What Is a Database?

People often need to retrieve specific data rapidly while on the job. For example, a customer service representative may need to locate a customer's order status quickly while the customer is on the telephone. The registrar at a university may have to look up a student's grade point average or rapidly determine if the student has any outstanding fees before processing his or her class registration. A librarian may need to determine if a particular book is available to check out and, if not, when it is scheduled to be returned. The type of software used for such tasks is a database management system. Computer-based database management systems are rapidly replacing the paper-based filing systems that people used in the past to find information. The most common type of database used with personal computers today is a relational database. The basic features and concepts of this type of database software are discussed next.

A database is a collection of related data that is stored on a computer and organized in a manner that enables information to be retrieved as needed. A database management system (DBMS)—also called database software—is the type of program used to create, maintain, and organize data in a database, as well as to retrieve information from it. Typically data in a database is organized into fields, records, and files. A field (today more commonly called a column) is a single type of data, such as last name or telephone number, to be stored in a database. A record (today more commonly called a row) is a collection of related fields, for example, the ID number, name, and address.

What is Microsoft ® Access?

Microsoft ® Access is a database management system from Microsoft Corporation that combines the relational Access Database Engine with a graphical user interface and software-development tools.

Microsoft ® Access stores data in its own format based on the Access Database Engine (formerly Jet Database Engine). It can also import or link directly to data stored in other applications and databases.

Creating a Query:

- On the **"Create"** tab, in the **"Queries"** group, click the **"Query Wizard"** button

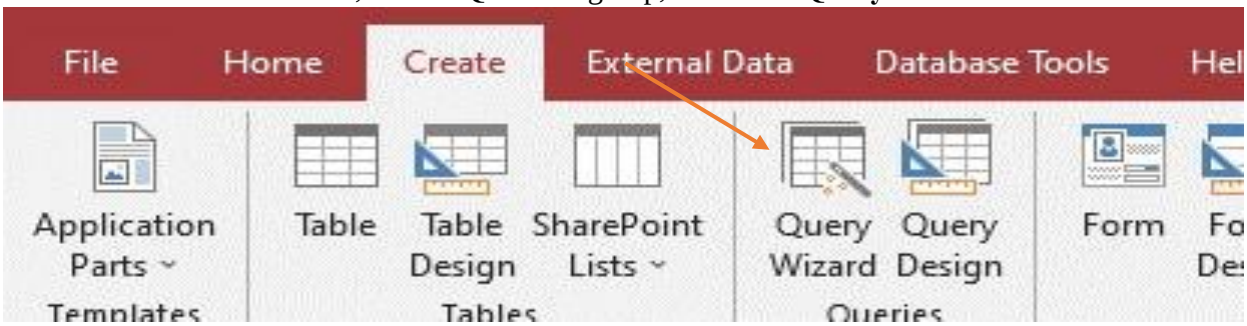

Fig. 1 (Creating Query)

The **"New Query"** dialog box appears.

- Click **"Simple Query Wizard'** and then click **"OK"**

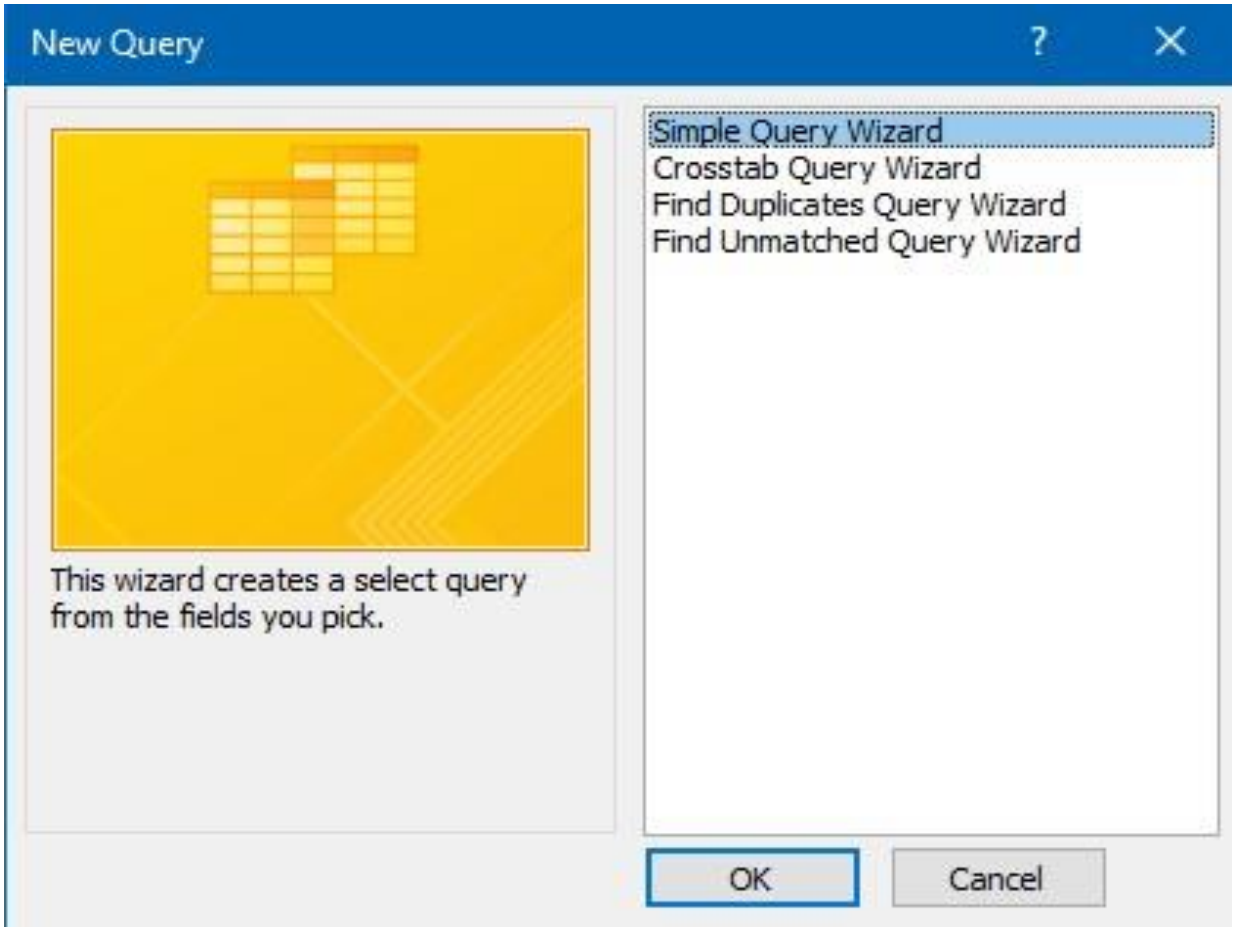

Fig. 2 (New Query dialog)

- Under Available Fields, double-click **"ID"**, **"Last Name"**, **"First Name"** □ Click the **"Next"** button

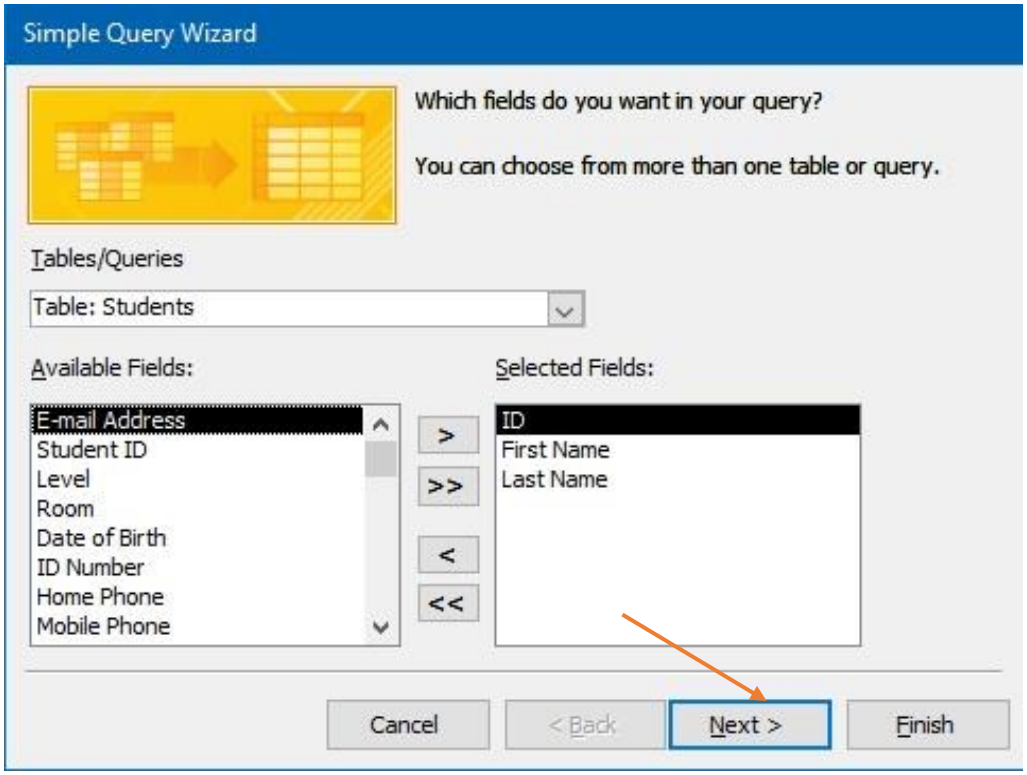

Fig. 3 (Simple Query Wizard dialog)

- Name the query **"Student Query"** and then select **"Open the query to view information"** if it is not already selected

- Click the **"Finish"** button

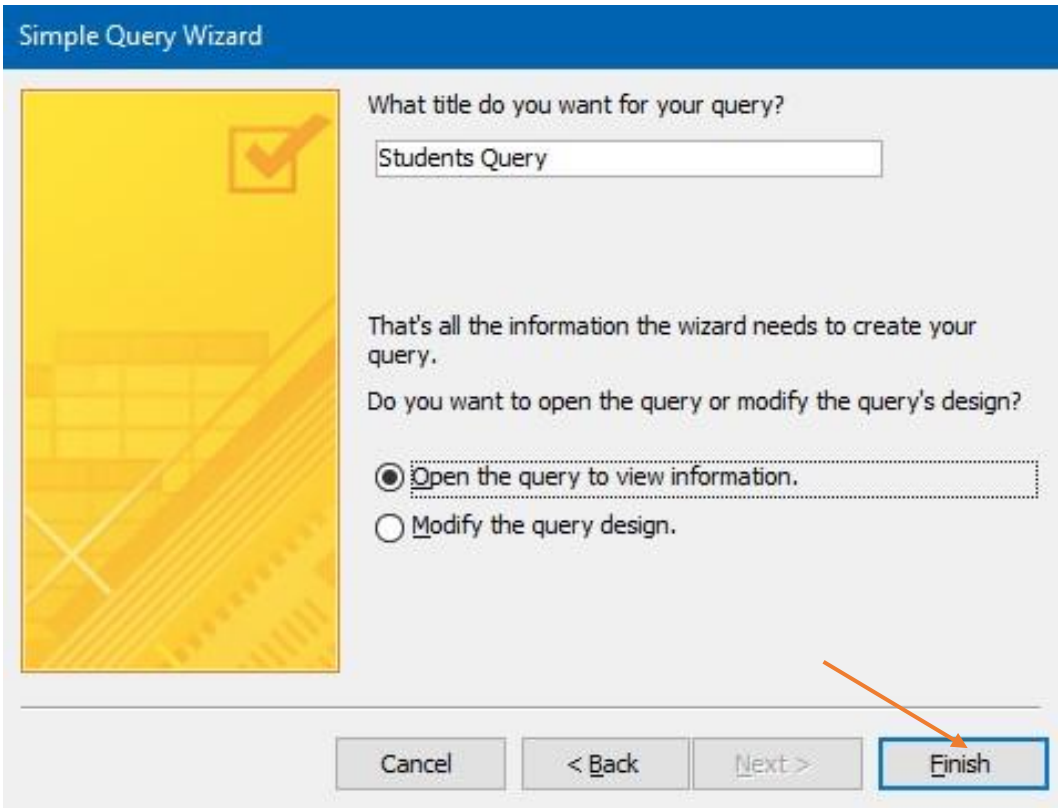

Fig. 4 (Simple Query Wizard dialog)

The results show all of the records, but show only the three fields that you specified in the **"Query Wizard"**

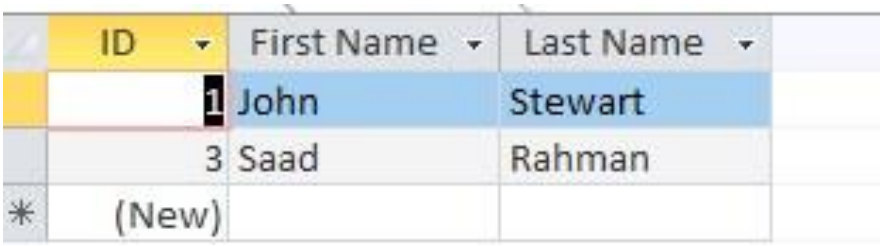

Fig. 5 (Simple Query)

Find Duplicates Query:

- On the **"Create"** tab, in the **"Queries"** group, click the **"Query Wizard"** button

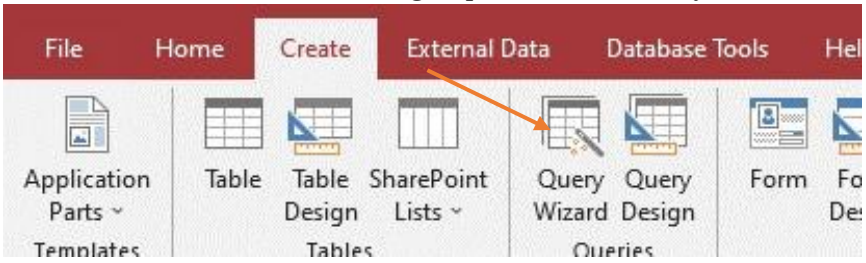

Fig. 6 (New Query)

The **"New Query"** dialog box appears.

- Click **"Find Duplicates Query Wizard"** and then click **"OK"**

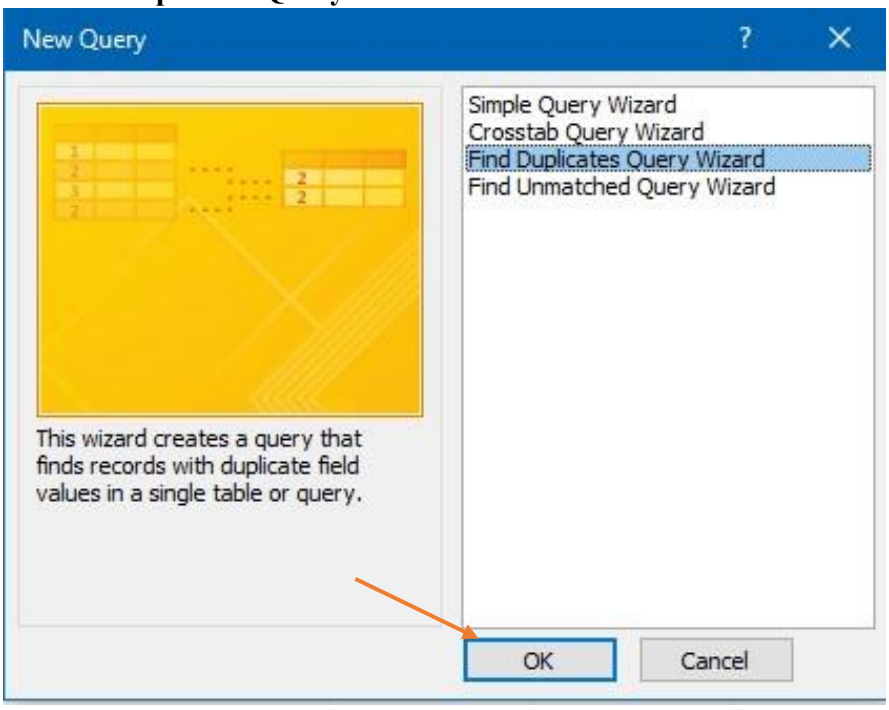

Fig. 7 (New Query Dialog)

- Click **"Table: Students"**
- Click **"Next"**

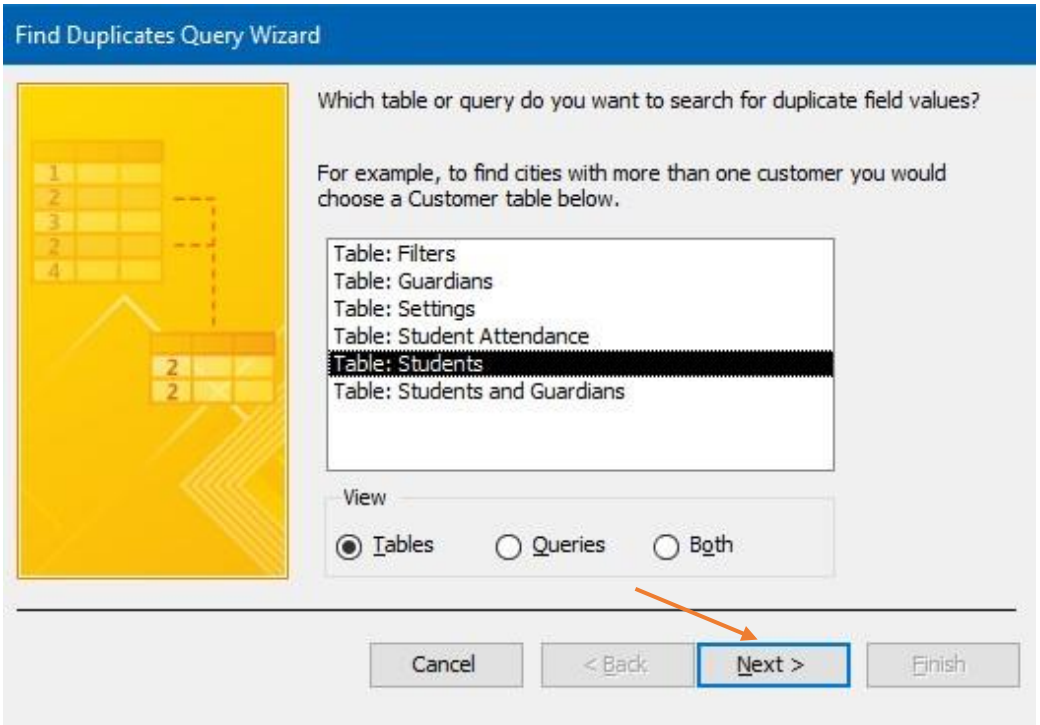

Fig. 8 (Find Duplicates Query Wizard dialog)

- Double-click **"Last Name"**, **"First Name"**, and **"E-mail Address"** to move them to the Duplicate value fields box

- Click **"Next"**

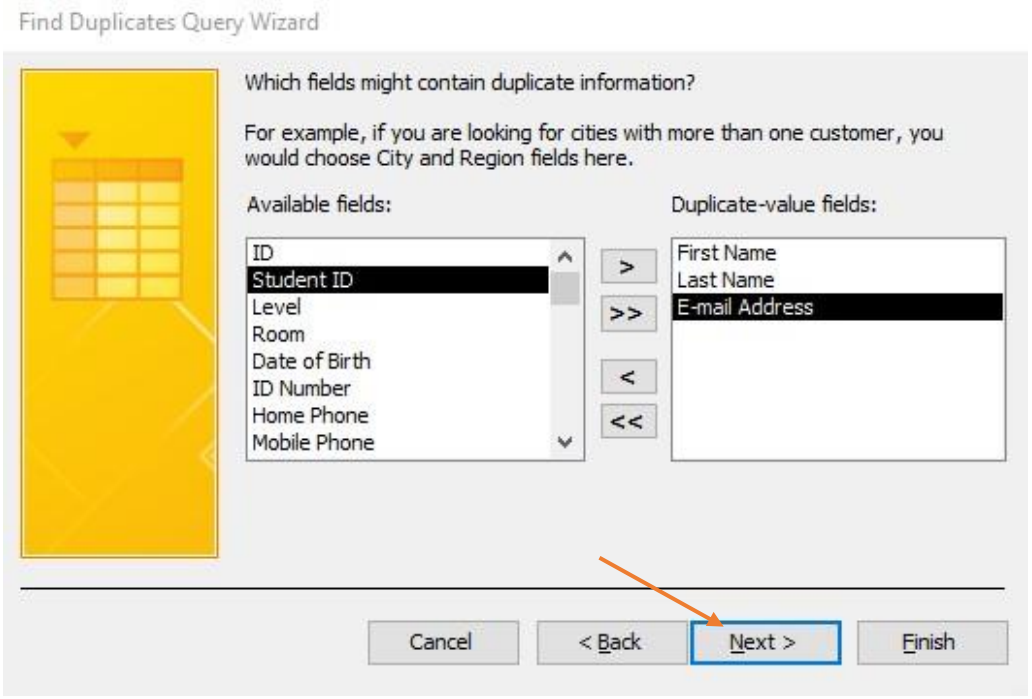

Fig. 9 (Find Duplicates Query Wizard dialog)

- Double-click **"ID"**, **"Student ID"** and **"Room"** to move them to the **"Additional query fields"** box
- Click **"Next"**

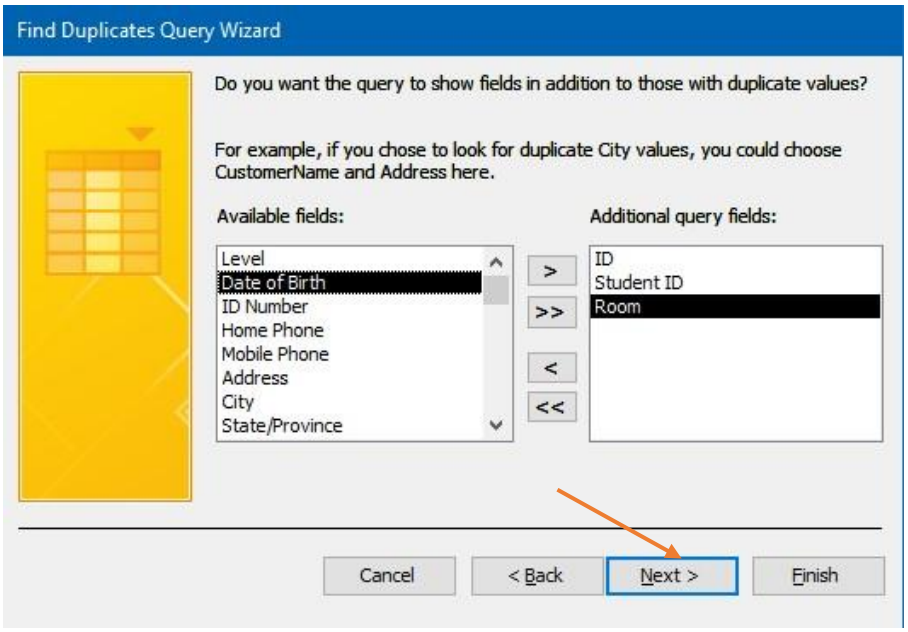

Fig. 10 (Find Duplicates Query Wizard dialog)

- Name the query **"Duplicates"**
- Click **"Finish"**

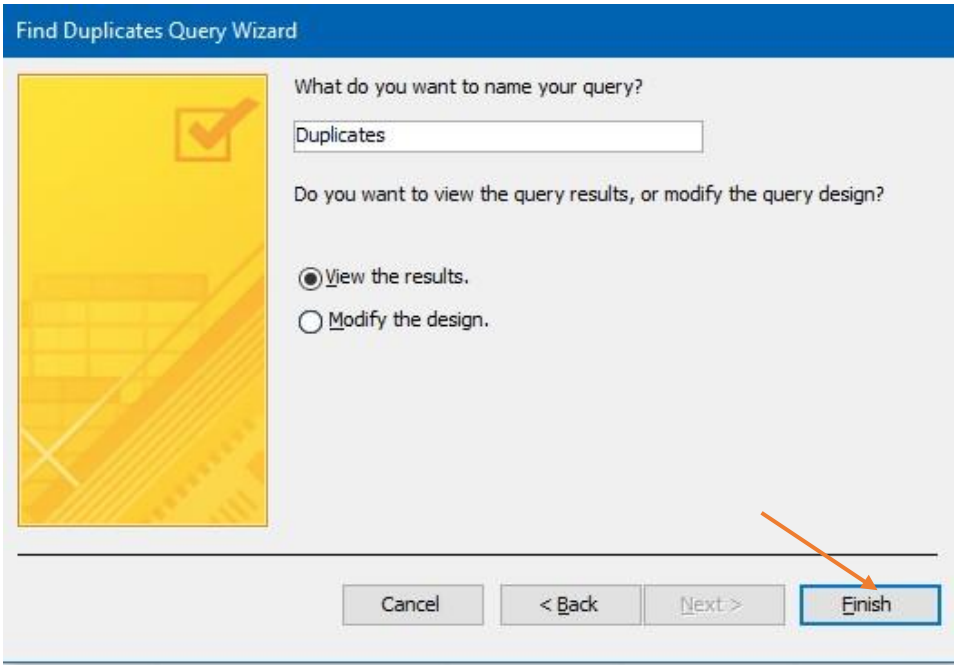

Fig. 11 (Find Duplicates Query Wizard dialog)

The query showing duplicate records in the table is displayed.

First Name	Last Name	E-mail Address	Student ID	ID	Room
Saad	Rahman	bsef19m021@pucit.edu.pk	1892639	5	9
Saad	Rahman	bsef19m021@pucit.edu.pk	28937	3	8
*				(New)	

Fig. 12 (Duplicate Query)

Query from Multiple Tables:

- In the **"Navigation Pane"**, double-click **"Student Attendance"** Table to open the table
- On the **"Database Tools"** tab, in the **"Relationships group"**, click the **"Relationships"** button Create Following **"Relationship"**

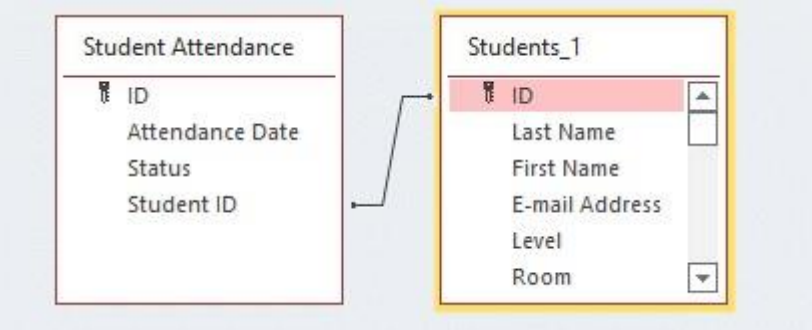

Fig. 13 (Table Relationship)

- On the **"Create"** tab, in the **"Queries"** group, click the **"Query Wizard"** button

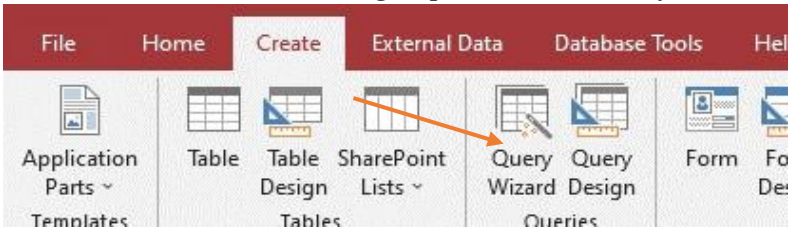

Fig. 14 (New Query)

The **"New Query"** dialog box appears.

- Click **"Simple Query Wizard'** and then click **"OK"**

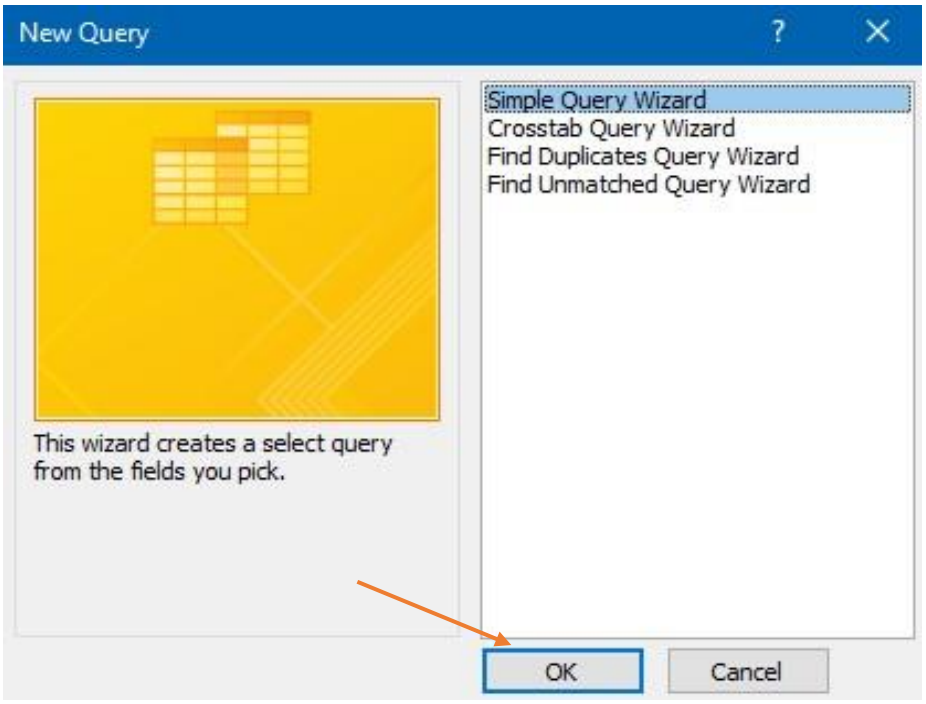

Fig. 15 (New Query dialog)

- In the **"Tables/Queries"** drop-down list, click **"Table: Students"**
- Under **"Available Fields"**, double-click **"First Name"**, and **"Last Name"** to move them to the Selected Fields box
- In the **"Tables/Queries"** drop-down list, click **"Table: Student Attendance"**
- Under **"Available Fields"**, double-click **"Attendance Date"**, and **"Status"** to move them to the Selected Fields box
- Click **"Next"**

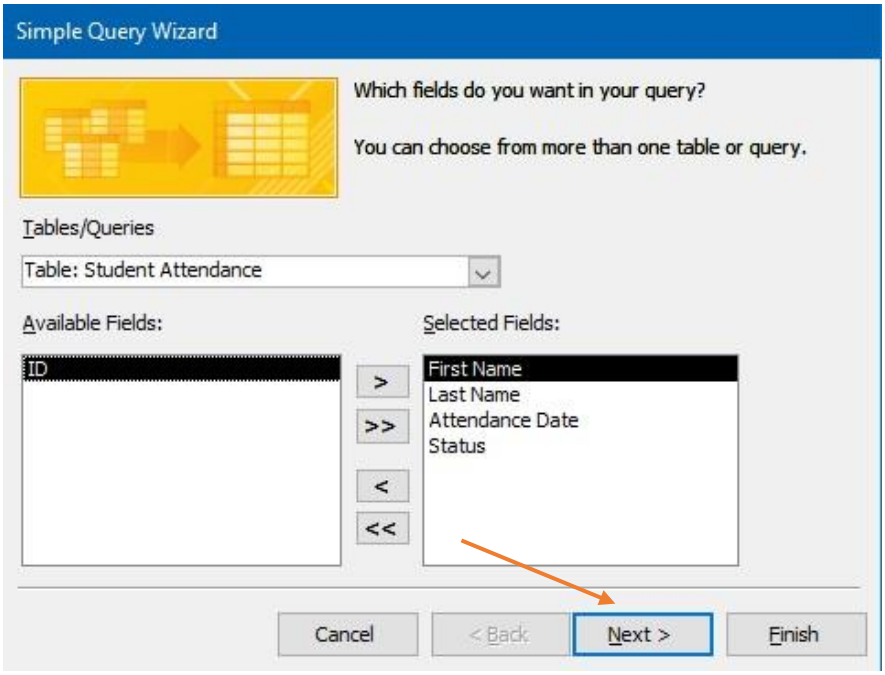

Fig. 16 (Simple Query Wizard dialog)

- Name the query **"Student Attendance Query"**
- Click the **"Finish"** button

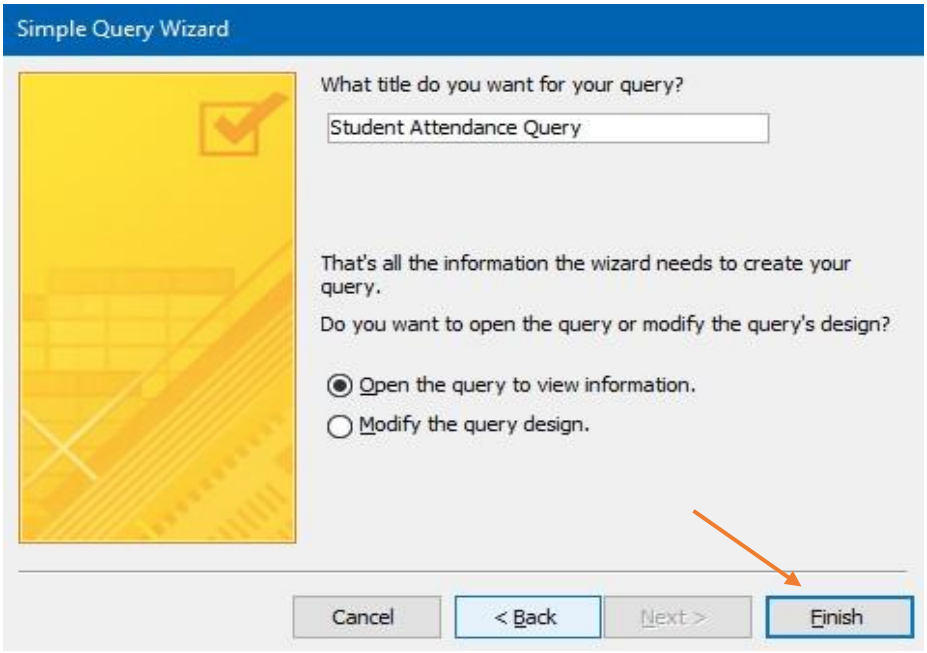

Fig. 17 (Simple Query Wizard dialog)

The query will be displayed.

First Name	Last Name	Attendance Date	Status
John	Stewart	8/25/2015	Absent - Unexcused
John	Stewart	8/26/2015	Present
John	Stewart	8/27/2015	Present
Saad	Rahman	8/24/2015	Absent - Excused
Saad	Rahman	8/23/2015	Present
Saad	Rahman	8/22/2015	Present
Saad	Rahman	8/2/2016	Present

Fig. 18 (Multi Table Query)

Add Criteria to Query:

- Open **"Student Attendance Query"**
- On the **"Home"** tab, in the **"Views"** group, click the lower half of the **"View"** button and then click **"Design View"**

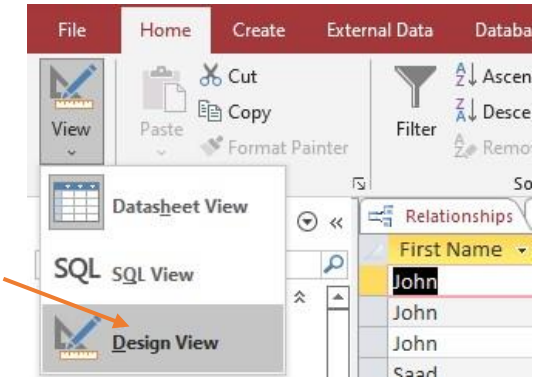

Fig. 19 (Design View)

- In the **"Criteria"** row of the **"First Name"** field, type **"Like *ad"** to display all records ending with string **"ad"**

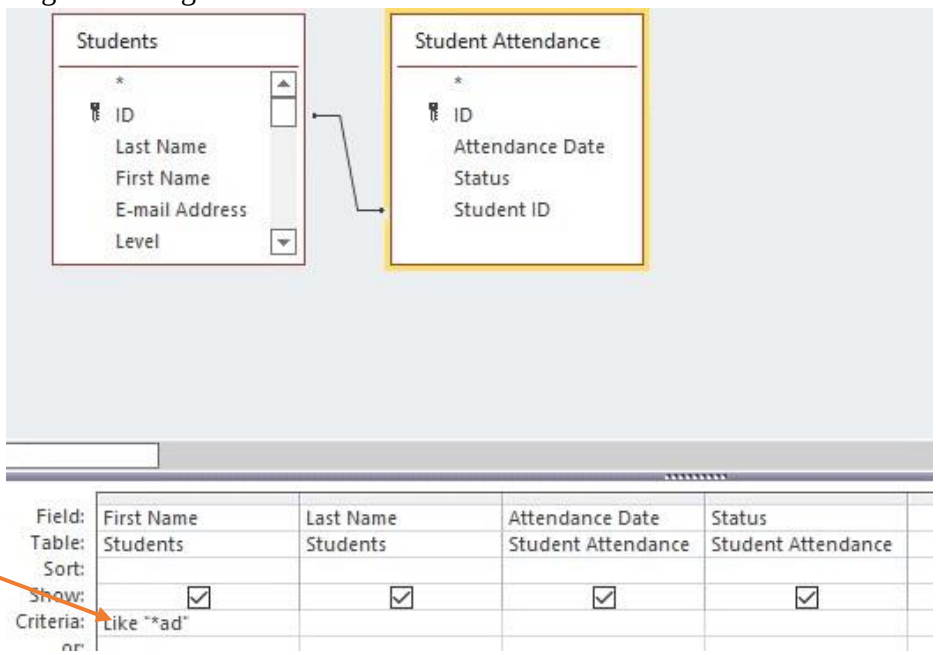

Fig. 20 (Query Criteria)

- Go to the **"Date sheet View"**

Data in which **"First Name"** field ends with **"ad"** will be displayed.

First Name	Last Name	Attendance Date	Status
Saad	Rahman	8/24/2015	Absent - Excused
Saad	Rahman	8/23/2015	Present
Saad	Rahman	8/22/2015	Present
Saad	Rahman	8/2/2016	Present

Fig. 21 (Query Criteria)

- In the **"Criteria"** row of the **"Status"** field, type **"[Status?]"**. This will create the parameter and require you to enter a Status when the query is run

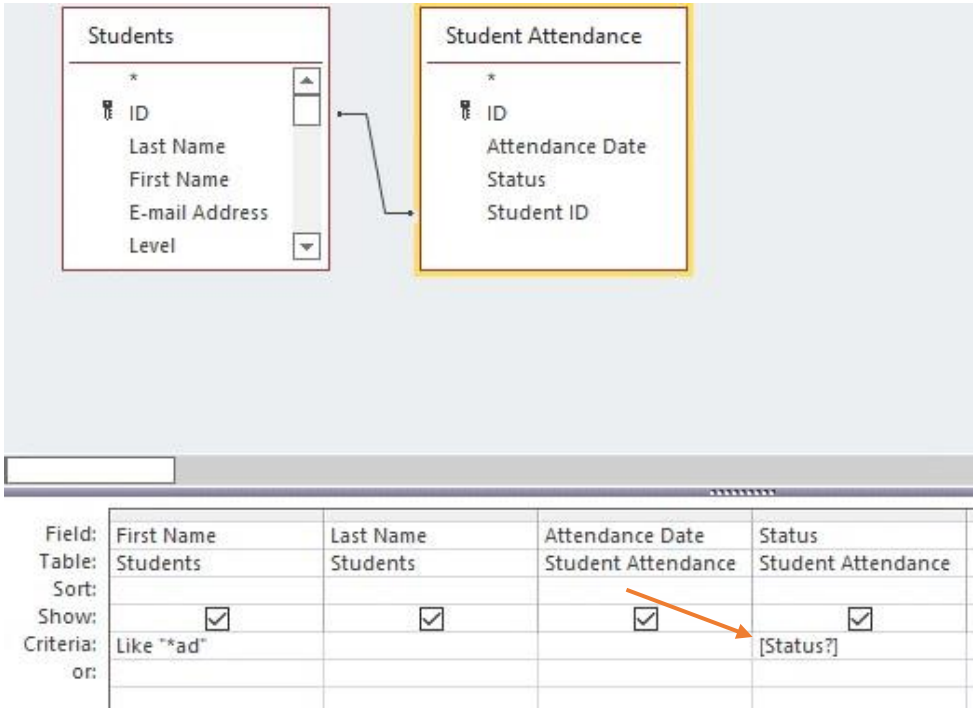

Fig. 22 (Query Criteria)

- Return to the **"Date sheet View"**

A dialog will prompt which asks you to input the **Status** to select the results accordingly

- Enter **"Present"** in the **"Status"**
- Click **"OK"**

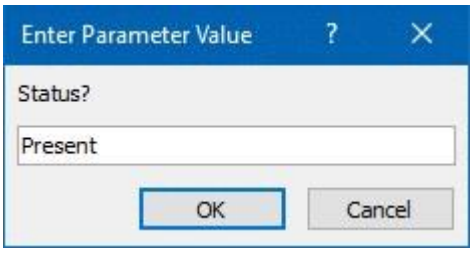

Fig. 23 (Enter Parameter Value dialog)

Data in which **"First Name"** field ends with **"ad"** and **"Status"** field is **"Present"** will be displayed.

First Name	Last Name	Attendance Date	Status
Saad	Rahman	8/23/2015	Present
Saad	Rahman	8/22/2015	Present
Saad	Rahman	8/2/2016	Present

Fig. 24 (Query Criteria)

Criteria	Description

>25 and < 50	Used for number field. Data greater than 25 and less than 25 will be displayed
IS NULL	Data will be shown where field value is Null
"Manager"	Returns records where the given field is set to Manager
Not "Manager"	Returns records where the given field value is other than Manager.
Like B*	Returns records for the given field where the value starts with "B," such as Boston, Bakersfield, and so on.
Not Like B*	Returns records for the given field where the value starts with a character other than "B."
Like "*Sales*"	Returns records for the given field that contain the string "Sales."
Not Like "*Sales*"	Returns records for the given field that do not contain the string "Sales."

Create a Custom Table in Design View:

On the **"Create"** tab, in the **"Tables"** group, click the **"Table Design"** button.

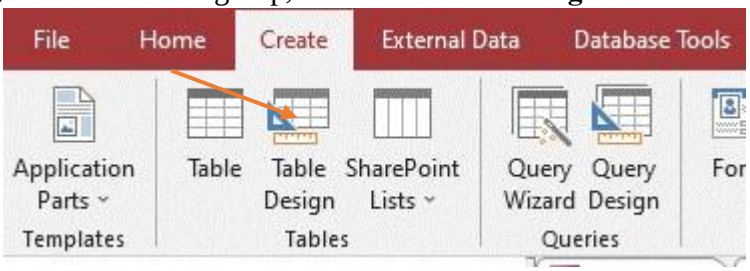

Fig. 25 (Custom Table)

A new blank table is created in Design view

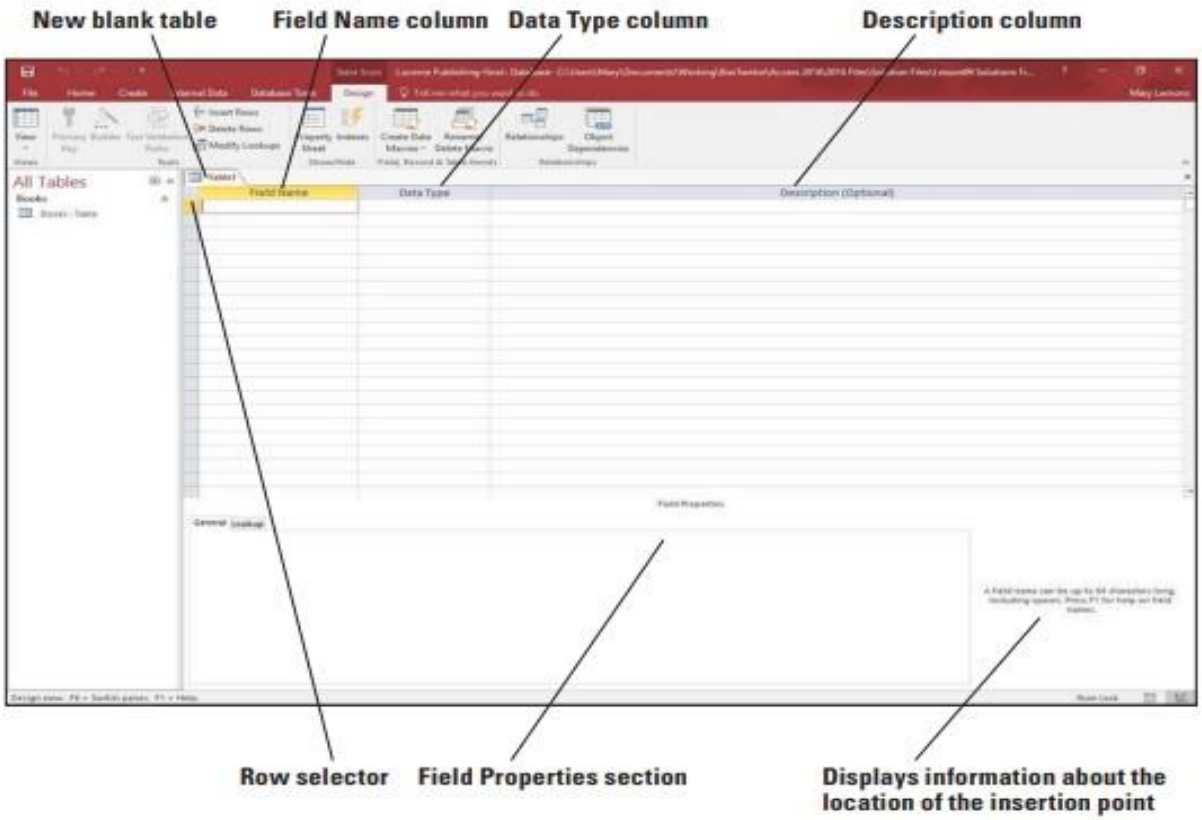

Fig. 26 (Custom Table)

Summarize Table Data:

- Open **"Students"** table
- On the **"Home"** tab, in the **"Records"** group, click the **"Totals"** button. The Total row appears below the row
- Click the **"down arrow"** in the **"Last Name"** column of the Total row. Select **"Count"** from the menu. The number of records in the column is counted

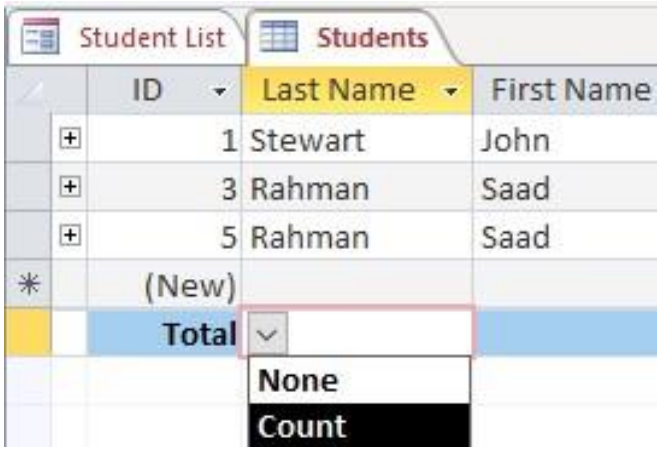

Fig. 27 (Summarize Table)

- Click the **"down arrow"** in the **"Fee"** column of the Total row and then select **"Sum"** from the menu

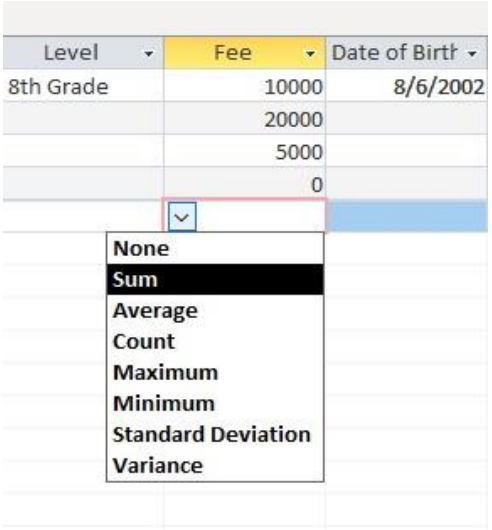

Fig. 28 (Summarize Table)

- Save the Table.

ID	Last Name	First Name	E-mail Address	Level	Fee	D
1	Stewart	John	john@yahoo.com	8th Grade	10000	
3	Rahman	Saad	bsef19m021@pucit.edu.p		20000	
5	Rahman	Saad	bsef19m021@pucit.edu.p		5000	
(New)					0	
Total	3				35000	

Fig. 29 (Summarize Table)

Create a Multi Item form:

- Open **"Students"** table
- On the **"Create"** tab, in the **"Forms"** group, click the **"More Forms"** button. On the menu that appears, click the **"Multiple Items"** button

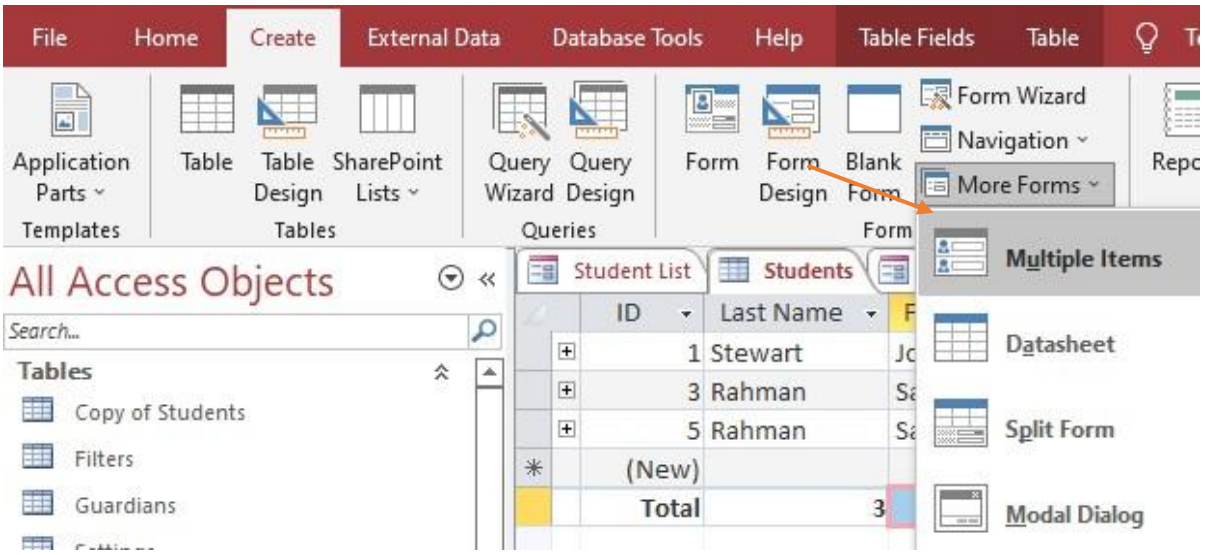

Fig. 30 (Muti Item Form)

Access creates the form and displays it in Layout view

Fig. 31 (Muti Item Form)

Create a Split Form:

- Open **"Students"** table
- On the **"Create"** tab, in the **"Forms"** group, click the **"More Forms"** button. On the menu that appears, click the **"Split Form"** button

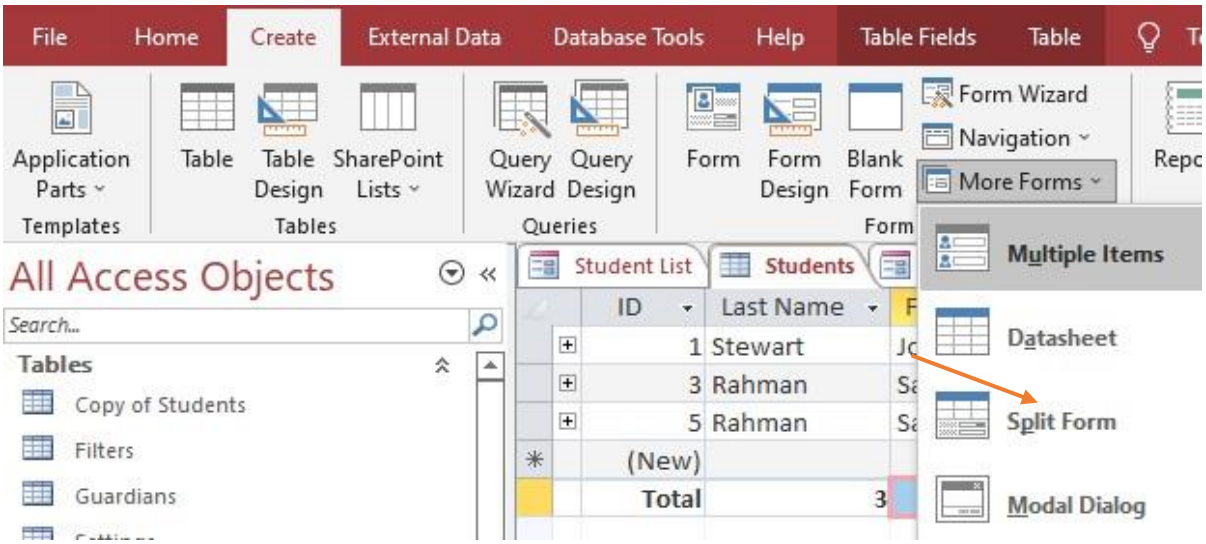

Fig. 32 (Split Form)

Access creates the form and displays it in Form view and Datasheet view at the same time

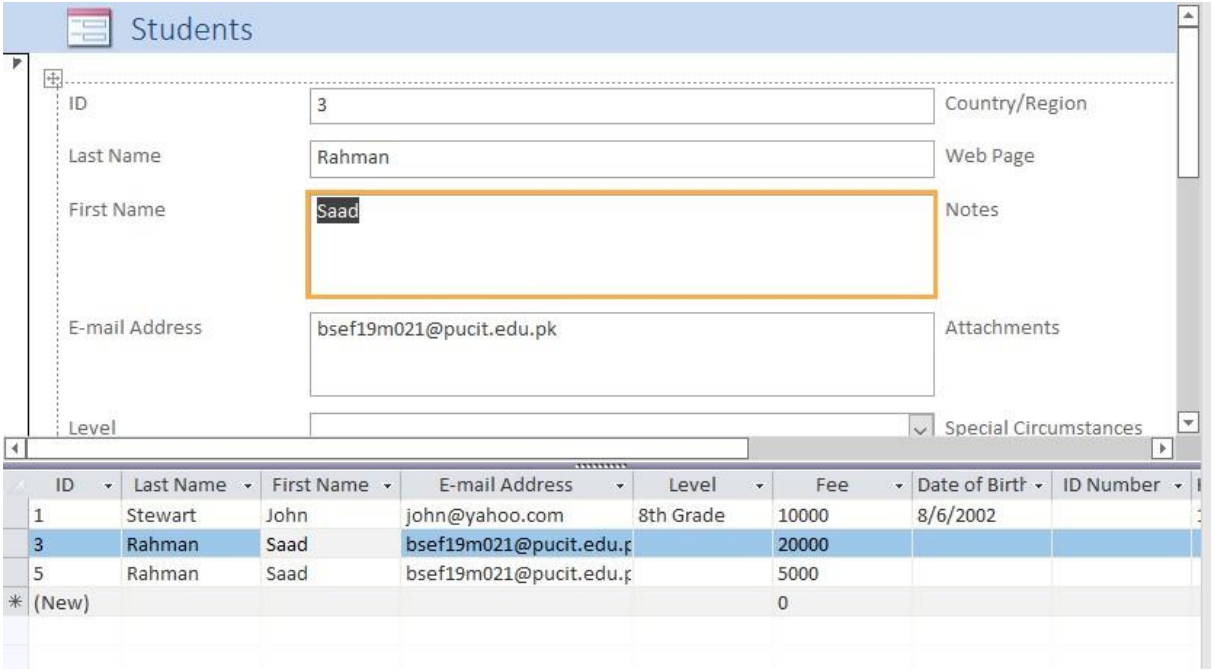

Fig. 33 (Split Form)

Create Sub Forms:

- On the **"Create"** tab, in the **"Forms"** group, click **"Form Wizard"**

Fig. 34 (Split Form)

- In the first screen on the Form Wizard, click the **"down arrow"** in the Tables/Queries box and then click **"Table: Students"**
- In the **"Available Fields"** box, double-click the **"First Name"** and the **"Last Name"** fields to move them to the **"Selected Fields"** box
- Click the **"down arrow"** in the Tables/Queries box and then click **"Table: Student Attendance"**
- In the **"Available Fields"** box, double-click the **"Attendance Date"** and the **"Status"** fields to move them to the **"Selected Fields"** box
- Click **"Next"**

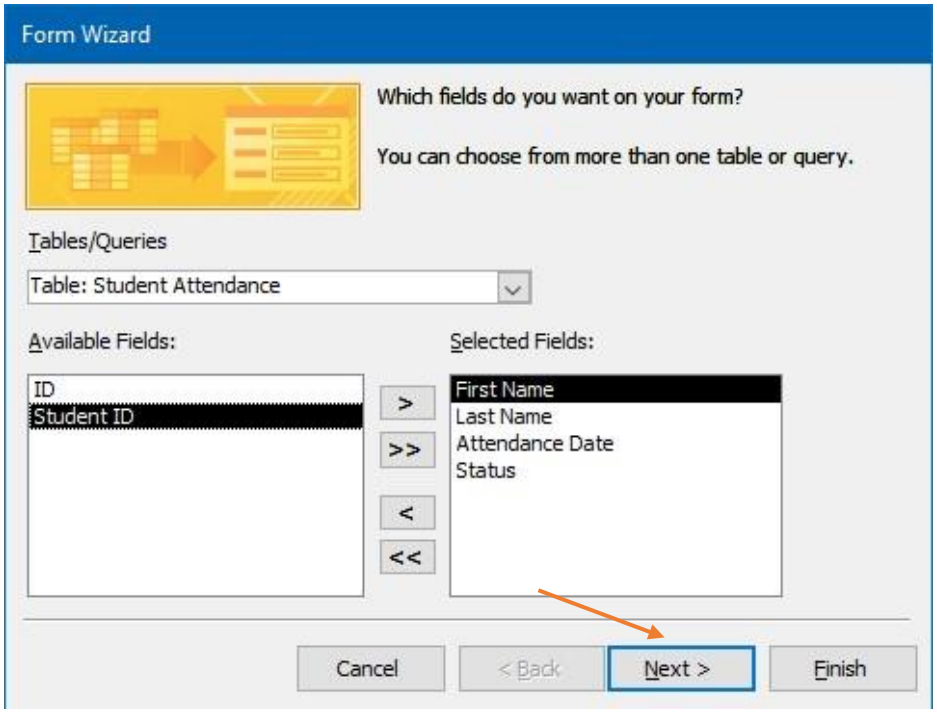

Fig. 35 (Form Wizard dialog)

- In the **"How do you want to view your data?"** box, click **"by Students"**
- Select **"the Form with subform(s)"** option

- Click **"Next"**

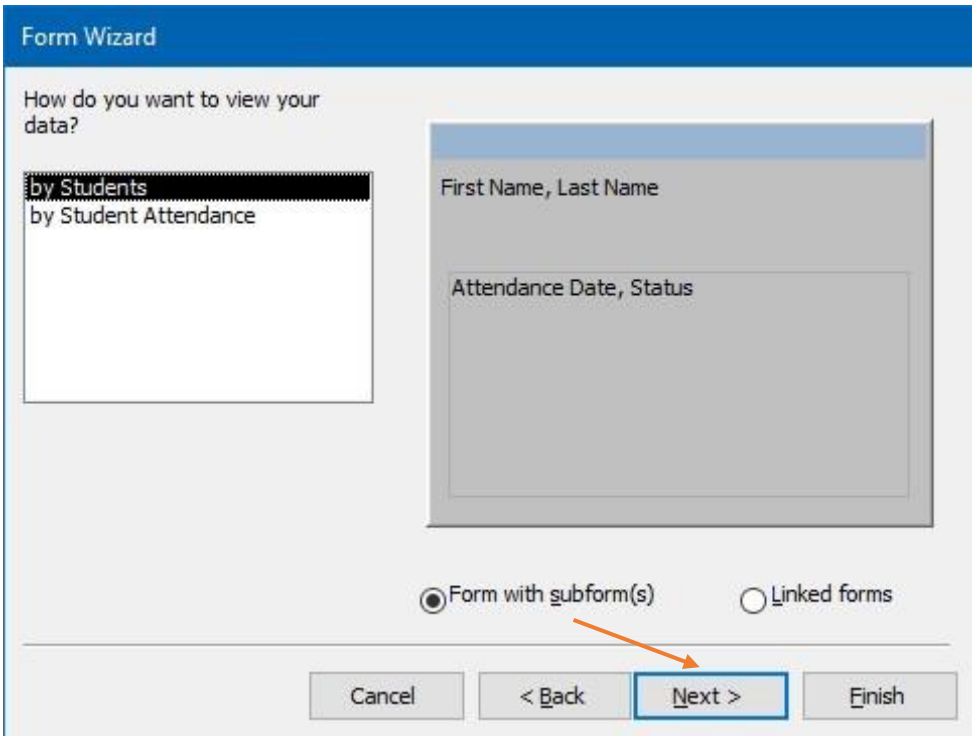

Fig. 36 (Form Wizard dialog)

- Select the **"Tabular"** option
- Click **"Finish"**

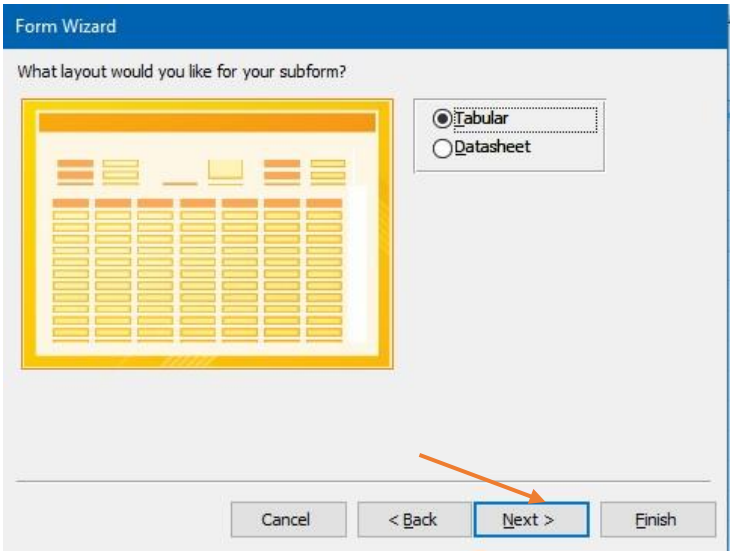

Fig. 37 (Form Wizard dialog)

Subform will be created.

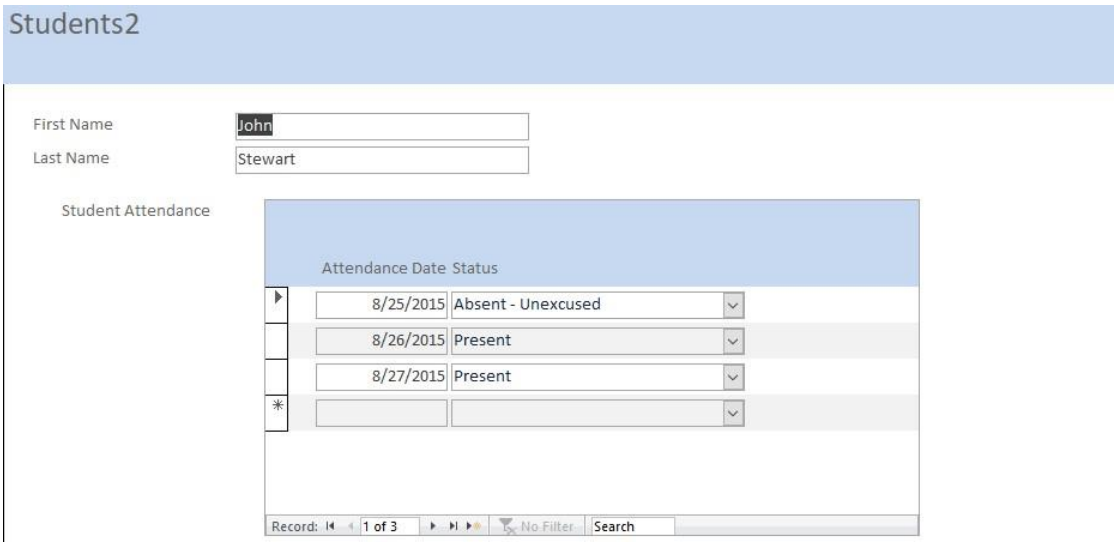

Fig. 38 (Sub Form)

Create a Navigation Form:

- On the **"Create"** tab, in the **"Forms"** group, click the **"Navigation"** button and then click **"Horizontal Tabs"**

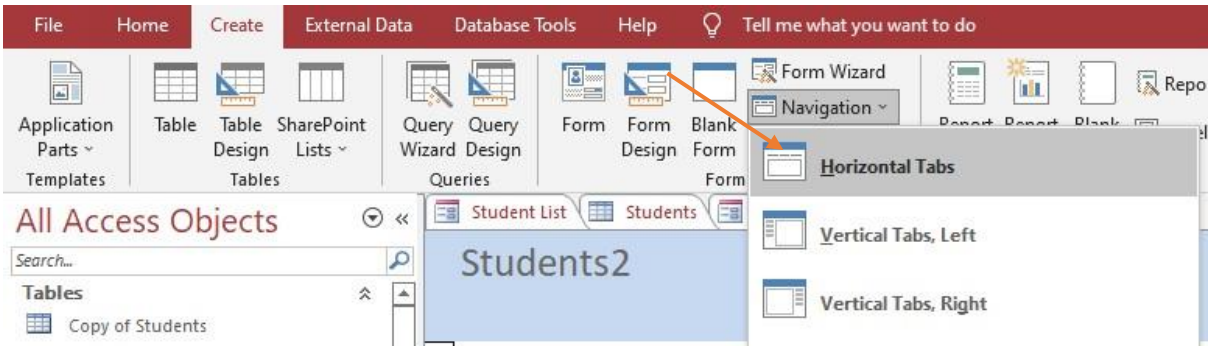

Fig. 39 (Navigation Form)

- Click and drag the **"Student form"** object from the **"Navigation Pane"** to the **"Add New"** tab near the top of the form. The form tab is renamed **"Students"** and all the Student form's controls appear. A new [Add New] tab appears next to the **"Students"** tab

Fig. 40 (Navigation Form)

- Click and drag the **"Student report"** object from the **"Navigation Pane"** to the **"Add New"** tab near the top of the form. The form tab is renamed **"Students"** and all the Student's report controls appear. A new [Add New] tab appears next to the **"Students"** tab

Fig. 41 (Navigation Form) Save and close the Navigation Form