ASSIGNMENT 6: MONGODB SHARDING STRATEGIES IN YOUR AREA OF STUDY

Chapter 8: Sharding in MongoDB Efficiently Scaling and Managing Large Datasets

Instructor: Houssein Dhayne (houssein.dhayne@net.usj.edu.lb)

INTRODUCTION

MongoDB, a leading NoSQL database, provides efficient sharding mechanisms for scaling and managing large datasets. Sharding becomes crucial when dealing with extensive workloads that surpass the capacity of a single MongoDB instance. In this assignment, you will explore the application of MongoDB sharding architecture in your area of study.

ASSIGNMENT TASKS

1. Two Sharding Techniques

For the proposed case, identify two specific scenarios within your chosen domain where sharding can be applied. For each scenario, choose and justify the use of one of the two sharding techniques: **hash key** and **range key**. Explain the advantages and disadvantages of each selected sharding technique in the context of your scenarios.

2. Sharding Implementation Steps

Outline the steps involved in implementing MongoDB sharding for the chosen domain and scenarios. Consider the following key steps:

- **Choosing a Shard Key**: Discuss the criteria for selecting a shard key relevant to your domain.

- **Sharding the Collection**: Detail the steps involved in sharding the specific collection based on the chosen scenarios.

- **Tagging and Zone Sharding**: If applicable to your domain, describe how tagging and zone sharding can be utilized for more granular control over data distribution.

3. Visualization (Optional)

If possible, create a visual representation (e.g., diagrams) to illustrate how the sharding architecture would be implemented in your proposed scenarios. This can aid in better understanding the distribution of data across shards.