

# Mongo Case Study Notes

## Document Structure

Each document within the database represents a flight route – that is the ability to fly between two airports.

This is an example document, which has been laid out to ease understanding:

```
{  _id:          94,
  airline:      {  airlineID:  470,
                   name:      "Air Burkina",
                   country:    "Burkina Faso",
                   active:     true
                 },
  origin:       {  code:       "OUA",
                   name:      "Ouagadougou",
                   city:      "Ouagadougou",
                   country:    "Burkina Faso"
                 },
  destination:  {  code:       "BKO",
                   name:      "Senou",
                   city:      "Bamako",
                   country:    "Mali"
                 },
  planes:      ["M87", "CRJ"]
}
```

Each document represents one flight route. The documents have 5 attributes:

Attribute	Description
_id	a unique number for each route
airline	an embedded document detailing which airline is flying the route.
origin	An embedded document containing the information about the airport at the start of the flight route
destination	An embedded document containing the information about the airport at the end of the flight route
planes	An array of strings, containing codes that represent different makes and models of aeroplane.

The structure of the airline document is as follows:

Attribute	Description
airlineId	a unique number for each airline
name	the name of the airline
country	which country the airline is based in
active	whether or not the airline is active or no longer in operation

Note that there is a lot of duplication of airline documents throughout the database. For example, because Air Canada flies between many different airports, each flight route that they operate will have a record in the database, with an airline document that is identical.

The origin and destination documents are in an identical format as follows:

Attribute	Description
code	a three letter code for the airport
name	the name of the airport
city	which city the airport is in
country	which country the airport is in

Note that there is a lot of duplication of origin and destination documents throughout the database. For example, you can fly to and from John F Kennedy Airport in New York (which has code JFK) from many other places around the world. Each route to JFK will have a database entry with the same document in the destination attribute. An each route from JFK will have the identical document in its origin attribute.

### **Copyright Information**

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## **Case Study Exercise 1**

The requirements of the case study exercise are:

- 1 - Get a list of all the places you can fly to from Leeds Bradford airport (airport code LBA) *Do not worry about duplicates in your results. The client will return 20 documents at a time, type "it" and press enter to view the next 20 documents.*
- 2 - Remove all flights where the airline's "active" attribute is set to false
- 3 - An airport has been renamed - change the name of the airport in both the origin and destination attributes where the code is ICT – the current name of this airport is "Wichita Mid Continent" but it should now be "Wichita Dwight D. Eisenhower National Airport"  
*Take care to ensure ALL the relevant flights are updated.*

## **Case Study Exercise 2**

The requirements of the case study exercise are:

- 1 - Get a list of all the names of all the airlines that fly from London Heathrow (airport code LHR) to Chicago O'Hare (airport code ORD)
- 2 – Get a list of all Cities in Ireland that you can fly to from Amsterdam Schipol Airport (airport code AMS) other than Cork (airport code ORK)

*Don't forget to change to the travel database before you start!*

## **Case Study Exercise 3**

The requirements of the case study exercise are:

Find out how many different routes you can fly to from each airport.

The operation should group by the origin airport code, and count the number of routes. Don't worry about duplicates.

Use both the \$sum and the \$count operator to see the different ways to undertake the operation

*Don't forget to change to the travel database before you start!*

## **Case Study Exercise 4**

The requirements of the case study exercise are:

For each origin code, get a list of all the destinations you can fly to (just the airport code is fine). Ensure there are no duplicates in the list.

Next adjust your query so that each route is listed as a separate document (just containing the origin and destination codes).

Now adjust the query to get the number of unique destinations you can fly to from each airport.

Finally filter the results to get only those airports where you can fly to 100 or more destinations, and sort the output into alphabetical order of the origin code.

