PUNE INSTITUTE OF COMPUTER TECHNOLOGY

Subject: Machine Learning (LP-1 LAB)

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Batch: K11   **Academic Year: 2021-22**

Mock Assignment
Teacher Database

Problem Statement:

Create Teacher Database in MongoDB Database. Which contain the information of

Teacher_id, name of a teacher, department of a teacher, salary, and status of a teacher? Here

status is whether the teacher is approved by the university or not.

- ☐ Implement all the basic queries on the Teacher Database using MongoDB commands.
- ☐ Find out the teacher who are having salaries greater than 90000
- ☐ Modify the E &TC department teacher salary with 10% growth
- ☐ Display the teacher information.

Implementation:
// Seeing available databases and creating a "teachers" database

```
> show dbs
Books       0.000GB
Books1      0.000GB
admin       0.000GB
config      0.000GB
local       0.000GB
mylib       0.000GB
teachers    0.000GB
test        0.000GB
> use Books
switched to db Books
> db
Books
> db.createCollection("teachers")
```

// Switching to "teachers" collection

```
> use teachers
switched to db teachers
```

// Inserting entries

```
> db.teachers.insert({id:5895434, name:"Lunna", dept:"ENTC", salary:89000, "details":{city:"Tokyo", contact:78574456780}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insert({id:45643, name:"Snape", dept:"Comp", salary:96000, "details":{city:"New York", contact:185786655}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insert({id:234565434, name:"Harry Potter", dept:"IT", salary:80000, "details":{city:"Pune", contact:9890789567}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insert({id:3676532, name:"Malfoy", dept:"IT", salary:90000, "details":{city:"Paris", contact:23466786655}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insert({id:5895434, name:"Ronald", dept:"ENTC", salary:95000, "details":{city:"London", contact:6878787971}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insert({id:5895434, name:"Hermoine G", dept:"Comp", salary:84000, "details":{city:"Hogwarts", contact:3456786434}});
WriteResult({ "nInserted" : 1 })
> db.teachers.insertMany({id:234565434, name:"Harry Potter", dept:"IT", salary:80000, details:[[city:"Pune", contact:9890789567]]});
```

// Displaying values
```
> db.teachers.find().pretty()
{
    "_id" : ObjectId("61a0720c7ffa7484bace17a7"),
    "id" : 234565434,
    "name" : "Harry Potter",
    "dept" : "IT",
    "salary" : 80999
}
{
    "_id" : ObjectId("61a072f67ffa7484bace17a8"),
    "id" : 234565434,
```

```
        "name" : "Harry Potter",
        "dept" : "IT",
        "salary" : 80000,
        "details" : {
                "city" : "Pune",
                "contact" : 9890789567
        }
}
{
        "_id" : ObjectId("61a073317ffa7484bace17a9"),
        "id" : 5895434,
        "name" : "Hermoine G",
        "dept" : "Comp",
        "salary" : 84000,
        "details" : {
                "city" : "Hogwarts",
                "contact" : 3456786434
        }
}
{
        "_id" : ObjectId("61a0735b7ffa7484bace17aa"),
        "id" : 5895434,
        "name" : "Ronald",
        "dept" : "ENTC",
        "salary" : 95000,
        "details" : {
                "city" : "London",
                "contact" : 6878787971
        }
}
{
        "_id" : ObjectId("61a078657ffa7484bace17ab"),
        "id" : 5895434,
        "name" : "Lunna",
        "dept" : "ENTC",
        "salary" : 89000,
        "details" : {
                "city" : "Tokyo",
                "contact" : 78574456780
        }
}
```

```
{
      "_id" : ObjectId("61a0789b7ffa7484bace17ac"),
      "id" : 3676532,
      "name" : "Malfoy",
      "dept" : "IT",
      "salary" : 90000,
      "details" : {
            "city" : "Paris",
            "contact" : 23466786655
      }
}
{
      "_id" : ObjectId("61a07a4b7ffa7484bace17ad"),
      "id" : 45643,
      "name" : "Snape",
      "dept" : "Comp",
      "salary" : 96000,
      "details" : {
            "city" : "New York",
            "contact" : 185786655
      }
}
{
      "_id" : ObjectId("61a5e7369bf5a82c9964efce"),
      "id" : 234565434,
      "name" : "Harry Potter",
      "dept" : "IT",
      "salary" : 80000
}
```

// Find out the teacher who are having salaries greater than 90000

```
> db.teachers.find({salary:{$gt:90000}});
{ "_id" : ObjectId("61a0735b7ffa7484bace17aa"), "id" : 5895434, "name" :
"Ronald", "dept" : "ENTC", "salary" : 95000, "details" : { "city" : "London", "contact"
: 6878787971 } }
{ "_id" : ObjectId("61a07a4b7ffa7484bace17ad"), "id" : 45643, "name" : "Snape",
"dept" : "Comp", "salary" : 96000, "details" : { "city" : "New York", "contact" :
185786655 } }
```

```
> db.teachers.find({salary:{$gt:90000}});
{ "_id" : ObjectId("61a0735b7ffa7484bace17aa"), "id" : 5895434, "name" : "Ronald", "dept" : "ENTC", "salary" : 95000, "details" : { "city" : "London", "contact" : 6878787971 } }
{ "_id" : ObjectId("61a07a4b7ffa7484bace17ad"), "id" : 45643, "name" : "Snape", "dept" : "Comp", "salary" : 96000, "details" : { "city" : "New York", "contact" : 185786655 } }
```

// Modify salary of an ENTC teacher by 999

```
{
        "_id" : ObjectId("61a0720c7ffa7484bace17a7"),
        "id" : 234565434,
        "name" : "Harry Potter",
        "dept" : "IT",
        "salary" : 80999
}
```

// Modify the E &TC department teacher salary with 10% growth

```
> db.teachers.updateMany({ "dept": { $in: ["ENTC"] } }, { $mul: { salary: 1.1 } });
{ "acknowledged" : true, "matchedCount" : 4, "modifiedCount" : 4 }
```

```
{
        "_id" : ObjectId("61a078657ffa7484bace17ab"),
        "id" : 5895434,
        "name" : "Lunna",
        "dept" : "ENTC",
        "salary" : 97900.00000000001,
        "details" : {
                "city" : "Tokyo",
                "contact" : 78574456780
        }
}
```

```
{
        "_id" : ObjectId("61a5e9ee9bf5a82c9964efcf"),
        "id" : 5895434,
        "name" : "Lunna",
        "dept" : "ENTC",
        "salary" : 97900.00000000001,
        "details" : {
                "city" : "Tokyo",
                "contact" : 78574456780
        }
}
```

```
{
        "_id" : ObjectId("61a5ea239bf5a82c9964efd3"),
        "id" : 5895434,
        "name" : "Ronald",
        "dept" : "ENTC",
        "salary" : 104500.00000000001,
        "details" : {
                "city" : "London",
                "contact" : 6878787971
        }
}
```

// As we only updated for ENTC, other salaries as the same as they were before

```json
{
        "_id" : ObjectId("61a5ea099bf5a82c9964efd1"),
        "id" : 234565434,
        "name" : "Harry Potter",
        "dept" : "IT",
        "salary" : 80000,
        "details" : {
                "city" : "Pune",
                "contact" : 9890789567
        }
}
{
        "_id" : ObjectId("61a5ea149bf5a82c9964efd2"),
        "id" : 3676532,
        "name" : "Malfoy",
        "dept" : "IT",
        "salary" : 90000,
        "details" : {
                "city" : "Paris",
                "contact" : 23466786655
        }
}
{
        "_id" : ObjectId("61a5ea239bf5a82c9964efd3"),
        "id" : 5895434,
        "name" : "Ronald",
        "dept" : "ENTC",
        "salary" : 104500.00000000001,
        "details" : {
                "city" : "London",
                "contact" : 6878787971
        }
}
{
        "_id" : ObjectId("61a5ea299bf5a82c9964efd4"),
        "id" : 5895434,
        "name" : "Hermoine G",
        "dept" : "Comp",
        "salary" : 84000,
        "details" : {
                "city" : "Hogwarts",
                "contact" : 3456786434
        }
}
```

// Display the teacher information(final database after changes)

```
{
     "_id" : ObjectId("61a5e9ee9bf5a82c9964efcf"),
     "id" : 5895434,
     "name" : "Lunna",
     "dept" : "ENTC",
     "salary" : 97900.00000000001,
     "details" : {
          "city" : "Tokyo",
          "contact" : 78574456780
     }
}
{
     "_id" : ObjectId("61a5e9fd9bf5a82c9964efd0"),
     "id" : 45643,
     "name" : "Snape",
     "dept" : "Comp",
     "salary" : 96000,
     "details" : {
          "city" : "New York",
          "contact" : 185786655
     }
}
{
     "_id" : ObjectId("61a5ea099bf5a82c9964efd1"),
     "id" : 234565434,
     "name" : "Harry Potter",
     "dept" : "IT",
     "salary" : 80999,
     "details" : {
          "city" : "Pune",
          "contact" : 9890789567
     }
}
{
     "_id" : ObjectId("61a5ea149bf5a82c9964efd2"),
```

```
        "id" : 3676532,
        "name" : "Malfoy",
        "dept" : "IT",
        "salary" : 90000,
        "details" : {
            "city" : "Paris",
            "contact" : 23466786655
        }
}
{
        "_id" : ObjectId("61a5ea239bf5a82c9964efd3"),
        "id" : 5895434,
        "name" : "Ronald",
        "dept" : "ENTC",
        "salary" : 104500.00000000001,
        "details" : {
            "city" : "London",
            "contact" : 6878787971
        }
}
{
        "_id" : ObjectId("61a5ea299bf5a82c9964efd4"),
        "id" : 5895434,
        "name" : "Hermoine G",
        "dept" : "Comp",
        "salary" : 84000,
        "details" : {
            "city" : "Hogwarts",
            "contact" : 3456786434
        }
}
>
```

-- X --