**The country collection contains country name and country code. Write a procedure for merging country and phone data into one collection.**

## move countries collection from countries database to book database where phones collection is, and name it country collection.

db.countries.find().forEach(function(d){ db.getSiblingDB('book')['country'].insert(d); });

## the following code just combined the two collections into one collection called combined.

> db.phones.copyTo("combined")

WARNING: db.eval is deprecated

200001

>

> db.country.copyTo("combined")

WARNING: db.eval is deprecated

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> db.combined.find().limit(1)

{ "\_id" : 58005550000, "components" : { "country" : 5, "area" : 800, "prefix" : 555, "number" : 5550000 }, "display" : "+5 800-5550000" }

> db.combined.find().count()

200249

# The country field in *phone* collection and the callingCode field in *country* collection should be the key to join the two collections together. However, the type of the country field is integer and the type of the callingCode field is an array with string values. We need to make them the same type. First, I convert the country field from integer to string, as the following code does.

> db.phones.find({"components.country": {$exists: true}}).forEach(function(obj) {

...     obj.components.country = "" + obj.components.country;

...     db.phones.save(obj);

... });

> db.phones.find().limit(1)

{ "\_id" : 58005550000, "components" : { "country" : "5", "area" : 800, "prefix" : 555, "number" : 5550000 }, "display" : "+5 800-5550000" }

# Now we can merge the two collections into *merged* collection.

db.phones.aggregate([

{$lookup: {

from: "country",

localField: "components.country",

foreignField: "callingCode",

as: "country\_info"

}

},

{

$out : "merged"

}])

This *merged* collection contains all the records from *phones* collection and corresponding country information, which shares the same country code, from *country* collection.

> db.merged.find().limit(7);

{ "\_id" : 58005550000, "components" : { "country" : "5", "area" : 800, "prefix" : 555, "number" : 5550000 }, "display" : "+5 800-5550000", "country\_info" : [ ] }

{ "\_id" : 28005550001, "components" : { "country" : "2", "area" : 800, "prefix" : 555, "number" : 5550001 }, "display" : "+2 800-5550001", "country\_info" : [ ] }

{ "\_id" : 68005550002, "components" : { "country" : "6", "area" : 800, "prefix" : 555, "number" : 5550002 }, "display" : "+6 800-5550002", "country\_info" : [ ] }

{ "\_id" : 38005550003, "components" : { "country" : "3", "area" : 800, "prefix" : 555, "number" : 5550003 }, "display" : "+3 800-5550003", "country\_info" : [ ] }

{ "\_id" : 58005550004, "components" : { "country" : "5", "area" : 800, "prefix" : 555, "number" : 5550004 }, "display" : "+5 800-5550004", "country\_info" : [ ] }

{ "\_id" : 38005550005, "components" : { "country" : "3", "area" : 800, "prefix" : 555, "number" : 5550005 }, "display" : "+3 800-5550005", "country\_info" : [ ] }

{ "\_id" : 78005550006, "components" : { "country" : "7", "area" : 800, "prefix" : 555, "number" : 5550006 }, "display" : "+7 800-5550006", "country\_info" : [ { "\_id" : ObjectId("5a16120bd4d2ad8fa2814f34"), "name" : { "common" : "Russia", "official" : "Russian Federation", "native" : { "rus" : { "official" : "Русская Федерация", "common" : "Россия" } } }, "tld" : [ ".ru", ".su", ".рф" ], "cca2" : "RU", "ccn3" : "643", "cca3" : "RUS", "cioc" : "RUS", "currency" : [ "RUB" ], "callingCode" : [ "7" ], "capital" : "Moscow", "altSpellings" : [ "RU", "Rossiya", "Russian Federation", "Российская Федерация", "Rossiyskaya Federatsiya" ], "region" : "Europe", "subregion" : "Eastern Europe", "languages" : { "rus" : "Russian" }, "translations" : { "deu" : { "official" : "Russische Föderation", "common" : "Russland" }, "fra" : { "official" : "Fédération de Russie", "common" : "Russie" }, "hrv" : { "official" : "Ruska Federacija", "common" : "Rusija" }, "ita" : { "official" : "Federazione russa", "common" : "Russia" }, "jpn" : { "official" : "ロシア連邦", "common" : "ロシア連邦" }, "nld" : { "official" : "Russische Federatie", "common" : "Rusland" }, "por" : { "official" : "Federação Russa", "common" : "Rússia" }, "rus" : { "official" : "Россия Федерация", "common" : "Россия" }, "spa" : { "official" : "Federación de Rusia", "common" : "Rusia" }, "svk" : { "official" : "Ruská federácia", "common" : "Rusko" }, "fin" : { "official" : "Venäjän federaatio", "common" : "Venäjä" }, "zho" : { "official" : "俄罗斯联邦", "common" : "俄罗斯" } }, "latlng" : [ 60, 100 ], "demonym" : "Russian", "landlocked" : false, "borders" : [ "AZE", "BLR", "CHN", "EST", "FIN", "GEO", "KAZ", "PRK", "LVA", "LTU", "MNG", "NOR", "POL", "UKR" ], "area" : 17098242 } ] }

The country information for the first six records are missing, which means there aren’t countries whose callingCode is 5,2,6,3 in *country* collection, but there’s Russia whose callingCode is 7. So there’s country info for the seventh record whose country code is 7.

For the above *merged* collection, you are able to find the corresponding country information for each phone record. For the following *merged\_phone* collection, you are able to find the corresponding phones information for each country, although only three countries have the information.

db.country.aggregate([

{$unwind:"$callingCode"},

{$lookup: {

from: "phones",

localField: "callingCode",

foreignField: "components.country",

as: "country\_info" } },

{ $match: { "country\_info": { $ne: [] } } },

{ $out : "merged\_phone" }])

> db.merged\_phone.find().count()

3

> db.merged\_phone.find().limit(1)

{ "\_id" : ObjectId("5a16120ad4d2ad8fa2814e9e"), "name" : { "common" : "Canada", "official" : "Canada", "native" : { "eng" : { "official" : "Canada", "common" : "Canada" }, "fra" : { "official" : "Canada", "common" : "Canada" } } }, "tld" : [ ".ca" ], "cca2" : "CA", "ccn3" : "124", "cca3" : "CAN", "cioc" : "CAN", "currency" : [ "CAD" ], "callingCode" : "1", "capital" : "Ottawa", "altSpellings" : [ "CA" ], "region" : "Americas", "subregion" : "Northern America", "languages" : { "eng" : "English", "fra" : "French" }, "translations" : { "cym" : { "official" : "Canada", "common" : "Canada" }, "deu" : { "official" : "Kanada", "common" : "Kanada" }, "fra" : { "official" : "Canada", "common" : "Canada" }, "hrv" : { "official" : "Kanada", "common" : "Kanada" }, "ita" : { "official" : "Canada", "common" : "Canada" }, "jpn" : { "official" : "カナダ", "common" : "カナダ" }, "nld" : { "official" : "Canada", "common" : "Canada" }, "por" : { "official" : "Canadá", "common" : "Canadá" }, "rus" : { "official" : "Канада", "common" : "Канада" }, "spa" : { "official" : "Canadá", "common" : "Canadá" }, "svk" : { "official" : "Kanada", "common" : "Kanada" }, "fin" : { "official" : "Kanada", "common" : "Kanada" }, "zho" : { "official" : "加拿大", "common" : "加拿大" } }, "latlng" : [ 60, -95 ], "demonym" : "Canadian", "landlocked" : false, "borders" : [ "USA" ], "area" : 9984670, "country\_info" : [ { "\_id" : 18005550009, "components" : { "country" : "1", "area" : 800, "prefix" : 555, "number" : 5550009 }, "display" : "+1 800-5550009" }, { "\_id" : 18005550015, "components" : { "country" : "1", "area" : 800, "prefix" : 555, "number" : 5550015 }, "display" : "+1 800-5550015" }, { "\_id" : 18005550042, "components" : { "country" : "1", "area" : 800, "prefix" : 555, "number" : 5550042 }, "display" : "+1 800-5550042" }, { "\_id" : 18005550051, "components" : { "country" : "1", "area" : 800, "prefix" : 555, "number" : 5550051 }, "display" : "+1 800-5550051" }, { "\_id" : 18005550055, "components" : { "country" : "1", "area" : 800, "prefix" : 555, "number" : 5550055 }, "display" : "+1 800-5550055" },