THE ACCESS WORKBENCH

Section 1

Getting Started with Microsoft Access

"The Access Workbench" is designed to reinforce the concepts you learn in each chapter. In addition, you will learn many Microsoft Access skills by following along on your computer. In this chapter's section of "The Access Workbench," we will review some database basics from Chapter 1 as we walk through the basic steps necessary to build and use Microsoft Access database applications.

As discussed in this chapter, Microsoft Access is a personal database that combines a DBMS with an application generator. The DBMS performs the standard DBMS functions of database creation, processing, and administration, and the application generator adds the abilities to create and store forms, reports, queries, and other application-related functions. In this section, we will work with only one table in a database; in Chapter 2's section of "The Access Workbench" you will expand this to include two or more tables.

We will begin by creating a Microsoft Access database to store the database tables and the application forms, reports, and queries. In this section, we will work with basic forms and reports. Microsoft Access queries are discussed in Chapter 3's section of "The Access Workbench."

The Wallingford Motors Customer Relations Management System

Our Microsoft Access database will be used by a car dealership named Wallingford Motors, which is located in the Wallingford district of Seattle, Washington. Wallingford Motors is the dealer for a new line of hybrid cars named Gaea.[4] Instead of using only a gasoline or diesel engine, hybrid cars are powered by a combination of energy sources, such as gasoline and electricity. Gaea produces the following four models:

1. **SUHi** The sport-utility hybrid (Gaea's answer to the SUV)
2. **HiLuxury** A luxury-class four-door sedan hybrid
3. **HiStandard** A basic four-door sedan hybrid
4. **HiElectra** A variant of the HiStandard that uses a higher proportion of electrical power

Interest in hybrid cars—and specifically in the Gaea product line—is increasing. The sales staff at Wallingford Motors needs a way to track its customer contacts. Therefore, our database application will be a simple example of what is known as a **customer relationship management (CRM) system**. A CRM is used by sales staff to track current, past, and potential customers as well as the sales staff's contacts with these customers (among other uses). We will start out with a personal CRM used by one salesperson and expand it into a companywide CRM in later sections.[5]

Creating a Microsoft Access Database

We will name our Microsoft Access application and its associated database **WMCRM**. Our first step is to create a new Microsoft Access database.

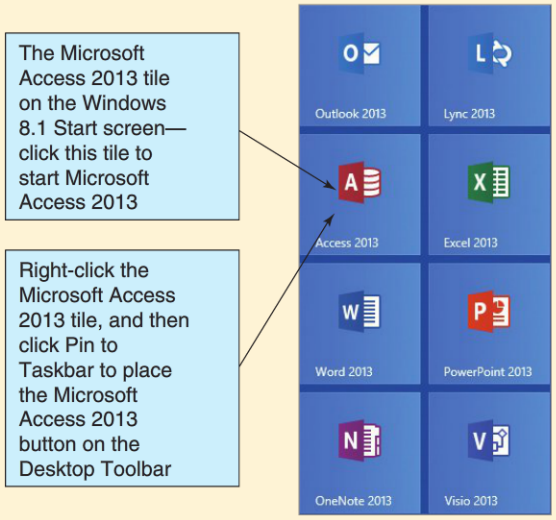
[4]Gaea, or Gaia, was the Greek goddess of the Earth.

[5]Many CRM applications are available in the marketplace. In fact, Microsoft has one: Microsoft Dynamics CRM.

(Continued)

FIGURE AW-1-1

The Microsoft Access 2013 Tile



Creating the Microsoft Access Database WMCRM

1. Click Access tile on the Windows 8.1 Start screen as shown in Figure AW-1-1.
   - **NOTE:** The same command works for Windows 8. For Windows 7, select **Start | All Programs | Microsoft Office | Microsoft Access 2013**.
   - **NOTE:** We recommend that you pin a Microsoft Access 2013 button to the Windows Desktop Taskbar for ease of use. To do this, right-click the **Microsoft Access 2013 tile** on the Start screen to open a shortcut menu, and then click the **Pin to Taskbar** command.
   - **NOTE:** The menu commands, icon locations, and file locations used in "The Access Workbench" are those found when using Microsoft Access 2013 in the Microsoft Windows 8.1 operating system. If you are using the Microsoft **Windows 7** or **Microsoft Windows 8** operating systems, the exact operating system terminology may vary somewhat, but these variations will not change the required actions.
   - **NOTE:** Microsoft Access 2013 is used in these sections, and the wording of the steps and appearance of the screenshots reflect its use. If you have a different version of Microsoft Access, there will be some differences in the step details and in what you see onscreen. However, the basic functionality is the same, and you can complete "The Access Workbench" operations using any version of Microsoft Access.
2. The Microsoft Access 2013 Splash Screen appears, as shown in Figure AW-1-2. This screen displays the names of database files that have been recently used, an Open Other Files command, and template buttons for various types of databases and database applications.
3. Click the **Blank desktop database** template button to open the Blank desktop database dialog box as shown in Figure AW-1-3.
   - **NOTE:** By default, in Windows 8.1 the database will be created in the *Documents* folder on This PC. Note that this is a major difference and is new to Windows 8.1. In Windows 8 and Windows 7, the database will be created in the *My Documents* folder in the *Documents* library folder. The *Documents* library folder contains both a *My Documents* folder and a *Public Documents* folder.

FIGURE AW-1-2

The Microsoft Access 2013 Splash Screen

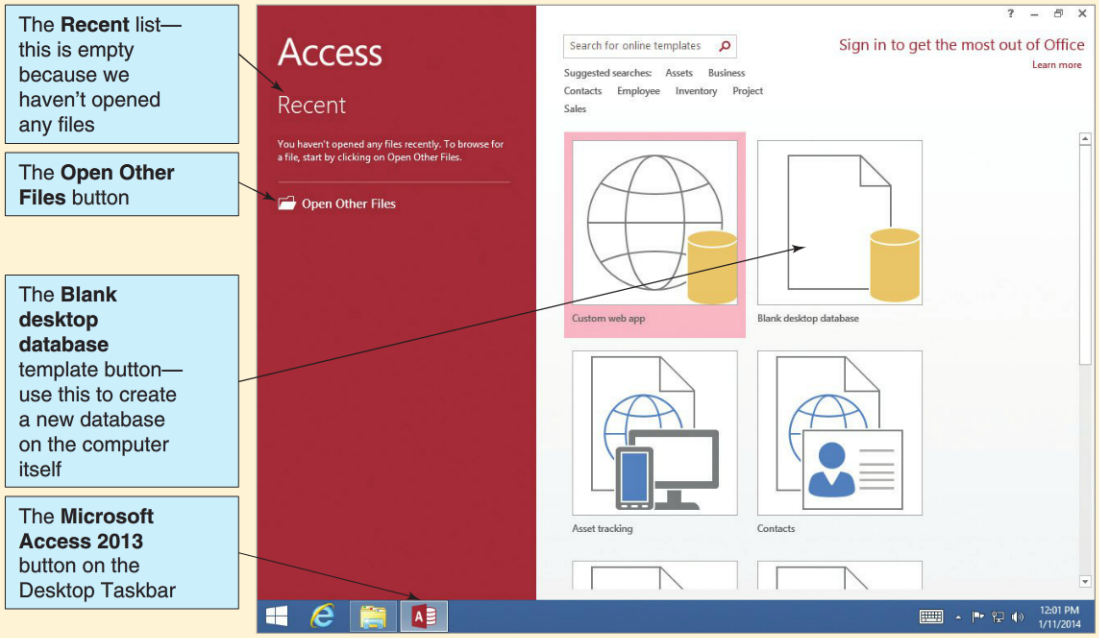
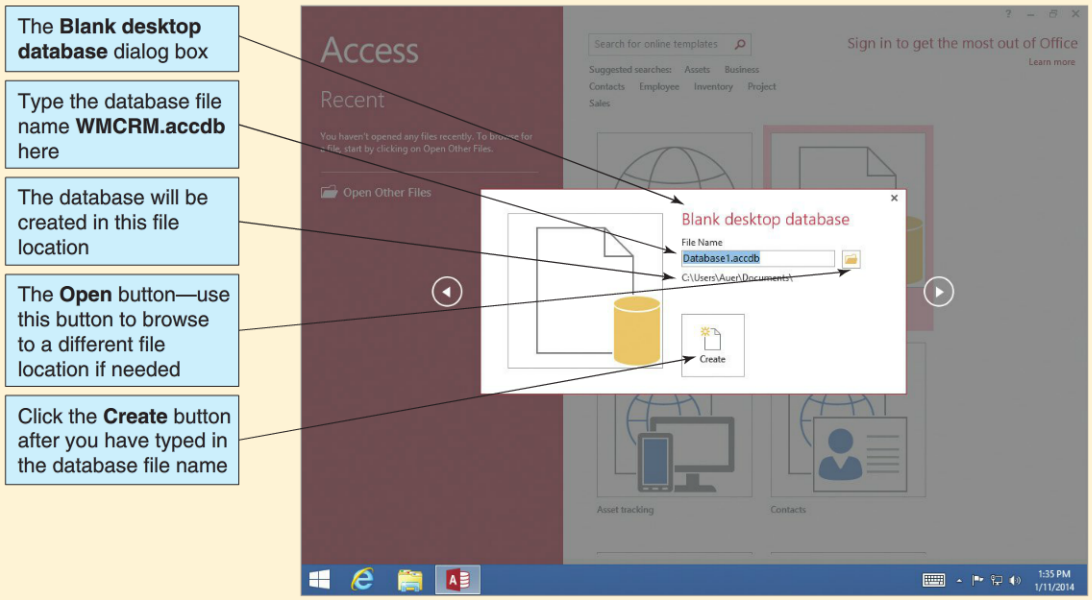


FIGURE AW-1-3

The Blank Desktop Database Dialog Box



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4. Type in the database name **WMCRM.accdb** in the **File Name** text box, and then click the **Create** button.
   - **NOTE:** If you clicked the Open button to browse to a different file location, use the File New Database dialog box to create the new database file. Once you have browsed to the correct folder, type the database name in the File Name text box of the File New Database dialog box, and then click the OK button to create the new database.
5. The new database appears, as shown in Figure AW-1-4. The Microsoft Access window itself is now named (in full—only part may be visible) **WMCRM : Database – C:\Users\Auer\Documents\WMCRM.accdb (Access 2007-2013 file format) – Access** to include the database name.
   - **NOTE:** The reference to Microsoft Access 2007-2013 in the window name indicates that the database is stored as an **.accdb* file, which is the Microsoft Access database file format introduced with Microsoft Access 2007. Prior versions of Microsoft Access used the **.mdb* file format. Microsoft Access 2013 does not introduce a new database file format but continues to use the Microsoft Access 2007 **.accdb* file format.
6. Note that because this is a new database Microsoft Access has assumed that you will want to immediately create a new table. Therefore, a new table named **Table1** is displayed in Datasheet view in the document window. We do *not* want this table open at this time, so click the **Close** document button shown in Figure AW-1-4.
7. The Microsoft Access 2013 window with the new database appears, as shown in Figure AW-1-5. You can see most of the features of the Microsoft Office Fluent user interface in this window.

FIGURE AW-1-4

The New Microsoft Access Database

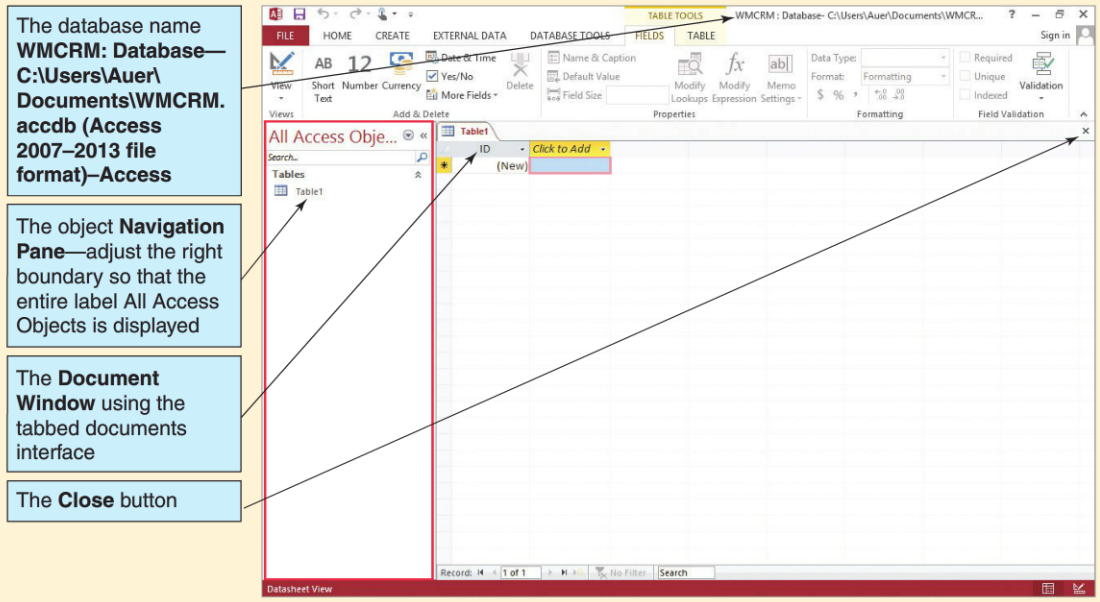
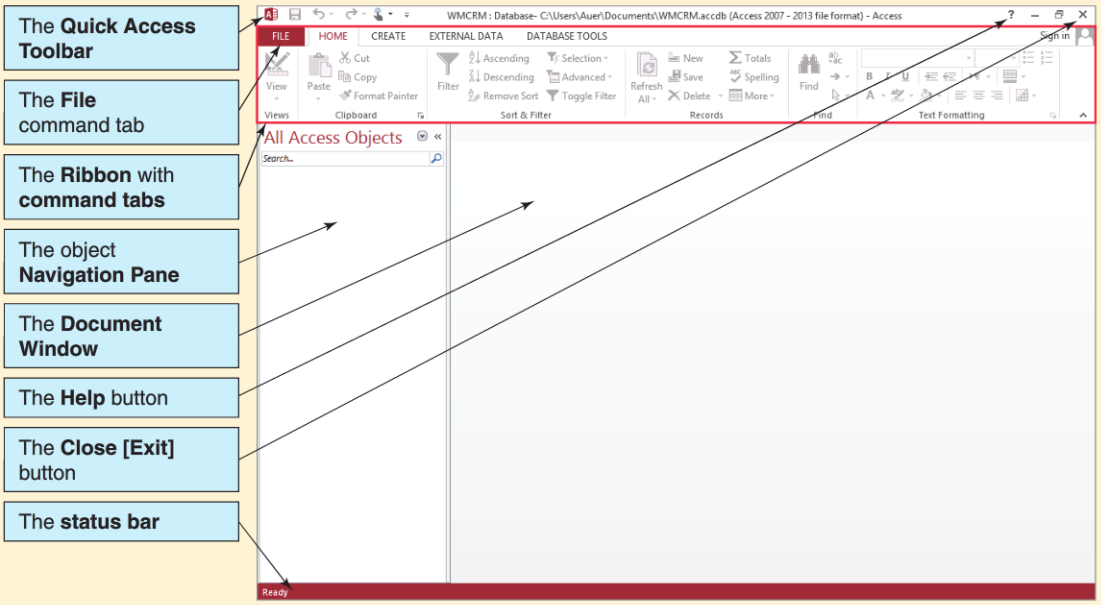


FIGURE AW-1-5

The Microsoft Office Fluent User Interface



The Microsoft Office Fluent User Interface

Microsoft Access 2013 uses the **Microsoft Office Fluent user interface** found in most (but not all) of the Microsoft Office 2007 and Office 2013 applications. The major features of the interface can be seen in Figure AW-1-5. To illustrate its use, we will modify some of the default settings of the Microsoft Access database window.

The Quick Access Toolbar

First, we will modify the Quick Access Toolbar shown in Figure AW-1-5 to include a Quick Print button and a Print Preview button.

Modifying the Microsoft Access Quick Access Toolbar

1. Click the **Customize Quick Access Toolbar** drop-down arrow button shown in Figure AW-1-5. The Customize Quick Access Toolbar drop-down list appears, as shown in Figure AW-1-6.
2. Click **Quick Print**. The Quick Print button is added to the Quick Access Toolbar.
3. Click the **Customize Quick Access Toolbar** drop-down button. The Customize Quick Access Toolbar drop-down list appears.
4. Click **Print Preview**. The Print Preview button is added to the Quick Access Toolbar.
5. The added buttons are visible in the figures shown later in this section of "The Access Workbench," such as Figure AW-1-7.

Database Objects and the Navigation Pane

Microsoft uses the term **object** as a general name for the various parts of a Microsoft Access database. Thus, a *table* is an object, a *report* is an object, a *form* is an object, and so on. Microsoft Access objects are displayed in the Microsoft Access **Navigation Pane**, as shown

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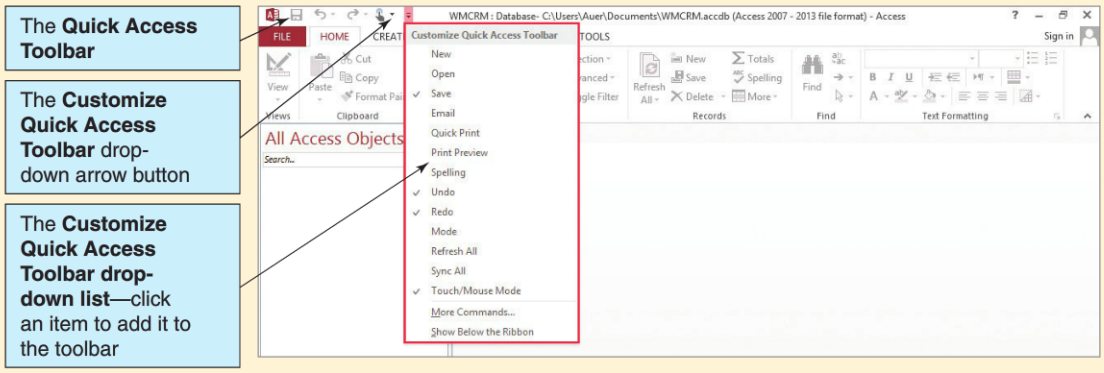
FIGURE AW-1-6

The Quick Access Toolbar



in Figure AW-1-3. However, because you have not created any objects in the WMCRM database, the Navigation Pane is currently empty.

The Navigation Pane is currently labeled as *All Access Objects*, which is what we want to see displayed. We can, however, select exactly which objects will be displayed by using the **Navigation Pane drop-down list**. As shown in Figure AW-1-7, the Navigation Pane drop-down list is controlled by the **Navigation Pane drop-down list button**. Figure AW-1-6

FIGURE AW-1-7

The Navigation Pane Drop-Down List

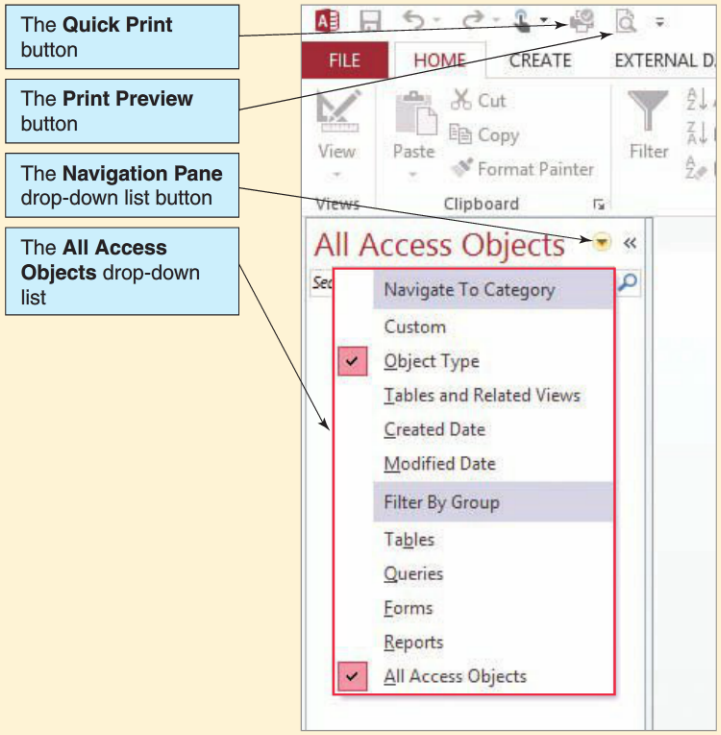
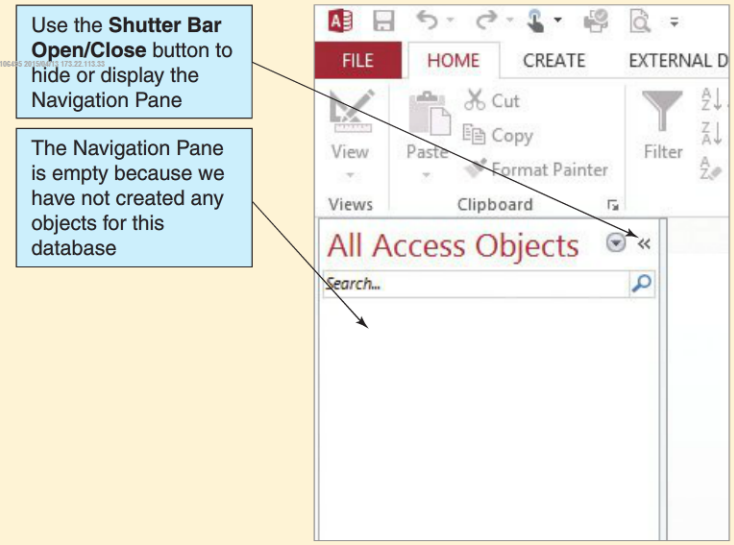


FIGURE AW-1-8

The Empty Navigation Pane



shows the empty Navigation Pane and the **Shutter Bar Open/Close button**. We can hide the Navigation Pane if we want to by clicking the Shutter Bar Open/Close button, which is displayed as a left-facing double-chevron button on the upper-right corner of the Navigation Pane in Figure AW-1-8. If we click the button, the Navigation Pane shrinks to a small band labeled *Navigation Pane* on the right side of the Microsoft Access 2013 window. The band will then display the Shutter Bar Open/Close button as a right-facing double-chevron button that we can click to restore the Navigation Pane when we want to use it again.

Closing a Database and Exiting Microsoft Access

The *Close* button shown in Figure AW-1-5 is actually a *close and exit button.* You can click it to close the active database and then exit Microsoft Access. Note that Microsoft Access actively saves most changes to a database, and it prompts you with *Save* command requests when they are needed. For example, when you close a table with modified column widths Microsoft Access asks if you want to save the changes in the table layout. Therefore, you do not need to save Microsoft Access databases the way you save Microsoft Word documents and Microsoft Excel workbooks. You can simply close a database, knowing that Microsoft Access has already saved all critical changes since you opened it.

Closing a Database and Exiting Microsoft Access

1. Click the **Close** button. The database closes, and you exit Microsoft Access.

BTW

Instead of clicking the Close button, you can simultaneously close the database and exit Microsoft Access by clicking the File command tab, and then clicking the Exit command. To close just the database while leaving Microsoft Access open, select the File command tab, and then click the Close Database command.

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Opening an Existing Microsoft Access Database

Earlier in this section of "The Access Workbench" we created a new Microsoft Access database for the Wallingford Motors CRM (WMCRM.accdb), modified some Microsoft Access settings, and closed the database and exited Microsoft Access. Before we can continue building this database, we need to start Microsoft Access and open the WMCRM.accdb database.

When we open an existing database, Microsoft Access 2013 (like Microsoft Access 2007 and Microsoft Access 2010 before it) gives us the option of using Microsoft Access security options to shut down certain Microsoft Access 2013 features in a database to protect ourselves against harm not only from viruses but also from other possible problems. Unfortunately, the Microsoft Access 2013 security options also shut down significant and needed operational features of Microsoft Access. Therefore, we will normally enable the features that the Microsoft Access 2013 security warning warns us about when we open an existing database.

Opening a Recently Opened Microsoft Access Database

1. Open Microsoft Access 2013 by clicking the **Microsoft Access 2013** button on the Windows Start screen (or on the Windows Taskbar if you pinned it there as suggested). Microsoft Access 2013 is displayed with the splash screen open, as shown in Figure AW-1-9
2. The **Recent list** is displayed on the splash screen, and the database file WMCRM.accdb is now listed there.
3. Note that if the database has been used very recently it will be available in the Recent file list. You may make the file a permanent part of the Recent file list, by right-clicking the file name to display a shortcut menu, and then clicking the *Pin to list* command. Similarly, you can remove a file from the Recent list by using the *Remove from list* command on the shortcut menu.
4. Click the **WMCRM.accdb** file name in the **Recent file list** to open the database. A **Security Warning** bar appears with the database, as shown in Figure AW-1-10.

FIGURE AW-1-9

The Recent File List

The **WMCRM.accdb** database in the Recent list—click the file name to open the file. Right-clicking the file name displays a shortcut menu with options to (1) remove this file from the Recent list and (2) pin it to the list permanently.

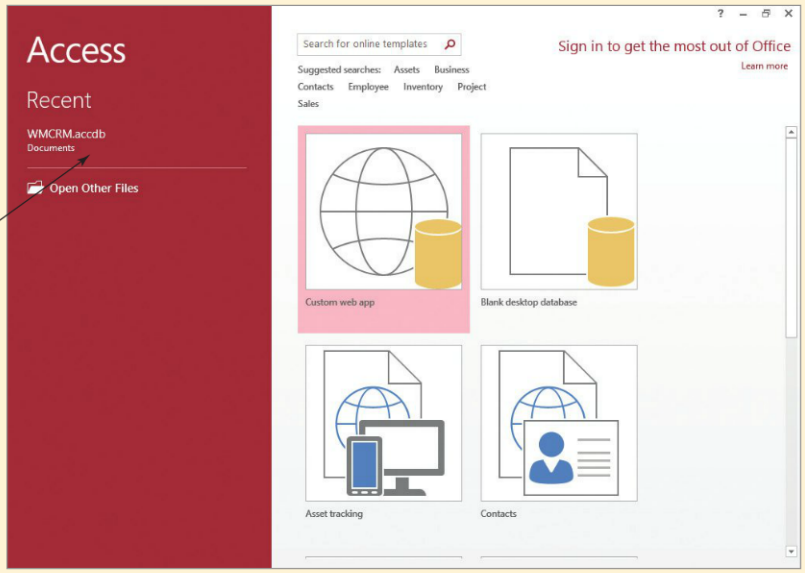
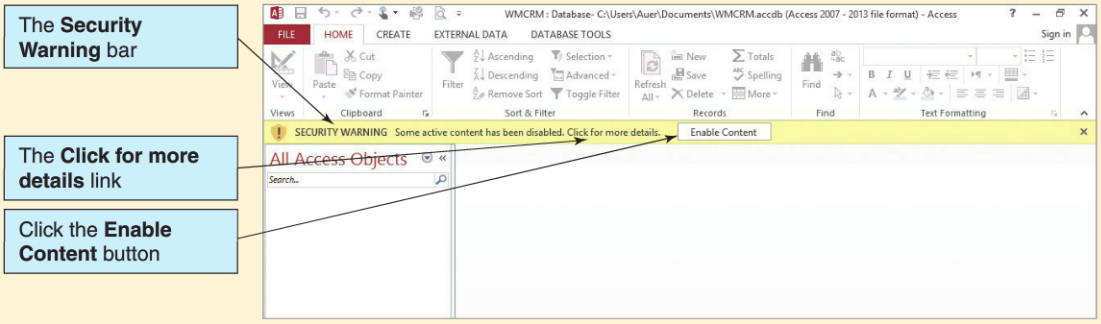


FIGURE AW-1-10

The Security Warning Bar



5. At this point, we have the option of clicking the Security Warning bar's **Click for more details** link, which will display a detailed version of the warning together with security options. However, for our purposes in this text, we simply need to enable the active content, so click the **Enable Content** button.
   - **NOTE:** At some point, you should select the **Click for more details** link and explore the available security settings.
   - **NOTE:** In Microsoft Access 2007, the Security Warning bar appeared every time the database was reopened (although from a *nontrusted location*—see Chapter 6's section of "The Access Workbench" for a discussion of *trusted locations*). In Microsoft Access 2010 and Microsoft Access 2013, the Security Warning bar is only displayed the first time you reopen a database, and your choice of options is remembered from that point on.

Creating a Microsoft Access Database Table

At this point in the development of the WMCRM database application, the database will be used by one salesperson, so we need only two tables in the WMCRM database—CUSTOMER and CONTACT. We will create the CUSTOMER table first. The CUSTOMER table will contain the columns and characteristics shown in the table in Figure AW-1-11. The column characteristics are type, key, required, and remarks.

Type refers to the kind of data the column will store. Some possible Microsoft Access data types are shown in Figure AW-1-12. For CUSTOMER, most data are stored as **short text** data which can store up to 255 characters (also commonly called **character** data, this data type was previously called just **text—long text** now refers to a data type previously called **memo**, which can store up to 65,535 characters), which means we can enter strings of letters, numbers, and symbols (a space is considered a symbol). The number behind the word *Text* indicates how many characters can be stored in the column. For example, customer last names may be up to 25 characters long. The only **number**, or **numeric**, data column in the CUSTOMER table is CustomerID, which is listed as **AutoNumber**. This indicates that Microsoft Access will automatically provide a sequential number for this column for each new customer that is added to the table.

Key refers to table identification functions assigned to a column. These are described in detail in Chapter 2. At this point, you simply need to know that a **primary key** is a column value used to identify each row; therefore, the values in this column must be unique.

(Continued)

FIGURE AW-1-11

Database Column Characteristics for the CUSTOMER Table

Column Name	Type	Key	Required	Remarks
CustomerID	AutoNumber	Primary Key	Yes	Surrogate Key
LastName	Text (25)	No	Yes	
FirstName	Text (25)	No	Yes	
Address	Text (35)	No	No	
City	Text (35)	No	No	
State	Text (2)	No	No	
ZIP	Text (10)	No	No	
Phone	Text (12)	No	Yes	
Fax	Text (12)	No	No	
Email	Text (100)	No	No	

FIGURE AW-1-12

Microsoft Access 2013 Data Types

Name	Type of Data	Size
Short Text	Characters and numbers	Maximum 255 characters
Long Text	Large text	Maximum 65,535 characters
Number	Numeric data	Varies with Number type
Date/Time	Dates and times from the year 100 to the year 9999	Stored as 8-byte double-precision integers
Currency	Numbers with decimal places	One to four decimal places
AutoNumber	A unique sequential number	Incremented by one each time
Yes/No	Fields that can contain only two values	Yes/No, On/Off, True/False, etc.
OLE Object	An object embedded in or linked to a Microsoft Access table	Maximum 1 GB
Hyperlink	A hyperlink address	Maximum 2,048 characters in each of three parts of the hyperlink address
Attachment	Any supported type of file may be attached to a record	Independent of Microsoft Access
Calculated	Results of a calculation based on data in other cells	Varies depending on values used in calculation
Lookup Wizard…	A list of possible data values located in a value list	Varies depending on the values in the value list