

# MongoDB. Home Task 2

## 1. Import Airline Collection

- 1.1. Save *airlines.csv* on your PC;
- 1.2. Run local instance of MongoDB;
- 1.3. Use *mongoimport* to import the collection;
- 1.4. Verify that the number of the documents in the airlines collection is **186648**;

```
cmd Command Prompt - mongo
C:\Users\Nik_Gapev>mongoimport.exe -d frontcamp -c airlines --type csv --headerline --file "C:\Users\Nik_Gapev\Desktop\airlines.csv"
2019-01-08T10:26:50.166+0300    connected to: localhost
2019-01-08T10:26:52.145+0300    [#####.....] frontcamp.airlines  11.1MB/19.1MB (58.2%)
2019-01-08T10:26:53.486+0300    [#####] frontcamp.airlines  19.1MB/19.1MB (100.0%)
2019-01-08T10:26:53.486+0300    imported 186648 documents
```

## 2. Aggregating Airlines Collection

Look at a document from the collection to get familiar with the schema. Answer the following questions and include both query and the result into your report:

- 2.1. How many records does each airline class have?

Use *\$project* to show result as { class: "Z", total: 999 }:

```
> db.airlines.aggregate([ { $group: { _id: "$class", total: { $sum: 1 } } } ])
{ "_id" : "F", "total" : 140343 }
{ "_id" : "L", "total" : 23123 }
{ "_id" : "P", "total" : 5683 }
{ "_id" : "G", "total" : 17499 }
```

- 2.2. What are the top 3 destination cities outside of the United States (destCountry field, not included) with the highest average passengers count?

Show result as { "avgPassengers" : 2312.380, "city" : "Minsk, Belarus" }:

```
> db.airlines.aggregate([
...   {
...     $match: {
...       destCountry: {
...         $nin: ["United States"]
...       }
...     },
...     {
...       $group: {
...         _id: "$destCity",
...         avgPassengers: { $avg: "$passengers" }
...       }
...     },
...     {
...       $sort: {avgPassengers: -1}
...     },
...     {
...       $limit: 3
...     }
...   ]
... ])
{ "_id" : "Abu Dhabi, United Arab Emirates", "avgPassengers" : 8052.380952380952 }
{ "_id" : "Dubai, United Arab Emirates", "avgPassengers" : 7176.596638655462 }
{ "_id" : "Guangzhou, China", "avgPassengers" : 7103.333333333333 }
```

2.3. Which carriers provide flights to Latvia (destCountry)? Show result as one document { "\_id" : "Latvia", "carriers" : [ "carrier1", " carrier2", ...] }:

```
db.airlines.aggregate([
..  {
..    $match: { destCountry: "Latvia" }
..  },
..  {
..    $group: {
..      _id: "$destCountry",
..      carriers: { $addToSet: "$carrier" }
..    }
..  }
.. ])
{ "_id" : "Latvia", "carriers" : [ "Uzbekistan Airways", "Blue Jet SP Z o o", "JetClub AG" ] }
```

2.4. What are the carriers which flue the most number of passengers from the United State to either Greece, Italy or Spain? Find top 10 carriers, but provide the last 7 carriers (do not include the first 3).

Show result as { "\_id" : "", "total" : 999}:

```
> db.airlines.aggregate([
...  {
...    $match: {
...      $or: [
...        {destCountry: "Greece", originCountry: "United States"},
...        {destCountry: "Spain", originCountry: "United States"},
...        {destCountry: "Italy", originCountry: "United States"}
...      ]
...    }
...  },
...  {
...    $group: {
...      _id: "$carrier",
...      total: {$sum: "$passengers"}
...    }
...  },
...  {
...    $sort: { total: -1}
...  },
...  {
...    $limit: 10
...  },
...  {
...    $skip : 3
...  }
... ])
{ "_id" : "Compagnia Aerea Italiana", "total" : 280256 }
{ "_id" : "United Air Lines Inc.", "total" : 229936 }
{ "_id" : "Emirates", "total" : 100903 }
{ "_id" : "Air Europa", "total" : 94968 }
{ "_id" : "Meridiana S.p.A", "total" : 20308 }
{ "_id" : "Norwegian Air Shuttle ASA", "total" : 13344 }
{ "_id" : "VistaJet Limited", "total" : 183 }
```

2.5. Find the city (originCity) with the highest sum of passengers for each state (originState) of the United States (originCountry). Provide the city for the first 5 states ordered by state alphabetically (you should see the city for Alaska, Arizona and etc).

Show result as { "totalPassengers" : 999, "location" : { "state" : "abc", "city" : "xyz" } }:

```
> db.airlines.aggregate([
...   {
...     $match: { originCountry: "United States" }
...   },
...   {
...     $group: {
...       _id: {
...         originCity: "$originCity",
...         originState: "$originState"
...       },
...       totalPassengers: { $sum: "$passengers" }
...     }
...   },
...   {
...     $sort: {
...       "_id.originState": 1,
...       "totalPassengers": -1
...     }
...   },
...   {
...     $group: {
...       _id: {
...         originState: "$_id.originState"
...       },
...       originCity: { $first: "$_id.originCity" },
...       totalPassengers: { $max: "$totalPassengers" }
...     }
...   },
...   {
...     $sort: { "_id.originState": 1 }
...   },
...   {
...     $limit: 5
...   },
...   {
...     $project: {
...       _id: 0,
...       totalPassengers: "$totalPassengers",
...       location: { state: "$_id", city: "$originCity" }
...     }
...   }
... ])
{ "totalPassengers" : 760120, "location" : { "state" : { "originState" : "Alabama" }, "city" : "Birmingham, AL" } }
{ "totalPassengers" : 1472404, "location" : { "state" : { "originState" : "Alaska" }, "city" : "Anchorage, AK" } }
{ "totalPassengers" : 13152753, "location" : { "state" : { "originState" : "Arizona" }, "city" : "Phoenix, AZ" } }
{ "totalPassengers" : 571452, "location" : { "state" : { "originState" : "Arkansas" }, "city" : "Little Rock, AR" } }
{ "totalPassengers" : 23701556, "location" : { "state" : { "originState" : "California" }, "city" : "Los Angeles, CA" } }
```