

SQL Fundamentals

LEARN TO DESIGN & BUILD A WINDOWS SQL
DATABASE

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Database

CRUD create read update delete

What is a database?

A file structured for the repository of data.

Organized for easy retrieval, sorting, grouping, relating to other data and

Example: Customer database

Storing Customer Data

Why not use a simple text file

Not easily manageable

Why not use an Excel spreadsheet file?

No easy way to relate sales data to customer information

Relational Database Management System RDBMS

Relational Database Theory – Organizing data into tables that can be related together, this reducing redundancy and increasing the integrity of the data

Normalization – the process

SQL Server

A high end relational database management system

SQL server 2013 Express Edition

Similar power, but intended for smaller projects.

Database Objects

- Tables contain
 - Columns
 - Rows or records

The value of a single column and a single row is a called a “field”

The data type for each column in a table

The maximum size of data that will be stores In the column

The nullability of a column

Primary Key

A field or combination of fields that make a given row unique in the database. A way of differentiating each row in a table when all other rows in the same

Foreign key

Relate one or more rows in one table to a record in another table that shares the same value in its primary key.

Adding a FK constraint prevents deletions in the customer table to create orphaned rows in the order table.

FK constraints enforce “Referential Integrity”

Order	
KEY	orderID orderDate orderAmout paymentType
FK	customerID

Customer			
KEY	customerID	int (11)	
	firstName	varchar(50)	
	lastName	varchar(50)	
	address	varchar(200)	Null
	city	varchar(200)	Null
	county	char(2)	Null
	zip	char(2)	Null
	creditLimit	currency	
	customerSince	datetime	

Data Integrity

Keeping data valid, of the correct data type, ect, so that it is usable for its intended purpose. Customer moves separate tables

Utilizing Databinding in our C# Win forms Apps

What are data sets?

Working with the System.Data Namespace

(aka ADO.NET)

Working with the IDE's tools, windows, etc.

Databinding

User interface controls must be data binding "aware"

ADO.NET(System.Data) classes support data binding

ADO.NET creates a connection to a data source (database)

ADO.NET manages the conversation (requests and responses) between your application and the database.

Ado.net manages the data that is retrieved forum the response to the database query.

BindingSource manages the connection between the user interface controls and the underlying data set retrieved from the database.

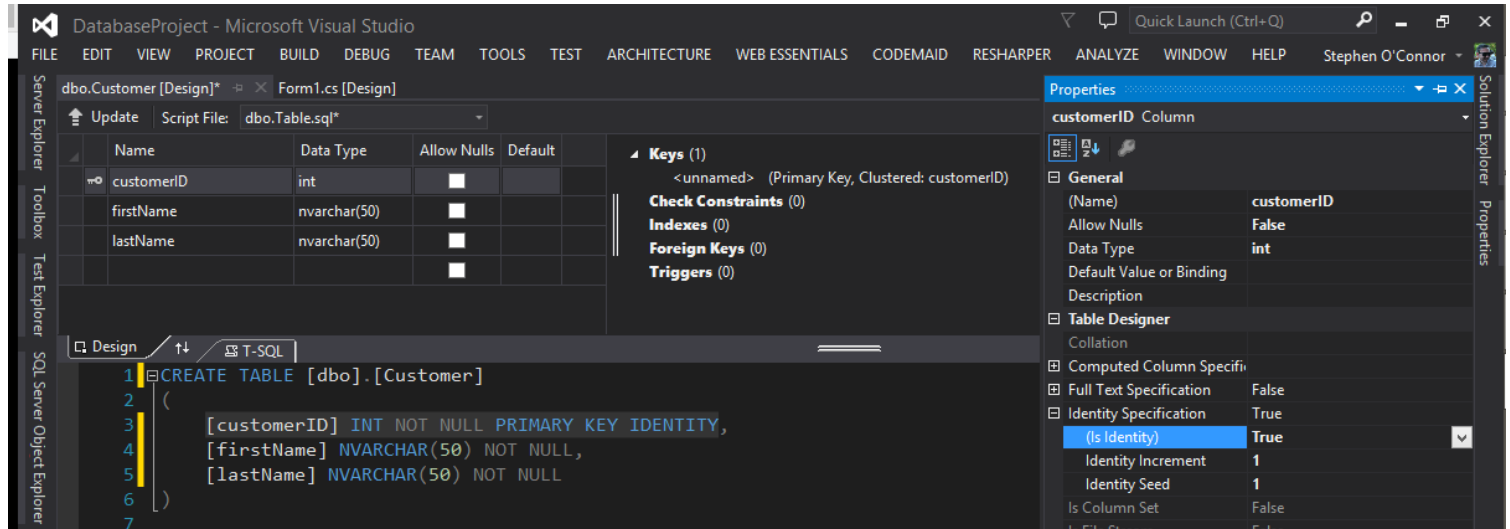
Provides an application interface to reduce learning curve for the end user

Restrict access to the database to maintain security

To control the presentation of the data

Maintain the integrity of the data

Practice



When user interface controls retrieve and display data from a data source without requiring the programmer to worry about all the programmatic details of this process.

Each user interface control has different properties that can be bound to a data source.