

Microsoft Access 2007



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Changing Font Size

Access Options

Datasheet

Access Options

General

Current Database

Datasheet

Object Designers

Proofing

Language

Client Settings

Customize Ribbon

Quick Access Toolbar

Add-ins

Trust Center

Customize the way c

Gridlines and cell effects

Default gridlines showing

☒ Horizontal

☒ Vertical

Default cell effect

☒ Flat

☐ Raised

☐ Sunken

Default column width: 1"

Default font

Size: 12

Weight: Normal

☐ Underline

☐ Italic

Query Design

Access Options

General

Current Database

Datasheet

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Client Settings

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Trust Center

Change the default settings for des datasheet and layout view.

Table design view

Default field type: Text

Default text field size: 255

Default number field size: Long Integer

AutoIndex on Import/Create: ID:key;code:num

☒ Show Property Update Options buttons

Query design

☒ Show table names

☐ Output all fields

☒ Enable AutoJoin

Query design font

Font: Segoe UI

Size: 14

SQL Server Compatible Syntax (ANSI 92)

☐ This database

☐ Default for new databases

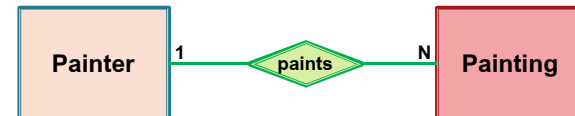
Review: Relationship

- ▶ One to many (1:N)
- ▶ Many to many (M:N)
- ▶ One to one (1:1)

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One-to-Many (1:N)

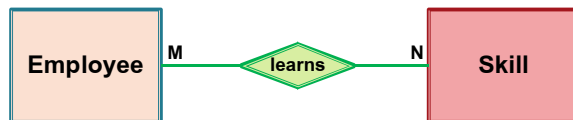
- ▶ Painter – Painting
 - A painter creates many paintings
 - Each painting is painted only by one painter



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Many-to-Many (M:N)

- Employee – Job Skill
 - An employee may learn many job skills
 - Each job skill may be learned by many employees



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One-to-One (1:1)

- Store – Manager
 - Each store is managed by a store manager
 - Each store manager manages only one store



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Student Table Revisited

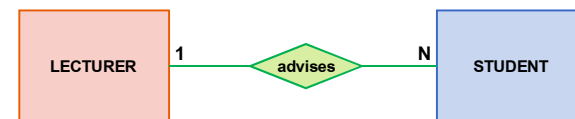


Field Name	Data Type	Field Size
Student ID	Text	9
Title	Text	10
First Name	Text	20
Last Name	Text	20
Birth Date	Date/Time	
GPA	Number	Single
Blood Type	Text	5
Pet	Text	20
Allowance	Currency	
E-mail Address	Text	50

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Student – Advisor

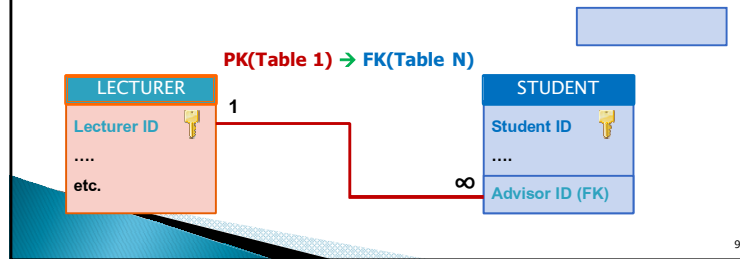
- A Student has only one advisor
- A lecturer can advise many students
- 1:N or N:1?



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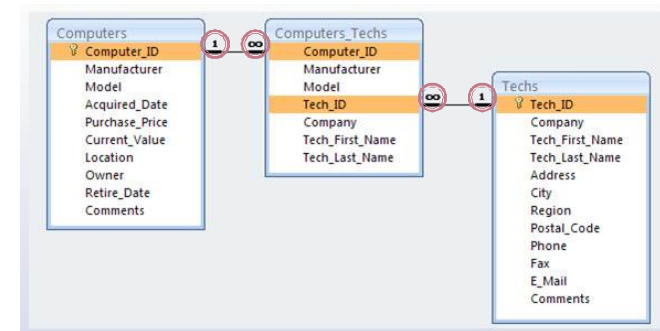
Relationship with Foreign Key

- ▶ One-to-Many Relationship type.
 - Relationship can be created by including a field from the LECTURER table as a new field in STUDENT table. The new field is call a foreign key



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Relationship in MS Access



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Restriction

- ▶ In a database, all table names must be unique
 - Can't have two tables with the same name
- ▶ In a table, all field names must be unique
 - Can't have two columns with the same name.

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Data for This Lab

- ▶ Go to <http://goo.gl/H9wXst>
- ▶ Save the file 13_student_class.accdb on your Desktop.

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Lecturer Table

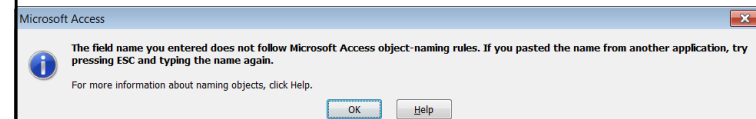
Lecturer		
	Field Name	Data Type
🔑	Lecturer ID	Text
	Title	Text
	First Name	Text
	Last Name	Text
	Office	Text
	Phone Number	Text
	E-mail Address	Text

- ▶ Right Click -> Design View
 - Which field is the Primary key?
 - What is the Data Type?
 - How do you find the Field Size?

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Creating a Foreign Key (FK)

- ▶ Student Table -> Design View
- ▶ Create a new Field called "Advisor.ID"
 - Enter



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Field Name

- ▶ Can be up to 64 characters long
- ▶ Cannot include
 - ! (an exclamation point)
 - [] (brackets)
 - ` (a grave accent)
 - . (a period)
- ▶ Cannot begin with leading spaces

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Creating a Foreign Key (FK)

- ▶ Create a new Field
 - Called "Advisor ID"
 - Data Type: "Text"
 - Field Size: 8
 - Data Type and Size has to be the same as the PK of the related table.
 - The field name can be different.

Student		
	Field Name	Data Type
🔑	Student ID	Text
	Title	Text
	First Name	Text
	Last Name	Text
	Birth Date	Date/Time
	GPA	Number
	Blood Type	Text
	Pet	Text
	Allowance	Currency
	E-mail Address	Text
	Advisor ID	Text

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The “Indexed” Option

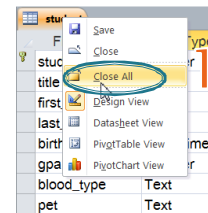
General	
Field Size	8
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	Yes (Duplicates OK)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

- ▶ Duplicates (OK)
 - One-to-Many (1:N) ✓
- ▶ No Duplicate
 - One-to-One (1:1)

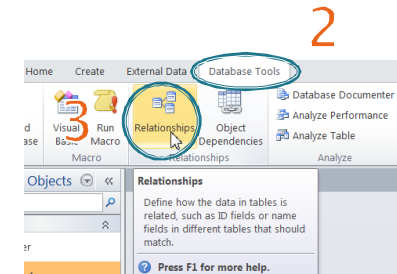
Yes (No Duplicates)
No
Yes (Duplicates OK)
Yes (No Duplicates)

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Creating a Relationship [1.1]



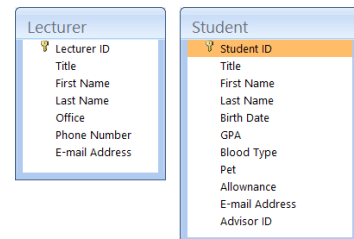
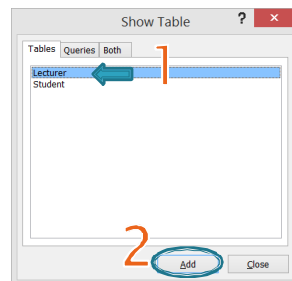
- ▶ Right Click -> Close All
- ▶ Database Tools
 - Relationships



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Creating a Relationship [1.2]

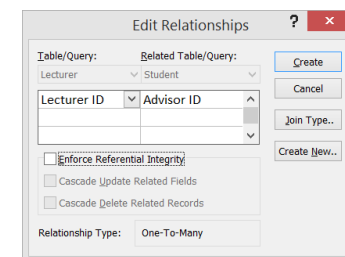
- ▶ Adding the tables
 - Click on “Lecturer”
 - Add
 - Click on “Student”
 - Add
 - Close



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Creating a Relationship [1.3]

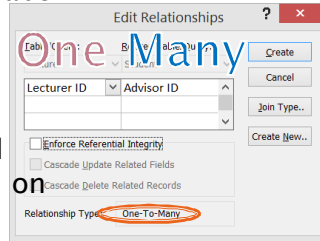
- ▶ Click on “Advisor ID” [Student]
 - Drag and drop on “Lecturer ID” [Lecturer]
- ▶ A Dialog Box “Edit Relationship” will show up



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Creating a Relationship [1.4]

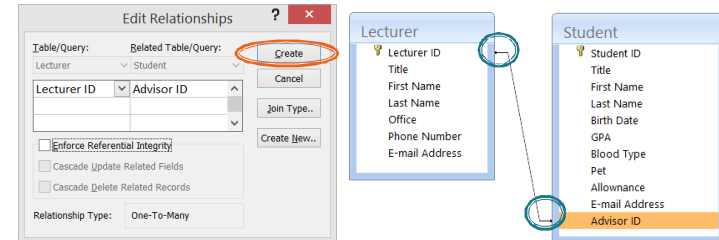
- ▶ Notice the “One-To-Many” label
 - Which table is on which side?
 - What if we reverse the dragging direction? (lecturer_id → advisor_id)
- ▶ The table on the “One” label of the relationship is always on the left (with the PK)
- ▶ The table on the “Many” label is always on the right (with the FK)



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Creating a Relationship [1.5]

- ▶ Click “Create”

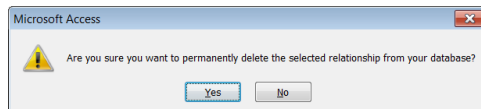


- ▶ Now we have a relationship
 - Notice that the 1:N (or 1:∞) is missing

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Removing a Relationship

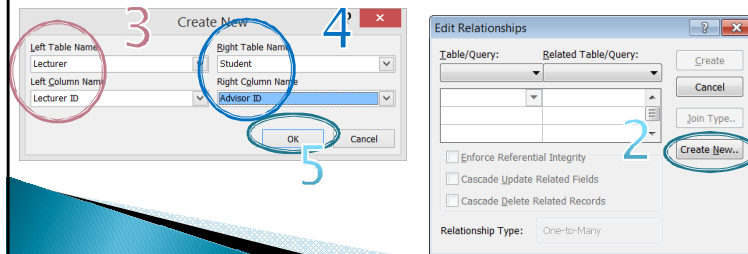
- ▶ Click on the line and then “Delete”
 - Click “Yes”



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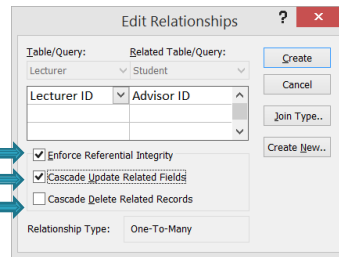
Creating a Relationship [2.1]

- ▶ We can also create a Relationship by using the “Edit Relationship” button



Creating a Relationship [2.2]

- ▶ Enforce Referential Integrity
 - The value in FK field has to map to a valid PK in another table
- ▶ Cascade Update Related Field
 - If **Lecturer ID** is changed all **related records** in the **Student** table will get **updated**.

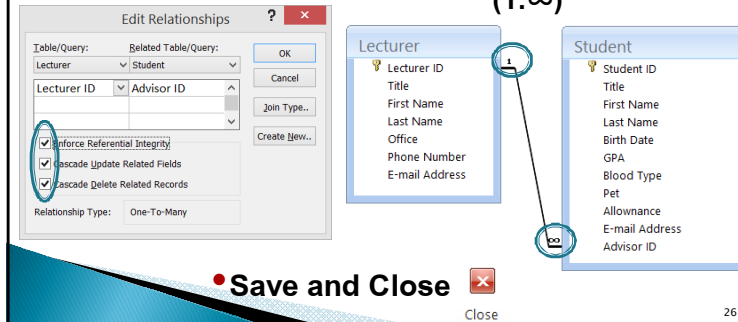


- **Cascade Delete Related Field**
 - If any record in the **Lecturer** table is **deleted** the **related records** in the **Student** table will also be **deleted**

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Creating a Relationship [2.3]

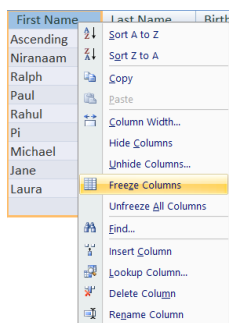
- ▶ In this lab we check all 3 options
- ▶ Now we have Relationship 1:N (1:∞)



Close

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Assigning Relationship [1]



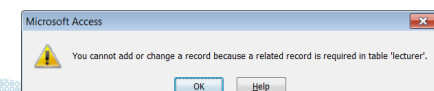
- ▶ Open the student table
 - Right Click on First Name
 - Freeze Columns
 - Then we move to Advisor ID

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Assigning Relationship [2]

- ▶ Fill in the following data
- ▶ a dialog box saying "a related record is required" will show if entering wrong data
 - Save & Close

First Name	Advisor ID
Ascending	LEC23720
Niranaam	LEC23720
Ralph	LEC11348
Paul	LEC36231
Rahul	LEC66451
Pi	LEC11348
Michael	LEC11348
Jane	LEC36231
Laura	LEC36231



Assigning Relationship [3]

- ▶ In the lecturer table
 - By clicking on the plus sign (+) at the front of each record, the related records from the student table will unfold.

Lecturer ID	Title	First Name	Last Name												
LEC11348	Associate Professor	Brandon	Fowler												
LEC23720	Professor	Noah	Howard												
<table> <tr> <th>First Name</th><th>Student ID</th><th>Title</th><th>Last Name</th></tr> <tr> <td>Niranaam</td><td>55555555</td><td>Mr.</td><td>Raisakul</td></tr> <tr> <td>Ascending</td><td>500123456</td><td>Mr.</td><td>Order</td></tr> </table>				First Name	Student ID	Title	Last Name	Niranaam	55555555	Mr.	Raisakul	Ascending	500123456	Mr.	Order
First Name	Student ID	Title	Last Name												
Niranaam	55555555	Mr.	Raisakul												
Ascending	500123456	Mr.	Order												
LEC36231	Lecturer	Florence	Allison												
LEC66451	Assistant Professor	George	Palmer												

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Cascading Update

- ▶ Now change "LEC11348" to "LEC11349"

Student	Lecturer
Student ID	Title
LEC11348	Associate Profes
LEC23720	Professor
LEC36231	Lecturer
LEC66451	Assistant Profess

LEC11349

- After saving the table, the related records in the student table also change

Student		
Student ID	First Name	Advisor ID
500123456	Ascending	LEC23720
555555555	Niranaam	LEC23720
570883775	Ralph	LEC11349
570899998	Paul	LEC36231
571123456	Rahul	LEC66451
571314159	Pi	LEC11349
571634633	Michael	LEC11349
571645508	Jane	LEC36231
571888555	Laura	LEC36231

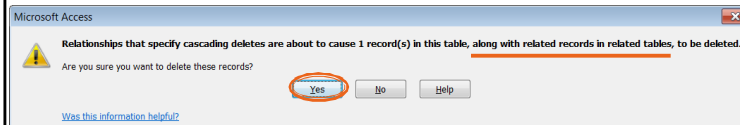
- After saving the table, the related records in the student table also change

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Cascading Delete [1]

- ▶ Delete the Record with PK = LEC66451
 - Notice the related Student Record (Rahul)

Lecturer		
	Lecturer ID	Title
+	LEC11349	Associate Pro
+	LEC23720	Professor
+	LEC36231	Lecturer
-	LEC66451	Assistant Pro
Student ID		First Na
	571123456	Rahul



along with related records in related tables, to be deleted.

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Cascading Delete [2]

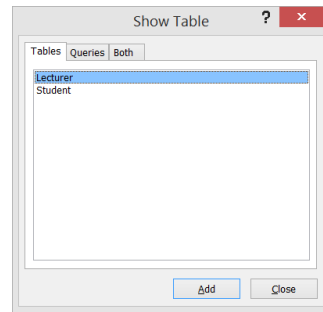
- ▶ Now the related record is also deleted

Lecturer	Student		
	Student ID	First Name	Advisor ID
	500123456	Ascending	LEC23720
	555555555	Niranaam	LEC23720
	570883775	Ralph	LEC11349
	570899998	Paul	LEC36231
	571314159	Pi	LEC11349
	571634633	Michael	LEC11349
	571645508	Jane	LEC36231
	571888555	Laura	LEC36231

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Creating a Query

- ▶ To create a query: at the **Show Table** dialog box, add only the tables related to the query.
 - If the query involves data in **Student** table only without referring to the **Lecturer** table, add only the **Student** table



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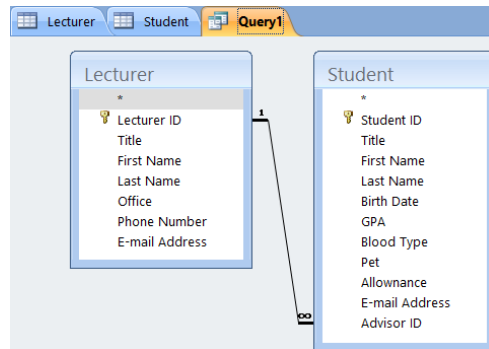
Query Practice V

- ▶ Create a query to find all female students and male students from the Faculty of Law⁽²⁰⁾
 - Showing
 - Names, student ID, and GPA
 - Sorted by GPA (ascending)

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Creating a Query [2]

- ▶ If querying involves data in the lecturer table, we need to add the **Lecturer** table also.



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Query Practice VII

- ▶ Create a query to list the name of students whose advisors are professors
 - Showing student ID, name, and GPA
 - Sorted by last name – descending

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Query Practice VIII

- ▶ Create a query for students with GPA higher than 2.75 and having advisors w/ office in building 4 (Office:A4XX)
 - Showing (Students') Name, and the advisors' office number and GPA
 - Remember wildcard? (* and ?)

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Summary

- ▶ Creating a Relationship
- ▶ Removing a Relationship
- ▶ Enforcing Referential Integrity
- ▶ Cascading Update/Delete
- ▶ Querying on related tables

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