

LAB 3:

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Q1 Script: `db.country.find({GNP:{$gte:10000,$lte:15000}},{Name:1,_id:0})`

OUTPUT:

```
[
  { Name: 'Bulgaria' },
  { Name: 'Belarus' },
  { Name: 'Brunei' },
  { Name: 'Côte d'Ivoire' },
  { Name: 'Costa Rica' },
  { Name: 'Iraq' },
  { Name: 'Lithuania' },
  { Name: 'Sudan' },
  { Name: 'El Salvador' },
  { Name: 'Uzbekistan' }
]
```

Q2 Script: `db.country.countDocuments({Capital:0})`

OUTPUT: 7

Q3 Script: `db.country.distinct("Continent").length`

OUTPUT: 7

Q4 Script: `db.country.aggregate([{$sort: {GNP: -1}},{$project:{Name:1,GNP:1,_id:0}},{$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.country|language.distinct('Language',{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({Name:/Los/i,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 Nicolás de los Garza' },
  { Name: 'Los Angeles' }
]
```

Q7 Script: `db.country.aggregate([{$group:{_id:"$Continent",Avg_GNP:{$avg:"$GNP"}}}])`

OUTPUT:

```
[
  { _id: 'North America', Avg_GNP: 261854.78918918918 },
  { _id: 'Europe', Avg_GNP: 206497.0652173913 },
  { _id: 'Oceania', Avg_GNP: 14991.953571428572 },
  { _id: 'Africa', Avg_GNP: 10006.465517241379 },
  { _id: 'South America', Avg_GNP: 107991 },
  { _id: 'Antarctica', Avg_GNP: 0 },
  { _id: 'Asia', Avg_GNP: 150105.72549019608 }
]
```

Q8 Script:

`db.country|language.aggregate({"$match":{"IsOfficial":"T"}},{ $group:{_id:"$Language",num_countries:{$count:{}}},{ $sort:{num_countries:-1}},{ $limit:10})`

OUTPUT:

```
[
  { _id: 'English', num_countries: 44 },
  { _id: 'Arabic', num_countries: 22 },
  { _id: 'Spanish', num_countries: 20 },
  { _id: 'French', num_countries: 18 },
  { _id: 'German', num_countries: 6 },
  { _id: 'Portuguese', num_countries: 6 },
  { _id: 'Dutch', num_countries: 4 },
  { _id: 'Malay', num_countries: 4 },
  { _id: 'Italian', num_countries: 4 },
  { _id: 'Russian', num_countries: 3 }
]
```

Q9 Script: `db.country.aggregate([{$match:{Continent:"North America",GNP:{$gte:100000}}},{ $lookup:{from:"city",localField:"Capital",foreignField:"ID",as:"capital"}},{ "$unwind":"$capital"},{ $project:{_id:0,Name:1,capital:"$capital.Name"}}])`

OUTPUT:

```
[
  { Name: 'Canada', capital: 'Ottawa' },
  { Name: 'Mexico', capital: 'Ciudad de México' },
  { Name: 'United States', capital: 'Washington' }
]
```

Q10 Script:

`db.country|language.aggregate([{$lookup:{from:"country",localField:"CountryCode",foreignField:"Code",as:"country_info"}},`

```
{ $match: { Language: "English", IsOfficial: 'T', "country_info.Continent": "North America" } }, { $project: { "country": "$country_info.Name", _id: 0 } } ] )
```

OUTPUT:

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