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WEB335 Introduction to NoSQL

WEEK 6: Assignment 6.2 - Aggregate Queries

Git Hub: <https://github.com/Zsa-who-wa/web-335.git>

Code & Queries with Results

SCREENSHOT 1: Load house.js | a. display all students

```
mongosh mongodb://127.0.0.1:27017/
Microsoft Windows [Version 10.0.26100.4349]
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C:\Users\meyea>mongosh
Current Mongosh Log ID: 6869efd65a8cf4d5ef748a5e
Connecting to:  mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.5.3
Using MongoDB:  8.0.10
Using Mongosh:  2.5.3
mongosh 2.5.5 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://www.mongodb.com/docs/mongosh-shell/

-----
The server generated these startup warnings when booting
2025-06-22T17:47:46.144-05:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----

test> load("C:/Users/meyea/buwebdev/web-335/week-6/houses.js")
true
test> db.students.find()
[
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a63'),
    firstName: 'Albus',
    lastName: 'Dumbledore',
    studentId: 's1007',
    houseId: 'h1007'
  },
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a64'),
    firstName: 'Minerva',
    lastName: 'McGonagall',
    studentId: 's1008',
    houseId: 'h1007'
  },
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a65'),
    firstName: 'Hagrid',
    lastName: 'Rubeus',
    studentId: 's1009',
    houseId: 'h1007'
  }
]
```

SCREENSHOT 2: a. display all students CONTINUED

```
houseId: 'h1007'
}
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a66'),
  firstName: 'Bridget',
  lastName: 'Wenlock',
  studentId: 's1010',
  houseId: 'h1008'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a67'),
  firstName: 'Cedric',
  lastName: 'Diggory',
  studentId: 's1011',
  houseId: 'h1008'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a68'),
  firstName: 'Hannah',
  lastName: 'Abbott',
  studentId: 's1012',
  houseId: 'h1008'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a69'),
  firstName: 'Luna',
  lastName: 'Lovegood',
  studentId: 's1013',
  houseId: 'h1009'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a6a'),
  firstName: 'Sybill',
  lastName: 'Trelawney',
  studentId: 's1014',
  houseId: 'h1009'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a6b'),
  firstName: 'Cho',
  lastName: 'Chang',
  studentId: 's1015',
  houseId: 'h1009'
}
```

SCREENSHOT 3: a. display all students CONTINUED

```
mongosh mongodb://127.0.0.1:27017/
test> db.students.find()
{
  '_id': ObjectId('6869efd85a8cf4d5ef748a6c'),
  'firstName': 'Chang',
  'lastName': 'Malfoy',
  'studentId': 's1015',
  'houseId': 'h1009'
},
{
  '_id': ObjectId('6869efd85a8cf4d5ef748a6d'),
  'firstName': 'Albus',
  'lastName': 'Potter',
  'studentId': 's1017',
  'houseId': 'h1010'
},
{
  '_id': ObjectId('6869efd85a8cf4d5ef748a6e'),
  'firstName': 'Bellatrix',
  'lastName': 'Lestranger',
  'studentId': 's1018',
  'houseId': 'h1010'
}
test> db.students.insertOne({
```

SCREENSHOT 4:

b. Add a new student/Verify new student was added AND

c. Update property of new student's last name/Verify new student's last name was updated successfully

```
mongosh mongodb://127.0.0.1:27017/
test> db.students.insertOne({
...   firstName: 'Hermione',
...   lastName: 'Weasley',
...   studentId: 's2424',
...   houseId: 'h1008'
... })
{
  acknowledged: true,
  insertedId: ObjectId('6869eff65a8cf4d5ef748a6f')
}
test> db.students.find({ studentId: 's2424' });
[
  {
    '_id': ObjectId('6869eff65a8cf4d5ef748a6f'),
    'firstName': 'Hermione',
    'lastName': 'Weasley',
    'studentId': 's2424',
    'houseId': 'h1008'
  }
]
test> db.students.updateOne(
...   { studentId: 's2424' },
...   { $set: { lastName: 'Granger' } }
... );
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
test> db.students.find({ studentId: 's2424' });
[
  {
    '_id': ObjectId('6869eff65a8cf4d5ef748a6f'),
    'firstName': 'Hermione',
    'lastName': 'Granger',
    'studentId': 's2424',
    'houseId': 'h1008'
  }
]
```

SCREENSHOT 5:

d. Delete new student that was just added/Verify new student was deleted AND

e. Display all students by house

```
mongosh mongodb://127.0.0.1:27020/
> use school
> db.students.deleteOne({ studentId: 's2424' });
{ acknowledged: true, deletedCount: 1 }
> db.students.find({ studentId: 's2424' });
[]
> db.houses.aggregate([
...   {
...     $lookup: {
...       from: 'students',
...       localField: 'houseId',
...       foreignField: 'houseId',
...       as: 'students'
...     }
...   },
...   {
...     $project: {
...       _id: 0,
...       house: "$houseId",
...       mascot: 1,
...       founder: 1,
...       students: 1
...     }
...   }
... ]);
[
  {
    mascot: 'Lion',
    founder: 'Godric Gryffindor',
    students: [
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a63'),
        firstName: 'Albus',
        lastName: 'Dumbledore',
        studentId: 's1007',
        houseId: 'h1007'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a64'),

```

SCREENSHOT 6:

e. Display all students by house CONTINUED

```

      {
        _id: ObjectId('6869efd85a8cf4d5ef748a65'),
        firstName: 'Hagrid',
        lastName: 'Rubeus',
        studentId: 's1009',
        houseId: 'h1007'
      }
    ],
    house: 'h1007'
  },
  {
    mascot: 'Badger',
    founder: 'Helga Hufflepuff',
    students: [
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a66'),
        firstName: 'Bridget',
        lastName: 'Wenlock',
        studentId: 's1010',
        houseId: 'h1008'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a67'),
        firstName: 'Cedric',
        lastName: 'Diggory',
        studentId: 's1011',
        houseId: 'h1008'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a68'),
        firstName: 'Hannah',
        lastName: 'Abbott',
        studentId: 's1012',
        houseId: 'h1008'
      }
    ]
  }
]
```

SCREENSHOT 7:

e. Display all students by house CONTINUED

```
mongosh mongodb://127.0.0.1 x + v
  firstName: 'Hannah',
  lastName: 'Abbott',
  studentId: 's1012',
  houseId: 'h1008'
}
],
house: 'h1008'
},
{
  mascot: 'Eagle',
  founder: 'Rowena Ravenclaw',
  students: [
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a69'),
      firstName: 'Luna',
      lastName: 'Lovegood',
      studentId: 's1013',
      houseId: 'h1009'
    },
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a6a'),
      firstName: 'Sybill',
      lastName: 'Trelawney',
      studentId: 's1014',
      houseId: 'h1009'
    },
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a6b'),
      firstName: 'Cho',
      lastName: 'Chang',
      studentId: 's1015',
      houseId: 'h1009'
    }
  ],
  house: 'h1009'
},
{
  mascot: 'Snake',
  founder: 'Salazar Slytherin',
  students: [
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a6c'),
      firstName: 'Lucius',
      lastName: 'Malfoy',
      studentId: 's1016',
      houseId: 'h1010'
    },
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a6d'),
      firstName: 'Albus',
      lastName: 'Potter',
      studentId: 's1017',
      houseId: 'h1010'
    },
    {
      _id: ObjectId('6869efd85a8cf4d5ef748a6e'),
      firstName: 'Bellatrix',
      lastName: 'Lestrange',
      studentId: 's1018',
      houseId: 'h1010'
    }
  ],
  house: 'h1010'
}
]
```

SCREENSHOT 8:

e. Display all students by house CONTINUED

```
mongosh mongodb://127.0.0.1 x + v
founder: 'Salazar Slytherin',
students: [
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a6c'),
    firstName: 'Lucius',
    lastName: 'Malfoy',
    studentId: 's1016',
    houseId: 'h1010'
  },
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a6d'),
    firstName: 'Albus',
    lastName: 'Potter',
    studentId: 's1017',
    houseId: 'h1010'
  },
  {
    _id: ObjectId('6869efd85a8cf4d5ef748a6e'),
    firstName: 'Bellatrix',
    lastName: 'Lestrange',
    studentId: 's1018',
    houseId: 'h1010'
  }
],
house: 'h1010'
}
]
```

SCREENSHOT 8:

f. Display all students in Gryffindor house

```
mongosh mongodb://127.0.0.1:27017/
test> db.houses.aggregate([
...   { $match: { houseId: 'h1007' } },
...   {
...     $lookup: {
...       from: 'students',
...       localField: 'houseId',
...       foreignField: 'houseId',
...       as: 'students'
...     }
...   },
...   {
...     $project: {
...       _id: 0,
...       house: "$houseId",
...       mascot: 1,
...       founder: 1,
...       students: 1
...     }
...   }
... ]);
[
  {
    mascot: 'Lion',
    founder: 'Godric Gryffindor',
    students: [
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a63'),
        firstName: 'Albus',
        lastName: 'Dumbledore',
        studentId: 's1007',
        houseId: 'h1007'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a64'),
        firstName: 'Minerva',
        lastName: 'McGonagall',
        studentId: 's1008',
        houseId: 'h1007'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a65'),
        firstName: 'Hagrid',
        lastName: 'Rubeus',
        studentId: 's1009',
        houseId: 'h1007'
      }
    ]
  }
]
```

SCREENSHOT 9:

f. Display all students in Gryffindor house CONTINUED

```
mongosh mongodb://127.0.0.1:27017/
[
  {
    mascot: 'Lion',
    founder: 'Godric Gryffindor',
    students: [
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a63'),
        firstName: 'Albus',
        lastName: 'Dumbledore',
        studentId: 's1007',
        houseId: 'h1007'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a64'),
        firstName: 'Minerva',
        lastName: 'McGonagall',
        studentId: 's1008',
        houseId: 'h1007'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a65'),
        firstName: 'Hagrid',
        lastName: 'Rubeus',
        studentId: 's1009',
        houseId: 'h1007'
      }
    ]
  }
]
```

SCREENSHOT 9: g. Display all students in house with Eagle Mascot

```
mongosh mongodb://127.0.0.1:27017/
test> db.houses.aggregate([
...   { $match: { mascot: 'Eagle' } },
...   {
...     $lookup: {
...       from: 'students',
...       localField: 'houseId',
...       foreignField: 'houseId',
...       as: 'students'
...     }
...   },
...   {
...     $project: {
...       _id: 0,
...       house: "$houseId",
...       mascot: 1,
...       founder: 1,
...       students: 1
...     }
...   }
... ]);
...
[
  {
    mascot: 'Eagle',
    founder: 'Rowena Ravenclaw',
    students: [
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a69'),
        firstName: 'Luna',
        lastName: 'Lovegood',
        studentId: 's1013',
        houseId: 'h1009'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a6a'),
        firstName: 'Sybill',
        lastName: 'Trelawney',
        studentId: 's1014',
        houseId: 'h1009'
      },
      {
        _id: ObjectId('6869efd85a8cf4d5ef748a6b'),
        firstName: 'Cho',
        lastName: 'Chang',
        studentId: 's1015',
        houseId: 'h1009'
      }
    ],
    house: 'h1009'
  }
]
test>
```

SCREENSHOT 10: g. Display all students in house with Eagle Mascot CONTINUED

```
lastName: 'Trelawney',
studentId: 's1014',
houseId: 'h1009'
},
{
  _id: ObjectId('6869efd85a8cf4d5ef748a6b'),
  firstName: 'Cho',
  lastName: 'Chang',
  studentId: 's1015',
  houseId: 'h1009'
}
],
house: 'h1009'
}
]
test>
```