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Lab 3

Q1 Script:

db.country.find({GNP: {$gte: 10000, $lte: 15000}}, {Name: 1, _id: 0})

```
/*
Output:
[
  { Name: 'Bulgaria' },
  { Name: 'Belarus' },
  { Name: 'Brunei' },
  { Name: 'CÃ´te dÂ'Ivoire' },
  { Name: 'Costa Rica' },
  { Name: 'Iraq' },
  { Name: 'Lithuania' },
  { Name: 'Sudan' },
  { Name: 'El Salvador' },
  { Name: 'Uzbekistan' }
]
*/
```

Q2 Script:

```
db.country.aggregate({$project: {count: {$convert: {input: "$Capital", to: "string" }}}}, {$match:
{count: /0/}}, {$count: "count"}).pretty()

/*
Output:
[ { count: 63 } ]
*/
```

Q3 Script:

```
 db.country.distinct("Continent").length

/*
Output: 7
*/
```

Q4 Script:

```
db.country.find({Name: 1, GNP: 1, _id: 0}).sort({GNP: -1}).limit(5)

/*
Output:
[
  { Name: 'United States', GNP: 8510700 },
  { Name: 'Japan', GNP: 3787042 },
  { Name: 'Germany', GNP: 2133367 },
  { Name: 'France', GNP: 1424285 },
  { Name: 'United Kingdom', GNP: 1378330 }
]
*/
```

Q5 Script:

```
db.countrylanguage.distinct("Language" , {$and: [{IsOfficial: 'T'}, {Percentage: {$gte: 95}}]})

/*
Output:
```

```
[
  'Albaniana',     'Arabic',
  'Bengali',       'Dhivehi',
  'Dutch',         'English',
  'Faroese',       'Greek',
  'Hungarian',     'Icelandic',
  'Italian',       'Japanese',
  'Kiribati',      'Kirundi',
  'Korean',        'Malagasy',
  'Maltese',       'Marshallese',
  'Norwegian',     'Polish',
  'Portuguese',    'Rwanda',
  'Serbo-Croatian', 'Somali',
  'Spanish',       'Tongan'
]
*/
```

Q6 Script:

```
db.city.find({$and: [{$or: [{Name: {"$regex" : ".*los *"}}, {Name: {"$regex" : ".*Los *"}}]},
{Population: {$gte: 200000}}]}, {Name: 1, _id: 0})

/*
Output:
[
  { Name: 'Santiago de los Caballeros' },
  { Name: 'Santo Domingo de los Colorados' },
  { Name: 'Ecatepec de Morelos' },
  { Name: 'San NicolÃ¡s de los Garza' },
  { Name: 'Los Angeles' }
]
*/
```

Q7 Script:

```
db.country.aggregate({$group: {_id: "$Continent", avg: {$avg: "$GNP"}}})

/*
Output:
[
  { _id: 'North America', avg: 261854.78918918918 },
  { _id: 'Antarctica', avg: 0 },
```

```
  { _id: 'Africa', avg: 10006.465517241379 },
  { _id: 'Asia', avg: 150105.72549019608 },
  { _id: 'South America', avg: 107991 },
  { _id: 'Europe', avg: 206497.0652173913 },
  { _id: 'Oceania', avg: 14991.953571428572 }
]
*/
```

Q8 Script:

```
db.countrylanguage.aggregate([{$group: {_id: "$Language", Count: {$sum: 1}}}, {$sort: {Count:
-1}}, {$limit: 10}])
```

```
/*
Output:
[
  { _id: 'English', Count: 60 },
  { _id: 'Arabic', Count: 33 },
  { _id: 'Spanish', Count: 28 },
  { _id: 'French', Count: 25 },
  { _id: 'Chinese', Count: 19 },
  { _id: 'German', Count: 19 },
  { _id: 'Russian', Count: 17 },
  { _id: 'Italian', Count: 15 },
  { _id: 'Creole English', Count: 14 },
  { _id: 'Ful', Count: 12 }
]
*/
```

Q9 Script:

```
db.country.aggregate({$lookup: {from: "city", localField: "Capital", foreignField: "ID", as:
"capital_res"}}, {$match: {Continent: {$regex: ".*North America*"}, GNP: {$gte: 100000}}},
{$project: {Name: 1, "capital_res.Name": 1, _id: 0}})
```

```
/*
Output:
[
  { Name: 'Canada', capital_res: [ { Name: 'Ottawa' } ] },
  { Name: 'Mexico', capital_res: [ { Name: 'Ciudad de México' } ] },
  { Name: 'United States', capital_res: [ { Name: 'Washington' } ] }
]
```

*/

Q10 Script:

```
db.countrylanguage.aggregate({$lookup: {from: "country", localField: "CountryCode",
foreignField: "Code", as: "country_res"}}, {$match: {"country_res.Continent": {$regex: ".*North
America*"}, Language: {$regex: ".*English*"}, IsOfficial: "T"}}, {$project: {"country_res.Name": 1,
_id: 0}})


/*
Output:
[
  { res: [ { Name: 'Anguilla' } ] },
  { res: [ { Name: 'Antigua and Barbuda' } ] },
  { res: [ { Name: 'Belize' } ] },
  { res: [ { Name: 'Bermuda' } ] },
  { res: [ { Name: 'Barbados' } ] },
  { res: [ { Name: 'Canada' } ] },
  { res: [ { Name: 'Cayman Islands' } ] },
  { res: [ { Name: 'Saint Kitts and Nevis' } ] },
  { res: [ { Name: 'Saint Lucia' } ] },
  { res: [ { Name: 'Montserrat' } ] },
  { res: [ { Name: 'Turks and Caicos Islands' } ] },
  { res: [ { Name: 'United States' } ] },
  { res: [ { Name: 'Saint Vincent and the Grenadines' } ] },
  { res: [ { Name: 'Virgin Islands, British' } ] },
  { res: [ { Name: 'Virgin Islands, U.S.' } ] }
]
*/
```