

Desirable
database
features

Desirable Database Features

Most of these features, however, depend at least in part on good database design. If you don't craft a good design, you'll miss out on some or all of the benefit of these features.

Desirable Database Features

The following describe some of the features that a good database system should provide and explain to what degree they depend on good database design.

Desirable Database Features. CRUD

CRUD stands for the four fundamental database operations that any database should provide:
Create, Read, Update, and Delete.

Desirable Database Features. CRUD

CRUD is more a feature of databases in general than it is a feature of good database design, but a good database design provides CRUD efficiently.

Desirable Database Features. CRUD

When you create a new record (the C in CRUD), the database must validate the new State entry. Similarly when you update a record (the U in CRUD), the database must validate the modified State entry.

Desirable Database Features. CRUD

When you delete an entry in the States table (the D in CRUD), the database must verify that no Participant records use that state. Finally when you read data (the R in CRUD), the database design determines whether you find the data you want in seconds, hours, or not at all.

Desirable Database Features. RETRIEVAL

Retrieval is another word for “read,” the R in CRUD. The database should allow you to find every piece of data. There’s no point putting something in the database if there’s no way to get it back later. (That would be a “data black hole,” not a database.)

Desirable Database Features. RETRIEVAL

The database should allow you to structure the data so you can find particular pieces of data in one or more specific ways.

Ideally the database will also allow you to structure the data so it is relatively quick and easy to fetch data in a particular manner.

Desirable Database Features. RETRIEVAL

In contrast, you probably don't need to search for customers by middle name too frequently.

Desirable Database Features. CONCISTENCY

Another aspect of the R in CRUD is consistency. The database should provide consistent results. If you perform the same search twice in a row, you should get the same results. Another user who performs the same search should also get the same results.

Desirable Database Features. CONSISTENCY

A well-built database product can ensure that the exact same query returns the same result but design also plays an important role. If the database is poorly designed, you may be able to store conflicting data in different parts of the database.

Desirable Database Features. VALIDITY

Validity is closely related to the idea of consistency. Consistency means different parts of the database don't hold contradictory views of the same information. Validity means data is validated where possible against other pieces of data in the database. In CRUD terms, data can be validated when a record is created, updated, or deleted.

Desirable Database Features. VALIDITY

Just like physical data containers, a computerized database can hold incomplete, incorrect, or contradictory data. You can never protect a database from users who can't spell or who just plain enter the wrong information, but a good database design can help prevent some kinds of errors that a physical database cannot prevent.

Desirable Database Features. VALIDITY

The database can also verify that a value entered by the user is present in another part of the database.

The database can also check some kinds of conditions on the data.