

Database Systems Fall 2025 Homework #8

Simple MongoDB Assignment

Create the 'toyu' database in MongoDB.

- [1] Download the file: [../notes/toyu/toyu-db.gz](https://www.mongodb.com/try/download/database-tools). Do not unzip.
- [2] Ensure that you have download MongoDB tools: command line utilities including import and export, <https://www.mongodb.com/try/download/database-tools>.
- [3] Run the command in a terminal that contains toyu-db.gz:

```
mongorestore --archive="toyu-db.gz" --gzip --nsFrom='toyu.*' --nsTo='toyu.*'
```

Note that the design of toyu is not the typical way one would design a MongoDB. Instead, it is intended to look like the toyu MySQL database for ease of comparison.

Construct JS code *that works inside Mongosh* for the following data problems. Use mongosh to test your solution. Do not develop standalone Node JS program. Put your solution in a JS file (such as h8sol.js) and turn it in through Canvas. It may be necessary for you to add a .txt extension (such as h8sol.js.txt). The TA will execute your .js submission in Mongosh.

- [1] Show the stuId, classId and grade of all enrollment with a grade of "B+", "B", or "B-" in the following manner.

```
[
  { stuId: 100002, classId: 10000, grade: 'B-' },
  { stuId: 100000, classId: 10002, grade: 'B+' },
  { stuId: 100002, classId: 10002, grade: 'B+' },
  { stuId: 100004, classId: 10004, grade: 'B+' },
  { stuId: 100005, classId: 10006, grade: 'B+' }
]
```

- [2] Show the name, rank, and department code of every CINF or ITEC faculty member in the following manner.

```
[
  { deptCode: 'CINF', rank: 'Professor', faculty: 'Daniel Kim' },
  {
    deptCode: 'CINF',
    rank: 'Associate Professor',
    faculty: 'Andrew Byre'
  },
  { deptCode: 'ITEC', rank: 'Professor', faculty: 'Deborah Gump' },
  { deptCode: 'ITEC', rank: 'Lecturer', faculty: 'Benjamin Yu' }
]
```

- [3] Show the classId and the number of all students enrolled in the class in the following manner.

```
[
  { classId: 10001, 'Number of students': 2 },
  { classId: 10004, 'Number of students': 4 },
  { classId: 10002, 'Number of students': 2 },
  { classId: 10005, 'Number of students': 2 },
  { classId: 10006, 'Number of students': 1 },
  { classId: 10007, 'Number of students': 2 },
  { classId: 11001, 'Number of students': 1 },
  { classId: 10003, 'Number of students': 4 },
  { classId: 10000, 'Number of students': 3 },
  { classId: 10008, 'Number of students': 1 }
]
```

[4] Show the name, and deptCode of all faculty members who have the substring "an" in their first names or last names in JSON form in the following manner.

```
[
  { deptCode: 'CSCI', faculty: 'Mary Tran' },
  { deptCode: 'CSCI', faculty: 'Sharon Mannes' },
  { deptCode: 'CINF', faculty: 'Daniel Kim' },
  { deptCode: 'CINF', faculty: 'Andrew Byre' }
]
```

[5] Show the name, and deptCode of all faculty members who have the substring "an" in their first names or last names in the following manner.

```
[1] Mary Tran: CSCI
[2] Sharon Mannes: CSCI
[3] Daniel Kim: CINF
[4] Andrew Byre: CINF
```