Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous)
Shivajinagar, Pune 5

M.Sc. Computer Science A.Y. 2020-21

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Subject: Advanced Database Concepts
Assignment 4: NoSQL Concepts using Mongodb

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(1) Company Employee Database:

1. Create a database with name 'Company'.
2. An 'Employee' is a collection of documents with the following fields:
    a. Employee ID
    b. First Name
    c. Last Name
    d. Email
    e. Phone No.
    f. Address (House No, Street, City, State, Country, Pin-code)
    g. Salary
    h. Designation
    i. Experience
    j. Date of Joining
    k. Birthdate
3. A 'Transaction' is a collection of documents with the following fields: a. Transaction Id,
    b. Transaction Date
    c. Name (First Name of employee who processed the transaction)
    d. Transaction Details (Item Id, Item Name, Quantity, Price)
    e. Payment
    (Type of Payment (Debit/Credit/Cash), Total amount paid, Payment Successful)
    f. Remark (Remark field can be empty.)

Queries:

1. Insert at least 5 documents in 'Employee' collection.
2. Insert multiple documents (at least 10) into the 'Transaction' collection by passing an array of documents to the db.collection.insert () method.
3. Display all the documents of both the collections in a formatted manner.
4. Update salary of all employees by giving an increment of Rs. 4000.
5. Update the remark for transaction id 201.
6. Update designation of an employee named "_ " from supervisor to manager.
7. Update designation of an employee having Employee Id as .

8. Change the address of an employee having Employee Id as .
9. Delete transaction made by “ ” employee on the given date.
10. Delete all the employees whose first name starts with ‘K’.

(MongoDB Aggregate framework based queries)

1. Find employees having designation as either ‘manager’ or ‘floor supervisor’.
2. Find an employee whose name ends with " " and print the output in json format.
3. Display the name of an employee whose salary is greater than using a MongoDB cursor.
4. Sort the employees in the descending order of their designation.
5. Count the total number of employees in a collection.
6. Calculate the sum of total amount paid for all the transaction documents.
7. Calculate the sum of total amount paid for each payment type.
8. Find the transaction id of the latest transaction.
9. Find designation of employees who have made transaction of amount greater than Rs. 500.
10. Find the total quantity of a particular item sold using Map Reduce.

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(2) Movie Database

1. Create a database with the name ‘Movie’.
2. A ‘Film’ is a collection of documents with the following fields:
   a. Film Id
   b. Title of the film
   c. Year of release
   d. Genre / Category (like adventure, action, sci-fi, romantic etc.)
      A film can belong to more than one genre.
   e. Actors (First name and Last name)
   f. Director (First name and Last name)
   g. Release details
      (It consists of places of release, dates of release and rating of the film.)
   a. Actor Id
   b. First name
   c. Last Name
   d. Address (Street, City, State, Country, Pin-code)
   e. Contact Details (Email Id and Phone No)
   f. Age of an actor.

A film can have more than one actor.

A film can have more than one director.

3. An ‘Actor’ is a collection of documents with the following fields:

Queries:

1. Insert at least 10 documents in the collection Film –
   a. Insert at least one document with film belonging to two genres.
   b. Insert at least one document with film that is released at more than one place and on two different dates.
   c. Insert at least three documents with the films released in the same year.
   d. Insert at least two documents with the films directed by one director.
   e. Insert at least two documents with films those are acted by a pair ‘Madhuri Dixit’ and ‘Shahrukh Khan’.
2. Insert at least 10 documents in the collection Actor.
3. Display all the documents inserted in both the collections.
4. Add a value to the rating of the film whose title starts with ‘T’.
5. Add an actor named " " in the ‘Actor’ collection. Also add the details of the film in ‘Film’ collection in which this actor has acted in.
6. Delete the film " ".
7. Delete an actor named " ".
8. Delete all actors from an ‘Actor’ collection who have age greater than “ ”
9. Update the actor’s address where Actor Id is “ ”.
10. Update the genre of the film directed by “ ”.

(MongoDB Aggregate framework based queries)

1. Find the titles of all the films starting with the letter ‘R’ released during the year 2009 and 2011.
2. Find the list of films acted by an actor " ".
3. Find all the films released in 90s.
4. Find all films belonging to “Adventure” and “Thriller” genre.
5. Find all the films having ‘A’ rating.
6. Arrange the film names in ascending order and release year should be in descending order.
7. Sort the actors in ascending order according to their age.
8. Find movies that are comedies or dramas and are released after 2013.
9. Show the latest 2 films acted by an actor “ ”.
10. List the titles of films acted by actors “ ” and “ ”.

11.Retrieve films with an actor living in Spain.

12.Retrieve films with actor details.

Note: Similarly, additional queries can be executed based on these collections for practice.

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Assignment Evaluation

0: Not Done _____ 1. Incomplete _____ 2. Late Complete _____

3. Needs Improvement_____ 4. Complete _____ 5 Not Done _____

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