

Tables in MS Access 2010

In this chapter, you will learn about :

- Introduction to MS Access
- Defining database
- Tables in database
- Starting Access 2010
- Creating a New Table in Datasheet View
- Field Properties
- Adding Records to a Table
- Saving and Closing a Table

DATABASE

You have studied in the previous class that **database** is a collection of data which is organized in a manner that can be easily retrieved. They consist of fields, records and files.

The software that is used to access, release, modify, delete, search, sort, design and print data is called *Database Management System (DBMS)*. Using DBMS the data redundancy, inconsistency and duplication can be reduced and the security and integrity of data can also be maintained. The main function of a DBMS is to :

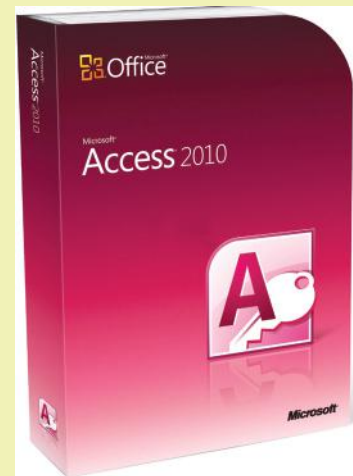
- Organize the data.
- Control how and where the data is to be stored.
- Modify and update the data.
- Access the data quickly and easily.
- Protect and secure the data.

MS ACCESS

With the increasing demand for Windows Application Microsoft Company introduced a *Relational Database Management System (RDBMS)* for the Windows platform called **MS Access**. In a manual database, you might record data on paper and store it in a filing cabinet. Database software, like Access, is a software that allows you to create, access and manage a database.

MS Access comes packed with features and tools that are easy to use by the beginners.

Microsoft Access is a program for creating databases to store business or personal data. You can use Access to manage large or small collections of information. The information can be viewed, sorted, manipulated, retrieved and printed in various ways. Access gives you the flexibility to obtain this data in multiple formats.



Relational Database

Microsoft Access creates **relational databases**. Relational database can contain multiple tables with links between them. For example, a school may have a students table for storing student contact information and a result table for storing information about marks of the students. Each student in the Students table has a unique ID, and each result in the results table references a specific student ID.

Tables, Records, and Fields

Access stores the data in **tables**. Each individual entry in the table is called a **record**. For example, in a Students table, the information about each student is a separate record. Each record is composed of one or more **fields** that contain individual pieces of data. For example, Student fields may include Roll number, Name, Address and Class.

OPENING A DATABASE FILE

You can **open** a database that you previously created to continue entering data into it.

Step 1 : Click on the **File** tab.

The **backstage view** appears.

Step 2 : Click on **Open**.

Alternatively, you can press **Ctrl + O** instead of performing. The **Open** dialog box will appear.

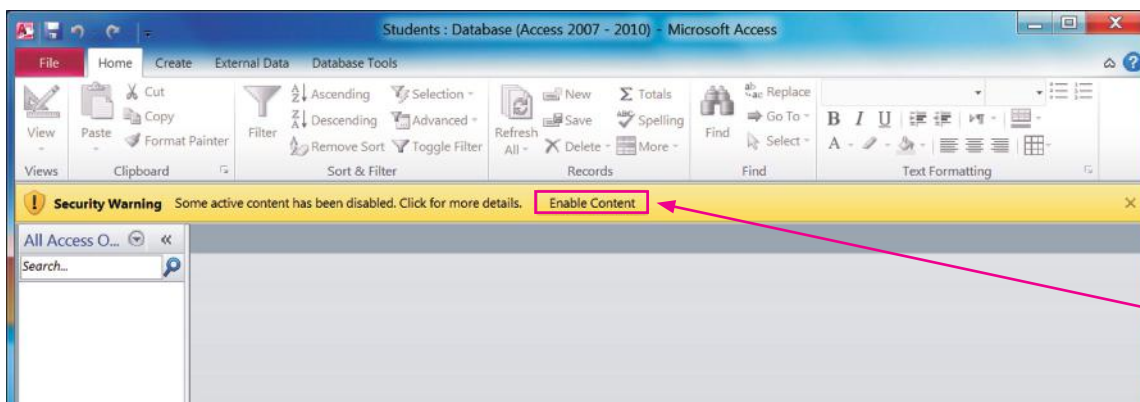
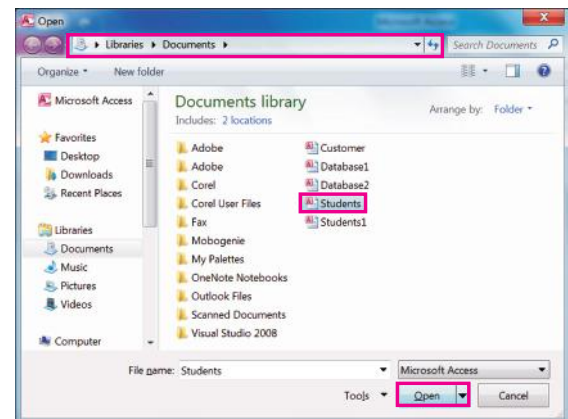
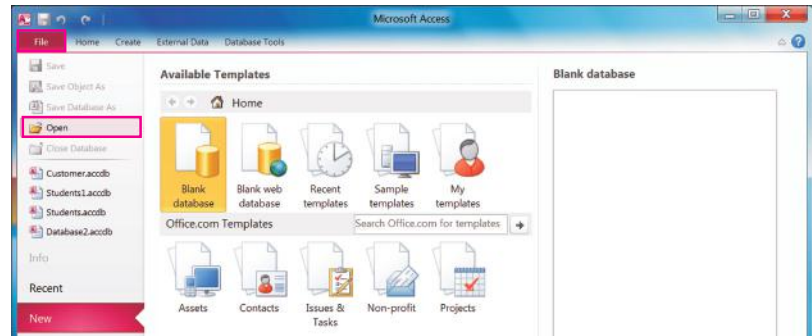
Step 3 : You can click here and navigate to a different location.

Step 4 : Click on the name of the file that you want to open.

Step 5 : Click on **Open**.

Step 6 : Click on the **Enable content**.

The database file opens.



If a Security Warning Bar appears

Know More

A security warning appears when you are opening a database that is stored in a location that is not trusted, such as a file you received as an e-mail attachment, or when opening a file that contains macros (sets of recorded actions). The message implies that the file contains dangerous content, but that is not necessarily so; even a blank database can trigger this warning.

CHANGING THE NAVIGATION PANE VIEW

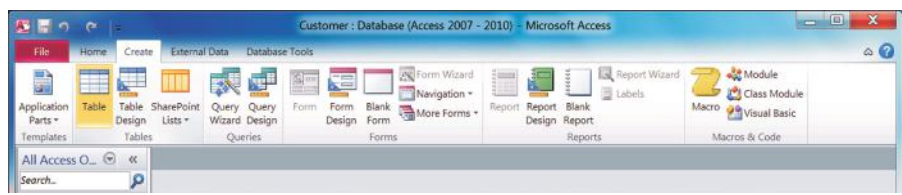
You can display or hide the Navigation pane which is situated on the left side of Access window. The Navigation pane enables you to view database objects like tables, queries, reports and forms.

- You can also press **F11** toggle key from keyboard to display or hide the Navigation pane.

CREATING A NEW TABLE IN DATASHEET VIEW

You can create a table from Datasheet View and then add new fields simply by typing the field names into the column-heading placeholders. Datasheet View is good when you need a quick table consisting of just a few fields. The steps to create a table using Datasheet View are :

Step 1 : Click on the **Create** tab on the Ribbon.



Step 2 : Click on the **Table** button.

Access opens a new table in Datasheet view.



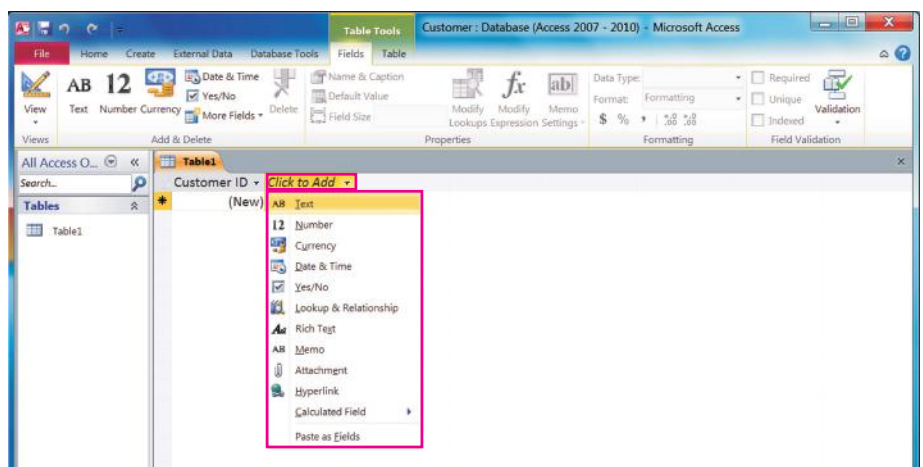
Step 3 : Double-click the column header to create a field name.

Step 4 : Type a name for the field.

Step 5 : Press **Enter** key from the keyboard.

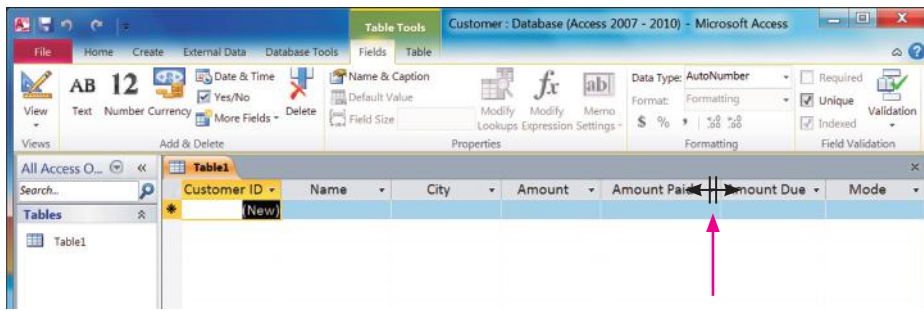
Step 6 : Click on the next column.

Data Type menu will appear.

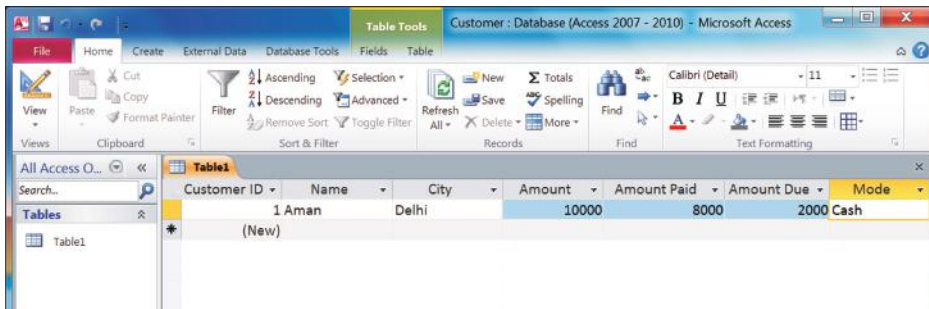


Step 7 : Select the data type for the field, e.g., select Text, if you want to add the Name of the field.

Step 8 : Type a name for the field.



You can resize a column by dragging the column border left or right.



Step 9 : Repeat the steps to create more fields for the table.

Step 10: Click inside the first field of the first row and type the data to enter the first record.

Step 11: Press **Tab** key.

Step 12: Type the next field's data.

Repeat the steps to complete the record.

When you reach the last field, you can press **Enter** to start a new record.

CREATING A NEW TABLE IN DESIGN VIEW

You can create a new table in **Design View** to get the exact fields that you want. In Design View the Window is divided into two panes: **top pane** for creating field name, specify field types, and enter field descriptions and **bottom pane** for specifying field properties.

For each field, you have to indicate the following :

Field Name : It contains the name of field that represents the contents of the field such as 'Name', 'Address', 'City', etc. Each field name should have a unique name and cannot exceed 64 characters in length.

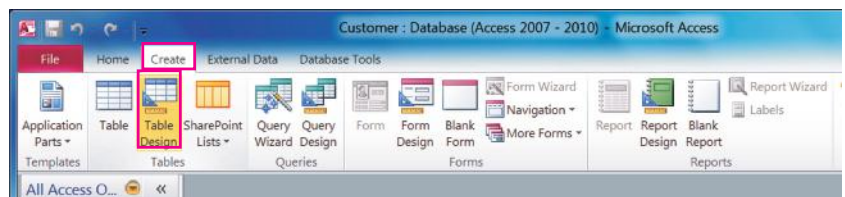
Data Type : Each field has a data type that defines what you can store in it. Data entry is restricted to valid entries for the type you choose, which helps to prevent data-entry errors. For example, you cannot enter letters in a field set to Number, and you must enter valid dates or times in a Date/Time field.

- **Text :** This is a general-purpose field containing any data. It has a limit of 255 characters and cannot be used for numeric calculation. Use this type for numeric entries that will not have calculations performed on them, such as telephone numbers and ZIP codes.
- **Memo :** This type has a limit of 63,999 characters; used for detailed, descriptive fields.
- **Number :** This type stores numeric data that you can use in calculations. It can also hold symbols, such as decimal points and commas.
- **Date/Time :** This type only stores numbers representing valid dates and times.
- **Currency :** Stores currency data that you can use in calculations.
- **Auto Number :** Stores a sequential number for each record.

- Yes/No : The value =1 represents Yes, and the value = 0 represents No, but the field can be formatted to display values as True/False or Yes/No.
- OLE Object : Stores objects created in another application such as Word or Excel that you can link to or fix in an Access table.
- Hyperlink : You can link to Websites, e-mail addresses, files on your computer, files on a LAN, or virtually any other location.
- Lookup Wizard : Depending on the usage, this type creates either a lookup list from data that you specify or a lookup list from the values in another table. It can also be used to set up multi-valued lists.
- Attachment : This type works only in Access 2007 and Access 2010 databases. You can attach data files from word-processing programs, spreadsheets, graphic editing programs, and so on.
- Calculated : This field type is new in Access 2010. You can use it to create calculated fields directly in a table; in earlier versions, you could create calculated fields only in queries.

Description : You can enter a detailed description of the field in Access.

Step 1 : Open the database and click on **Create** tab on the Ribbon.



Step 2 : Click on the **Table Design** button.

The table window appears.

Step 3 : In the Field Name column, type the name of the first field (Customer_ID).

Pane in which fields are created

Field name column

Data type column

Description column

Pane in which field properties are specified

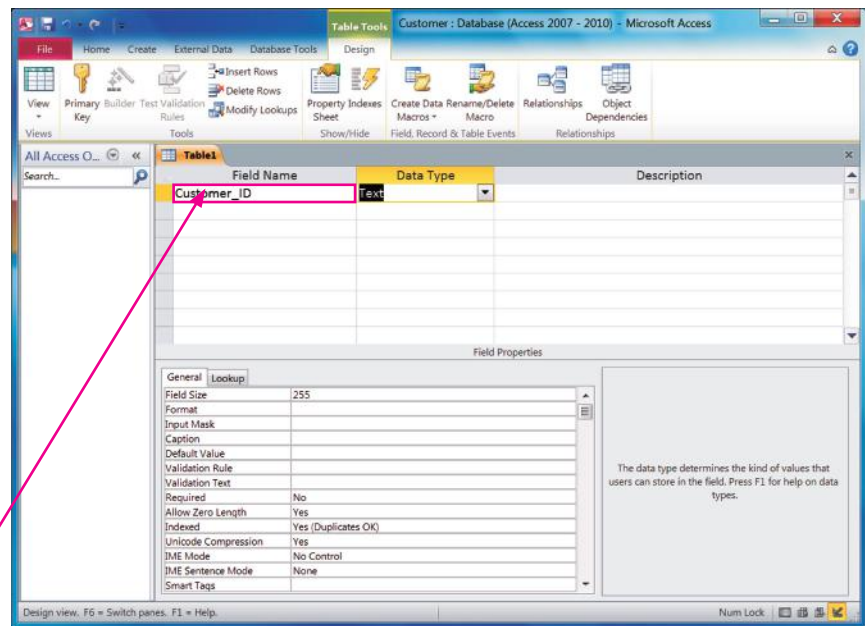
Pressing F6 switches between panes

Design view. F6 = Switch panes. F1 = Help.

Step 4 : Press the **Tab** key to bring the Insertion point to the Data type field.

Step 5 : If you want to change the data type, click on the arrow button and change the data type according to your need.

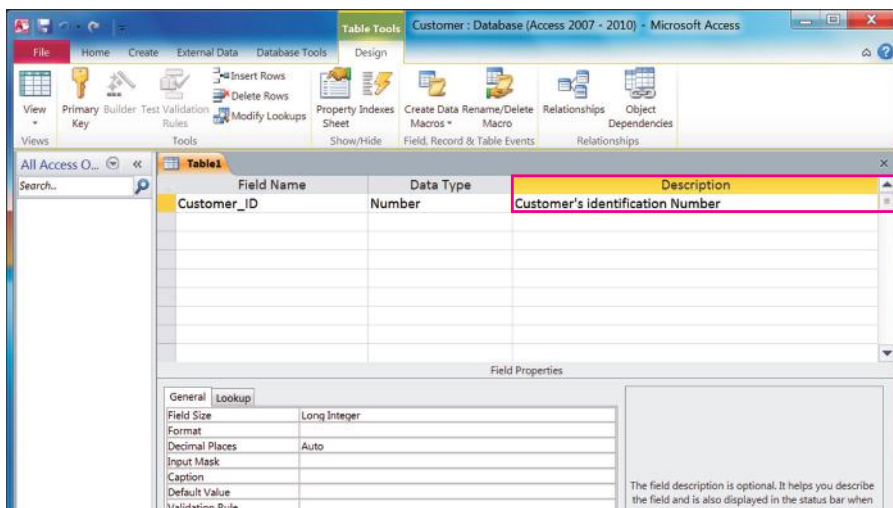
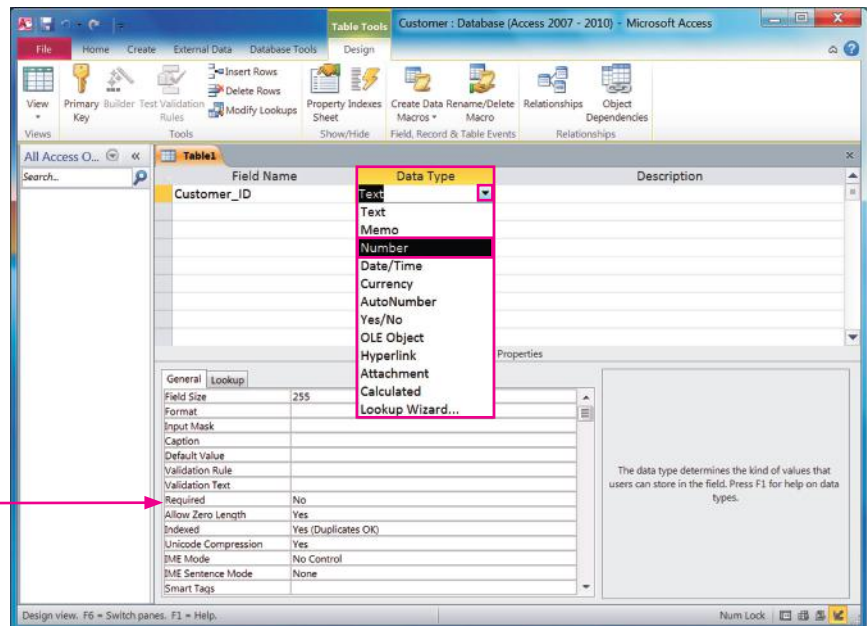
The words, Customer-ID display in the Field Name column and the insertion point advances to the Data Type column, indicating you can enter the data type. The word, Text, one of the possible data types is currently displayed.



Step 6 : Press the **Tab** key to move the insertion point to the **Description** column.

Step 7 : Type your text as the description in Description column.

After selecting the data type its properties will be displayed in the lower pane.

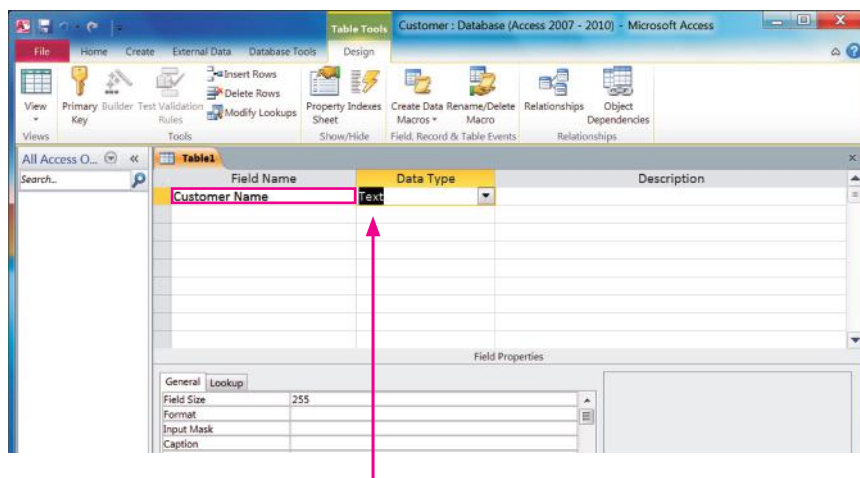


Step 8 : Press the **Tab** key again to move to the **Field Name** column in the second row.

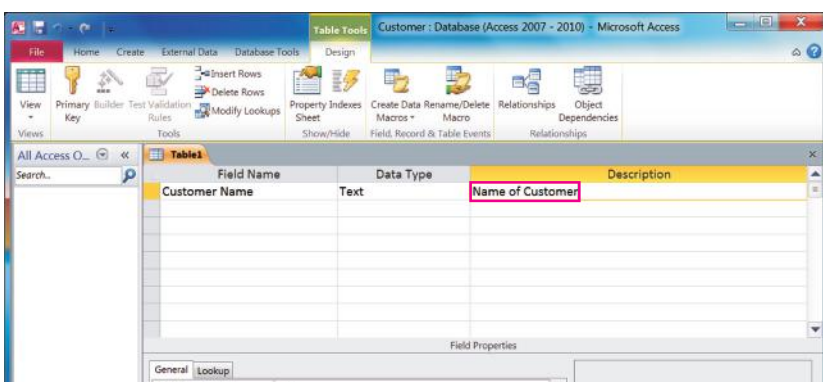
Step 9 : Type the text (Customer Name) in **Field Name** column.

Step 10 : Press the **Tab** key to move to the **Data Type** column.

Step 11 : Press the **Tab** key to move the insertion point to **Description** column, if you want the Data Type as Text.



The word 'Text' is currently displayed in the field



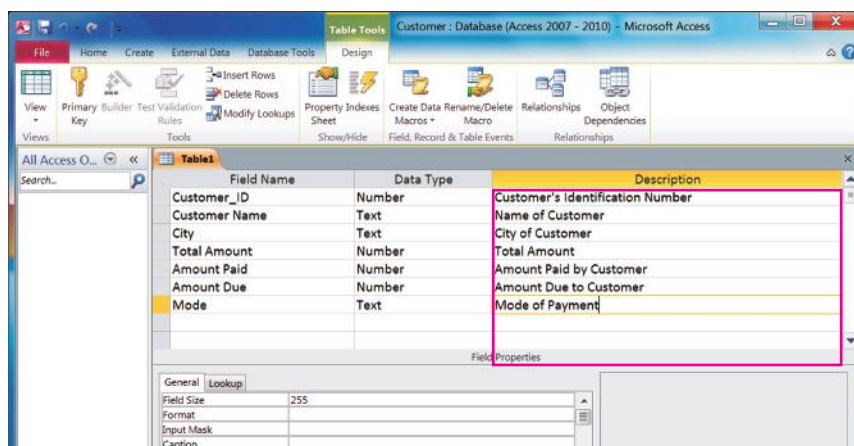
Step 12 : Type the text for the Description column.

Step 13 : Repeat the steps to make the remaining entries in the table to complete it.

SETTING A PRIMARY KEY

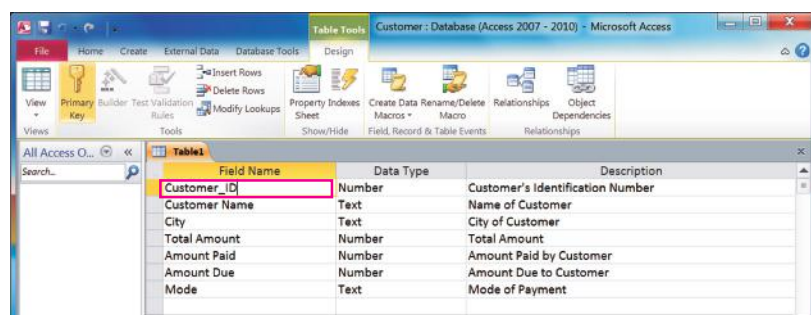
A **Primary key** is a key that differentiates the records in a file. It is fairly simple to set a primary key. A primary key is not required for every table, but it is highly recommended.

If you save or close a table without setting a primary key, Access displays a warning dialog box.



Step 1 : Choose the **field** that you want to set as the primary key.

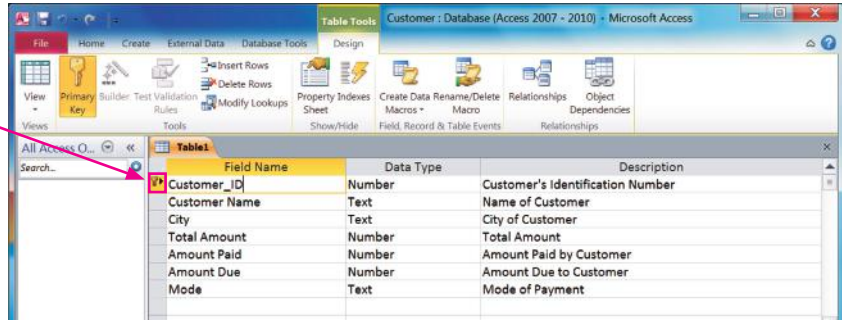
Step 2 : Click on the **Primary key** button.



The Primary key is a **toggle key**. To remove it, select the primary key field and click on the Primary key button again.



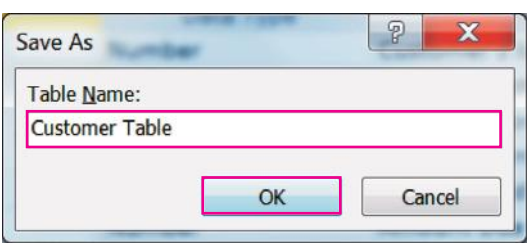
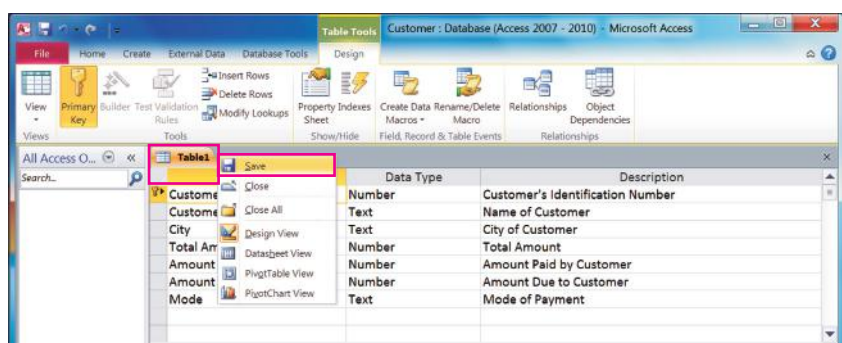
The Primary key appears in the field indicating by a small key in the field of selector column.



SAVING A TABLE

After creating a new table, you must **save** the table to make it a permanent part of the Database. When you save a table, you give it a name.

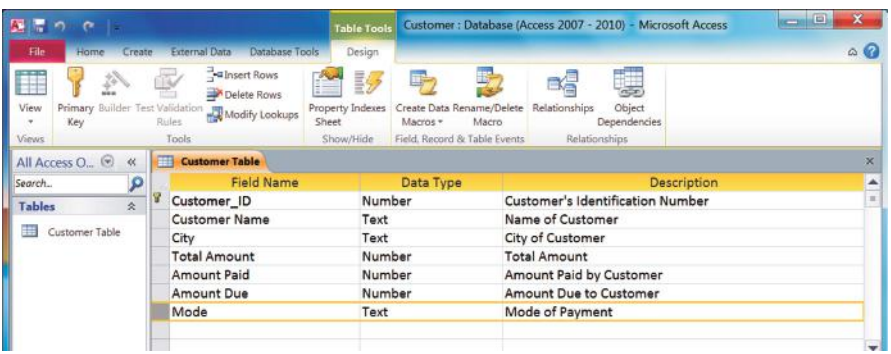
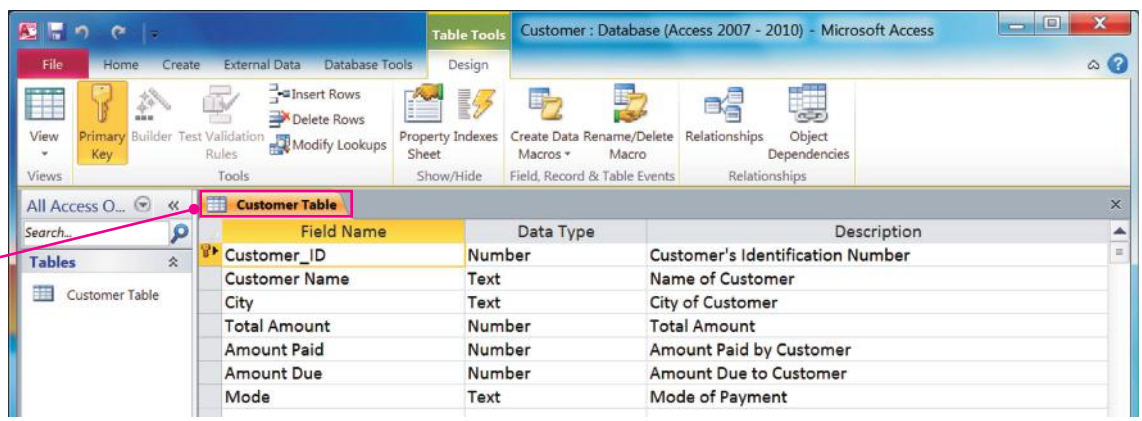
- Step 1 :** Right-click on the table's tab.
- Step 2 :** Click on **Save**.
The **Save As** dialog box opens.
- Step 3 :** Type a name for the table.
- Step 4 :** Click on **OK**.



REARRANGING THE FIELDS

The Fields can be rearranged in the table. The field order in Design View from top to bottom corresponds to the order in a datasheet from left to right.

The table remains open, and its new name appears on its tab.

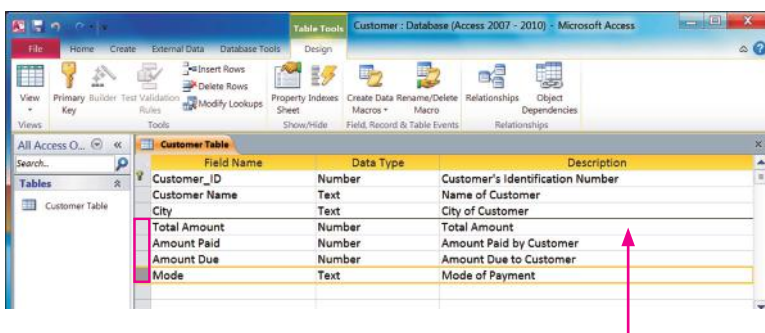


Step 1 : Click the selector to the left of the field name.



Step 2 : Drag up or down the mouse pointer on the selector to move the field.

Step 3 : Repeat the steps to move other fields as needed.



INSERTING AND DELETING THE FIELDS

A horizontal line shows where the field is going.

You can insert new and remove existing fields into a field list. A new row appears in the grid—above the one you have selected.

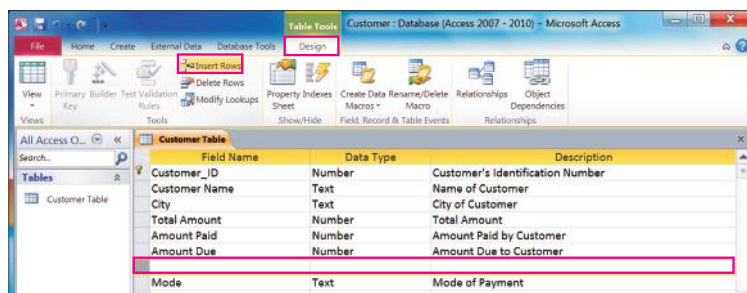
Insert a Field

Step 1 : Select the field where you want new field should appear above.

Step 2 : Click on the **Design** tab.

Step 3 : Click on the **Insert Rows**.

Step 4 : Type a field name and choose a field type.



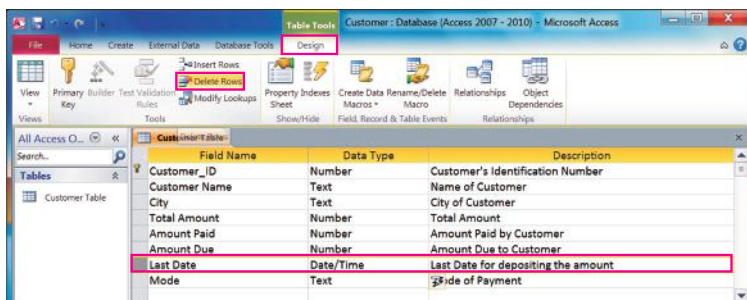
Delete a Field

Step 1 : Select the field that you want to delete.

Step 2 : Click on the **Design** tab.

Step 3 : Click on the **Delete Rows**.

The row will be deleted, along with any data that the fields have.



CHANGING THE DATA TYPE

You can change a field's data type anytime to better represent your data. You should set the field type before you enter data into the table, but if the change is required, you can change the field type at any time.

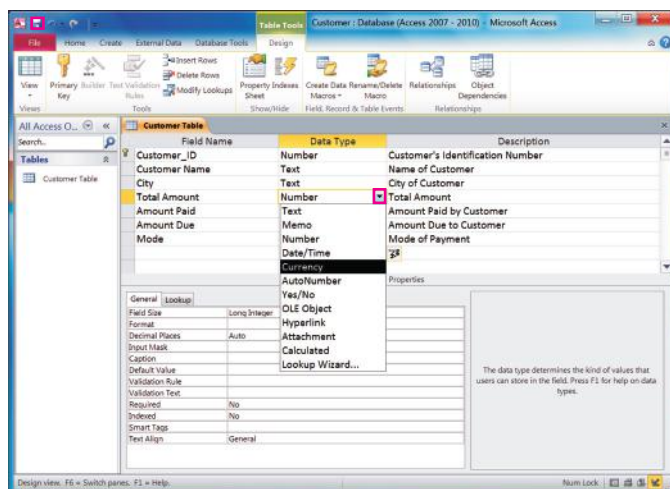
Step 1 : Click on the down arrow to open the Data Type list for the field.

Step 2 : Click on new type.

The type changes in the Data Type column.

Step 3 : To save the changes to the table, click on Save button on the Quick Access Toolbar.

A warning message may appear.



Step 4 : Click on **Yes** to allow the deletion of records that violate the new field type's rules.

You can also click on **No** to abandon the change.

RENAMING A TABLE

You can rename a table at any time. Access automatically updates all references to the table throughout the database, so any forms, reports, or queries based on that table continue to work. The table must be closed in order for you to rename it.

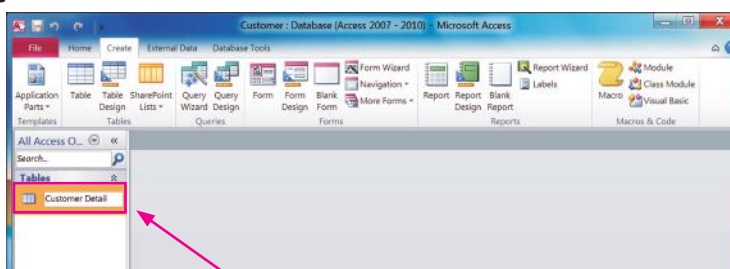
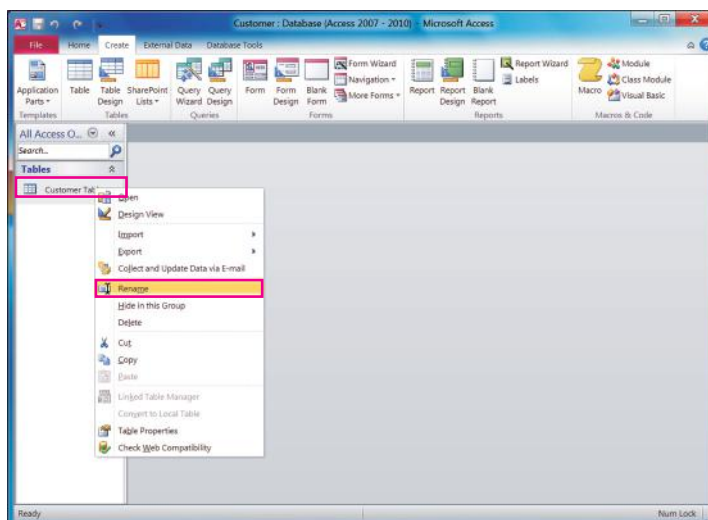
Step 1 : Right-click on the table name in the Navigation pane.

A short-cut menu appears.

Step 2 : Choose **Rename** from the shortcut menu.

The table name appears in Edit mode.

Step 3 : Type the new name for the table and press **Enter** key from the keyboard.



The new name appears on the table.

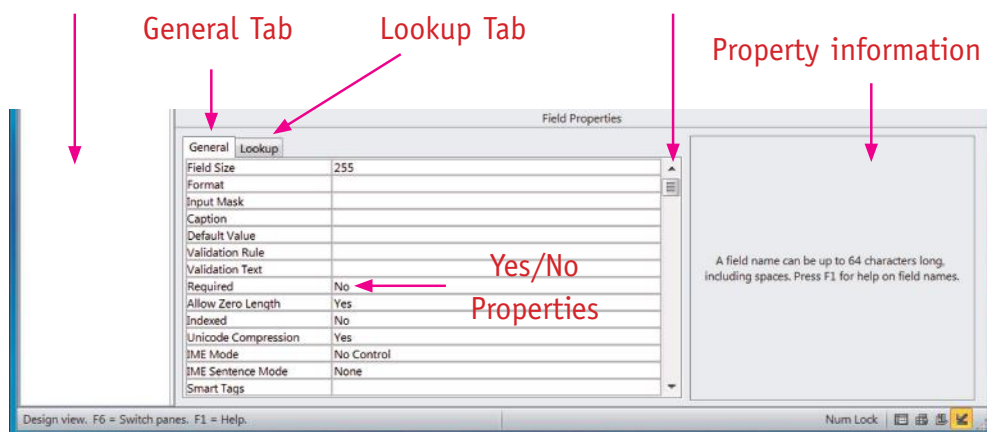
UNDERSTANDING FIELD PROPERTIES

Each field has a property which is set from the bottom pane of the Design View window. The properties include the basics such as field size, format and also the rules for entries in it.

- Properties pane : When a field is selected on Design view, its properties appear in lower pane.
- General tab : The General tab contains most of the properties you will work with.

Properties Pane

Dropdown list



- Lookup tab : The Lookup tab is primarily for setting up lookup lists.
- Drop-down lists : Some properties have drop-down lists from which you can select; click the arrow to open the list.

- Property information : When the insertion point is in a property's box, information about that property appears here.

- Yes/No properties : Some properties represent yes/no questions; these are already typically filled in for you with default values.

Understanding Field Sizes

Each field has a size that limits the amount of data you can store in it. Because there are different types of fields so there are different ways of expressing the **field size** depending on the type of field.

Field Type	Field Size	Meaning
Text	255	You can specify any number of characters from 0 to 255.
Number	Long Integer	Byte, Integer, Long Integer, Single, Double, Replication ID, Decimal
Auto Number	Long Integer	The same as Number, except there are only two choices : Long Integer or Replication ID

CHANGING THE FIELD SIZE

You can change the Field Size according to the need of your database.

Text

Number

Auto Number

For the Text Data Type

Step 1 : Click on the **field** whose size you want to change.

Step 2 : Click on the **General** tab in the Field Properties area.

Step 3 : Enter the **new field size** in the Field Size text box.

For the Number Data type

Step 1 : Click on the **field** whose size you want to change.

Step 2 : Click on the **General** tab in the Field Properties area.

Step 3 : Click in the Field Size row.

A drop-down menu arrow appears on the row.

Step 4 : Click on the drop-down menu arrow to choose the field size that you want.

SET THE FIELD CAPTION

You can specify captions for fields that are different from their actual names. Captions appear in datasheet headings and on labels in forms and reports.

Step 1 : Click on the **field** whose caption you want to change in Design View.

Step 2 : Click on the **General** tab in the Field Properties area.

Step 3 : Click on the Caption row and type a caption.

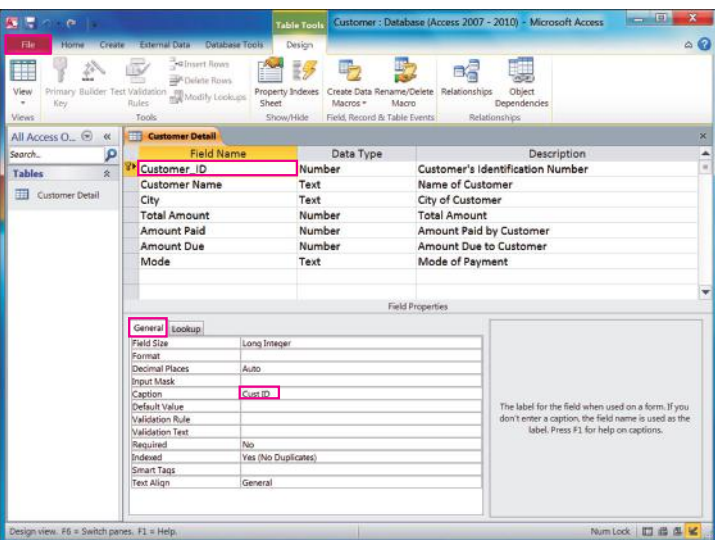
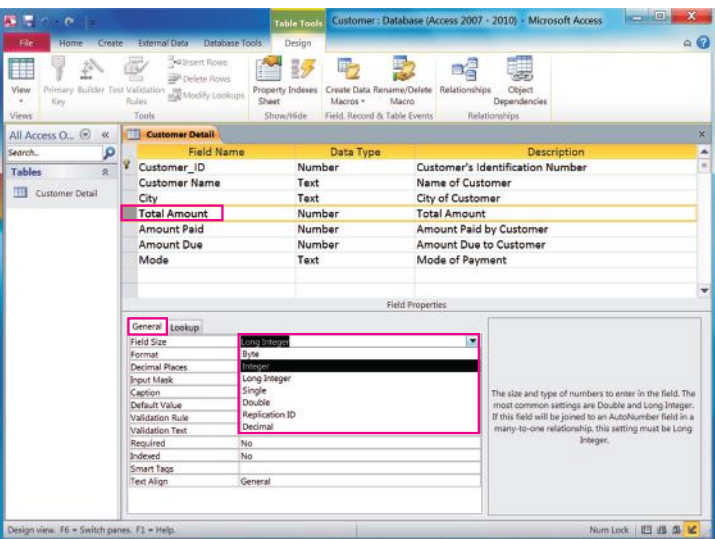
Step 4 : Click on the **Save** button in the Quick Access Toolbar.

SETTING THE FIELD'S FORMAT

You can change a field's format to update its appearance in datasheets, forms, and reports.

Step 1 : Click on the **field** whose format you want to change.

Step 2 : Click on the **General** tab in the Field Properties area.

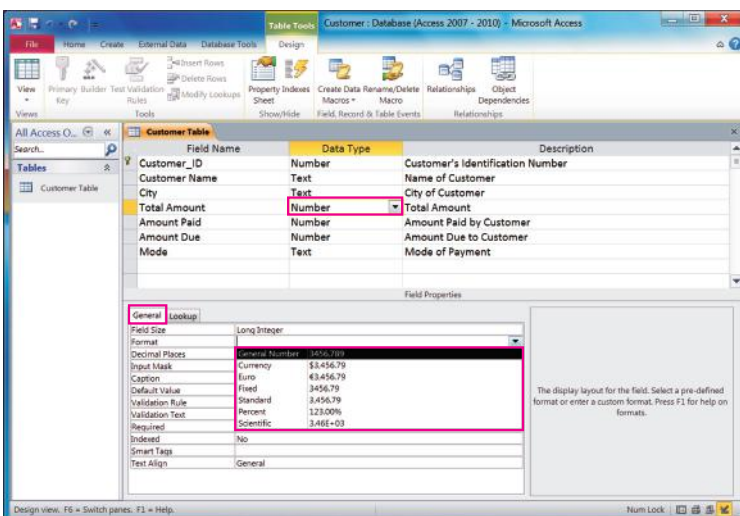


Step 3 : Click on the **Format** row.

Step 4 : A drop-down menu arrow appears on the row.

Step 5 : Click the drop-down menu arrow to choose the format that you want.

- For a **Number** or **AutoNumber** field, the choices represent different number types, such as General, Currency, and Percentage.
- For **Date/Time** data types, the choices appear as date/time formats.



- For **Yes/No** fields, the choices appear as ways of expressing yes or no.

SETTING A DEFAULT VALUE

If you have a field that usually contains the same value, you can make that value as default for that field. For example, if your customer pays the amount by cash you can make Cash the default value in the Payment Mode field.

Step 1: Click on the **field** whose default value you want to set.

Step 2: Click on the **General** tab in the Field Properties area.

Step 3: Click on the **Default Value** row.

Step 4: Type the default value.

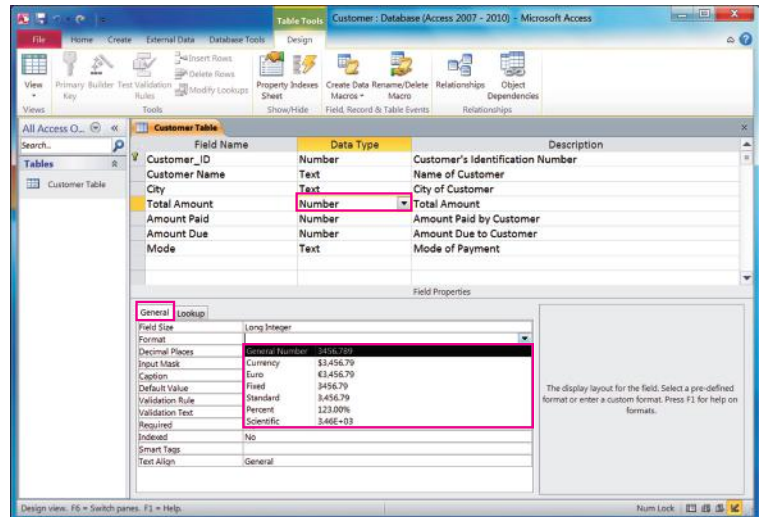
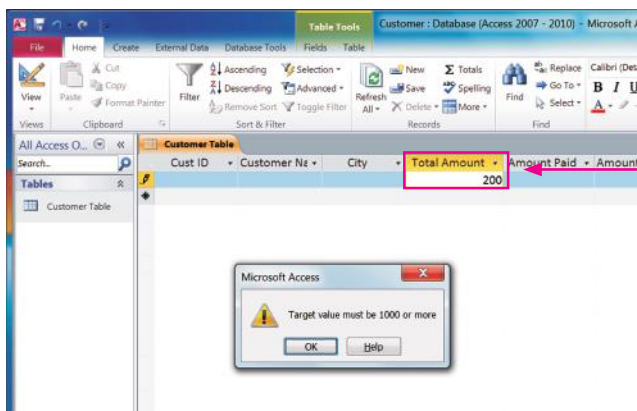
Access automatically adds quotation marks around what you have typed if the field type is Text.

CREATING VALIDATION RULES

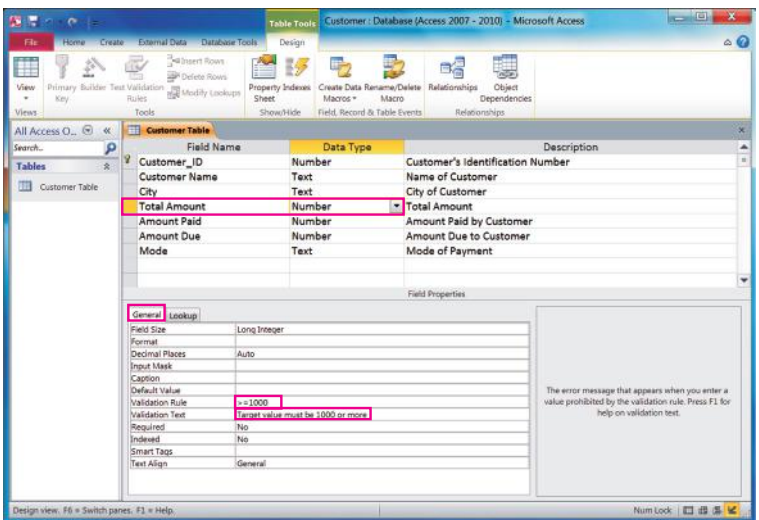
Validation Rule is used to force a field entry to meet a logical test of its validity. By Validation Rules, you can ensure that the correct value is entered in the field. If the user makes an incorrect entry, Error alerts can stop the user, provide a warning or just provide information.

Step 1: Click on the **field** where you want to create validation rule.

Step 2: Click on the **General** tab in the Field Properties area.



When you display the table's datasheet, the default value appears in new records.



In the datasheet view, if you enter a wrong entry or violate the rule, a custom error message appears, containing the text you specified in the Validation Text row.

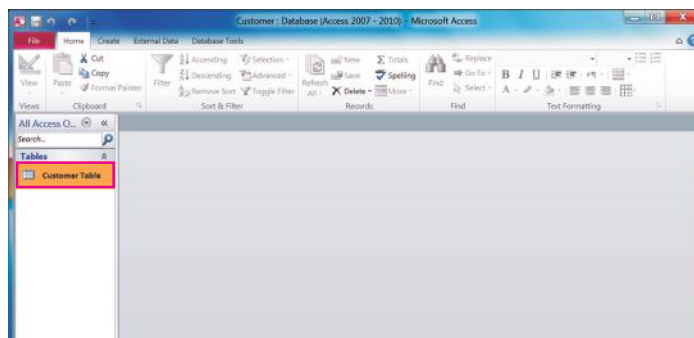
Step 3: Click in the **Validation Rule** row and type the Validation Rule in that row.

Step 4 : Click in the **Validation Text** row and type the text for the error message.

Step 5 : Click on **OK**, then retype the field entry.

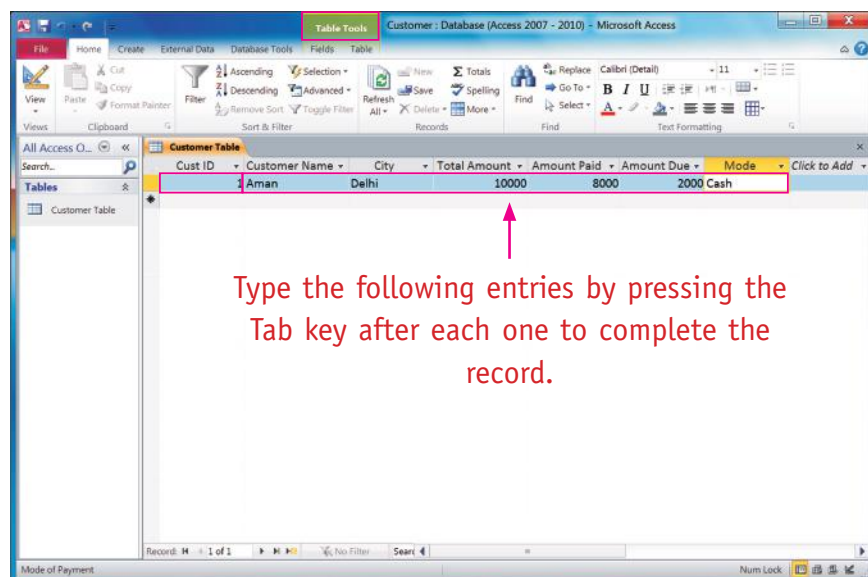
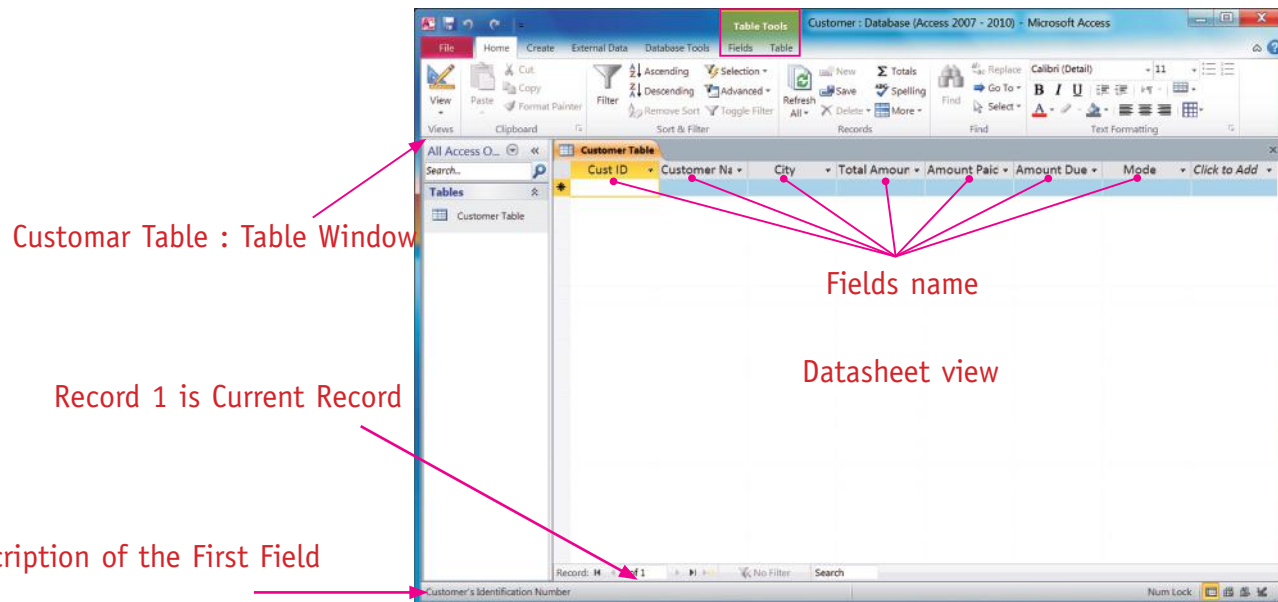
ADDING RECORDS TO A TABLE

Now the next step is to add records to the table after creating the database. The table must be open so that the records can be added to the table. The table is opened in **datasheet view**, which represents as a collection of rows and columns. The steps to add records to a table are :



Step 1 : Double-click on the Table (Customer Table) in the Customer Database window.

You can close the Navigation Pane for more space.



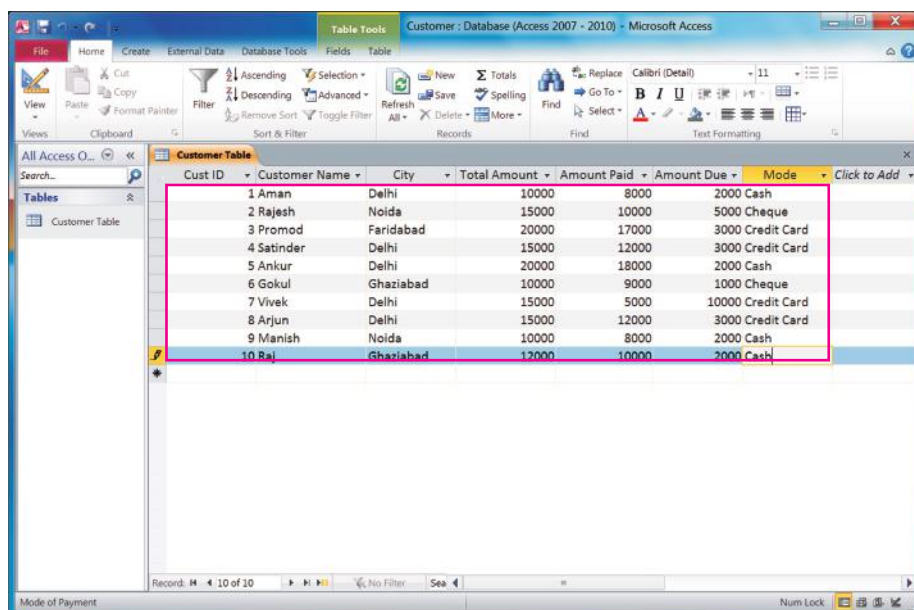
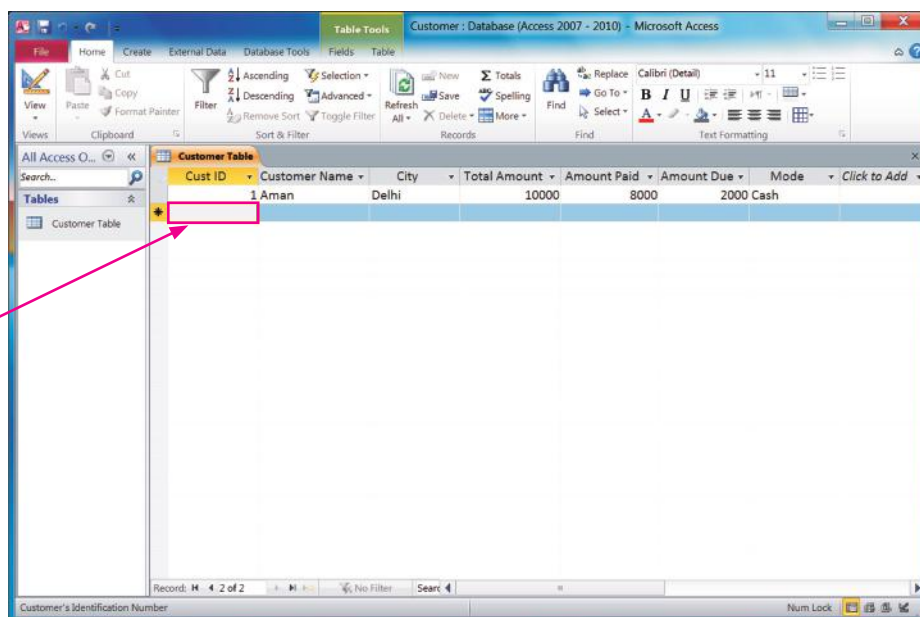
Step 2 : Type the Customer ID in the first Customer_ID field.

Step 3 : Press the **Tab** key to complete the entry for the Customer ID field.



Step 4 : After typing the last entry, e.g. Mode, press the **Tab** key.

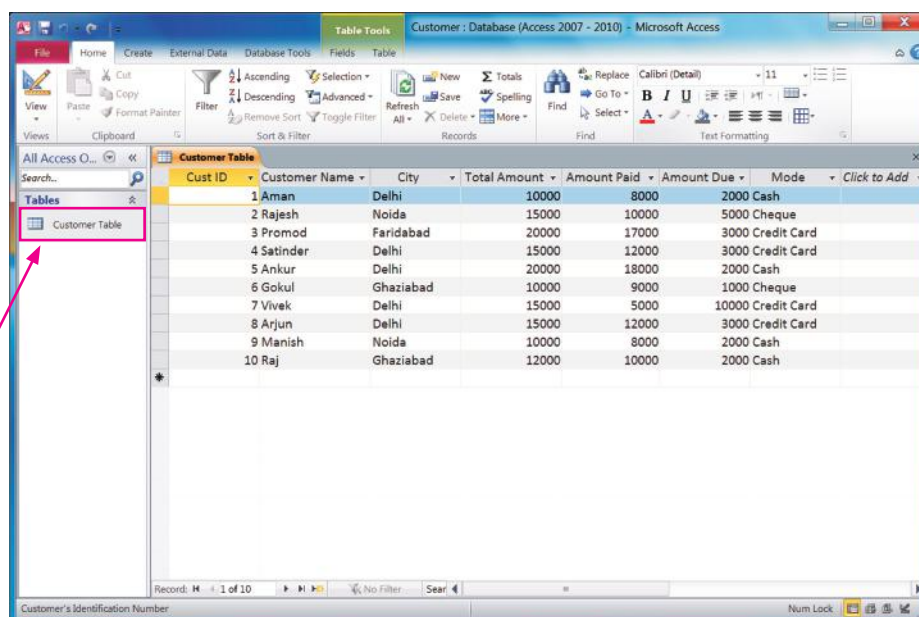
The insertion Point comes to the Customer ID field in the second row.



Step 5 : Add the remaining records by following the same steps you used to add the first record, as in the steps.

Step 6 : When you finish entering the data, click on the **Save** button to save the changes.

Access Save the table and you can see the name of the table in Navigational pane.



CLOSING DATABASE

After finishing your work, you can **close** a database without closing Access 2010. In Access, you can open many databases at the same time. Closing a database free's up your computer's memory.

Step 1 : Click on **File**.

File menu will open.

Step 2 : Click on **Close Database**.

The File menu stays open, and the New command becomes selected.



Points to Remember

- Access is a relational database management system that can store large quantities of information.
- DBMS is a software used to access, retrieve, delete, search, sort, design and print data.
- In design view, the data field in the table is defined before adding any data to the datasheet.
- Each field name in a table should have a unique name.
- The default field size for the text type data is upto 255 characters.
- A new record to the table in datasheet can be added by opening a table.
- After completing the table structure, the database must be saved.
- A Primary key is a key that differentiates the records in a file.
- Data entry is restricted to valid entries for the type you choose, which helps to prevent data-entry errors.

EXERCISE

A. Tick (✓) the correct option :

1. Access stores data in :

- (a) fields (b) table (c) file

2. Each entry in the table is called :

- (a) record (b) data (c) value

3. Default extension of database file :

- (a) .accbd (b) .abcde (c) .accdb

4. The key presses to move from upper pane to lower pane :

- (a) F8 (b) F1 (c) F6



B. Fill in the blanks :

1. _____ is a collection of data organized in a proper manner.
2. _____ database can contain _____ tables with links between them.
3. Access stores the data in _____.
4. Each individual entry in the table is called a _____.
5. A _____ key is a key that differentiates the records in a file.

C. Write (T) for true and (F) for false statements :

1. Access is a software that allows you to create access and manage a database.
2. You can use Access to manage large or small collections of information.
3. To starting Access 2010, click on the Blank database option.
4. The Navigation pane displays the database objects that you create, such as tables and forms.
5. After completing the table structure, the database must be saved.

D. Answer the following questions :

1. How do you create validation Rule?
2. What is MS Access?
3. What are the main functions of DBMS?
4. What are field properties?
5. Define primary key. Why do we need the primary key?
6. What do you know about Auto Number?
7. What is Primary Key?
8. What is Property information?
9. What is field size of text?
10. Write a short note on MS Access.



ACTIVITY

- Create a new database as 'Profile'.
- Now create a table that contains the following fields in it :
First Name, Last Name, Date of Birth, Address, Telephone, Qualification, Vehicle.
- Save the table as 'Contacts'.
- Add the suitable Data type and description for each field name.
- Select 'First Name' as the primary key field.
- Now enter the 20 records in the table.
- Add another field name 'E-mail' before Qualification field and update the records accordingly.
- Close the Database and MS Access.