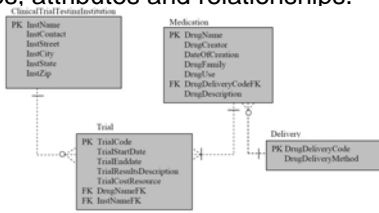


Component 4/Unit 6e
 Topic V: Define the basic data operations for databases and how to implement them in SQL

- SQL Standards
- Create the Database
- Create Tables
- Create Relationships

Implementation of a Relational Database Data Model

- We will use a small four-table database to illustrate the creation of a database, the tables, attributes and relationships.



SQL Standards

- All DBMSs are supposed to support standard SQL as defined by ANSI and ISO.
- Therefore basic SQL statements vary only slightly from one DBMS to another
- Many of the more sophisticated DBMSs like SQL Server and Oracle differ once you get beyond basic SQL statements
- We will look at some basic SQL statements

SQL to Create the Database

- This SQL example is for SQL Server, but something similar would be used with other DBMSs

```
CREATE DATABASE DrugTrials
ON
(Name=DrugTrials.dat,
FILENAME='C:\component4\DrugTrials.mdf');
```

- Other parameters could be specified, but this takes advantage of default values

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SQL to Create a Table

```
CREATE TABLE ClinicalTrialTestingInstitution(
InstName varchar(15) NOT NULL,
InstContact int NOT NULL,
InstStreet varchar(15) NULL,
InstCity varchar(12) NULL,
InstState varchar(2) NULL,
instZip varchar(9) NULL
```

```
CONSTRAINT InstNamePK PRIMARY
KEY(InstName)
);
```

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SQL to Create a Second Table

```
CREATE TABLE Trial(
TrialCode int NOT NULL,
TrialStartDate datetime NOT NULL,
TrialEndDate datetime NULL,
TrialResultsDescription varchar(100) NULL,
TrialCostResource varchar(20) NULL,
DrugNameFK varchar(20) NOT NULL,
instNameFK varchar(15) NOT NULL
```

```
CONSTRAINT TrialCodePK PRIMARY KEY(TrialCode)
);
```

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Creating a Relationship

To complete the relationship between two tables the DBMS must be informed about the primary to foreign key connection.

```
ALTER TABLE Trial
  ADD CONSTRAINT CInstNameFK
  FOREIGN KEY (InstNameFK)
  REFERENCES
  ClinicalTrialTestingInstitution(InstName)
  ON UPDATE CASCADE;
```
