

Q1)

Script :

```
db.country.find({$and:[{GNP:{$gte:10000}},{GNP:{$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)

"""

Can run either of the given two commands both return the same output.

"""

Script :

```
db.country.find({Capital: {$exists:true}}).forEach( function(x) {db.country.update({_id: x._id}, {$set:
{Capital: x.Capital.toString()}})});
```

```
// typeof db.country.findOne().Capital;
```

```
// db.country.find({Capital:/0/},{Name:1,'_id':0}).count()
```

```
db.country.countDocuments({Capital:/0/},{Name:1,'_id':0})
```

Output :

63

Q3)

Script:

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

Output :

7

Q4)

Script :

```
db.country.aggregate([{$sort: {GNP: -1}},{$limit: 5},{$project:{Name:1,GNP:1,"_id":0}}])
```

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:95.0}}]})
```

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({$and:[{Name:/Los/i},{Population:{$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","Average":{$avg:"$GNP"}}})
```

Output :

[

{ _id: 'Africa', Average: 10006.465517241379 },

{ _id: 'Asia', Average: 150105.72549019608 },

{ _id: 'South America', Average: 107991 },

{ _id: 'Europe', Average: 206497.0652173913 },

{ _id: 'Oceania', Average: 14991.953571428572 },

{ _id: 'Antarctica', Average: 0 },

{ _id: 'North America', Average: 261854.78918918918 }

]

Q8)

Script :

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

Output :

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

Q9)

Script :

```
db.country.aggregate(
{$match: {$and:[ {Continent:"North America"},{GNP:{$gte:100000}}]}

}

},

{
  $lookup:{
    from:"city",
    localField:"Capital",
    foreignField:"ID",
    as:"ct"
  }
},{
  $project:{
    "countryName": "$Name",
    "cityName": "$ct.Name",
```

```
"_id":0
```

```
}
```

```
}
```

```
)
```

Output :

```
[
```

```
  { countryName: 'Canada', Capital: [ 'Ottawa' ] },
```

```
  { countryName: 'Mexico', Capital: [ 'Ciudad de MÃ©xico' ] },
```

```
  { countryName: 'United States', Capital: [ 'Washington' ] }
```

```
]
```

Q10)

"""

Since the question didn't specify if we have to return other info about country I choose to display all the available info about country along with its name.

"""

Script :

```
db.countrylanguage.aggregate( { $match: { $and: [{ Language: "English" }, { IsOfficial: "T" }] } }, {  
  $lookup: { from: "country", localField: "CountryCode", foreignField: "Code", as: "code_look" } }, {  
  $project: { "countryName": "$code_look.Name", "_id": 0, country_info: { $filter: { input:  
    "$code_look", as: "ctr", cond: { $eq: ["$$ctr.Continent", "North America"] } } } } }
```

Output :

```
[
```

```
{
```

```
  countryName: [ 'Anguilla' ],
```

```
  country_info: [
```

```
    {
```

```
      _id: ObjectId("6367fb896e6efdf325f44c6b"),
```

```
      Code: 'AIA',
```

```
      Name: 'Anguilla',
```

```
      Continent: 'North America',
```

```
      Region: 'Caribbean',
```

```
      SurfaceArea: 96,
```

```
IndepYear: 0,
Population: 8000,
LifeExpectancy: 76.1,
GNP: 63.2,
GNPOld: 0,
LocalName: 'Anguilla',
GovernmentForm: 'Dependent Territory of the UK',
HeadOfState: 'Elisabeth II',
Capital: '62',
Code2: 'AI'
}
],
},
{ countryName: [ 'American Samoa' ], country_info: [] },
{
  countryName: [ 'Antigua and Barbuda' ],
  country_info: [
    {
      _id: ObjectId("6367fb896e6efdf325f44c75"),
      Code: 'ATG',
      Name: 'Antigua and Barbuda',
      Continent: 'North America',
      Region: 'Caribbean',
      SurfaceArea: 442,
      IndepYear: 1981,
      Population: 68000,
      LifeExpectancy: 70.5,
      GNP: 612,
      GNPOld: 584,
      LocalName: 'Antigua and Barbuda',
      GovernmentForm: 'Constitutional Monarchy',
```

```
HeadOfState: 'Elisabeth II',
Capital: '63',
Code2: 'AG'
}
],
},
{ countryName: [ 'Australia' ], country_info: [] },
{
  countryName: [ 'Belize' ],
  country_info: [
    {
      _id: ObjectId("6367fb896e6efdf325f44c83"),
      Code: 'BLZ',
      Name: 'Belize',
      Continent: 'North America',
      Region: 'Central America',
      SurfaceArea: 22696,
      IndepYear: 1981,
      Population: 241000,
      LifeExpectancy: 70.9,
      GNP: 630,
      GNPOld: 616,
      LocalName: 'Belize',
      GovernmentForm: 'Constitutional Monarchy',
      HeadOfState: 'Elisabeth II',
      Capital: '185',
      Code2: 'BZ'
    }
  ]
},
{
```

```
countryName: [ 'Bermuda' ],
country_info: [
  {
    _id: ObjectId("6367fb896e6efdf325f44c84"),
    Code: 'BMU',
    Name: 'Bermuda',
    Continent: 'North America',
    Region: 'North America',
    SurfaceArea: 53,
    IndepYear: 0,
    Population: 65000,
    LifeExpectancy: 76.9,
    GNP: 2328,
    GNPOld: 2190,
    LocalName: 'Bermuda',
    GovernmentForm: 'Dependent Territory of the UK',
    HeadOfState: 'Elisabeth II',
    Capital: '191',
    Code2: 'BM'
  }
],
```

```
{
countryName: [ 'Barbados' ],
country_info: [
  {
    _id: ObjectId("6367fb896e6efdf325f44c87"),
    Code: 'BRB',
    Name: 'Barbados',
    Continent: 'North America',
    Region: 'Caribbean',
```



```
SurfaceArea: 430,
IndepYear: 1966,
Population: 270000,
LifeExpectancy: 73,
GNP: 2223,
GNPOld: 2186,
LocalName: 'Barbados',
GovernmentForm: 'Constitutional Monarchy',
HeadOfState: 'Elisabeth II',
Capital: '174',
Code2: 'BB'
}
],
{
countryName: [ 'Canada' ],
country_info: [
{
_id: ObjectId("6367fb896e6efdf325f44c8d"),
Code: 'CAN',
Name: 'Canada',
Continent: 'North America',
Region: 'North America',
SurfaceArea: 9970610,
IndepYear: 1867,
Population: 31147000,
LifeExpectancy: 79.4,
GNP: 598862,
GNPOld: 625626,
LocalName: 'Canada',
GovernmentForm: 'Constitutional Monarchy, Federation',
```

```
    HeadOfState: 'Elisabeth II',
    Capital: '1822',
    Code2: 'CA'
  }
]
},
{ countryName: [ 'Cocos (Keeling) Islands' ], country_info: [] },
{ countryName: [ 'Christmas Island' ], country_info: [] },
{
  countryName: [ 'Cayman Islands' ],
  country_info: [
    {
      _id: ObjectId("6367fb896e6efdf325f44c9d"),
      Code: 'CYM',
      Name: 'Cayman Islands',
      Continent: 'North America',
      Region: 'Caribbean',
      SurfaceArea: 264,
      IndepYear: 0,
      Population: 38000,
      LifeExpectancy: 78.9,
      GNP: 1263,
      GNPOld: 1186,
      LocalName: 'Cayman Islands',
      GovernmentForm: 'Dependent Territory of the UK',
      HeadOfState: 'Elisabeth II',
      Capital: '553',
      Code2: 'KY'
    }
  ]
},
```

```
{ countryName: [ 'Falkland Islands' ], country_info: [] },
{ countryName: [ 'United Kingdom' ], country_info: [] },
{ countryName: [ 'Gibraltar' ], country_info: [] },
{ countryName: [ 'Guam' ], country_info: [] },
{ countryName: [ 'Hong Kong' ], country_info: [] },
{ countryName: [ 'Ireland' ], country_info: [] },
{
  countryName: [ 'Saint Kitts and Nevis' ],
  country_info: [
    {
      _id: ObjectId("6367fb896e6efdf325f44cdb"),
      Code: 'KNA',
      Name: 'Saint Kitts and Nevis',
      Continent: 'North America',
      Region: 'Caribbean',
      SurfaceArea: 261,
      IndepYear: 1983,
      Population: 38000,
      LifeExpectancy: 70.7,
      GNP: 299,
      GNPOld: 0,
      LocalName: 'Saint Kitts and Nevis',
      GovernmentForm: 'Constitutional Monarchy',
      HeadOfState: 'Elisabeth II',
      Capital: '3064',
      Code2: 'KN'
    }
  ]
},
{
  countryName: [ 'Saint Lucia' ],
```

```
country_info: [  
  {  
    _id: ObjectId("6367fb896e6efdf325f44ce2"),  
    Code: 'LCA',  
    Name: 'Saint Lucia',  
    Continent: 'North America',  
    Region: 'Caribbean',  
    SurfaceArea: 622,  
    IndepYear: 1979,  
    Population: 154000,  
    LifeExpectancy: 72.3,  
    GNP: 571,  
    GNPOld: 0,  
    LocalName: 'Saint Lucia',  
    GovernmentForm: 'Constitutional Monarchy',  
    HeadOfState: 'Elisabeth II',  
    Capital: '3065',  
    Code2: 'LC'  
  }  
]  
,  
{ countryName: [ 'Lesotho' ], country_info: [] }  
]
```