Contemporary Databases

Practice Exercise 09 – Document Design

**Name: Tuheena Singh**

Given the following data:

**Two sections:**

sectionID: ISTE12301 ISTE23401

title: My Database Course My Other Database Course

creditHours: 3 4

room: GOL-2650 GOL-2620

**Three students:**

uid: 123456789 234567890 345678901

firstName: Ivona Ivan Sally

lastName: Bok Smith Struthers

year: 3 4 3

mySection ISTE12301 ISTE12301 and ISTE23401

ISTE23401

**Scenario 1:** Create one .js file called scenario1.js that will do the following:

Assuming that each section can have 20 or less students, design a Mongo database that will store the above data and answer the following questions (We might consider this 1:Few):

1. Insert the documents into a database called College1
2. List all the documents in the database
3. List the section together with the students in the section
4. Show the average credit hours for each student

Paste the Javascript commands into an MS Word document. Run the .js file and paste the results into the same MS Word document.

**Scenario 2:** Create one .js file called scenario2.js that will do the following:

Assuming that the sections can have 20,000 students like a MOOC course, design a Mongo database that will store the above data and answer the following questions (same questions):

1. Insert the documents into a database called College2.
2. List all the documents in the database.
3. List the section together with the students in the section.
4. Show the average credit hours for each student.

Using the same MS Word document used for scenario 1, paste the Javascript commands into the MS Word document. Run the .js file and paste the results into the same MS Word document.

**Do not zip the files. Put the files into the Assignment folder individually.**

Scenario 1 Result :

> load("C:\\Users\\tuhee\\Desktop\\Spring 2021\\Non relational DB\\scenario1.js")

Original insert

{

"\_id" : ObjectId("6073757d4fcfffb6215c0400"),

"sectionID" : "ISTE12301",

"title" : "My Database Course",

"creditHours" : 3,

"room" : "GOL-2650",

"students" : [

{

"uid" : "123456789",

"firstName" : "Ivona",

"lastName" : "Bok",

"year" : 3

},

{

"uid" : "234567890",

"firstName" : "Ivan",

"lastName" : "Smith",

"year" : 4

}

]

}

{

"\_id" : ObjectId("6073757d4fcfffb6215c0401"),

"sectionID" : "ISTE23401",

"title" : "My Other Database Course",

"creditHours" : 4,

"room" : "GOL-2620",

"students" : [

{

"uid" : "234567890",

"firstName" : "Ivan",

"lastName" : "Smith",

"year" : 4

},

{

"uid" : "345678901",

"firstName" : "Sally",

"lastName" : "Struthers",

"year" : 3

}

]

}

Aggregate

{

"\_id" : ObjectId("6073757d4fcfffb6215c0400"),

"sectionID" : "ISTE12301",

"title" : "My Database Course",

"creditHours" : 3,

"room" : "GOL-2650",

"students" : {

"uid" : "123456789",

"firstName" : "Ivona",

"lastName" : "Bok",

"year" : 3

}

}

{

"\_id" : ObjectId("6073757d4fcfffb6215c0400"),

"sectionID" : "ISTE12301",

"title" : "My Database Course",

"creditHours" : 3,

"room" : "GOL-2650",

"students" : {

"uid" : "234567890",

"firstName" : "Ivan",

"lastName" : "Smith",

"year" : 4

}

}

{

"\_id" : ObjectId("6073757d4fcfffb6215c0401"),

"sectionID" : "ISTE23401",

"title" : "My Other Database Course",

"creditHours" : 4,

"room" : "GOL-2620",

"students" : {

"uid" : "234567890",

"firstName" : "Ivan",

"lastName" : "Smith",

"year" : 4

}

}

{

"\_id" : ObjectId("6073757d4fcfffb6215c0401"),

"sectionID" : "ISTE23401",

"title" : "My Other Database Course",

"creditHours" : 4,

"room" : "GOL-2620",

"students" : {

"uid" : "345678901",

"firstName" : "Sally",

"lastName" : "Struthers",

"year" : 3

}

}

true

>

Scenario 2 Result :

> load("C:\\Users\\tuhee\\Desktop\\Spring 2021\\Non relational DB\\scenario2.js")

Average credit by student

{ "\_id" : null, "AverageValue" : null }

"Ivona 123456789 ISTE12301"

"Ivan 234567890 ISTE12301"

"Ivan 234567890 ISTE23401"

"Sally 345678901 ISTE23401"

true

>