

1. How many records does each airline class have? Use \$project to show result as { class: "Z", total: 999 }

Query:

```
db.airlines.aggregate([{$group: {_id: "$class", total: {$sum: 1}}}, {$project: {_id:0, class: "$_id", total: "$total"}}])
```

Result:

```
{ "class" : "L", "total" : 23123 }
```

```
{ "class" : "G", "total" : 17499 }
```

```
{ "class" : "P", "total" : 5683 }
```

```
{ "class" : "F", "total" : 140343 }
```

```
> db.airlines.aggregate([{$group: {_id: "$class", total: {$sum: 1}}}, {$project: {_id:0, class: "$_id", total: "$total"}}])
{ "class" : "L", "total" : 23123 }
{ "class" : "G", "total" : 17499 }
{ "class" : "P", "total" : 5683 }
{ "class" : "F", "total" : 140343 }
>
```

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" }

Query:

```
db.airlines.aggregate([{$match: { destCountry: { $ne: 'United States' } }}, {$group: { _id: '$destCity', avgPassengers: { $avg: '$passengers' } }}, {$sort: { avgPassengers: -1 }}, {$limit: 3}, {$project: { _id: 0, avgPassengers: '$avgPassengers', city: '$_id' } }]).pretty()
```

Result:

```
{
```

```
  "avgPassengers" : 8052.380952380952,
```

```
  "city" : "Abu Dhabi, United Arab Emirates"
```

```
}
```

```
{
```

```
  "avgPassengers" : 7176.596638655462,
```

```
  "city" : "Dubai, United Arab Emirates"
```

```
}
```

```
{ "avgPassengers" : 7103.333333333333, "city" : "Guangzhou, China" }
```

```
> db.airlines.aggregate([{$match: { destCountry: { $ne: 'United States' } }}, {$group: { _id: '$destCity', avgPassengers: { $avg: '$passengers' } }}, {$sort: { avgPassengers: -1 }}, {$limit: 3}, {$project: { _id: 0, avgPassengers: '$avgPassengers', city: '$_id' }}]).pretty()
{
  "avgPassengers" : 8052.380952380952,
  "city" : "Abu Dhabi, United Arab Emirates"
}
{
  "avgPassengers" : 7176.596638655462,
  "city" : "Dubai, United Arab Emirates"
}
{
  "avgPassengers" : 7103.333333333333, "city" : "Guangzhou, China"
}
```

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

Query:

```
db.airlines.aggregate([{$match: {destCountry: {$eq: "Latvia"}}}, {$group: {_id: "$destCountry", carriers: {$addToSet: "$carrier"}}}]).pretty()
```

Result:

```
{
  "_id" : "Latvia",
  "carriers" : [
    "Blue Jet SP Z o o",
    "JetClub AG",
    "Uzbekistan Airways"
  ]
}
```

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

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" : "<carrier>", "total" : 999}

Query:

```
db.airlines.aggregate([{$match: {destCountry: {$in: ["Greece", "Italy", "Spain"]}, originCountry: {$eq: "United States"}}}, {$group: {_id: "$carrier", total: {$sum: "$passengers"}}}, {$sort: {total: -1}}, {$limit: 7}, {$skip: 3}]).pretty()
```

Result:

```
{ "_id" : "Compagnia Aerea Italiana", "total" : 280256 }
```

```
{ "_id" : "United Air Lines Inc.", "total" : 229936 }
```

```
{ "_id" : "Emirates", "total" : 100903 }
```

```
{ "_id" : "Air Europa", "total" : 94968 }
```

```
> db.airlines.aggregate([{$match: {destCountry: {$in: ["Greece", "Italy", "Spain"]}, originCountry: {$eq: "United States"}}, {$group: {_id: "$carrier", total: {$sum: "$passengers"}}}, {$sort: {total: -1}}, {$limit: 7}, {$skip: 3}]).pretty()
{ "_id" : "Compagnia Aerea Italiana", "total" : 280256 }
{ "_id" : "United Air Lines Inc.", "total" : 229936 }
{ "_id" : "Emirates", "total" : 100903 }
{ "_id" : "Air Europa", "total" : 94968 }
>
```

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" } }

Query:

```
db.airlines.aggregate([{$match: {originCountry: {$eq: "United States"}}}, {$group: {_id: {originCity: "$originCity", originState: "$originState"}, total: {$sum: "$passengers"}}}, {$sort: {total: -1}}, {$group: {_id: "$_id.originState", city: {$first: "$_id.originCity"}, totalPassengers: {$first: "$total"}}}, {$sort: {_id: 1}}, {$limit: 5}, {$project: {_id: 0, totalPassengers: "$totalPassengers", location: {state: "$_id", city: "$city"}}}]).pretty()
```

Result:

```
{
  "totalPassengers" : 760120,
  "location" : {
    "state" : "Alabama",
    "city" : "Birmingham, AL"
  }
}
{
  "totalPassengers" : 1472404,
  "location" : {
    "state" : "Alaska",
    "city" : "Anchorage, AK"
  }
}
{
```

```
"totalPassengers" : 13152753,
"location" : {
  "state" : "Arizona",
  "city" : "Phoenix, AZ"
}
}
{
  "totalPassengers" : 571452,
  "location" : {
    "state" : "Arkansas",
    "city" : "Little Rock, AR"
  }
}
{
  "totalPassengers" : 23701556,
  "location" : {
    "state" : "California",
    "city" : "Los Angeles, CA"
  }
}
```

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