



MQL vs. The Aggregation Framework

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The Similarities - What We Can Do with Both

01	CRUD operations	<ul style="list-style-type: none">• Create new documents• Read documents from the collection• Update values of fields in documents• Delete documents
02	Filter Data	<ul style="list-style-type: none">• Find or match documents based on the values of their fields• Select which fields to display
03	Accessed from mongosh	<ul style="list-style-type: none">• Both can be used from the MongoDB shell• Both are also usable with the MongoDB API

Differences - What Can We Do with MQL?

		MQL	Aggregation	Notes
1	Locate data, show or hide fields, perform calculations on data	✓	✓	<ul style="list-style-type: none">• We can find data with the find() command• We can also show/hide fields with the find() command• We can do this with the aggregation pipeline too
2	Add and remove documents, update values	✓	✓	<ul style="list-style-type: none">• Can be done with MQL or aggregation pipeline
3	Create new fields by performing operations on existing ones	✗	✓	<ul style="list-style-type: none">• This is a functionality available only with the \$project stage of the aggregation pipeline

Example - MQL

Query

```
use sample_training

db.zips.find({"state": "NY"})

db.zips.find({"state": "NY"}).count()

db.zips.find({"state": "NY", "city":
"ALBANY"}).pretty()

db.zips.find({"state": "NY", "city":
"ALBANY"}, {"zip":1, "city":1, "pop":1,
"_id":0}).pretty()
```

Result

```
[
  { city: 'ALBANY', zip: '12204', pop: 6927 },
  { city: 'ALBANY', zip: '12206', pop: 17230 },
  { city: 'ALBANY', zip: '12207', pop: 2709 },
  { city: 'ALBANY', zip: '12208', pop: 22041 },
  { city: 'ALBANY', zip: '12209', pop: 10008 },
  { city: 'ALBANY', zip: '12202', pop: 11097 },
  { city: 'ALBANY', zip: '12210', pop: 9374 }
]
```

Differences - What Can We Do with Aggregation?

- Everything we can do with MQL and more!
- Perform transformations on our data in stages
 - The pipeline is an ordered collection of operations
 - The output of one stage is the input of the next
 - Just like a pipeline carrying water
- Filter documents within our collection
- Create new fields by performing calculations on existing ones
- Group documents using information about them





Activity

- A 10 minute activity explaining the stages of the aggregation framework and their applications
- The activity includes a visual representation of the pipeline
- It's a game, including a score and badges awarded for speed and correctness
- The goal is to assemble the data in the right order, such that the pipeline produces the correct output
- The game is meant to be expanded