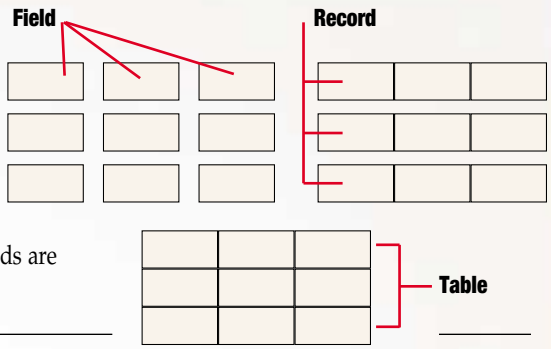
How Relational Databases Work



Computerized databases help people store and track huge amounts of information. The smallest unit of information in a database is called a **field**. Fields are grouped together to form **records**. Records are then grouped together to form **tables**.

Flat-file databases take all the information from all the records and store everything in one table. This works fine when you have a small number of records related to a single topic, such as a person's name and phone number, but if you have hundreds or thousands of records, each with a number of fields, the database quickly becomes difficult to use.

SID	SFName	SLName	SteleNumber	CID	Cname	TID	Trainer	TrnTeleNumber
1	Mary	Hinkle	555.123.4567	101	Data Basics	T01	Charles Hill	555.987.6543
2	Paul	Litz	555.258.8963	101	Data Basics	T01	Charles Hill	555.987.6542
1	Mary	Hinkle	555.123.4567	102	Web Design	T02	Glen Barber	555.879.4652
3	Dee	Coleman	555.357.9514	203	Relational Design	T03	Rick Dobson	555.324.2986
4	Don	Charney	555.369.8741	204	VBA Programming	T03	Rick Dobson	555.324.2986

Relational databases separate this mass of information into numerous **tables**. All the columns in each table should be about one topic, such as "student information," "class information," or "trainer information."

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101	Data Basics
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102	Web Design
203	Relational Design
204	VBA Programming

TID	Trainer	TrnTeleNumber
T01	Charles Hill	555.987.6543
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T02	Glen Barber	555.879.4652
T03	Rick Dobson	555.324.2986
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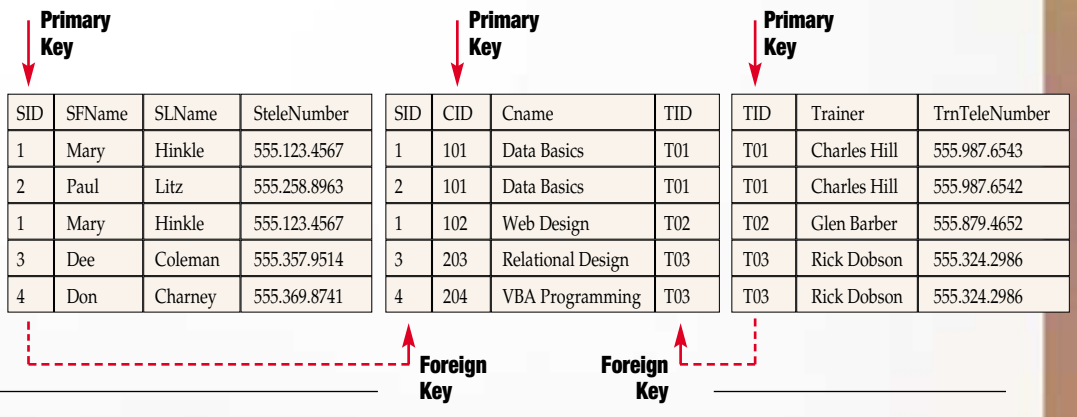
The tables for a relational database are linked to each other through the use of **keys**. Each table may have one **primary key** and any number of **foreign keys**. A foreign key is simply a primary key from one table that has been placed in another table.



The most important rules for designing relational databases are called **Normal Forms**. When databases are designed properly, huge amounts of information can be kept under control. This lets you **query** the database (search for information) and quickly get the answer you need.

Query: "What students are taking classes from trainer CHARLES HILL?"

Answer:

1	Mary	Hinkle	555.123.4567
2	Paul	Litz	555.258.8963

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