Microsoft Access Objects

IT Department

Database Systems 1 (IT215)

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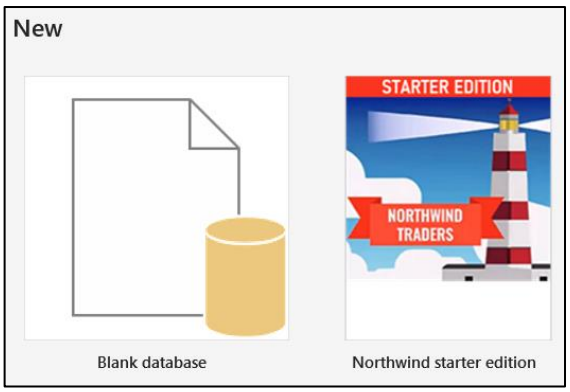
Reference – Official website of Microsoft Support (https://support.microsoft.com/en-us)

Microsoft Access (Practical)

Creating Database in Access

Create a database

1. Open Access.
    - If Access is already open, select **File** > **New**.
2. Select **Blank database**.
3. Enter a name for the database, select a location, and then select **Create**.
    - If needed, select **Enable content** in the yellow message bar when the database opens.



Import data from Excel

1. Open the Excel workbook, make sure each column has a heading and a consistent data type, and then select the range of data.
2. Select **External Data** > **New Data Source** > **From File** > **Excel**.
3. Select **Browse** to find the Excel file, accept the default values, and then click **OK**.
4. Select **Does the first row of your data contain column headings?**, and then click **Next**.
5. Complete the rest of the wizard screens, and select **Finish**.

Tables

When you create a table with **Table Design**, you can be more deliberate about designing your database, set field types, create a lookup list, and create a foreign key to pair with your primary key.

Create a Table in a Database

When you open a new, blank database, Access automatically creates an empty table. To customize that table, start defining your fields and adding data.

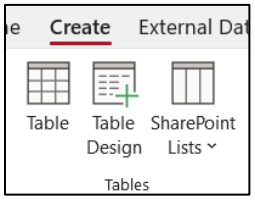
Rename a table in a database

Table1 is the default name of the first table in a new database. It's a good idea to name the table something more meaningful.

1. On the **Quick Access Toolbar**, select **Save**
2. In the Table name box, enter a descriptive name.

Add a table to a database

Add more tables to a database, if you need them.



1. On the **Create** tab, select **Table**.
    - Access adds a new table with the name **Table<#>**, where <#> is the next sequential, unused number.
2. Rename the table.

Adding fields (columns), setting their data types and entering data in tables

Each table in MS Access has two views; **Design View** and **Datasheet View**.

- **Datasheet View:** When you open a table, Access displays the table in Datasheet view. In this view, you can enter data into the table manually.
- **Design View:** In Design view, you can add fields of the table, setting fields' name and data types. You can also change or remove the primary key, or set the primary key for a table that doesn't already have one.

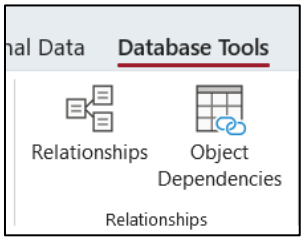
Save a Table

- Before you close your database, to avoid losing the work you've done and the data you've entered, be sure to save your table. When you try to close the database, if you haven't saved your work on a table, Access prompts you to save it. Or, at any time, select .

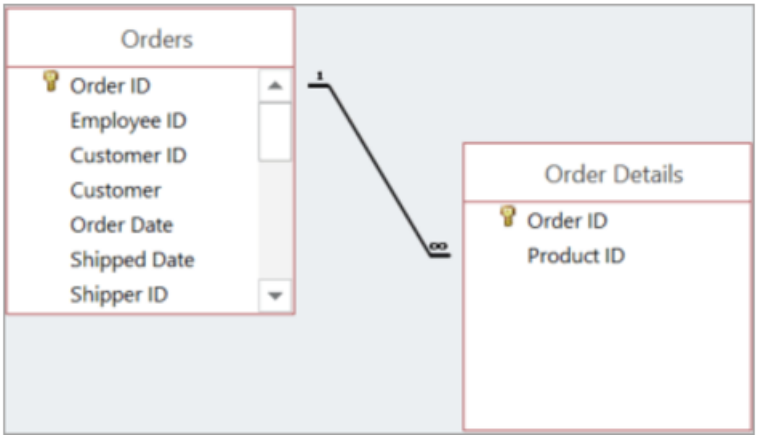
Relationships Between Tables

The power of a relational database lies in combining data across tables. To do that, you first need to establish relationships between your tables. Then, put Access to work to combine data in queries, forms, and reports.

To see all existing relationships defined for a database, open an Access database, go to the **Database Tools** tab, and select **Relationships**.



The lines in the Relationships view indicate connections between the tables. In the following image, the table on the left is the parent table. The table on the right is the child table. The line between them connects the fields used to match data. The number **1** at one end of the connecting line and the ∞ symbol at the other end indicate that this is a one-to-many relationship.



Types of relationships between tables

There are three types of relationships between tables:

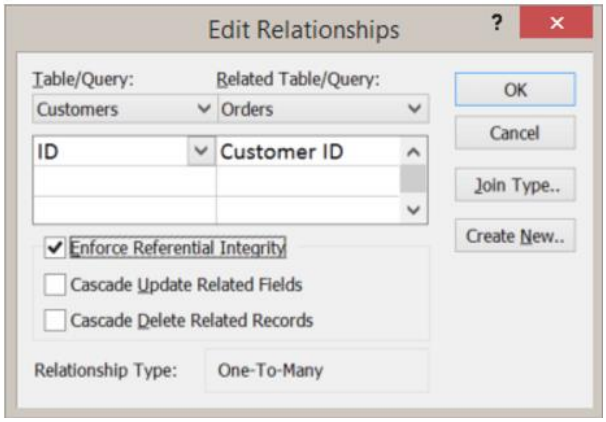
- **One-to-one:** When each item in each table only appears once. For example, each employee can have only one company car to use.
- **One-to-many:** When one item in one table can have a relationship to multiple items in another table. For example, each purchase order can include multiple products.
- **Many-to-many:** When one or more items in one table can have a relationship to one or more items in another table. For example, each order can have multiple products, and each product can appear on many orders.

Build/Edit Relationships Between Tables

1. Select **Database Tools** > **Relationships**.
2. To build a relationship between two tables, drag the parent table's primary key to the child table's foreign key. In case, there is already a relationship, select the line connecting two related tables.

3. On the Design tab, select Edit Relationships.

    - Table/Query is the parent table.
    - Related Table/Query is the child table.



4. To change the fields that connect the tables, select a different field below each table shown. In this example, the ID field in the Customers table connects to the Customer ID field in the Orders table.
5. Change the way Access synchronizes your data between tables.
    - **Enforce Referential Integrity:** To prevent invalid data and to keep references in sync across table relationships, select this.

- **Cascade Update Related Fields**: To make sure that data in related fields is updated in all the related tables, select this.
- **Cascade Delete Related Records:** The decision to select this depends on whether you need to retain records in some tables even though they might be deleted from other tables.

6. To change the relationship between the tables from an inner join to an outer join, select the Join Type button.

Delete a table relationship

To remove a table relationship:

1. Select **Database Tools** > **Relationships**.
2. Select the line connecting the two related tables.
3. Select the **Delete** key. If you're prompted to verify that you want to delete the relationship, select **Yes**.

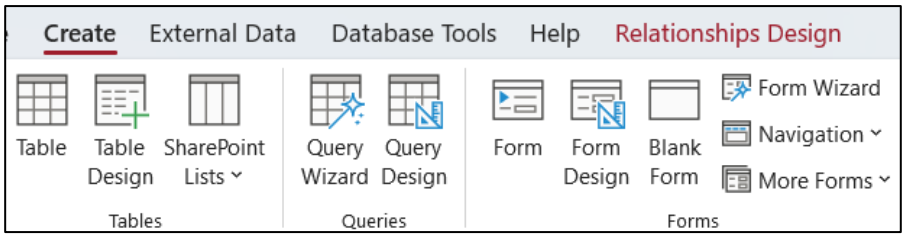
Forms

A form in Access is a database object that you can use to create a user interface for a database application. A "bound" form is one that is directly connected to a data source such as a table or query, and can be used to enter, edit, or display data from that data source. Alternatively, you can create an "unbound" form that does not link directly to a data source, but which still contains command buttons, labels, or other controls that you need to operate your application.

Forms in Access are like display cases in stores that make it easier to view or get the items that you want. Since forms are objects through which you or other users can add, edit, or display the data stored in your Access desktop database, the design of your form is an important aspect. If your Access desktop database is going to be used by multiple users, well-designed forms is essential for efficiency and data entry accuracy.

Create a Form from an Existing Table or Query in Access

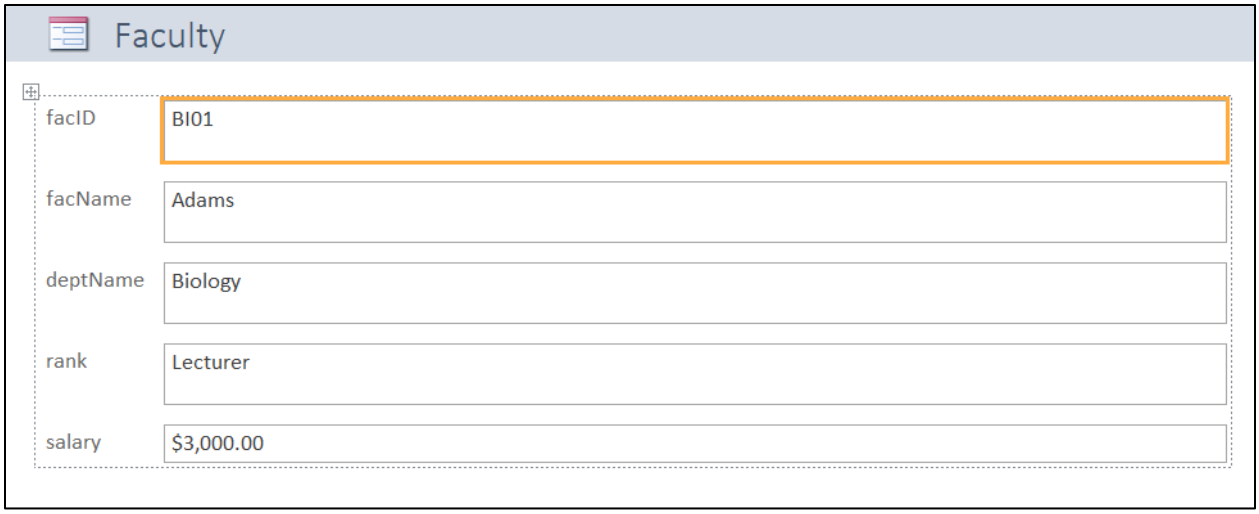
1. In the **Navigation Pane**, click the table or query that contains the data you want to see on your form.
2. On the **Create** tab, in the **Forms** group, click **Form**.



Access creates the form and displays it in **Layout view**. In **Layout view**, you can make design changes to the form while it is displaying data. For example, you can adjust the size of the text boxes to fit the data, if necessary.

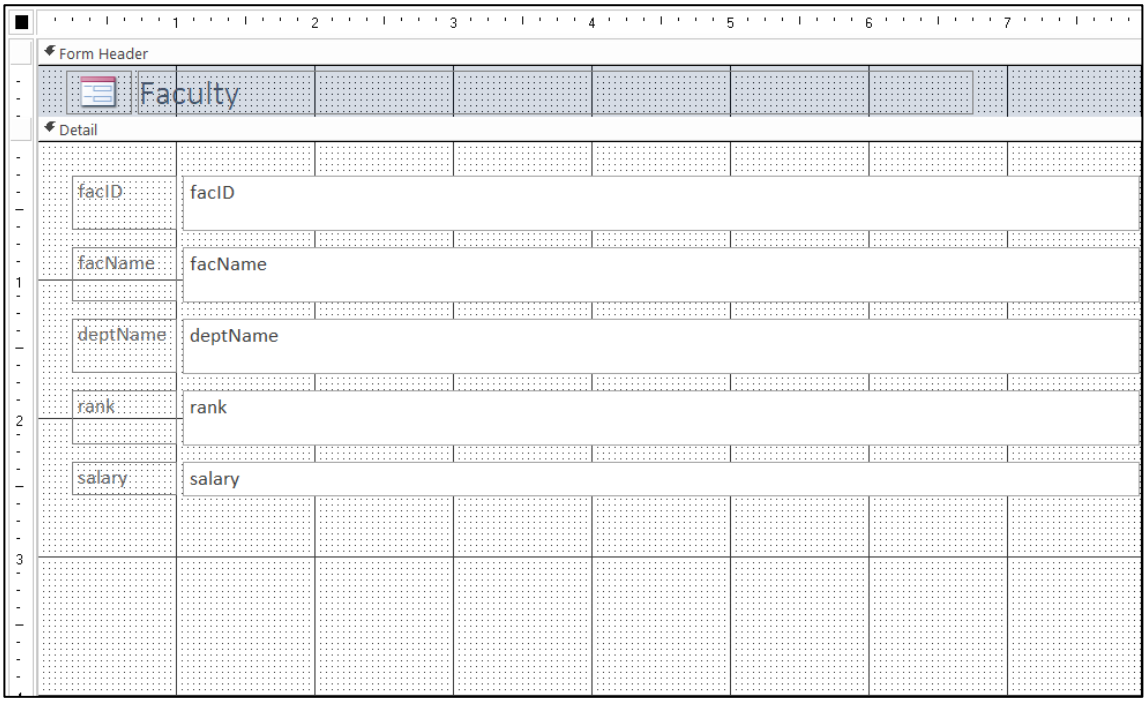
Layout view: Layout view is the most intuitive view to use for form modification, and it can be used for almost all the changes that you would want to make to a form in Access.

However, you can also change the form design in this view. Because you can see the data while you are modifying the form, this is a very useful view for setting the size of controls or performing almost any other task that affects the appearance and usability of the form.



Design view: Design view gives you a more detailed view of the structure of your form. You can see the Header, Detail, and Footer sections for the form. The form is not actually running when it is shown in Design view. Therefore, you cannot see the underlying data while you are making design changes. However, there are certain tasks that you can perform more easily in Design view than in Layout view. You can:

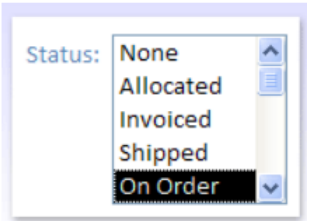
- Add a wider variety of controls to your form, such as bound object frames, page breaks, and charts.
- Edit text box control sources in the text boxes themselves, without using the property sheet.
- Resize form sections, such as the Form Header or the Detail section.
- Change certain form properties that cannot be changed in Layout view.



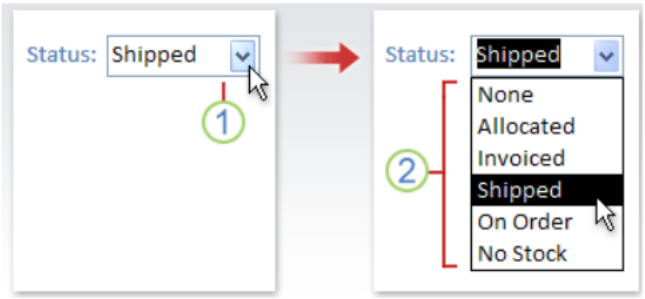
Add a List Box or Combo Box

When entering data on forms in Access desktop databases, it can be quicker and easier to select a value from a list than to remember a value to type. A list of choices also helps ensure that the value entered in a field is appropriate. A list control can connect to existing data, or it can display fixed values that you enter when you create the control.

List box: The list box control displays a list of values or choices. The user is limited to the choices given in the list box; it is not possible to type a value into a list box.



Combo box: The combo box control provides a more compact way to present a list of choices; the list is hidden until you click the drop-down arrow. A combo box also gives you the ability to enter a value that is not in the list. In this way, the combo box control combines the features of a text box and a list box.



Create a List Box or a Combo Box by Using a Wizard

1. Right-click the form in the **Navigation Pane**, and then click **Design View**.
2. On the **Form Design** tab, in the Controls group, ensure that Use Control Wizards is selected.
3. Click either the **List Box** or the **Combo Box** tool.
4. On the form, click where you want to place the list box or combo box.
    - Depending on your choice, the List Box Wizard or the Combo Box Wizard starts.
5. When the wizard asks how you want to get the values for the control, do one of the following:
    - If you want to display the current data from a record source, click **I want the list box/combo box to look up the values in a table or query**.

- If you want to display a fixed list of values that will seldom change, click **I will type in the values that I want**.
- If you want the control to perform a find operation, rather than serve as a data entry tool, click **Find a record on my form based on the value I selected in my list box/combo box**. This creates an unbound control with an embedded macro that performs a find operation based on the value the user enters.

6. Follow the instructions for specifying how the values will appear.
7. If you choose one of the first two options on the first page of the wizard, the wizard asks what you want Access to do when you select a value. Do one of the following:
   - To create an unbound control, click **Remember the value for later use**. This means that Access will hold the selected value until the user changes it or closes the form, but it will not write the value to a table.
   - To create a bound control, click **Store that value in this field**, and then select the field you want to bind the control to.
8. Click **Next** and type a label for the control. This label will be displayed next to the control.
9. Click **Finish**.

Use a Command Button to Start an Action or a Series of Actions

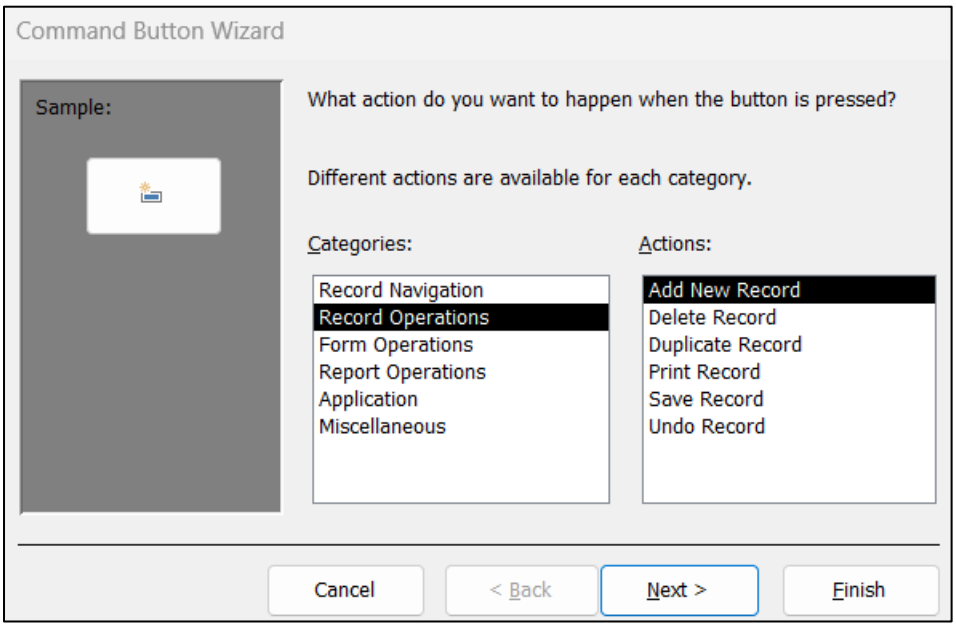
You use a command button on an Access form to start an action or a set of actions. For example, you can create a command button that opens another form. To make a command button perform an action, you write a macro or event procedure and attach it to the command button's On Click property. You can also embed a macro directly into the On Click property of the command button.

Add a Command Button to a Form by Using a Wizard

By using the Command Button Wizard, you can quickly create command buttons that do a variety of tasks.

1. Right-click the form in the **Navigation Pane**, and then click **Design View**  on the shortcut menu.
2. On the **Form Design** tab, in the **Controls** group, ensure that **Use Control Wizards** is selected.
3. On the **Form Design** tab, in the **Controls** group, click **Button**. 

4. In the design grid, click where you want the command button to be inserted. The Command Button Wizard starts.
5. Follow the directions in the wizard. On the last page, click **Finish**.



Queries

Using a query makes it easier to view, add, delete, or change data in your Access database. Some other reasons for using queries:

- Find specific quickly data by filtering on specific criteria (conditions)
- Calculate or summarize data
- Automate data management tasks, such as reviewing the most current data on a recurring basis.

Major query types	Use
Select	To retrieve data from a table or make calculations.
Action	Add, change, or delete data. Each task has a specific type of action query.

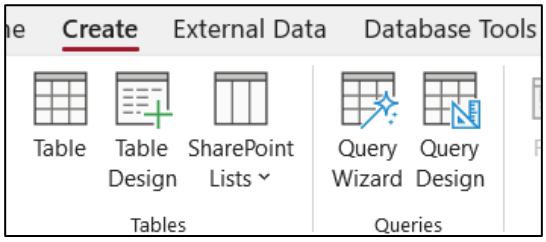
Create a Select Query

If you want to review data from only certain fields in a table, or review data from multiple tables simultaneously or maybe just see the data based on certain criteria, a select query type would be your choice.

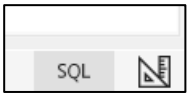
Review data from select fields

For example, if your database has a table with a lot of information about products and you want to review a list of products and their prices, here's how you'd create a select query to return just the product names and the respective price:

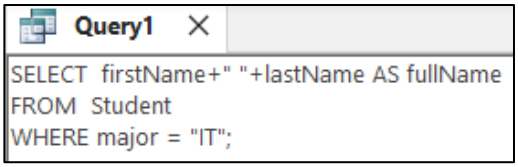
1. Open the database and on the **Create** tab, click **Query Design**.



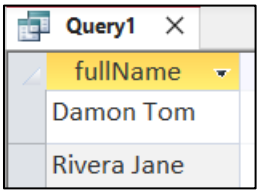
2. Switch to **SQL view** to write the SELECT query in SQL.



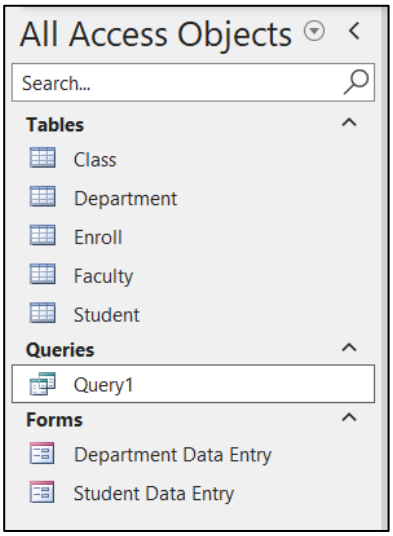
3. In SQL editor, you can write any query.



4. On the **Query Design** tab, click **Run**. The query runs and displays the query output.



5. Save the query and rename it. All saved queries are available under the **Queries** category in the navigation pane.



Reports

Before you share your database with others, put the information in a format that's easy to understand. View, format, and summarize the information in your database with reports.

1. In the **Navigation** pane, select a record source. The record source of a report might be a table or a named query. It must contain all of the rows and columns of data that you want to include in the report.
2. On the **Create** tab, select the report tool you want to use and, to create the report, follow any instructions.

Report tool	Description
Report	Create a simple, tabular report containing all of the fields in the record source you selected in the **Navigation** pane.
Report Design	Open a blank report in **Design** view, and then add the fields and controls you need.
Blank Report	Open a blank report in **Layout** view, and then select fields to add from the **Field List**.
Report Wizard	Follow the instructions to specify fields, grouping and sorting levels, and layout options.
Labels	Select standard or custom label sizes, which fields you want to include in the report, and how you want them sorted.