Department of Computer Engineering
Faculty of Engineering

Kasetsart University

HW# NoSQL & MongoDB

In this homework, you should create an evidence of your work such as picture with description in PDF and submit the Github link of your homework. Make sure that your Github link is public.

1) You're creating a database to contain a set of sensor measurements from a two-dimensional grid. Each measurement is a time-sequence of readings, and each reading contains ten labeled values. Should you use the relational model or MongoDB? Please justify your answer

2) For each of the following applications
    a. IoT
    b. E-commerce
    c. Gaming
    d. Finance

    Propose an appropriate Relational Model or MongoDB database schema. For each application, clearly justify your choice of database.

3) Create MongoDB database with following information.

1) ({"name":"Ramesh","subject":"maths","marks":87})

2) ({"name":"Ramesh","subject":"english","marks":59})

3) ({"name":"Ramesh","subject":"science","marks":77})

4) ({"name":"Rav","subject":"maths","marks":62})

5) ({"name":"Rav","subject":"english","marks":83})

6) ({"name":"Rav","subject":"science","marks":71})

7) ({"name":"Alison","subject":"maths","marks":84})

8) ({"name":"Alison","subject":"english","marks":82})

9) ({"name":"Alison","subject":"science","marks":86})

10) ({"name":"Steve","subject":"maths","marks":81})

11) ({"name":"Steve","subject":"english","marks":89})

12) ({"name":"Steve","subject":"science","marks":77})

13) ({"name":"Jan","subject":"english","marks":0,"reason":"absent"})

Give MongoDB statements (with results) for the following queries

- Find the total marks for each student across all subjects.
- Find the maximum marks scored in each subject.
- Find the minimum marks scored by each student.
- Find the top two subjects based on average marks.

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1. Mongo db (document database) because in labeled value if use relational database it's table will has 10 additional columns for labeled value but Mongo db can use list of lable attributes instead

2.

IOT - Mongo DB

```
[{"ID": 01,
  "type": "light bulb"
  "status": False },

 {"ID": 02,
  "type": "door"
  "status": False },

 {"ID": 03
  "type": "light bulb"

  "status": true }
```

E-commerce - Mongo DB

```
[{"shop": "I-studio",
  "tag": ["electronic",
          "phone",
          "tablet"]

  "Goods": [{Iphone x},
            {Ipad Gen 9},
            {car pods}},
```

Gaming - Mongo DB

```
[{"Name" : "Inwza_001",
 "Class" : "warrior",
 "Level" :  10
 "Inventory" : [ {"Item_name" : "long-sword",
                  "type" : "equipment",
                  "atk" : 10},
                {"Item_name" : potion,
                 "type" : "consume",
                 "heal" : 100 }]}]
```

Finance - Relational

because every customers should have same amount of attribute like customersID, Salary, age, Buro_status,... for bank to look at when customers want to do financial with bank if info not fullfill they would reject.