

# Managing Databases Efficiently: Best Practices in Administration

## Part 1: Office Roleplay Dialogue

**Scenario:** An IT Technician, David, is working with his colleague, Rachel, on managing and optimizing the company's database system.

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**Rachel:** Hey David, I'm running some reports, but the database queries are really slow. Do you know what's causing it?

**David:** It could be a few things, but let's check if the database needs **indexing**. Indexing helps speed up searches by creating quick lookup references for data.

**Rachel:** That makes sense. I also noticed that some records are duplicated in different tables. Could that be a problem?

**David:** Yes, that's an issue with **data normalization**. Normalization organizes data efficiently by reducing redundancy and ensuring consistency. We may need to restructure the tables.

**Rachel:** Got it. By the way, how do we make sure our data is protected?

**David:** We use **replication**, which creates copies of the database on multiple servers. If one server fails, the data is still available on another.

**Rachel:** That's a relief. And how long do we keep old backups?

**David:** We follow a **backup retention policy** that defines how long we store database backups. For critical data, we keep backups for at least six months.

**Rachel:** That's a smart strategy. Thanks for the explanation, David!

**David:** No problem, Rachel! I'll optimize the database now so it runs faster.

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## **Part 2: Comprehension Questions**

### **1. What is the purpose of indexing in a database?**

- (A) To store passwords securely
- (B) To delete duplicate records
- (C) To increase internet speed
- (D) To improve search speed by creating lookup references

### **2. What does data normalization help with?**

- (A) Encrypting emails for security
- (B) Speeding up the internet connection
- (C) Organizing data efficiently and reducing redundancy
- (D) Blocking unauthorized users from the system

### **3. What is replication used for?**

- (A) Deleting old database records
- (B) Installing new software updates
- (C) Creating copies of a database on multiple servers
- (D) Improving Wi-Fi signal strength

### **4. What does a backup retention policy define?**

- (A) The number of employees who can access the database

- (B) The speed at which data is transferred
  - (C) How long database backups are stored
  - (D) The process for changing passwords regularly
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### Part 3: Key Vocabulary Definitions in Japanese

1. **SQL (Structured Query Language) (構造化問い合わせ言語)** – データベースを操作し、情報を取得するためのプログラミング言語。
  2. **Indexing (インデックス作成)** – データベース検索を高速化するための仕組み。
  3. **Replication (レプリケーション)** – データの可用性を高めるために、データベースのコピーを複数のサーバーに保持すること。
  4. **Backup Retention Policy (バックアップ保持ポリシー)** – バックアップをどのくらいの期間保存するかを定めたルール。
  5. **Data Normalization (データ正規化)** – データの重複を減らし、データベースの整合性を保つための手法。
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### Part 4: Questions & Correct Answers

#### 1. What is the purpose of indexing in a database?

- (D) To improve search speed by creating lookup references

**2. What does data normalization help with?**

(C) Organizing data efficiently and reducing redundancy

**3. What is replication used for?**

(C) Creating copies of a database on multiple servers

**4. What does a backup retention policy define?**

(C) How long database backups are stored