

Database Purpose

by Sophia

WHAT'S COVERED

This tutorial highlights that databases are everywhere in our world today and it explores a few of the terms and definitions related to understanding databases in two parts:

- 1. Databases Are Everywhere
- 2. Data, Information, and Knowledge

1. Databases Are Everywhere

So far, this course has focused on the functionality of a database and how to interact with a database. Understanding why you may need databases in the first place is just as important.

Consider the fact that data is used in so much of what you do on a day-to-day basis. Companies use data every minute of every day, and they must use databases so that they can store, manage and retrieve that data quickly. Pretty much any current information system, eCommerce site, or app that you use relies on databases to manage its data and information.

🔅 THINK ABOUT IT

Think about your everyday experience and how often you interact with companies that use databases, like banks, storefronts, and social media sites. Also, consider how often you personally consume and produce data with these companies and for official records like phone numbers and addresses.



There's a lot of planning involved to ensure that data and information is accurate and usable. Data management is a discipline that requires focus on the creation, storage, and retrieval of data. There's a big focus on data management in most organizations and companies, because ensuring that data is handled correctly is critically important to operations. Database management systems are collections of programs that help manage database structures and control access to the data in the database.

OID YOU KNOW

This is precisely what database management systems like PostgreSQL, MySQL, Oracle, and Microsoft Access exist to do.

2. Data, Information, and Knowledge

Data, information, and knowledge are important terms to know when it comes to databases. Recall that a **database** is a computer structure that holds a collection of related data. A database consists of two types of data: raw facts and metadata. **Metadata**, or data about data, describes the data characteristics or relationships of the data. The metadata describes the complete picture in the database, or the schema.

ho EXAMPLE This could include the data types and sizes of the columns in a table, or the

relationships and constraints that have been set in the database.

Regular data consists of raw facts that don't have any meaning behind them yet. Think of the database that you have been using to try out SQL queries. End-user data like the employee name or customer address are just raw data elements. There is not much that can be done with this raw data unless you start to transform the data through those SQL queries that you have been using.

Information, on the other hand, is created when you take that raw data and process it to give it meaning, or to

answer questions that you have. To give it meaning, information requires context about the criteria. This could be as simple as reordering rows of data with an ORDER BY or as complex as joining multiple tables and providing summaries of purchase trends. Those SQL queries process the data, turning that raw data into information.

Knowledge can then be built from the body of information and facts about a specific topic. The knowledge implies that you have some pre-existing understanding and familiarity of the information as it applies to the topic. This could be as simple as understanding the organization or business processes.

TERMS TO KNOW

Database

A computer structure that holds a collection of related data.

Metadata

Data about data, which describe characteristics or relationships of the data.

Information

Data in context that gives it meaning.

Knowledge

The collection of information and facts on a topic.

SUMMARY

Databases exist throughout our modern world, used by a wide assortment of companies and organizations. Data, information and knowledge are important terms to know when it comes to databases. Data are the raw facts stored in a database. Information arises when that raw data is given context that adds meaning. A collection of information and facts together with prior understanding results in knowledge.

Next time, we'll take a look at how businesses use databases in the real world.

Source: Authored by Vincent Tran

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