1000003, samount: 3455, savinginterest: 236.67, savingrateid: 112, accountnr: 116980 },

{ custid: 1000004, samount: 2607, savinginterest: 99.07, savingrateid: 112, accountnr: 470214 },

{ custid: 1000005, samount: 2928, savinginterest: 133.81, savingrateid: 130, accountnr: 451651 },

{ custid: 1000006, samount: 3482, savinginterest: 110.73, savingrateid: 130, accountnr: 637280 },

{ custid: 1000007, samount: 2881, savinginterest: 197.35, savingrateid: 148, accountnr: 825575 },

{ custid: 1000008, samount: 3903, savinginterest: 148.31, savingrateid: 148, accountnr: 664357 },

{ custid: 1000009, samount: 1336, savinginterest: 61.06, savingrateid: 212, accountnr: 754797 },

{ custid: 1000010, samount: 2242, savinginterest: 71.3, savingrateid: 212, accountnr: 582011 }

])

**Step 2**

db.saving.mapReduce(

function() {

emit(this.savingrateid, this.samount);

},

function(key, values) {

return Array.sum(values);

},

{

out: { inline: 1 },

finalize: function(key, value) {

return { savingrateid: key, sum\_samount: value };

}

}

)