



Tutorial 1

Creating a Database



Introduction to Database Concepts

- Data is a valuable asset
- Need to **store, maintain, retrieve, present** vital business data
- Entity (nib)



Organizing Data

- Example: issue25.accdb reference sheet
- Data hierarchy
 - Byte
 - Field
 - Record
 - Table
 - Database

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Databases and Relationships

- How do we connect related data that has been stored in different tables?
- Primary key
- Foreign key

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Issue25 Database

- We'll use periodically throughout the semester
- Available in *C:\CIS117 Data Files\Issue25\Issue25.accdb*
- Overview its tables
 - Writer
 - Article
 - Type

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Opening a Database

- Access closes any previously opened database
 - can have only one database open in the Access User Interface
 - can open multiple databases simultaneously via macro or VBA
- Access creates an .LACCDB file with the same name in the same folder as the ACCDB file
 - Access is a **multiuser** database
 - when multiple users use the same db, conflicts can occur as users try to use/modify/delete the same object
 - the LACCDB file keeps track of the users connected to the db, which objects they're using, and **locking** information
- Practice Time
 - open issue25.accdb
 - observe the issue25.laccdb file

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Relational Database Management System (RDBMS)

- Software used to store, maintain, retrieve and present data in structured tables
- We will use Access to:
 - create new tables
 - define relationships between tables
 - add and delete records
 - change field values so they're up-to-date
 - retrieve data to answer questions
 - create customized forms
 - create customized reports
 - utilize a switchboard
 - use database startup options

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6 Types of Access Objects

- **Table** (Tutorials 2, 5, 9)
 - an object that stores data in rows (records) and columns (fields)
- **Query** (Tutorials 3, 5, 9)
 - an object that selects requested fields and records from a table
 - can pull data from multiple tables if they have a common field
- **Form** (Tutorials 4, 6)
 - an object used to enter, change & view data records on-screen in custom layout
- **Report** (Tutorials 4, 7)
 - an object you can use to print records in a custom layout

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6 Types of Access Objects

- **Macro** (Tutorial 10)
 - an object containing a list of actions you want *Access* to carry out

- **Module** (Tutorial 11)
 - an object that stores *Visual Basic* programming instructions written to automate, customize, and enhance a database

- all these objects are stored in a single **.ACCDB** file

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Creating a Database

- Created Belmont.accdb from Blank Database template
- **Access Window**
 - Navigation Pane
 - Shutter Bar
 - Table Datasheet View
 - Table Design View

- **Create a Table in Datasheet View**
 - Easy & crude
 - Access guesses the data type and format based on values you enter
 - Can change using Data type & Formatting options
 - Serious database developers prefer to work in Design View instead

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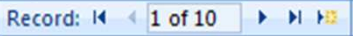
Two Views of a Table



- Datasheet View
 - see the table's **data** as a grid
 - rows = records columns = fields
 - can view, insert, update, delete table records
- Design View (Tutorial 2)
 - see/change the table's **structure**


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Entering Records

- Can add records using a Form or a Table's Datasheet
 - forms are preferred... they're flexible and powerful
- New Record button 
- [Tab] to move between fields
- Pencil symbol 
- Record Navigation buttons 
- Current Record Box
- Practice Time
 - add yourself as a new writer

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Saving



- Save Button 
 - saves changes to an object's **layout** or **structure**
 - also saves changes to the record's **data** (starting in Access 2007)
- Pencil symbol 
 - indicates a **dirty** record... one whose data has changed
- Access automatically saves changes to the data in the current record when you:
 - move to another record
 - close the table/form
 - use Home | Records | Save Record
 - press [Shift]+[Enter]
- Practice Time
 - add a friend as another new writer

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Copying Records from Another Access Database

- Source table's structure must match destination table's
- Copied 55 records from Agreement table in Oren.accdb, pasted into Belmont.accdb Contract table
- Clipboard Copy Paste
- Steps to Import
 1. open the source table
 2. select the records to be copied
 3. click Copy
 4. open the destination table
 5. click New Record's record selector
 6. click Paste

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Creating a Simple Query

- Query
 - an object that selects specified fields & records from one or more tables
- Create tab | Query Wizard
- Simple Query Wizard guides you:
 - 1. select source of data (table or query)
 - 2. select fields to display
 - 3. select Detail or Summary
 - 4. specify query object's name
- Practice Time
 - Create a query named `qryBusinessArticles` that shows the title, type, issue, length, author and phone, but only for business articles

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Creating a Simple Form

- Form
 - a customized **on-screen view** of table data, commonly displaying one record at a time
 - the most powerful and flexible way to present data to users
 - table datasheets are plain and limited
- AutoForm
 - places all fields from the table on a new form which shows one record at a time
 - steps:
 1. Select source of data (table or query)
 2. Create Tab | Form
- Practice Time
 - Create a form `frmArticle` that displays fields from Article table

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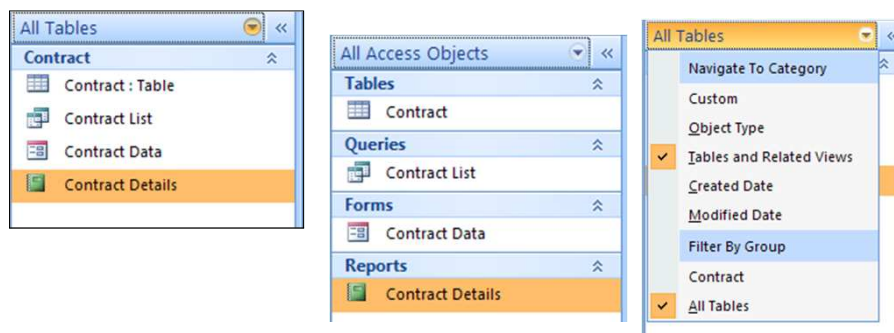
Creating a Simple Report

- Report
 - an object you use to **print** records in a custom layout
- AutoReport
 - places all fields on a new report and calculates total for Number and Currency fields, page numbering
 - steps:
 1. Select source of data (table or query)
 2. Create Tab | Report

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Viewing Objects in the Navigation Pane

- Navigation Pane
 - displays objects in the current accdb file
 - several display options available



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Compacting a Database

- When you delete an object, it is not actually removed from the database
- Compacting creates a new .accdb and copies the non-deleted objects into the new file
- Requires free space on disk
- File | Compact and Repair Database
- Microsoft highly encourages regular compaction to promote database health
- Compacting also
 - physically rearranges table records in primary key sequence (nib)
 - rebuilds indexes (nib)
 - recompiles each query's execution plan (nib)

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Documenting an Access Object (lib, Tut 9)

- Shows the structure and properties for the selected object(s)
- Database Tools | Database Documenter
- Practice Time
 - use the documenter to show the details for the **Writer** table

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Backing Up and Restoring a Database

- What could go wrong with a file?
- Extremely important to have backup copies!
- Do it after **every** session!
- File | Save and Publish | Backup Database
 - provides **Save As** dialog box
 - defaults to placing the copy in the same folder as original .accdb and with current date appended to the filename
- In previous versions, you would close the database, then use Windows Explorer to copy the file to make a backup... I still prefer this method!

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Backing Up a Database with Windows Explorer

- Premise: you'll work with an .accdb file in your *CIS117 Data Files* folder (either C: or H:), then back it up by **copying it** to your USB flash drive
- steps:
 - 1) exit Access
 - 2) launch Windows Explorer
 - 3) select the modified .accdb file (C: or H:)
 - 4) copy it to your USB flash drive
 - 5) look on USB flash drive to verify it is there
- Practice Time
 - use the steps above to backup your issue25.accdb to your USB flash drive



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Exiting Access

- It is extremely important that you exit Access properly
- Access will automatically delete the .accdb file when the last user exits the database
- If you don't exit Access you may corrupt the .accdb file and/or other files!
- Safely Remove your USB flash drive!

