2020/2021 Second Semester

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MongoDB Database

Introduction

In this critical thinking, we will do tasks on MongoDB. The first task is creating a collection of five columns and ten rows. The second task is writing No-SQL queries to create, read, update, and delete (CRUD) rows to this collection. The IDE that we will use to do the previous tasks is the MongoDB compass.

Install MongoDB database in Local PC

To install MongoDB click on the link. MongoDB community server.

Create database and collection

We will create a database named playerDB and a collection (in SQL called table) named players. In MongoDB to create a database from the terminal, we write "use" then the name of the database:

```
use playerDB
```

But the database will not appear until we insert data. first indicates the first name, last indicates the last name, apps indicate match appearances in this year, goals and assists:

```
db.players.insert({first:'Cristiano',last:'Ronaldo',apps:41,goals:34,assists:5})
```

Next, inserting the nine remaining rows using "insertMany":

```
db.players.insertMany([
 {first:'Erling',last:'Haaland',apps:38,goals:41,assists:6},
 {first:'Robert',last:'Lewandowski',apps:40,goals:41,assists:8},
 {first:'Lionel',last:'Messi',apps:39,goals:29,assists:9},
 {first:'Zlatan',last:'Ibrahimovic',apps:23,goals:15,assists:2},
 {first:'Romelu',last:'Lukaku',apps:41,goals:32,assists:9},
 {first:'Kylian',last:'Mbappe',apps:42,goals:34,assists:10},
 {first:'Bruno',last:'Fernandes',apps:50,goals:23,assists:13},
 {first:'Mohamed',last:'Salah',apps:42,goals:25,assists:4},
 {first:'Luis',last:'Suarez',apps:30,goals:18,assists:2} ])
```

Write SQL queries

MongoDB CRUD operations or create, read, update and delete operations in MongoDB. We will use MongoDB CRUD Operations documentation in this link.

First operation is create using “insertOne” to insert a row:

```
db.players.insertOne({first:'Harry',last:'Kane',apps:42,goals:21,assists:16})
```

Result in the figure 1:

Figure 1

new inserted object

```
_id: ObjectId("60550ed98da4a019a480030c")
first: "Harry"
last: "Kane"
apps: 42
goals: 21
assists: 16
```

Second operation is read using “findOne” to find one row by its first column:

```
db.players.findOne({first:'Cristiano'})
```

Result in the figure 2:

Figure 2

finding an object

```
db.players.findOne({first:'Cristiano'})
{ _id: ObjectId("6054f9b18da4a019a4800301"),
  first: 'Cristiano',
  last: 'Ronaldo',
  apps: 41,
  goals: 34,
  assists: 5 }
```

Third operation is update using “updateOne” to update the first from 'Cristiano' to 'CR7' with:

```
db.players.updateOne({first:'Cristiano'},{$set: {first:'CR7'}})
```

Result in the figure 3:

Figure 3

updated object


```
_id: ObjectId("6054f9b18da4a019a4800301")
first: "CR7"
last: "Ronaldo"
apps: 41
goals: 34
assists: 5
```


Last operation is delete using “deleteOne” to delete a row by ID because it’s a unique value:

```
db.players.deleteOne({_id:ObjectId("605501a68da4a019a480030a")}
```

References

Dasgupta, N. (2018). *Practical big data analytics: Hands-on techniques to implement enterprise analytics and machine learning using Hadoop, Spark, NoSQL and R*. Birmingham, England: Packt Publishing.

Deleting documents with the Remove,DeleteOne, and Deletemany methods in MongoDB. (2018, November 18). Retrieved March 19, 2021, from https://www.youtube.com/watch?v=OeoOWwZ1k9I

Updating documents with the Update,UpdateOne, AND Updatemany methods in MongoDB. (2018, November 13). Retrieved March 19, 2021, from https://www.youtube.com/watch?v=fnw6qYwohmQ

Mongodb crud operations¶. (2021). Retrieved March 19, 2021, from https://docs.mongodb.com/manual/crud/#update-operations

Mongodb community download. (2021). Retrieved March 19, 2021, from https://www.mongodb.com/try/download/community?tck=docs_server