Chapter 1: Preparing the Database Environment

1. Define a NoSQL database and explain its relevance in modern database management.
2. What are the key differences between MongoDB and traditional relational databases?
3. How do you identify user requirements for setting up a MongoDB database environment?
4. Describe the process of preparing a MongoDB environment. What tools and resources are needed?

Chapter 2: Designing the Database

1. What is a conceptual data model, and why is it important when designing a NoSQL database?
2. Explain the steps involved in designing a MongoDB schema. How do you ensure the schema meets application workload requirements?
3. What are collections and indexes in MongoDB? How do they impact database performance?
4. How would you use design patterns to optimize a MongoDB schema?

Chapter 3: Implementing the Database

1. Describe the commands used to create, drop, and rename databases and collections in MongoDB.
2. What is data manipulation in MongoDB? Provide examples of inserting, updating, and deleting documents.
3. Explain the importance of query optimization in MongoDB. What techniques can you apply to optimize queries?

Chapter 4: Managing the Database

1. How do you create and manage users in MongoDB? Explain the role-based access control system.
2. What are the best practices for securing a MongoDB database?
3. Describe the process of scaling a MongoDB database using sharding. How does it improve performance?
4. What are the key steps involved in deploying a MongoDB database on the cloud?

Practical Application Scenario:

You have been hired by a transportation company to implement a MongoDB-based database system for ticket bookings. Describe how you would:

1. Identify the limitations of the existing manual system.
2. Design a suitable database schema for the company's specific needs.
3. Develop and deploy the MongoDB database to improve ticket booking and management efficiency.