



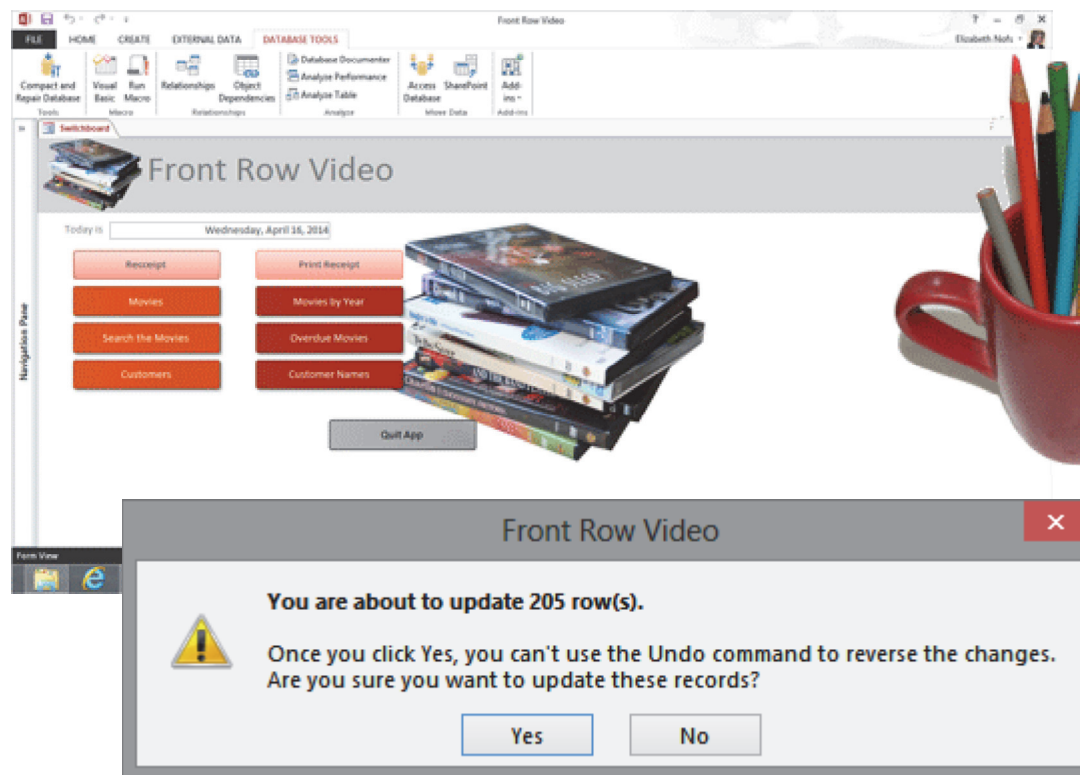
Access 2013: Getting Started

## You Say Goodbye, I Say Hello!

### Advanced Access Objectives

An overview of the lessons in this book:

1. Representing many-to-many relationship with a Table and Subdatasheet.
2. Using Primary Keys to create Relationships between Tables.
3. Creating a blank Form and adding buttons to open Forms and Reports.
4. Finding common errors in Forms and Queries and correcting the mistakes.
5. Calculating Totals in a Report.



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## Lesson 1 : You Say Goodbye, I Say Hello!

### 1. Readings

Read Lesson 1 in the Advanced Access guide, page 11-27

### Project

This overview does not have a demonstration project.

### Downloads

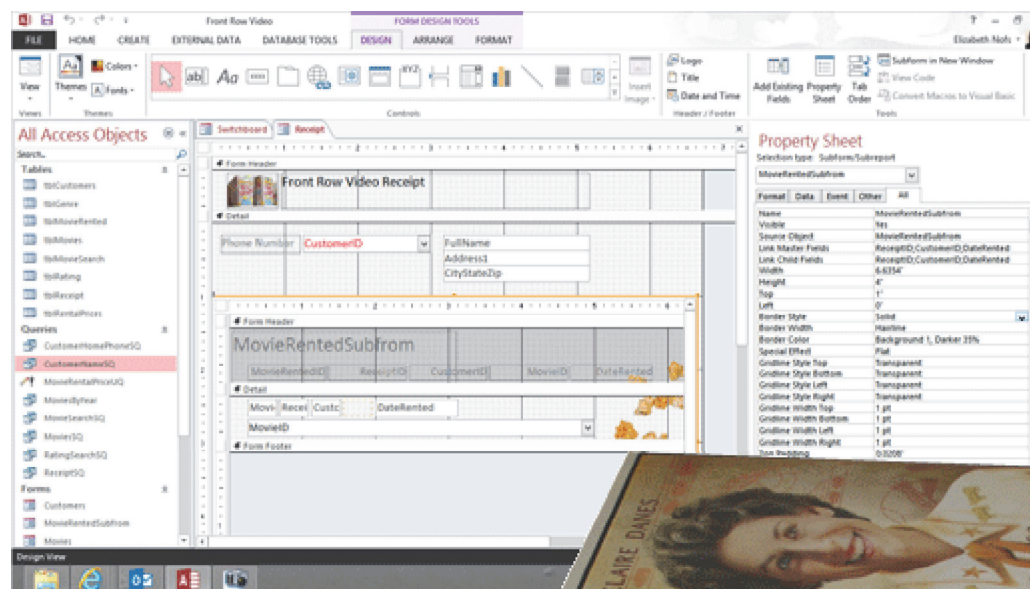
There are no downloads for this lesson.

### 2. Practice

There is no Practice Activity for this lesson.

### 3. Assessment

There is no test for this lesson.





## Advanced Databases



*Screenshot of the completed Receipt*

<b>Front Row Video</b>	
Receipt	1
4/7/2014	
Deeter Poohbah 123 Main Street Brighton, MI 48116	
No of Movies	5
Total Due	\$17.50
Movies Rented	
Harry Potter and the Deathly Hallows: Part 2 (2011) 3-Day Rental	\$3.50

The goal of any successful business is that many customers return many times and buy many things.

So, our Mighty Access database has to represent a many-to-many relationship and document that information in reports. In the Front Row Video business model the customer walks out with many movies and a receipt.

The goal of the Advanced Access programming is to create the Forms and Reports for the customer receipt. This book begins with an important discussion on Tables and Table Relationships. Then, the Advanced Form and Report lessons create the data entry and the Point of Sale (POS) receipt. The last discussions includes strategies for archiving and database administration.

This lesson offers a summary of the goals and objectives for the advanced programming in this Guide.

*The Computer Mama Sez: "Advanced" doesn't mean hard. Advanced means this database finally has enough programming to get the work done!*



## Goals and Objectives

The **Beginning Guide to Microsoft Access 2013** introduced the database objects: Tables, Queries, Forms and Reports. These lessons showed a one-to-one relationship. The Movies Form has one Record Source: the Movie Table, tblMovies.

The **Intermediate Guide to Microsoft Access 2013** demonstrates several methods of representing one-to-many relationships. For example, there are many movies with the same rating, say "PG,"

The **Advanced Guide to Microsoft Access 2013** creates a link between the customers and the movies: the receipt. The Receipt Form creates a many-to-many relationship. Many customers return many times and rent many movies each time.

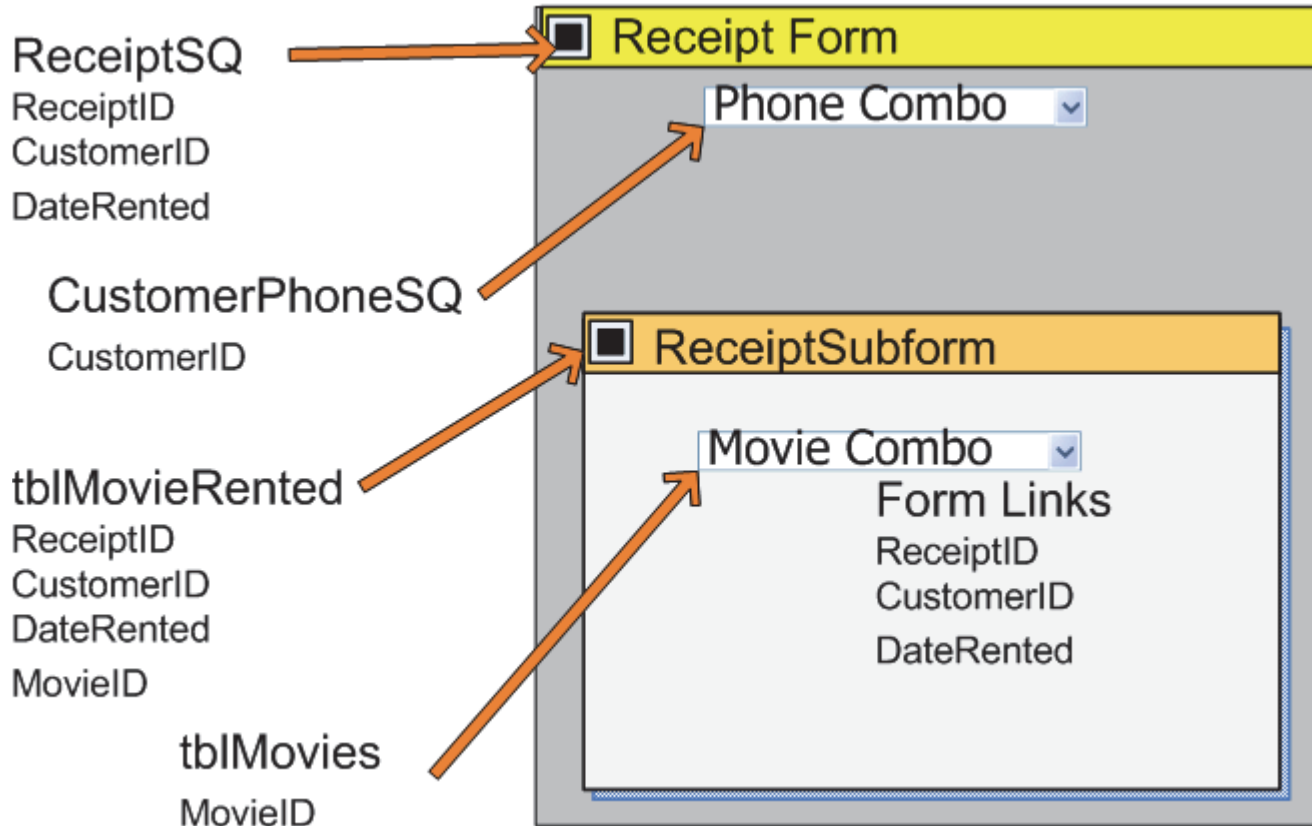
**What Is The Best Approach?** These lessons will create the Receipt Form and Receipt Report using Subforms/Subreports. The information will be related by Key data. The Receipt Report will be formatted to fit a small Point of Sale (POS) printer.

Example of the Completed Receipt Form

The screenshot shows the Microsoft Access 2013 interface with the 'Front Row Video Receipt' form open. The form is titled 'Front Row Video Receipt' and features a 'Switchboard' and 'Receipt' tab. The form contains several fields: 'Phone Number' (7345551212), 'Mary Contrary', '24 Elm Street', 'Pinckney, MI 48169', 'The Hunger Games (2012)', and 'Titanic 3D'. The 'All Access Objects' pane on the left shows the 'Receipt' form selected. The 'Switchboard' and 'Receipt' tabs are visible at the top of the form.



Example of a data diagram for the Receipt Form and Subform  
The arrows show the Record Source for the Forms and the Control Source for the Combo Box.



## Before You Begin: Draw A Data Diagram

Databases use a Form with a Subform to create a one-to-many relationship.

The Receipt Form has two Forms, two Tables, two Combo Boxes and three links. This is a good place to make a data diagram.

Form: Receipt  
Record Source: ReceiptSQ  
Default View: Form View  
Phone Combo: CustomerPhoneSQ

Form: ReceiptSubform  
Record Source: tblMovieRented  
Default View: Datasheet

Parent and Child Links:  
ReceiptID  
CustomerID  
DateRented



## Relating Tables in a Database

**Tables are related by Key Data.** The Primary Key is the best Field because it is unique: it is an AutoNumber that is Indexed (no duplicates).

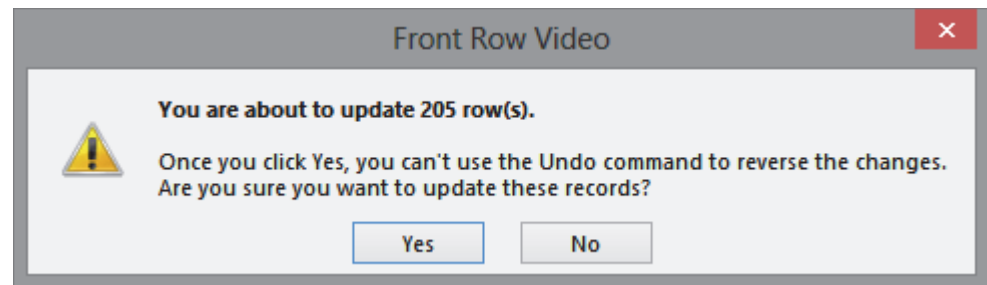
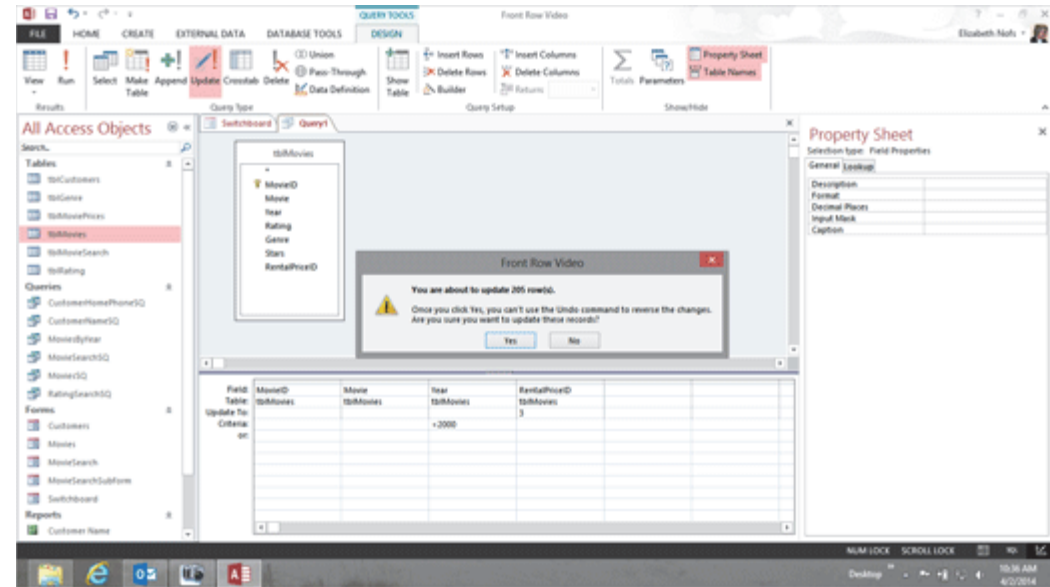
**Why Does This Matter?** There has to be at least one Field that matches in both Tables to create a relationship. We'll use the Primary Key to create relationships between the Tables.

**Plan:** This lesson will create a Rental Table that has three prices: new movies cost more than old ones. The Movie Table will be linked to the Rental Prices by a common Field: RentalPriceID, the Primary Key in the Rental Table.

**What Are the Steps?** Create the Rental Table and Update the Movie Table to add RentalPriceID as a Foreign Key so these Tables can be linked.

Then we'll create an Action Query to update the Rental Prices in the Movie Table. The Update Query will use the Year that a movie was released to determine the Rental Price..

Example of an Update Query





## Primary Keys and Relationships

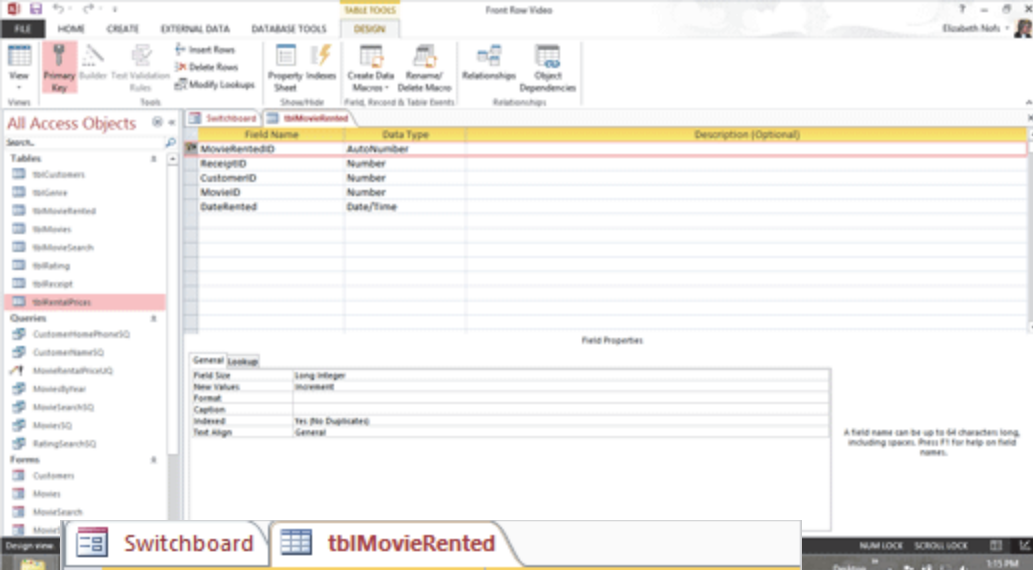
**What is a Normalized database?** Normalizing a database defines the Table design and how the Tables are related.

**Why Does This Matter?** Normalizing a database minimizes duplicate data and protects the data integrity. The Tables are small and functional. There should be a separate Table for each collection.

**Plan:** We will create two new Tables that will be the Record Sources for the Receipt Form and Receipt Subform. The Receipt Subform will inherit three Key Fields from the Receipt Form. So the Table for the Receipt Subform, tblMovieRented, has to be designed with that in mind

**What Are the Steps?** Create a Table for the Receipt Form and another Table for the Receipt Subform. These Tables will be joined by a matching Key: ReceiptID.

Example of a Table with Key Data: A Primary Key and 3 Foreign Keys



Field Name	Data Type	Description (Optional)
MovieRentedID	AutoNumber	
ReceiptID	Number	
CustomerID	Number	
MovieID	Number	
DateRented	Date/Time	

Field Name	Data Type
MovieRentedID	AutoNumber
ReceiptID	Number
CustomerID	Number
MovieID	Number
DateRented	Date/Time



## Advanced Form Design, part 1: Create the Receipt Subform

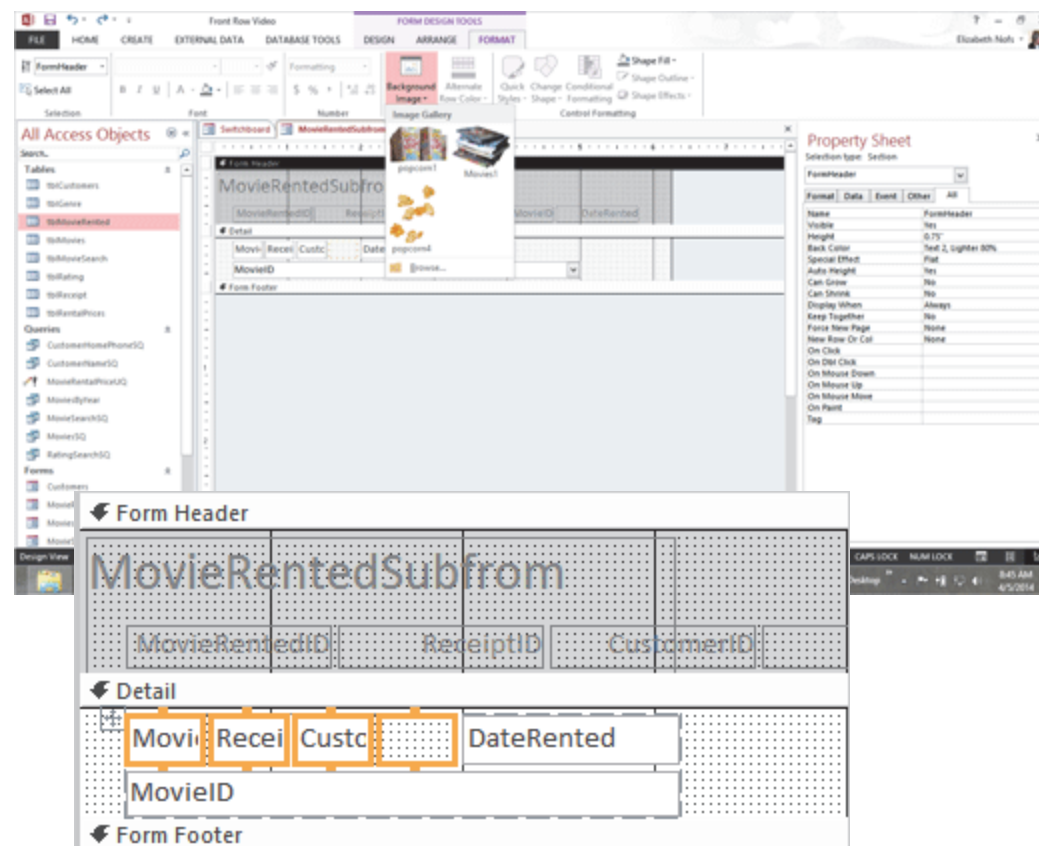
**Key Concept:** The Receipt Form represents a one-to-many relationship: one customer gets many movies. So, there will be a Form and Subform.

**Plan:** The focus will be on the Receipt Subform. This Form will list the movies rented. It is the "many" part of the one-to-many relationship: many movies. This Subform will be formatted as a Table, which is the way most online forms and web pages are designed.

**What Are the Steps?** Create a Subform for the movies rented and format the records as a Table.

**Worth Noting:** You may notice that the Arrange Tools in Microsoft Access are very similar to the Table Tools in Word or Excel.

Example of the MovieRentedSubform in Design View





## Advanced Form Design, part 2: Create the Receipt Form

**Advanced User Interface Design:** The Receipt Form will use a Combo Box Control to look up data in one Table and add it to another Table.

**Plan:** The Receipt Form will enable Users to search for a customer by their phone number and automatically display the customer's information.

**What Are the Steps?** Create a new Query for the Record Source. The Query will JOIN the Receipt Table with a Query, CustomerNameSQ, that looks up the customer's name and address.

When both Forms are formatted and tested , they will be linked by three Key Fields.

**Why Use This Method?** A Combo Box Control is an effective way to look up the data. When a User selects a phone number the Form will automatically display the customer's name and address.

Example of the Completed Receipt Form

The screenshot shows the Microsoft Access interface with the 'Front Row Video Receipt' form open. The 'Switchboard' and 'Receipt' tabs are visible at the top of the form. The 'Receipt' tab is selected, displaying the form's content. The form includes a 'Phone Number' dropdown menu with the value '7345551212'. To the right of this field, the customer's name 'Mary Contrary' and address '24 Elm Street, Pinckney, MI 48169' are displayed. Below these fields, there are two more dropdown menus: 'The Hunger Games (2012)' and 'Titanic 3D'. The form is styled with a light blue background and a white border.



## Advanced Report Design: The Report Diagram

The Receipt Report has a Report and a Subreport. Again, this is a good place to draw out the designs.

Both Reports are based on a Query:

The Report uses rptReceiptSQ.

This Query includes:

tblMovieRented

tblMovies

tblRentalPrices

CustomerNameSQ

The Subreport uses rptMovieRentedSQ.

This Query has three Tables:

tblMovieRented

tblMovies

tblRentalPrices

The Receipt Report and Subreport are linked by one Key: ReceiptID

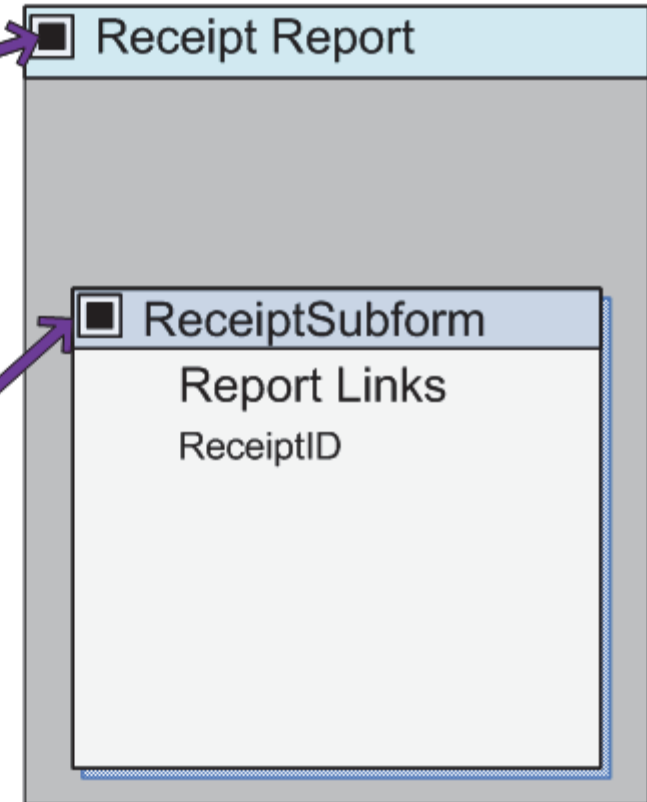
Example of a data diagram for the Receipt Report and Subreport: the arrows show the Record Source

rptReceiptSQ

ReceiptID  
CustomerID  
DateRented

rptMovieRentedSQ

ReceiptID  
DateRented  
Movie  
Price  
Description





## Advanced Report Design, part 1:

**Calculating the Totals:** The Receipt Report will use a Select Query that groups the rental prices and calculates the totals for each Receipt.

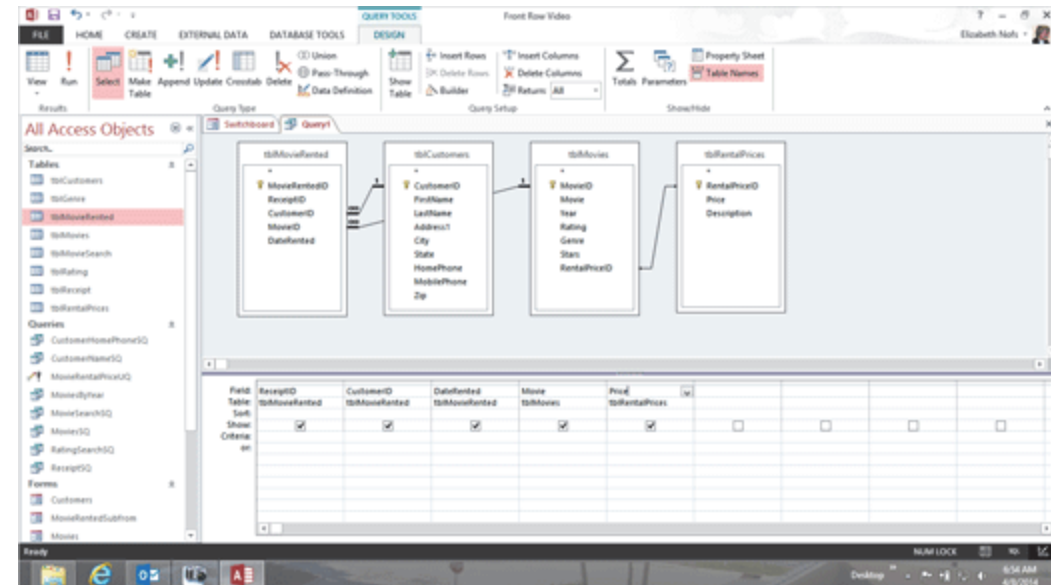
The Receipt Report represents a many-to-many relationship. It will be designed as a Report and a Subreport linked by matching Keys.

**Plan:** This lesson will focus on Report Design. The Report Header, the top part of the Receipt, will include the customer's name.

**What Are the Steps?** The Record Source for the Receipt Report will be a Query, rptMovieRentedSQ, that uses the same Table that was the Record Source for the Receipt Subform, tblMovieRented.

The Receipt Report will be formatted as a Table and edited to fit a small Point of Sale printer.

Example of the Record Source for the Receipt Report: rptReceiptSQ, a Query



Field:	ReceiptID	CustomerID	DateRented	Movie	Price
Table:	tblMovieRented	tblMovieRented	tblMovieRented	tblMovies	tblRentalPrices
Total:	Group By	Group By	Group By	Group By	Group By
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					
or:					



## Advanced Report Design, part 2:

**Finishing the Receipt:** The Receipt Subreport represents the "many" side of this relationship. This Subreport will show many movies.

**Plan:** The Subreport will be a Tabular Report formatted as a Table.

**What Are the Steps?** Design a new Query to be the Record Source for the Subreport. Create a Receipt Subreport and format the layout with the Table Tools. Add the Subreport to the Receipt Report and confirm the Master and Child Links.

**What Are the Issues?** The Controls and Headers have to be edited before the Report can be resized for the narrow 2" Point of Sale (POS) printer.

*Example of the Completed Receipt Report, formatted for a POS printer*

The screenshot shows the Microsoft Access 2013 interface. On the left, the 'All Access Objects' pane lists various objects. The main window displays the 'Design View' of a report named 'Front Row Video'. The report has a 'Page Header' section with 'Front Row Video' and a 'Detail' section with fields for 'ReceiptID', 'DateRented', 'FullName', 'Address', 'CityStateZip', 'No of Movies', 'CountOfMovies', 'Total Due', and 'SumOfPrice'. The 'Property Sheet' pane on the right shows the 'Format' property for the 'ReceiptID' field set to 'Text'.

Below the design view, a preview of the completed receipt report is shown. The report is formatted for a narrow 2" Point of Sale (POS) printer. It includes a header section with the title 'Front Row Video' and a subheader 'Receipt'. The main body of the report displays the following information:

Receipt	1
4/7/2014	
Deeter Poohbah	
123 Main Street	
Brighton, MI 48116	
No of Movies	5
Total Due	\$17.50
Movies Rented	
Harry Potter and the	\$3.50
Deathly Hallows:	
Part 2 (2011)	
3-Day Rental	



## The Producers: Calculating with Dates

**Harvest the Data for Customer Support:** Most businesses are date driven. Queries can be used to look for overdue movies.

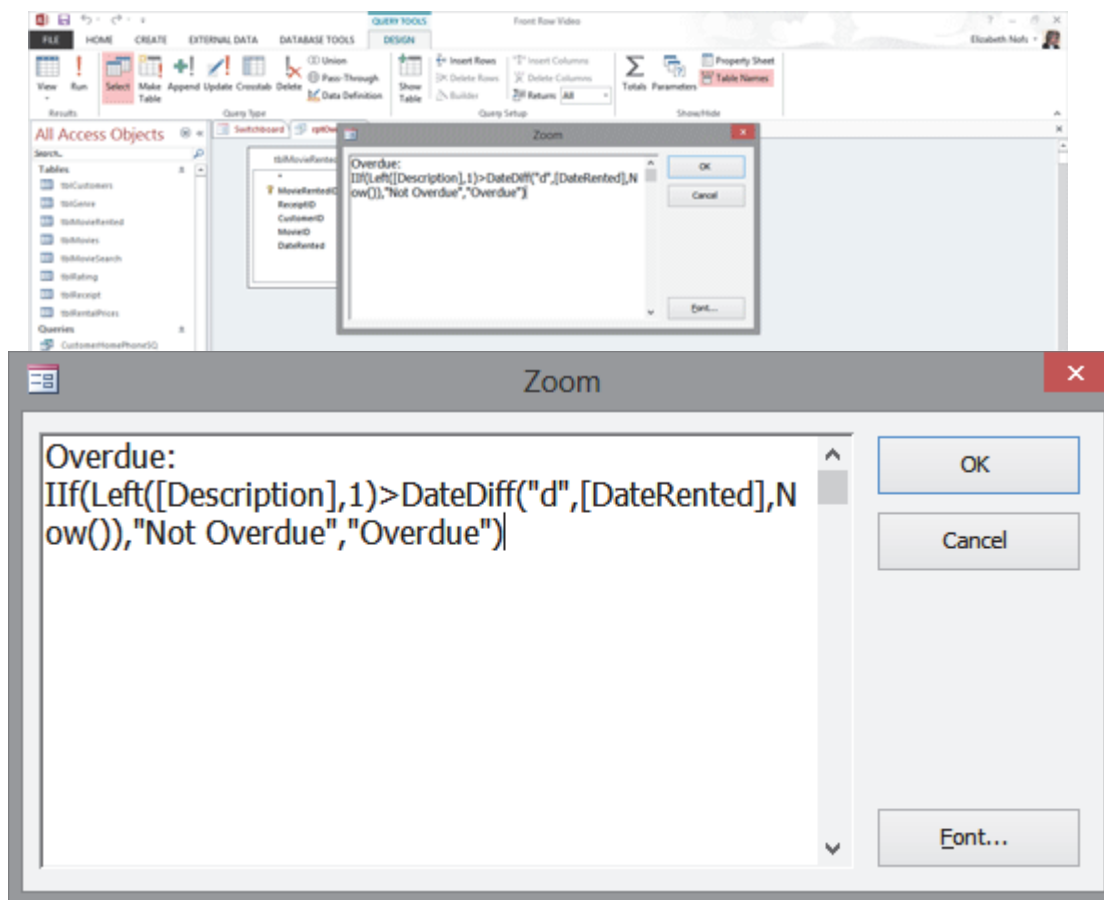
**Plan:** Create a new Query as the Record Source for a Report that calculates the numbers of days that each movie is overdue.

The Report will be Grouped by Customer and formatted so that there is only one customer per page. Our customers will get an Overdue Movie Report that is formatted like a letter.

**What Are the Steps?** Design a Query that Groups the Records by Customer and calculates the Amount Due. Then, create a Report that is formatted like a business letter.

**Worth Noting:** The new Query will calculate the difference between the DateRented and the current date with the DateDiff() function.

*Example of a Query that calculates the differences between two dates*





## Prepare to Share: Export the Data

**Key Concept:** Export the data out of Access.

**Plan:** Prepare the data with two different methods: a Crosstab Query and a Report. The Crosstab Query presents the data in a Table. The Report uses a query that can be part of a Mail Merge in Microsoft Word.

**What Are the Steps?** Create a Crosstab Query and analyze the results. Also, create a Report that can be exported in several formats. Then export the data into formats that can be shared: Word, Excel, XPS and PDF.

**Why Use This Method?** When the Report is in Print Preview, the data can be exported in several file formats that can be shared and sent by E-mail.

*Example of the completed PivotChart after it was added to a Report*

The screenshot shows the Microsoft Access 2013 interface. The 'Send Object As' dialog box is open, showing options to export the object to various formats like Excel, PDF, Word, etc. In the background, a PivotTable report titled 'Front Row Video' is visible, showing movie genres and their total counts.

Genre	Total Of MovieID
	27
Action	13
Biography	1
Comedy	46



## The Administrator: Strategies for Archiving

**Key Concept:** Deleting data is not a good idea. The preferred method is to mark the Records as Archive, Done or Obsolete.

**Plan:** Automate the process of selecting and archiving obsolete Records from a database instead of deleting them.

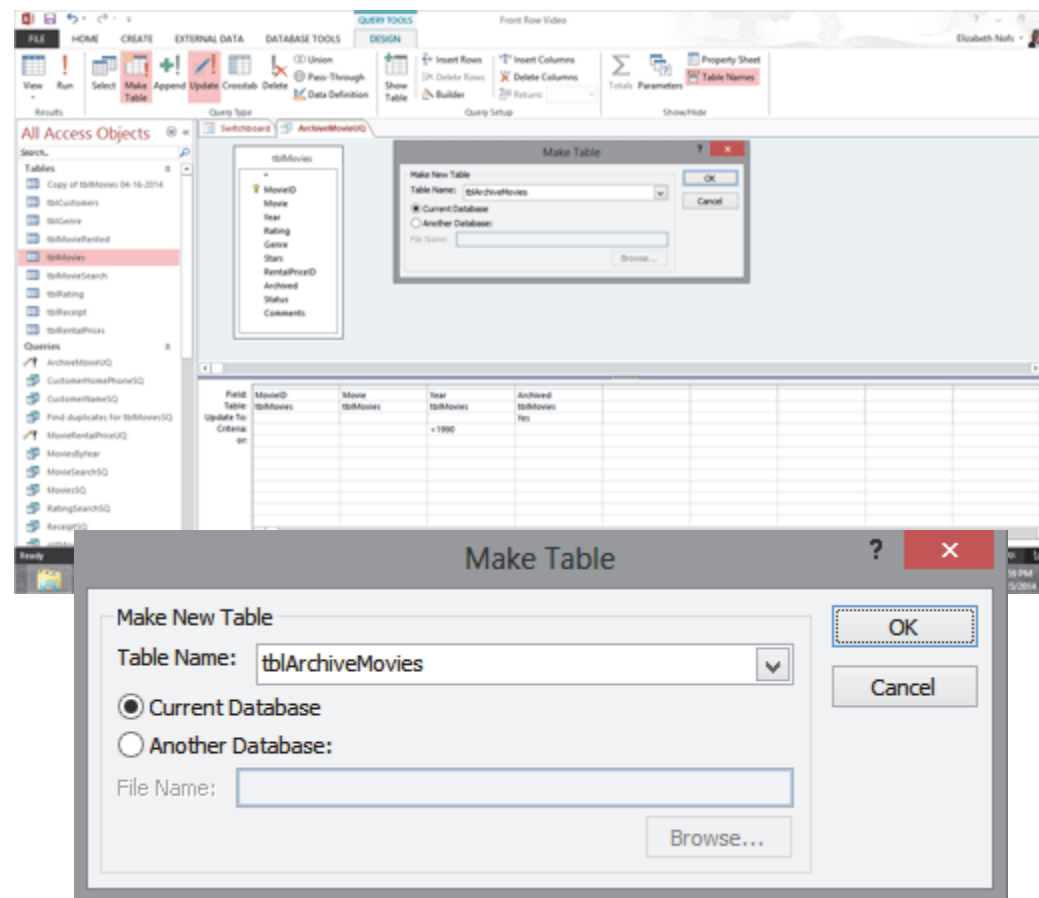
**What Are the Steps?** Edit the Table to include a Yes/No Field that indicates if the Movie is Archived. Add two additional Fields to document the status.

Create an Action Query to select, update and copy selected Records to the new Table.

Then, create another Action Query to delete the Records and practice on a COPY of the Table.

**Why Use This Method?** All businesses need a method for evaluating and archiving the data..

Screenshot of a Make Table Query





## The Administrator: The Performance Network

**Deploying Access in a Multi-User Network:** Split an Access database into two: one that has Tables and another that has everything else.

**Plan:** Optimize the database so that many Users can access the same data Tables.

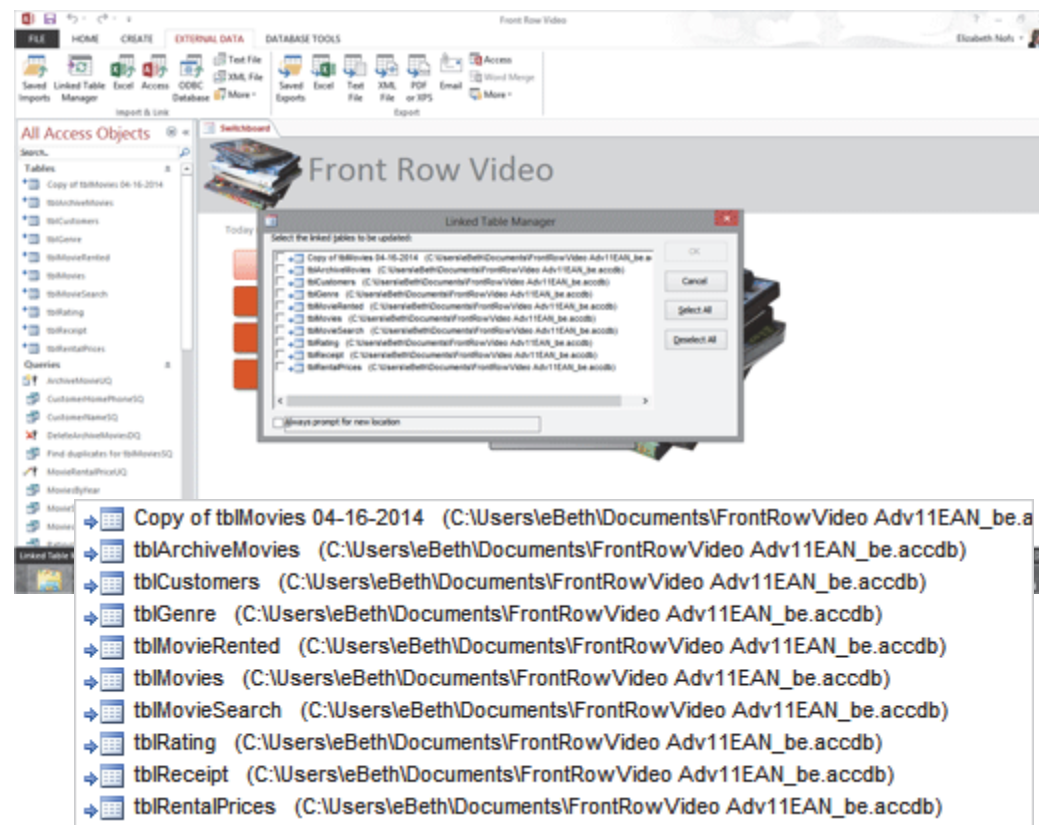
**What Are the Steps?** Create two backup copies of the database: one for Tables, the other for Forms. Open the Form database and delete the Tables.

Open the Tables database and delete all of the Forms, Queries, Reports and Macros.

Finally, link the Tables to the Forms database as External Data and use the Linked Table Manager to refresh the Links.

**Worth Noting:** This lesson demonstrates how to prepare a database for deployment including Database documentation, Password encryption, and editing the Client Settings.

Screenshot of a Database with Linked Tables





## Summary: Advanced Guide to Microsoft Access 2010<sup>3</sup>

So, the Advanced Guide to Access finishes the programming and answers the question: "Who bought what?"

This is a Mighty Access database that can be improved and revised as the business grows.

Well, a good programmer can go for hours on a couple of cookies. Let's get started!

