

Lab 3 Queries:

- 1) Query: `db.country.find({GNP: {$gte: 100000, $lte: 500000}, Continent: 'Europe'}, {Name: 1, _id: 0})`
- 2) Query: `db.country.aggregate({$match: {Continent: "North America"}}, {$lookup: {from: "city", localField: "Capital", foreignField: "ID", as: "res"}}, {$unwind: "$res"}, {$group: {_id: "$_id", Country: {$addToSet: '$Name'}, Capital: {$addToSet: '$res.Name'}}}, {$project: {Country: {$arrayElemAt: ["$Country", 0]}, Capital: {$arrayElemAt: ["$Capital", 0]}, _id: 0}}, {$sort: {Country: 1}}, {$limit: 10})`
- 3) Query: `db.country.aggregate({$match: {Continent: "North America"}}, {$lookup: {from: "countrylanguage", localField: "Code", foreignField: "CountryCode", as: "res"}}, {$unwind: "$res"}, {$match: {"res.IsOfficial": {$eq: "T"}}}, {$group: {_id: "$_id", Country: {$addToSet: '$Name'}, Languages: {$addToSet: '$res.Language'}}}, {$project: {Country: {$arrayElemAt: ["$Country", 0]}, Languages: 1, _id: 0}}, {$project: {Country: "$Country", Languages: "$Languages"}}, {$sort: {Country: 1}}, {$limit: 10})`
- 4) Query: `db.country.aggregate({$match: {GNP: {$gt: 10000}}}, {$group: {_id: "$Continent", avgLifeExpectancy: {$avg: "$LifeExpectancy"}}}, {$project: {Country: "$_id", avgLifeExpectancy: "$avgLifeExpectancy", _id: 0}})`
- 5) Query: `db.country.aggregate({$lookup: {from: "countrylanguage", localField: "Code", foreignField: "CountryCode", as: "res"}}, {$unwind: "$res"}, {$match: {"res.IsOfficial": {$eq: "T"}, "res.Language": {$eq: "French"}}}, {$group: {_id: "$Continent", cnt: {$sum: 1}}}, {$project: {Country: "$_id", Count: "$cnt", _id: 0}})`

Results:

1)

```
> db.country.find({GNP: {$gte: 100000, $lte: 500000}, Continent: 'Europe'}, {Name: 1, _id: 0})
{ "Name" : "Austria" }
{ "Name" : "Belgium" }
{ "Name" : "Switzerland" }
{ "Name" : "Denmark" }
{ "Name" : "Finland" }
{ "Name" : "Greece" }
{ "Name" : "Netherlands" }
{ "Name" : "Norway" }
{ "Name" : "Poland" }
{ "Name" : "Portugal" }
{ "Name" : "Russian Federation" }
{ "Name" : "Sweden" }
>
```

2)

```
> db.country.aggregate({$match: {Continent: "North America"}}, {$lookup: {from: "city", localField: "Capital", foreignField: "ID", as: "res"}}, {$unwind: "$res"}, {$group: {_id: "$_id", Country: {$addToSet: '$Name'}, Capital: {$addToSet: '$res.Name'}}}, {$project: {Country: {$arrayElemAt: ["$Country", 0]}, Capital: {$arrayElemAt: ["$Capital", 0]}, _id: 0}}, {$sort: {Country: 1}}, {$limit: 10})
{ "Country" : "Anguilla", "Capital" : "The Valley" }
{ "Country" : "Antigua and Barbuda", "Capital" : "Saint John's" }
{ "Country" : "Aruba", "Capital" : "Oranjestad" }
{ "Country" : "Bahamas", "Capital" : "Nassau" }
{ "Country" : "Barbados", "Capital" : "Bridgetown" }
{ "Country" : "Belize", "Capital" : "Belmopan" }
{ "Country" : "Bermuda", "Capital" : "Hamilton" }
{ "Country" : "Canada", "Capital" : "Ottawa" }
{ "Country" : "Cayman Islands", "Capital" : "George Town" }
{ "Country" : "Costa Rica", "Capital" : "San Jos  " }
>
```

3)

```
[> db.country.aggregate({$match: {Continent: "North America"}}, {$lookup: {from: "countrylanguage", localField: "Code", foreignField: "CountryCode", as: "res"}}, {$unwind: "$res"}, {$match: {"res.IsOfficial": {$eq: "T"}}}, {$group: {_id: "$_id", Country: {$addToSet: '$Name'}, Languages: {$addToSet: '$res.Language'}}}, {$project: {Country: {$arrayElemAt: ["$Country", 0]}, Languages: 1, _id: 0}}, {$project: {Country: "$Country", Languages: "$Languages"}}, {$sort: {Country: 1}}, {$limit: 10})
{ "Country" : "Anguilla", "Languages" : [ "English" ] }
{ "Country" : "Antigua and Barbuda", "Languages" : [ "English" ] }
{ "Country" : "Aruba", "Languages" : [ "Dutch" ] }
{ "Country" : "Barbados", "Languages" : [ "English" ] }
{ "Country" : "Belize", "Languages" : [ "English" ] }
{ "Country" : "Bermuda", "Languages" : [ "English" ] }
{ "Country" : "Canada", "Languages" : [ "French", "English" ] }
{ "Country" : "Cayman Islands", "Languages" : [ "English" ] }
{ "Country" : "Costa Rica", "Languages" : [ "Spanish" ] }
{ "Country" : "Cuba", "Languages" : [ "Spanish" ] }
>
```

4)

```
[> db.country.aggregate({$match: {GNP: {$gt: 10000}}}, {$group: {_id: "$Continent", avgLifeExpectancy: {$avg: "$LifeExpectancy"}}, {$project: {Country: "$_id", avgLifeExpectancy: "$avgLifeExpectancy", _id: 0}}})
{ "Country" : "South America", "avgLifeExpectancy" : 71.675 }
{ "Country" : "Europe", "avgLifeExpectancy" : 75.01 }
{ "Country" : "Oceania", "avgLifeExpectancy" : 78.8 }
{ "Country" : "North America", "avgLifeExpectancy" : 73.85555555555555 }
{ "Country" : "Asia", "avgLifeExpectancy" : 70.10689655172413 }
{ "Country" : "Africa", "avgLifeExpectancy" : 61.75555555555555 }
>
```

5)

```
[> db.country.aggregate({$lookup: {from: "countrylanguage", localField: "Code", foreignField: "CountryCode", as: "res"}}, {$unwind: "$res"}, {$match: {"res.IsOfficial": {$eq: "T"}, "res.Language": {$eq: "French"}}}, {$group: {_id: "$Continent", cnt: {$sum: 1}}}, {$project: {Country: "$_id", Count: "$cnt", _id: 0}}})
{ "Country" : "Europe", "Count" : 5 }
{ "Country" : "North America", "Count" : 5 }
{ "Country" : "Oceania", "Count" : 3 }
{ "Country" : "Africa", "Count" : 5 }
>
```