

Web Application Framework (WAF) – Fall 2025

Lab Task 4 (7th October 2025) – [CLO-2]

Part-1:

1. Create a database named *your_name_database*.
2. In the database, create a collection named *personals_collection*.
3. Inside the collection (*personals_collection*), add 5 documents holding records of 5 students.
 - a. Registration number
 - b. Name
 - c. City name
4. Create another collection named *academics_collection*.
5. Inside the collection (*academics_collection*), add 5 documents holding records of the same 5 students as above.
 - a. Registration number
 - b. Degree enrolled
 - c. Enrollment year
 - d. Favorite course
6. Read and display all records of both collections.
7. Read and display the names of the students who are from Rawalpindi.
8. Read and display the names of the students who got enrolled in 2019.
9. Update the city name as "Rawalpindi/Islamabad" wherever it's "Rawalpindi" or "Islamabad".
10. Delete the documents of those students from both collections who enrolled before 2019.

All of the above tasks should be done using Mongo Shell (MONGOSH) commands. For task submission, write all the commands in a text file with the corresponding part number. Name the text file as *mongo_your_name*.

Part-2

Consider the fake data .json file generated through mockaroo. Perform the following:

- Create a collection and name it as information. Insert all documents from the json file into a MongoDB database information collection.
- Then create separate collections for each class of IP addresses (classA, classB, classC, classD, classE).
- Filter the documents against each relevant class of IP addresses and insert relevant documents into the corresponding collection.
- Find out the male-to-female ratio for each IP address class collection (there are a total of 6 collections, including the information collection).
- Delete documents having id numbers that are prime numbers for each collection.
- Update documents. Set filter criteria to select documents with email addresses ending in .gov. Update the filtered documents field Organization to "QAU."

Part-3: Query Embedded Documents

You are given a MongoDB collection named students with documents like this:

```
{
  "_id": ObjectId("..."),
  "name": "Umer Khan",
  "age": 25,
```

```
"grades": {  
  "math": 85,  
  "english": 78,  
  "computer": 92  
},  
"address": {  
  "city": "Lahore",  
  "zipcode": "54000"  
}  
}
```

Use the mongo shell to perform the following queries on the student's collection:

- i. Find all students who scored above 90 in English.
- ii. Find all students who live in Islamabad.
- iii. Find all students who scored less than 80 in Math and live in zip code 44000.
- iv. Project only name, grades.computer, and address.city
- v. Find students whose math score is between 70 and 90.

Explore the following link for guidance.

<https://www.mongodb.com/docs/manual/crud/>