

MICROSOFT ACCESS

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- Desktop DBMS
- Part of Microsoft Office
- Features:
 - Database engine
 - Query designer
 - Form designer
 - Report designer
 - Programmable using Visual Basic for Applications
- Our focus: End-user friendly front-end for MySQL

ACCESS FUNDAMENTALS

- Access Database files have extension .accdb
- A Database file contains
 - Tables
 - Views ("Queries")
 - Form and Report definitions
 - VBA code
- Demo: StudentAttendance.accdb

WORKING WITH TABLES

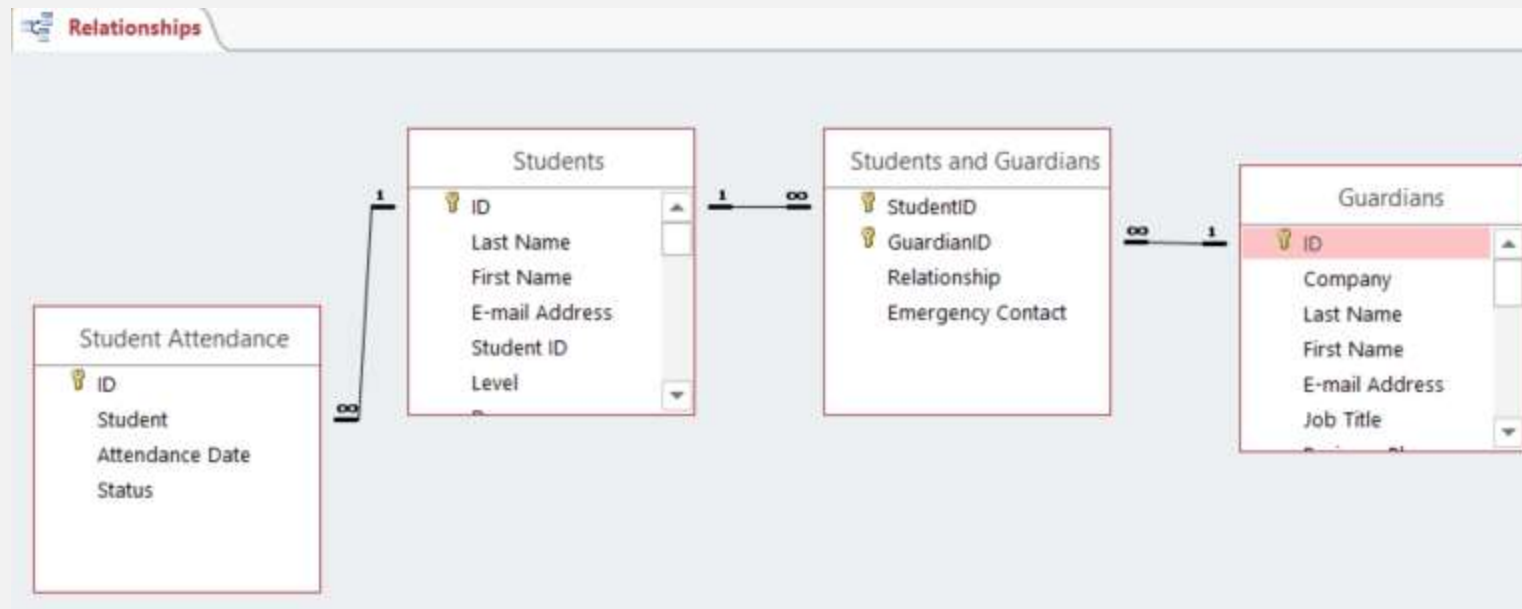
- Datasheet View
 - View / Edit data
 - Sort / Filter data
- Design View
 - Modify Schema

Column data types

- AutoNumber
- Number
- Short Text
- Long Text
- Date/Time

FOREIGN KEYS

- Defined in Relationships screen
- Used to help write queries and forms



DROPDOWNS IN TABLES

Relationships StdClub

Field Name	Data Type
StdNo	Short Text
ClubNo	Short Text

Field Properties

General Lookup

Display Control	List Box
Row Source Type	Table/Query
Row Source	Club
Bound Column	1
Column Count	1
Column Heads	No



Relationships StdClub

StdNo	ClubNo
123456789	C1
123456789	C1
124567890	C2
456789012	C3
*	C4

QUERIES

QUERY DESIGNER

```
SELECT Faculty.FacNo,  
       [FacFirstName] & " " & [FacLastName] AS FacName,  
       Faculty.FacDept  
  
FROM Faculty  
  
WHERE (((Faculty.FacDept)='MS'))  
  
ORDER BY [FacFirstName] & " " & [FacLastName];
```

Field:	FacNo	FacName: [FacFirstName] & " " & [FacLastName]	FacDept
Table:	Faculty		Faculty
Sort:		Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			'MS'

DIFFERENCES FROM STANDARD SQL

- Use & to concatenate strings
- Use * as a wildcard with LIKE, instead of %
- Strings can use either single or double quotes
- Column names can optionally be surrounded with []

PRACTICE

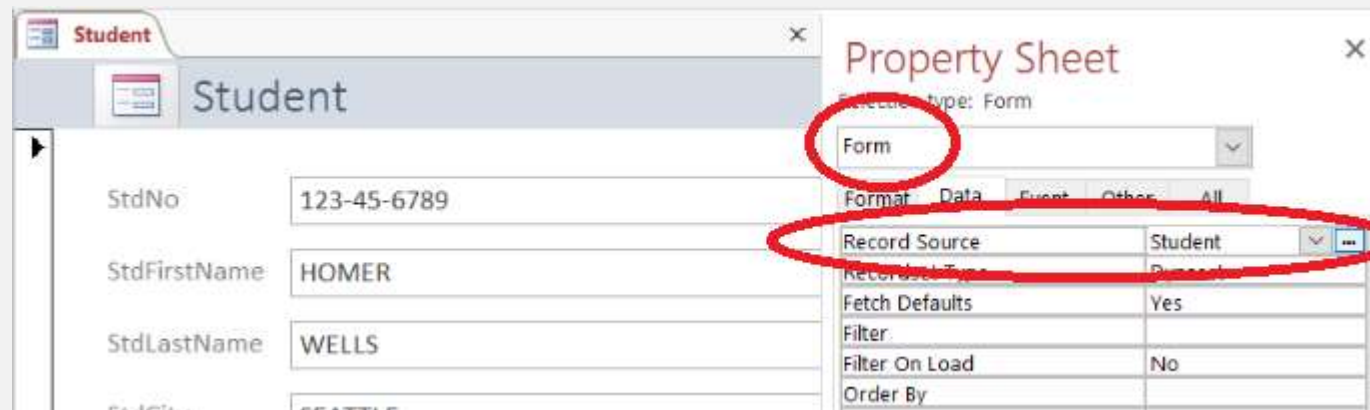
- Use the Access Query Designer to create a list of students and the courses they are taking in the Winter 2010 term

StdSSN	StdFirstNam	StdLastNam	CrsDesc
123456789	HOMER	WELLS	FUNDAMENTALS OF DATABASE MANAGEMEN
123456789	HOMER	WELLS	FUNDAMENTALS OF FINANCE
124567890	BOB	NORBERT	FUNDAMENTALS OF FINANCE
234567890	CANDY	KENDALL	PRINCIPLES OF INVESTMENTS
234567890	CANDY	KENDALL	FUNDAMENTALS OF DATABASE MANAGEMEN
345678901	WALLY	KENDALL	FUNDAMENTALS OF DATABASE MANAGEMEN
456789012	JOE	ESTRADA	FUNDAMENTALS OF DATABASE MANAGEMEN
567890123	MARIAH	DODGE	PRINCIPLES OF INVESTMENTS
567890123	MARIAH	DODGE	FUNDAMENTALS OF DATABASE MANAGEMEN

FORMS

FORMS

- A Form provides a user-friendly interface for modifying data in a table
- A Form has a **Record Source** property that specifies which table is connected to the form



DESIGNING AND VIEWING FORMS

- Form View
 - Use the form to view / enter data
- Datasheet View
 - Like the Access Table view
- Layout View
 - Make limited design changes to the form while previewing live data
- Design View
 - Make design changes to the form

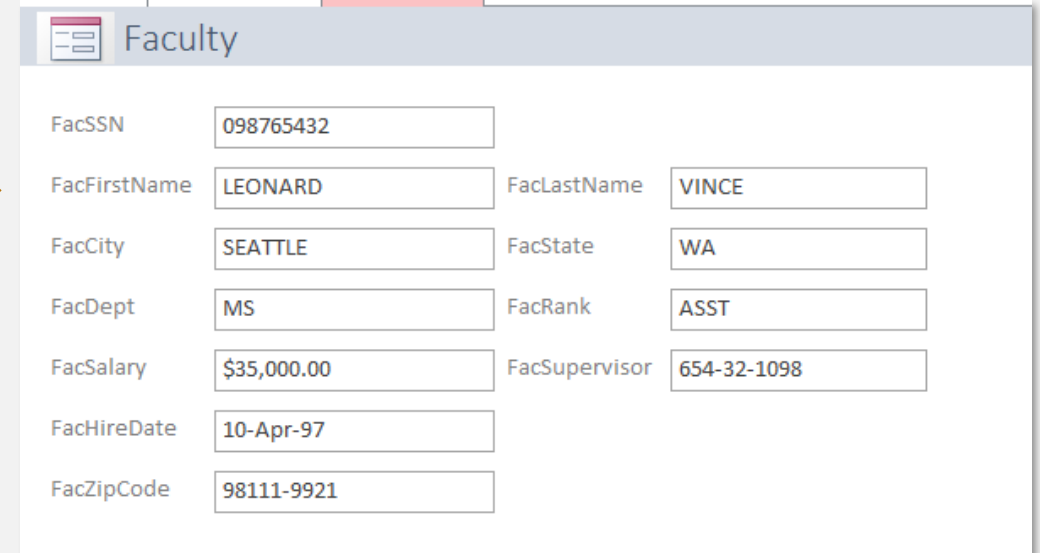
FORM VIEWS

- **Single Form:** Displays one record at a time
- **Continuous Form:** Displays multiple records at a time
- **Datasheet:** Displays multiple records in a compact format
- **Split Form:** Displays one record in a split view

- The Form object's **Default View** property determines which is the default view

FORM LAYOUT

- Stacked
 - Helps keep controls neatly aligned
 - Normally used with Single Form view
 - Most forms use this layout
 - Practice: Duplicate the Faculty form layout →
- Tabular
 - Used with Continuous Form view



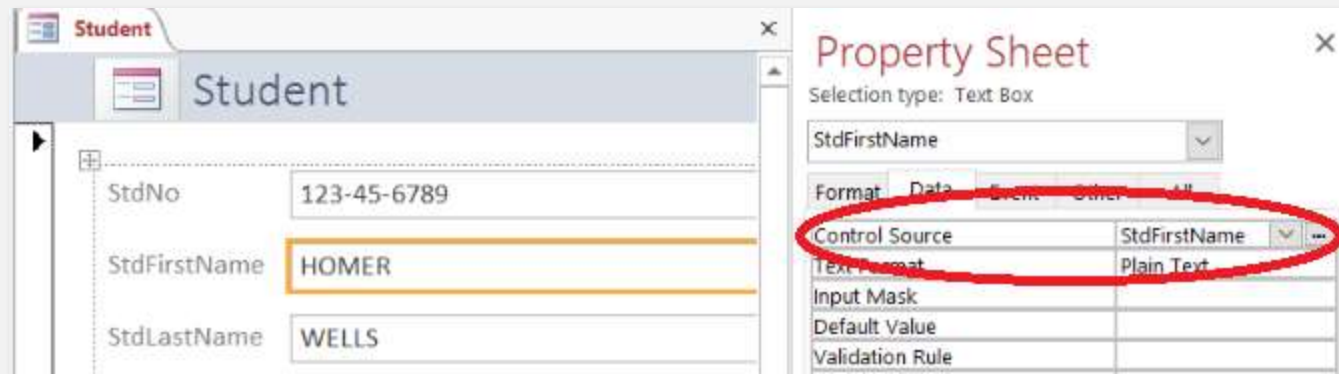
The screenshot shows a form titled 'Faculty' with the following fields and values:

FacSSN	098765432		
FacFirstName	LEONARD	FacLastName	VINCE
FacCity	SEATTLE	FacState	WA
FacDept	MS	FacRank	ASST
FacSalary	\$35,000.00	FacSupervisor	654-32-1098
FacHireDate	10-Apr-97		
FacZipCode	98111-9921		

FORM CONTROLS

- Common Form Controls:
 - Label
 - Text Box
 - Drop Down
 - List Box
- Each control has a name
- A control that is linked to a column in the form's table is a Bound control
- The control's **Control Source** property specifies which column the form displays

BOUND FORM CONTROL



- Watch out for unbound form controls!

DROPDOWNS ON FORMS

- To convert a text box to a combo box, right-click > Change To > Combo Box
- Set properties:
 - Row Source: Query for combo box values, or semicolon-delimited list of values
 - Bound Column: (Usually 1) – column in query containing values for the actual table column
 - Column Count: Number of columns in query to display in dropdown
 - Column Widths: Widths of columns in dropdown
- Practice: In the Faculty form, make FacDept a dropdown (with a list of values) and FacSupervisor a dropdown (with values from a query against faculty table)

SUBFORMS

- A subform is a form or table that is embedded in a form
- Subforms can filter their records to display only records that are related to the current record in the main form

The screenshot shows an Access form titled 'Club' with the following fields:

- ClubNo: c1
- CName: DELTA
- CPurpose: SOCIAL
- CBudget: \$1,000.00
- CActual: \$1,200.00

Below these fields is a subform titled 'Club Members' which displays a table of members:

StdNo
BOB NORBERT
JOE ESTRADA
ROBERTO MORALES
*

At the bottom of the subform, there is a record navigation bar showing 'Record: 1 of 3' and a search field.

LINKING SUBFORMS

The screenshot displays the Microsoft Access interface. The main window shows a form titled 'frmClub' with a 'Form Header' section containing a 'Club' label and a 'Detail' section with several text boxes labeled 'ClubNo', 'CName', 'CPurpose', 'CBudget', and 'CActual'. Below these is a subform titled 'Club Members'. The 'Property Sheet' window is open on the right, showing the configuration for the selected subform. The 'Selection type' is 'Subform/Subreport'. The 'Source Object' is 'frmClub Subform'. The 'Link Master Fields' and 'Link Child Fields' are both set to 'ClubNo'. The 'Filter On Empty Master' is set to 'Yes', 'Enabled' is 'Yes', and 'Locked' is 'No'. A red circle highlights the 'Link Master Fields' and 'Link Child Fields' rows.

Property	Value
Source Object	frmClub Subform
Link Master Fields	ClubNo
Link Child Fields	ClubNo
Filter On Empty Master	Yes
Enabled	Yes
Locked	No

REPORTS

REPORTS

- A report displays information from a table or (usually) a query
- Like a Form, a report has a Record Source and displays information using both bound and unbound controls
- Unlike a Form, a report cannot be used to modify information

REPORT ORGANIZATION

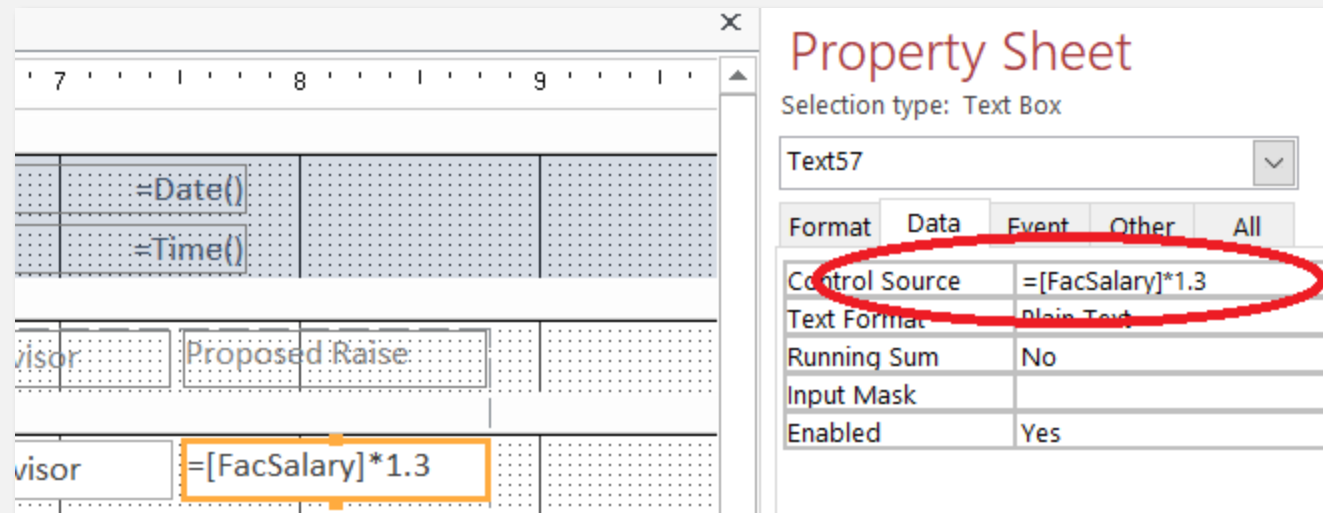
- **Report Header:** Content that appears once at the beginning of the report
- **Page Header:** Content that appears once at the top of every page
- **Detail:** Content that appears once for each record in the query
- **Page Footer:** Content that appears once at the bottom of every page
- **Report Footer:** Content that appears once at end of report

The screenshot shows the design view of a report named 'rptFacultyReport'. The report is organized into several sections:

- Report Header:** Contains a small icon and the text 'Faculty Report'.
- Page Header:** Contains two fields: 'FacNo' and 'FacName'.
- Detail:** Contains two fields: 'FacNo' and 'FacName'.
- Page Footer:** Contains the text '= "Page " & [Page] & " of " & [Pages]'.
- Report Footer:** Contains the text '=Count(*)'.

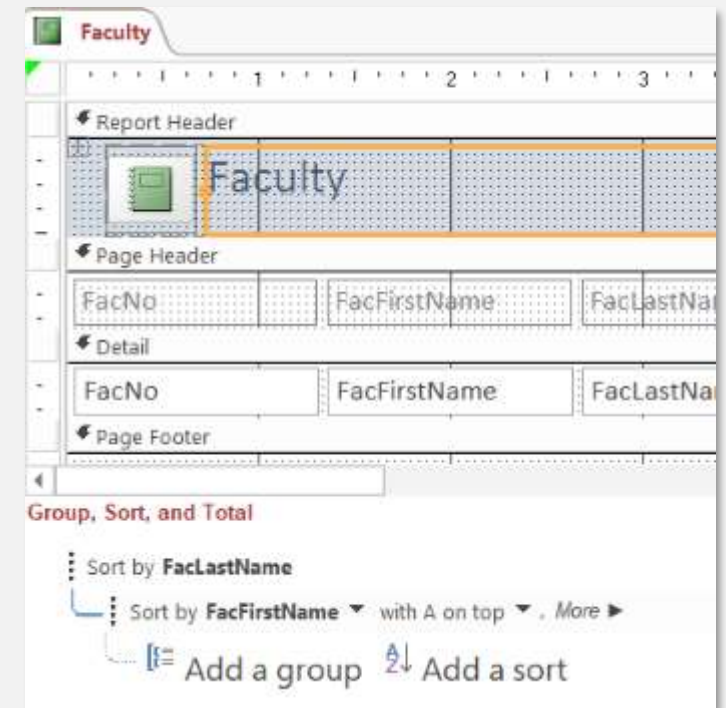
CALCULATED FIELDS

- Calculations can be performed either in the query, or by using a bound control that uses a calculated expression



SORTING

- Sorting can be performed either by using a query with ORDER BY, or by adding a sort level to the report



GROUPING

- Add grouping levels to a report to
 - Group together similar records under a common heading
 - Include totals for sections of the report

The screenshot shows a report design view for 'rptCourseOfferings_basic_groups'. The report is organized into several grouped sections:

- Report Header:** Contains a logo and the text 'qryCourseOfferings'.
- Page Header:** Contains fields for CourseNo, CrsDesc, CrsUnits, OffYear, OffTerm, and OffLocation.
- CourseNo Header:** Contains fields for CourseNo, CrsDesc, and CrsUnits.
- OffYear Header:** Contains the field OffYear.
- OffTerm Header:** Contains the field OffTerm.
- Detail:** Contains the field OffLocation.

QUERY PARAMETERS

- A query can contain WHERE criteria that use parameters
- When the query runs, the user is prompted to supply a value for the parameter(s)
- The user's entry is substituted into the query in place of the parameter

```
SELECT Student.*  
FROM Student  
WHERE (((Student.StdMajor)=[Enter Student Major]));
```

REPORT PARAMETERS

- Define query parameters in a query
- Create a report based on the query
- When the report runs, the user is prompted to supply parameter values
- Example: rptStudentsInMajor