All code is in the Mongo window unless otherwise noted.

1.

* use northwinds

**Creates a database called northwinds.**

2.

In the Terminal:

* Mongoimport --db northwinds --collection customers --headerl --type csv --file /Users/ellenstanton/Downloads/customers\_cleaned.csv --ignoreBlanks
* Mongoimport --db northwinds --collection orders --headerl --type csv --file /Users/ellenstanton/Downloads/orders\_modified.csv --ignoreBlanks
* Mongoimport --db northwinds --collection orderdetails --headerl --type csv --file /Users/ellenstanton/Downloads/order\_details.csv --ignoreBlanks
* Mongoimport --db northwinds --collection products --headerl --type csv --file /Users/ellenstanton/Downloads/products.csv --ignoreBlanks

**Imports four different collections into db northwinds, naming them customers, orders, orderdetails, and products. Pathname is situational, in this case referencing Ellen’s computer’s Downloads file.**

3.

* db.orderdetails.find({}).forEach(function(od){ var ep = od.UnitPrice\*od.Quantity\*(1-od.Discount); db.orderdetails.update( {\_id:od.\_id},{$set:{ExtendedPrice:ep}} ); })

**Creates a field called ExtendedPrice for each document in orderdetails by multiplying UnitPrice, Quantity, and (1-Discount).**

* db.orderdetails.find().limit(5).pretty()

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf849"),

"OrderID" : 10249,

"ProductID" : 14,

"UnitPrice" : 18.6,

"Quantity" : 9,

"Discount" : 0,

"ExtendedPrice" : 167.4

}

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84a"),

"OrderID" : 10249,

"ProductID" : 51,

"UnitPrice" : 42.4,

"Quantity" : 40,

"Discount" : 0,

"ExtendedPrice" : 1696

}

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84b"),

"OrderID" : 10250,

"ProductID" : 41,

"UnitPrice" : 7.7,

"Quantity" : 10,

"Discount" : 0,

"ExtendedPrice" : 77

}

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84c"),

"OrderID" : 10250,

"ProductID" : 51,

"UnitPrice" : 42.4,

"Quantity" : 35,

"Discount" : 0.15,

"ExtendedPrice" : 1261.3999999999999

}

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84d"),

"OrderID" : 10250,

"ProductID" : 65,

"UnitPrice" : 16.8,

"Quantity" : 15,

"Discount" : 0.15,

"ExtendedPrice" : 214.2

}

**Displays that the code creating ExtendedPrice was successful by showing 5 orderdetails documents.**

4.

* db.orderdetails.find({}).forEach(function(od){db.orders.update({OrderID:od.OrderID},{$push:{order\_details:od }}) } )

**Adds each orderdetails document to an array called order\_details in its corresponding orders document, matched based on OrderID.**

* db.orders.find({}).limit(2).pretty()

{

"\_id" : ObjectId("5cad0a5062b10046a5fe0560"),

"OrderID" : 10248,

"CustomerID" : "VINET",

"EmployeeID" : 5,

"OrderDate" : "00:00.0",

"RequiredDate" : "00:00.0",

"ShippedDate" : "00:00.0",

"ShipVia" : 3,

"Freight" : 32.38,

"ShipName" : "Vins et alcools Chevalier",

"order\_details" : [

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84e"),

"OrderID" : 10248,

"ProductID" : 72,

"UnitPrice" : 34.8,

"Quantity" : 5,

"Discount" : 0,

"ExtendedPrice" : 174

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf850"),

"OrderID" : 10248,

"ProductID" : 42,

"UnitPrice" : 9.8,

"Quantity" : 10,

"Discount" : 0,

"ExtendedPrice" : 98

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf851"),

"OrderID" : 10248,

"ProductID" : 11,

"UnitPrice" : 14,

"Quantity" : 12,

"Discount" : 0,

"ExtendedPrice" : 168

}

]

}

{

"\_id" : ObjectId("5cad0a5062b10046a5fe0561"),

"OrderID" : 10250,

"CustomerID" : "HANAR",

"EmployeeID" : 4,

"OrderDate" : "00:00.0",

"RequiredDate" : "00:00.0",

"ShippedDate" : "00:00.0",

"ShipVia" : 2,

"Freight" : 65.83,

"ShipName" : "Hanari Carnes",

"order\_details" : [

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84b"),

"OrderID" : 10250,

"ProductID" : 41,

"UnitPrice" : 7.7,

"Quantity" : 10,

"Discount" : 0,

"ExtendedPrice" : 77

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84c"),

"OrderID" : 10250,

"ProductID" : 51,

"UnitPrice" : 42.4,

"Quantity" : 35,

"Discount" : 0.15,

"ExtendedPrice" : 1261.3999999999999

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84d"),

"OrderID" : 10250,

"ProductID" : 65,

"UnitPrice" : 16.8,

"Quantity" : 15,

"Discount" : 0.15,

"ExtendedPrice" : 214.2

}

]

}

**Displays that the code creating an array order\_details in each orders document was successful by showing 2 orders documents.**

5.

* db.orders.find({}).forEach(function(ord){var TotalPrice = ord.Freight; for(i=0;i<ord.order\_details.length;i++){TotalPrice = TotalPrice+ord.order\_details[i].ExtendedPrice}; db.orders.update({\_id:ord.\_id},{$set:{TotalPrice:TotalPrice}} ) })

**Creates a field TotalPrice in each orders document by summing the ExtendedPrice for each item in the order\_details array and adding Freight, the shipping costs.**

db.orders.find().limit(2).pretty()

{

"\_id" : ObjectId("5cad0a5062b10046a5fe0560"),

"OrderID" : 10248,

"CustomerID" : "VINET",

"EmployeeID" : 5,

"OrderDate" : "00:00.0",

"RequiredDate" : "00:00.0",

"ShippedDate" : "00:00.0",

"ShipVia" : 3,

"Freight" : 32.38,

"ShipName" : "Vins et alcools Chevalier",

"order\_details" : [

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84e"),

"OrderID" : 10248,

"ProductID" : 72,

"UnitPrice" : 34.8,

"Quantity" : 5,

"Discount" : 0,

"ExtendedPrice" : 174

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf850"),

"OrderID" : 10248,

"ProductID" : 42,

"UnitPrice" : 9.8,

"Quantity" : 10,

"Discount" : 0,

"ExtendedPrice" : 98

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf851"),

"OrderID" : 10248,

"ProductID" : 11,

"UnitPrice" : 14,

"Quantity" : 12,

"Discount" : 0,

"ExtendedPrice" : 168

}

],

"TotalPrice" : 472.38

}

{

"\_id" : ObjectId("5cad0a5062b10046a5fe0561"),

"OrderID" : 10250,

"CustomerID" : "HANAR",

"EmployeeID" : 4,

"OrderDate" : "00:00.0",

"RequiredDate" : "00:00.0",

"ShippedDate" : "00:00.0",

"ShipVia" : 2,

"Freight" : 65.83,

"ShipName" : "Hanari Carnes",

"order\_details" : [

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84b"),

"OrderID" : 10250,

"ProductID" : 41,

"UnitPrice" : 7.7,

"Quantity" : 10,

"Discount" : 0,

"ExtendedPrice" : 77

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84c"),

"OrderID" : 10250,

"ProductID" : 51,

"UnitPrice" : 42.4,

"Quantity" : 35,

"Discount" : 0.15,

"ExtendedPrice" : 1261.3999999999999

},

{

"\_id" : ObjectId("5cabad7c62b10046a5fdf84d"),

"OrderID" : 10250,

"ProductID" : 65,

"UnitPrice" : 16.8,

"Quantity" : 15,

"Discount" : 0.15,

"ExtendedPrice" : 214.2

}

],

"TotalPrice" : 1618.4299999999998

}

**Displays that the code creating TotalPrice executed correctly by showing 2 orders documents.**

6.

* db.customers.find({}).forEach(function(cust){db.orders.find({CustomerID:cust.CustomerID}).forEach(function(ord){db.orders.update({OrderID:ord.OrderID},{$set:{Country:cust.Country}} )}) })

**Creates a field Country in each orders document based on the Country from the customers document matching the CustomerID.**

* db.orders.find({},{OrderID:1,CustomerID:1,Country:1,TotalPrice:1,\_id:0}).limit(10).pretty()

{

"OrderID" : 10248,

"CustomerID" : "VINET",

"TotalPrice" : 472.38,

"Country" : "France"

}

{

"OrderID" : 10250,

"CustomerID" : "HANAR",

"TotalPrice" : 1618.4299999999998,

"Country" : "Brazil"

}

{

"OrderID" : 10251,

"CustomerID" : "VICTE",

"TotalPrice" : 695.4,

"Country" : "France"

}

{

"OrderID" : 10249,

"CustomerID" : "TOMSP",

"TotalPrice" : 1875.01,

"Country" : "Germany"

}

{

"OrderID" : 10252,

"CustomerID" : "SUPRD",

"TotalPrice" : 3649.2000000000003,

"Country" : "Belgium"

}

{

"OrderID" : 10253,

"CustomerID" : "HANAR",

"TotalPrice" : 1502.97,

"Country" : "Brazil"

}

{

"OrderID" : 10254,

"CustomerID" : "CHOPS",

"TotalPrice" : 579.6,

"Country" : "Switzerland"

}

{

"OrderID" : 10255,

"CustomerID" : "RICSU",

"TotalPrice" : 2638.83,

"Country" : "Switzerland"

}

{

"OrderID" : 10256,

"CustomerID" : "WELLI",

"TotalPrice" : 531.77,

"Country" : "Brazil"

}

{

"OrderID" : 10257,

"CustomerID" : "HILAA",

"TotalPrice" : 1201.81,

"Country" : "Venezuela"

}

**Displays the OrderID, CustomerID, TotalPrice, and Country shipped to for each order.**

7.

* db.orders.find({}).count()

830

**Counts how many orders there are.**

* db.orders.find({},{OrderID:1,CustomerID:1,Country:1,TotalPrice:1,\_id:0} ).skip(820).pretty()

{

"OrderID" : 11067,

"CustomerID" : "DRACD",

"TotalPrice" : 94.83000000000001,

"Country" : "Germany"

}

{

"OrderID" : 11068,

"CustomerID" : "QUEEN",

"TotalPrice" : 2108.83,

"Country" : "Brazil"

}

{

"OrderID" : 11070,

"CustomerID" : "LEHMS",

"TotalPrice" : 1765.975,

"Country" : "Germany"

}

{

"OrderID" : 11071,

"CustomerID" : "LILAS",

"TotalPrice" : 485.43,

"Country" : "Venezuela"

}

{

"OrderID" : 11072,

"CustomerID" : "ERNSH",

"TotalPrice" : 5476.64,

"Country" : "Austria"

}

{

"OrderID" : 11073,

"CustomerID" : "PERIC",

"TotalPrice" : 324.95,

"Country" : "Mexico"

}

{

"OrderID" : 11074,

"CustomerID" : "SIMOB",

"TotalPrice" : 250.52499999999998,

"Country" : "Denmark"

}

{

"OrderID" : 11075,

"CustomerID" : "RICSU",

"TotalPrice" : 504.29,

"Country" : "Switzerland"

}

{

"OrderID" : 11076,

"CustomerID" : "BONAP",

"TotalPrice" : 831.03,

"Country" : "France"

}

{

"OrderID" : 11077,

"CustomerID" : "RATTC",

"TotalPrice" : 1264.2505000000003,

"Country" : "USA"

}

**Displays the last ten orders.**

8.

* var startTime = new Date().getTime();
* db.customers.update({},{$set:{allOrders:[]}})
* db.orders.find({}).forEach(function(ord){ db.customers.find({CustomerID:ord.CustomerID}).forEach(function(cust){db.customers.update({CustomerID:cust.CustomerID},{$push:{allOrders:{OrderID:ord.OrderID,TotalPrice:ord.TotalPrice}}}) });})
* var endTime = new Date().getTime();
* var elapsedTime = endTime-startTime;
* print("elapsedTime: " + elapsedTime);

elapsedTime: 754

**Created the allOrders array for each customer. For each order, added documents containing OrderID and TotalPrice to allOrders for the appropriate customer. Timed the process, which took 754 milliseconds.**

* db.customers.find({}).limit(2).pretty()

{

"\_id" : ObjectId("5cad0a6c62b10046a5fe08a2"),

"CustomerID" : "ALFKI",

"CompanyName" : "Alfreds Futterkiste",

"ContactName" : "Maria Anders",

"ContactTitle" : "Sales Representative",

"Address" : "Obere Str. 57",

"City" : "Berlin",

"Region" : "NULL",

"PostalCode" : 12209,

"Country" : "Germany",

"Phone" : "030-0074321",

"Fax" : "030-0076545",

"allOrders" : [

{

"OrderID" : 10643,

"TotalPrice" : 843.96

},

{

"OrderID" : 10692,

"TotalPrice" : 939.02

},

{

"OrderID" : 10702,

"TotalPrice" : 353.94

},

{

"OrderID" : 10835,

"TotalPrice" : 915.3299999999999

},

{

"OrderID" : 10952,

"TotalPrice" : 511.62

},

{

"OrderID" : 11011,

"TotalPrice" : 934.71

}

]

}

{

"\_id" : ObjectId("5cad0a6c62b10046a5fe08a3"),

"CustomerID" : "ANATR",

"CompanyName" : "Ana Trujillo Emparedados y helados",

"ContactName" : "Ana Trujillo",

"ContactTitle" : "Owner",

"Address" : "Avda. de la Constitución 2222",

"City" : "México D.F.",

"Region" : "NULL",

"PostalCode" : 5021,

"Country" : "Mexico",

"Phone" : "(5) 555-4729",

"Fax" : "(5) 555-3745",

"allOrders" : [

{

"OrderID" : 10308,

"TotalPrice" : 90.41

},

{

"OrderID" : 10625,

"TotalPrice" : 523.65

},

{

"OrderID" : 10759,

"TotalPrice" : 331.99

},

{

"OrderID" : 10926,

"TotalPrice" : 554.3199999999999

}

]

}

**Displays the first two documents in customers to show that allOrders was created successfully.**

9.

* db.customers.updateMany({},{$unset:{allOrders:""}})

**Unsets the allOrders array.**

* db.orders.createIndex({CustomerID:1})

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 1,

"numIndexesAfter" : 2,

"ok" : 1

}

**Creates an index on CustomerID in the orders collection.**

* var startTime = new Date().getTime();
* db.customers.update({},{$set:{allOrders:[]}})
* db.orders.find({}).forEach(function(ord){ db.customers.find({CustomerID:ord.CustomerID}).forEach(function(cust){db.customers.update({CustomerID:cust.CustomerID},{$push:{allOrders:{OrderID:ord.OrderID,TotalPrice:ord.TotalPrice}}}) });})
* var endTime = new Date().getTime();
* var elapsedTime = endTime-startTime;
* print("elapsedTime: " + elapsedTime);

elapsedTime: 725

**Created the allOrders array for each customer. Added documents containing OrderID and TotalPrice to allOrders for the appropriate customer. Timed the process, which took 725 milliseconds.**

* db.customers.find({}).limit(2).pretty()

{

"\_id" : ObjectId("5cad0a6c62b10046a5fe08a2"),

"CustomerID" : "ALFKI",

"CompanyName" : "Alfreds Futterkiste",

"ContactName" : "Maria Anders",

"ContactTitle" : "Sales Representative",

"Address" : "Obere Str. 57",

"City" : "Berlin",

"Region" : "NULL",

"PostalCode" : 12209,

"Country" : "Germany",

"Phone" : "030-0074321",

"Fax" : "030-0076545",

"allOrders" : [

{

"OrderID" : 10643,

"TotalPrice" : 843.96

},

{

"OrderID" : 10692,

"TotalPrice" : 939.02

},

{

"OrderID" : 10702,

"TotalPrice" : 353.94

},

{

"OrderID" : 10835,

"TotalPrice" : 915.3299999999999

},

{

"OrderID" : 10952,

"TotalPrice" : 511.62

},

{

"OrderID" : 11011,

"TotalPrice" : 934.71

}

]

}

{

"\_id" : ObjectId("5cad0a6c62b10046a5fe08a3"),

"CustomerID" : "ANATR",

"CompanyName" : "Ana Trujillo Emparedados y helados",

"ContactName" : "Ana Trujillo",

"ContactTitle" : "Owner",

"Address" : "Avda. de la Constitución 2222",

"City" : "México D.F.",

"Region" : "NULL",

"PostalCode" : 5021,

"Country" : "Mexico",

"Phone" : "(5) 555-4729",

"Fax" : "(5) 555-3745",

"allOrders" : [

{

"OrderID" : 10308,

"TotalPrice" : 90.41

},

{

"OrderID" : 10625,

"TotalPrice" : 523.65

},

{

"OrderID" : 10759,

"TotalPrice" : 331.99

},

{

"OrderID" : 10926,

"TotalPrice" : 554.3199999999999

}

]

}

**Displays the first 2 customers documents to show that code creating allOrders executed correctly.**