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**Part 1: Understanding SQL**

SQL (Structured Query Language) is crucial for web applications as it manages the data that powers dynamic websites, such as online stores. It enables the storage, retrieval, and manipulation of data like product listings, user profiles, and transaction records, ensuring that the website functions efficiently and effectively.

• SQL queries can quickly access and manage large volumes of data, making web applications faster and more responsive.

• SQL provides a structured format for data, allowing for clear organization and easy access.

• SQL's powerful querying capabilities enable complex data retrieval, which is essential for generating reports and analytics.

• MySQL

• PostgreSQL

• Oracle

**Part 2: Database Fundamentals**

A database table is a collection of related data entries organized in rows and columns, similar to a spreadsheet. Each row represents a unique record, and each column contains data of a particular type.

Columns in a database table, also known as fields, define the data type and hold specific attributes of the data. For example, a 'Name' column in a 'Users' table would store text data representing user names.

Data types are important to ensure the correct type of data is stored and to maintain data integrity. Common data types include:

• Stores variable-length character strings.

• Stores integer values.

• Stores date values in a format like YYYY-MM-DD.

**Part 3: Expense Tracker Database Design**

• Expense ID

• Amount

• Date

• Category

• Description

|  |  |  |
| --- | --- | --- |
| Column name | Data type | Description |
| Expense id | INT | Unique identifier to each expense |
| amount | DECIMAL | The monetary value of the expense |
| Date | DATE | The date when the expense occurred |
| Category | VARCHAR | The category of the expense |
| Description | VARCHAR | A brief description of the expense |

**Expenses**

| Expense ID (INT)|

| Amount (DECIMAL)|

| Date (DATE) |

| Category (VARCHAR)|

| Description (VARCHAR)|