1. Insert method

We have already finished.

Ps: Each student should have grades in the document as a sub-document, but in practical use, the student`s grade is empty as they have just joined university, grade will be added by using update method.

**About why we arrange document like this kind:**   
students are focusing on the grades they get maybe they also want to know which course the have enrolled, but the grades have already have the information about the course they have enrolled, and course instructors are more focusing on the arrangement

About the fields in one document:

1. Student document example:

 \_id : ObjectId('676817fdcf2448bbf451c5d7'),

        "FirstName":"Sherlock",

        "LastName":"Xia",

        "Email":"SX005@setu.ie",

        "PhoneNumber":"500005",

        "Grades":[

        {

        ClassID:ObjectId('6767dd51cf2448bbf451c5d1'),

        "Scores":[

          ]

        },

1. Course document example:

{

        "CourseName":"Advanced Mathematics",

        "Credits":6,

        "Instructor":"Minerva McGonagall",

        "Arrangement":[

            {

                "Info":"This is our normal time. ",

                "Week":"1~15 week",

                "Time":"Fri, 8:00 ~ 9:40, 10 minutes break in 8:45" ,

                "Location": "Binjiang Building BN504"

            },

            {

                "Info":"The classes in Week 8 and week 9 was canceled due to the teacher's illness and will be rescheduled. ",

                "Week":"16~17 week",

                "Time":"Fri, 8:00 ~ 9:40, 10 minutes break in 8:45",

                "Location":"Binjiang Building BN504"+

            }

        ]

},

1. Enrollment document example:

   {

        "StudentId":ObjectId('676817fdcf2448bbf451c5d3'),

        "CourseId":ObjectId('6767dd51cf2448bbf451c5cd'),

        "EnrollmentDate":new Date("2024-12-01")

    },

1. Update()
   1. Update student entity to add grades

After a time of study, students should finished they course, now they have the grades of the courses they enrolled, we should update the grade fields in the students documents.

* 1. Update course entity to add a new arrangement to the course

By the arrangement fields, instructors can arrange the course time if they want, and the new arrangement will update to the course documents.

For example, one instructor have a fever when the day he should give the lesson, he can update the arrangement by rescheduling the lesson to some time else. Just like it showed in the example above.

1. Find method
   1. Find()

Find() function is used to search all document in the collection without any filters.

For example, we want to have a view for all students ,courses and enrollment.we can type the following code in mongoShell:

db.students.find()

    db.courses.find()

    db.Enrollments.find()

* 1. Find().count()

This function is used for check the number of the

* 1. Find().limit()
  2. Find(criteria):  
     we have three collection, student, course and enrollment, we can search which student is join in which course in the course, and search which student
  3. Find(), multiple criteria
  4. Find(), limit the number of fields back.
  5. Find(), $operation set

这个的操作可以综合student的collection和Course的collection。

1. $eq
2. $gt
3. $gte
4. $In
5. $or
6. $lt
7. $lte
8. $ne
9. $nin
10. Combined $operation: db.book.find({$or:[{pages:{$lt:310}},{pages:{$gt:400}}]})
    1. Find().sort()
    2. Find function in an array.

Use the student.Scores to operate this part.

* 1. Find().skip()

1. Aggregation pipeline