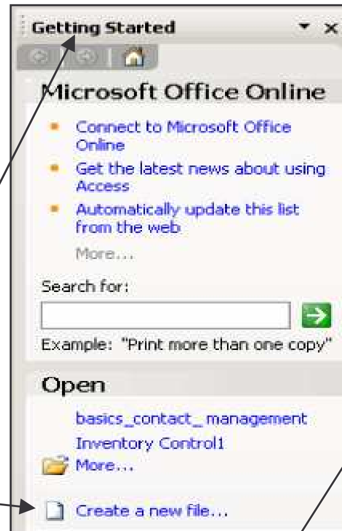
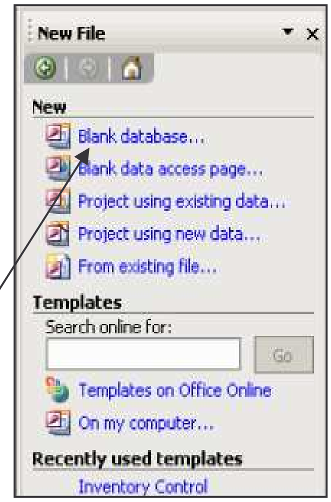
Microsoft Access Tutorial: Advanced

Part 1: Create Database





1. **Start MS Access**
   From the Start menu click on
   > Programs
   > Microsoft Office
   > Microsoft Access 2003

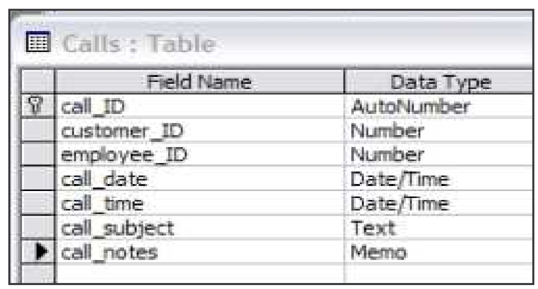
2. Note the **Getting Started** task pane on the right side of your screen.

3. Click on **Create a new file**.

4. The **New File** task pane will appear. Under **New**, click on **Blank Database**.

5. Name the database **contact_management** and choose **Desktop** as the location. Click the **Create** button.

A. Create Table in Design View


Calls : Table

Field Name	Data Type
call_ID	AutoNumber
customer_ID	Number
employee_ID	Number
call_date	Date/Time
call_time	Date/Time
call_subject	Text
call_notes	Memo

1. The **contact_management : Database** window opens. Double click the **Create table in design view** item. The **Table1 : Table** opens.

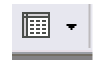
2. Begin entering field names starting with **Call_ID**. Click in the **Data Type** box and from the pull down menu select **AutoNumber**.

3. Click the **Primary Key** button on the **Table Design** toolbar. Each table MUST have a **Primary Key**.

4. A **Foreign Key** field must be included to establish a relationship. A foreign key field is a primary key taken from a foreign table (for example, the **customer_ID** field from the **Customers** table would establish the relationship between the **Customers** table and the **Calls** table). Give it a **Number** Data Type.

5. Continue adding field names from your preliminary field list until all are added.

6. Click the **Save** button. The **Save As** window opens. Name the table **Calls**. Click the **OK** button. You have created the table structure for the **Calls** table from scratch. Let's take a look.

7. From the **Table Design** toolbar, select the **Datasheet View** icon.  The **table datasheet** window opens. Check your list of fields for accuracy.

8. Close the table by clicking the **X** in the upper right corner.

9. You now see the **contact_management : Database** window. Now you will create tables by **importing data** from a Microsoft Excel spreadsheet.

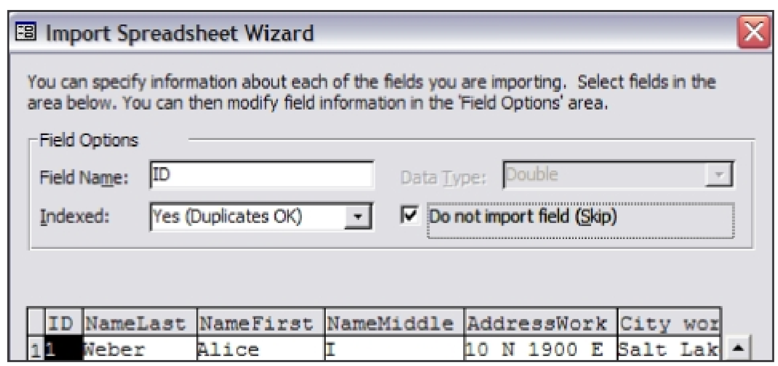
B. Importing Data

1. Go to File > Get External Data > Import. Browse to the Microsoft Excel file provided. Under the **Files of type** drop down box, select Microsoft Excel (*.xls) in order to see the file. Highlight the file name (e.g. **Contacts.xls**) and click the **Import** button.

2. The **Import Spreadsheet Wizard** window will open. Both worksheets are listed. You will have to import each worksheet individually. Select the **Customers** worksheet and click the **Next** button.

3. Check the box for **First Row Contains Column Headings**. Click **Next**. Choose the radio button for saving **In a New Table.** Click **Next**.

4. You can specify information about each of the fields you are importing and modify field information in the 'Field Options' area.



5. Highlight the **ID** column and check the box **Do not import field (Skip)** which will allow Access to create an auto-number primary key. Click **Next**.

6. Click the radio button **Let Access add primary key**. Click **Next**.

7. Name the table **Customers** and click **Finish**. The wizard will confirm the import pathway, click **OK**.

8. Open the **Customers** table in **Design View** and **rename** the primary key **Customer_ID**

9. Repeat steps 1-8 for other table(s) (for example, the **Employees** table with a primary key **Employee_ID**).

10. Click on **Datasheet View** to view your data and table. Now you've created three tables, one from scratch and two by importing.

Part 2: Implement Relationships

1. After all the tables are created, relationships need to be implemented.

2. From **Tools** on the menu**,** select the **Relationships** menu item.

3. The **Relationships** window opens. From **Relationships** on the menu, choose **Show Table**.

4. Select all tables from the **Show Table** window. To select all, shift click on the first entry and then click on the last entry in the list. Click the **Add** button. Then click the **Close** button. The tables are displayed in the **Relationships** window. Resize the tables so you can see all fields.

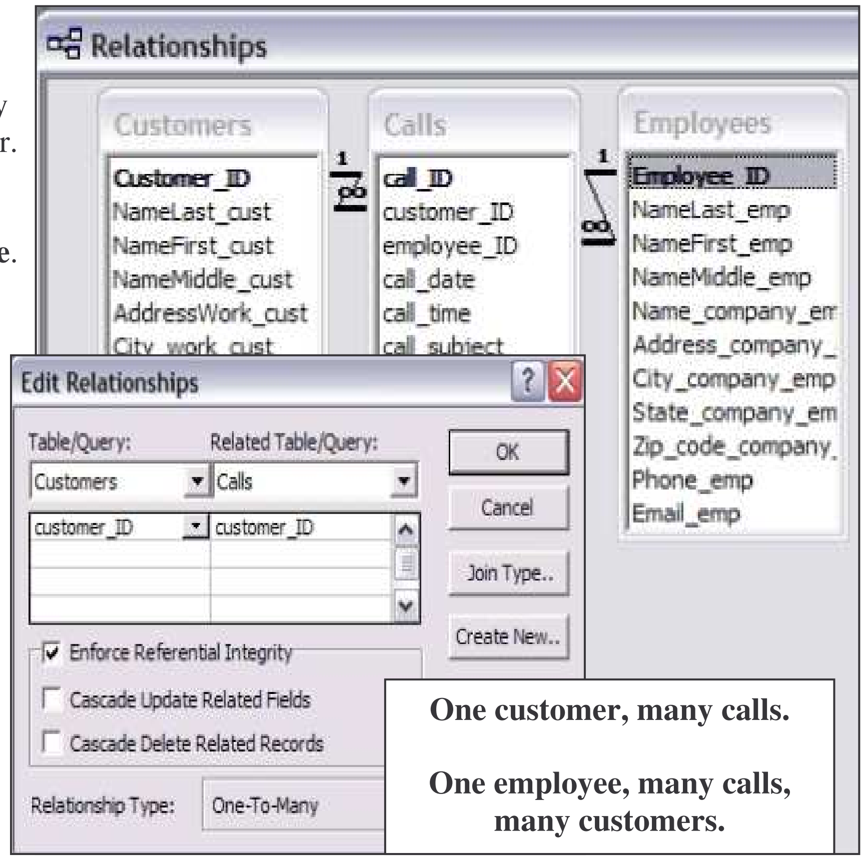
5. Select the **Customer_ID** (primary key) from the **Customers** table. Click and drag to the **Customer_ID** field (foreign key) in the **Calls table**. You have created a relationship between the 2 tables by linking the primary key in one to a foreign key in the other.

6. Select the **Enforce Referential Integrity** check box. Click **Create**. Referential Integrity means records must exist in one table because matching records depend on them in some other table.

7. Repeat these steps for all relationships.

8. If it is necessary to edit a relationship, double click on the **Relationship arrow** and the **Edit Relationships** window will open.

9. Close the **Relationships** window.



Part 3: Creating Forms and Modifying Queries and Reports

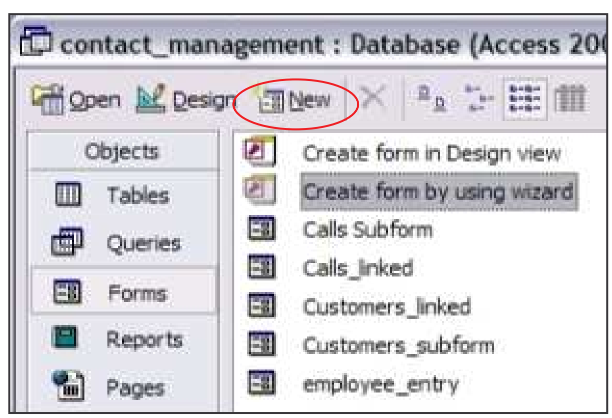
A. Creating and Modifying Forms

1. Creating Forms

Forms allow you to enter records into your tables.

- Choose the **Forms** button from the left hand column.

- Double click on **Create form by using wizard**.

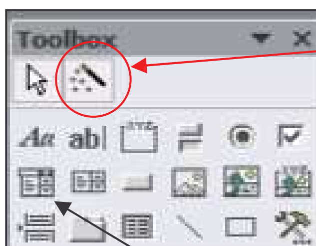


- Select **Table: Calls** from the Tables/Queries dropdown menu.
- Choose the **>>** button to select all the fields. Click **Next**.
- Select the **Layout** for the form. If you click on each one, a preview is displayed. Choose **Columnar**. Click **Next**.
- Select **Style: Standard**. Click **Next.**
- Click **Next** again and name the form **Calls Entry Form**.
- Click **Finish**, form will display.

2. Modifying Forms

Combo Box: Typing in Values to Present a Pick List of Subjects

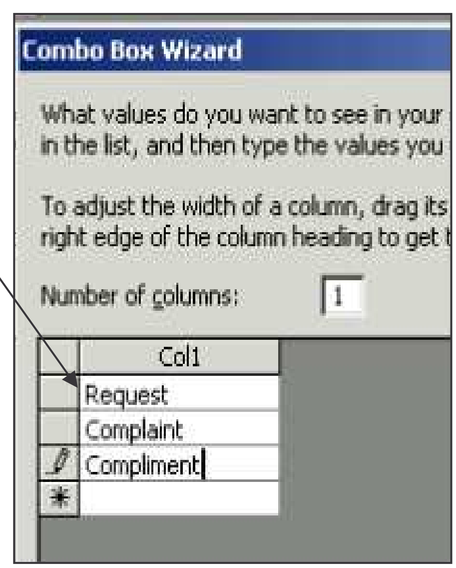
- In **Design View**, you can add radio buttons, pull down menus and input masks.
- Notice the **Toolbox**.



Be sure the wizard icon is selected.

- If it is not displayed, click on the **Toolbox** icon on the toolbar.

- The **Toolbox** contains options that allow you to change the way data is entered. If you prefer data entry to be by selection rather than typing, you must create a **Combo Box** for that field.
- To create a combo box, **click** on the **Combo Box** icon in the **Toolbox.**
- Click once in an open area inside the form. The **Combo Box Wizard** will open. Select the radio button "I will type in the values that I want." Click **Next.**
- Click **Next**. Type in three values: Request, Complaint, Compliment. Click **Next**.
- Choose the radio button "Store that value in this field" and select **call_subject**. Click **Next.** Type in 'Subject' as the field label for the **Combo Box.** Click **Finish.**



- The new **Combo Box and Label** will display on your form.

- To replace, select the old field label and field name (the actual name of the field in the table) and hit **Delete**. Highlight the new **Combo Box and Label** and drag to original location. To adjust position, click and drag.

Combo Box: Values from Table Lists Customer's Name Instead of ID#

- To create a combo box, **click** on the **Combo Box** icon in the **Toolbox.**

- Click once in an open area inside the form. The **Combo Box Wizard** will open. Select the radio button "I want the combo box to look up the values in a table or query." Click **Next.**

- Notice that the radio button for **Tables** is selected. Highlight **Table: Customers.** Click **Next**.

- Sort by **NameLast_cust**

- Move over **NameLast_cust** and **NameFirst_cust**. Click **Next.**

- Make sure the **Hide Key Column** box is checked. Click **Next**.

- Select "Store that value in this field" and choose **Customer_ID.** Click **Next.**

- Label the combo box **Customer**. Click **Finish**. Replace old **Customer_ID** label and entry box with new **Customer** combo box.

- Follow the same steps to replace the **Employee_ID** label and entry box with a new **Employee** combo box.

- You will need to change the tab order. Choose View > Tab Order. Follow the instructions.

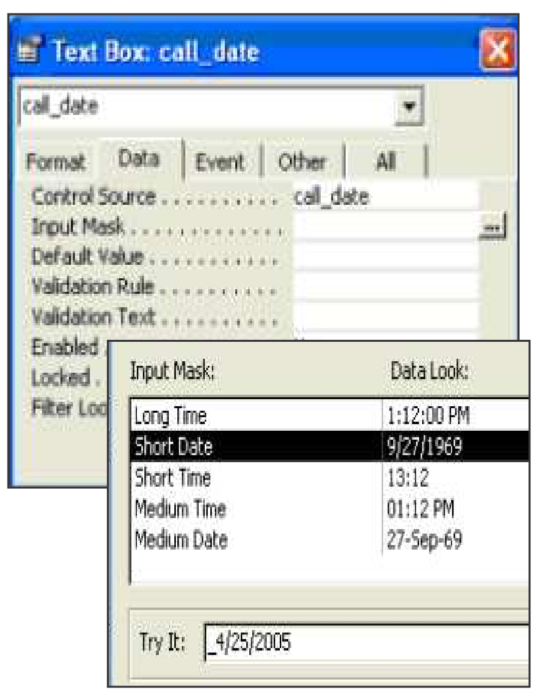
- Go to **Form View** to see the changes.

Input Mask

- Input masks (field template) can be used to format data and provide some control over what values can be entered. This helps enforce data integrity.

- Right click on **Call Date** and go to **Properties**.

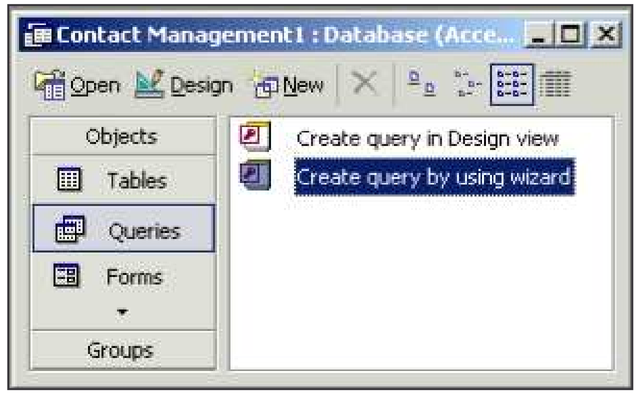
- Click the **Data** tab. Place your cursor in the **Input Mask** row, then click on the ellipses (…). The **Input Mask Wizard** will open. Highlight the **Data Look** desired (for example, **Short Date**). To see how the **Input Mask** looks, click in the **Try It** box. Click **Next**.



- The **Input Mask Wizard** will allow you to substitute a placeholder character from a dropdown list, if desired. Click **Next.** Click **Finish**.

3. Adding Records Using Forms

- Use the form to enter 3 calls. This will allow us to test the referential integrity of the database later in the class.

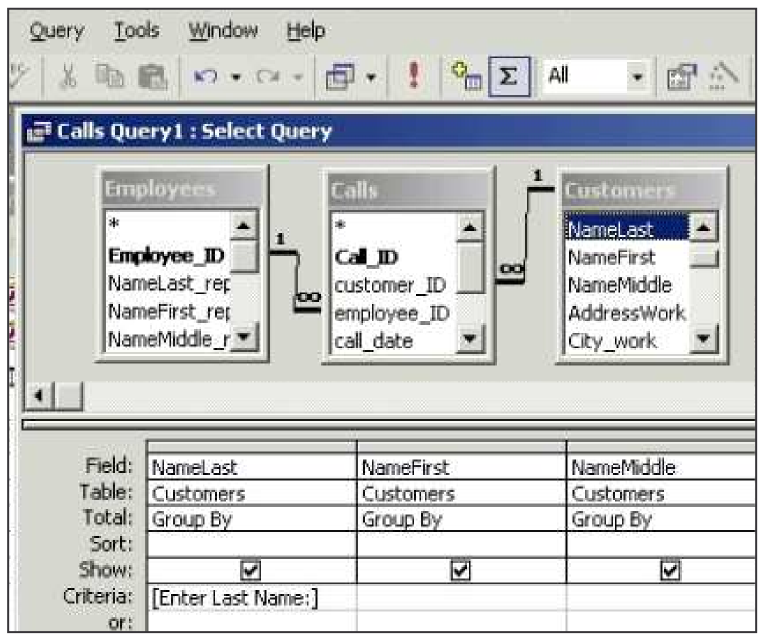


B. Modifying Queries and Reports

1. Modifying Queries

Creating queries was covered in the MS Access Basic class. The Basics handout has more detailed instructions.

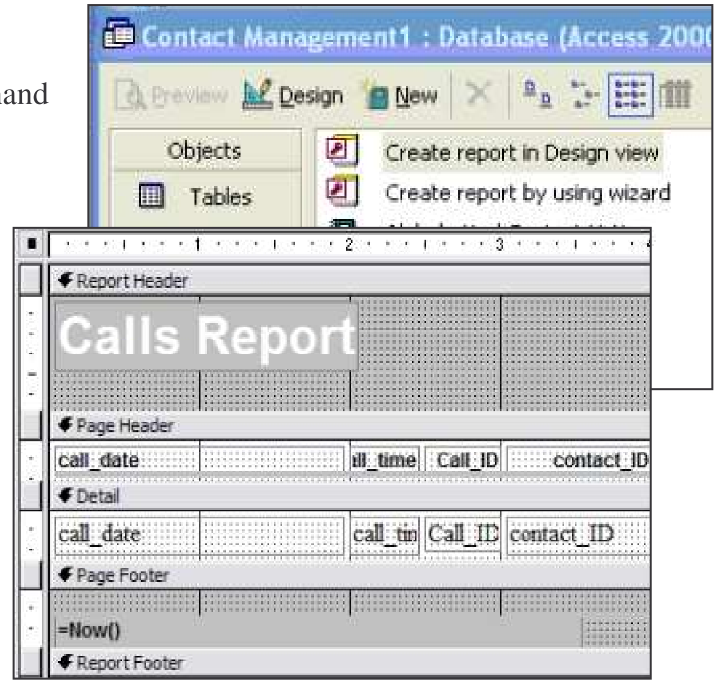
- Choose the **Queries** button from the left hand column.
- Double click on **Create query by using wizard** and create a **calls query** by using **all fields** from **all three tables**.



- In **Design View**, you can add or delete fields from the query by dragging and dropping. Field will be added in front of cursor position.
- If you include a field but decide later not to show it, just uncheck the **Show** checkbox.
- You can enter your search **Criteria** in the **Criteria** textbox of the appropriate column. Or, you can enter a search criteria prompt in brackets, such as [Enter Last Name:]. Save query as **Last Name Query**.
- Be aware that MS Access provides an expression builder to help with complicated queries. Right click in the criteria column and choose **Build** to use the Expression Builder. For example, to query calls made today, enter **=Date( )**. Look for examples in **Help: Examples of Filter Criteria**

2. Modifying Reports

Reports were covered in the MS Access Basics class; refer to the handout for instructions on how to create.



- Choose the **Reports** button from the left hand column.

- Double click on **Create report by using wizard** and create a report of your choice.

- In **Design View**, you can modify title, labels, and footers. Notice there are five areas:
    - Report Header
    - Page Header
    - Detail
    - Page Footer
    - Report Footer

- **Report Header** provides the **title of the report**. To change the title, click within the text box and modify with the keyboard.

- **Page Header** lists the **field labels**. Click within the text box to modify field name. To reposition the label, select it and then use arrow keys to adjust.

    - Note that when you adjust label placement in **Page Header**, you need to also match the adjustment in **Detail**.

- **Detail** controls the size and spacing of the fields in which **data** are displayed. To modify position or width, use the same procedures mentioned in **Page Header** bullet.

- **Footers** are used to place information at the **bottom of the page or report** such as page number, dates, and sums. For example, **=Now( )** inserts the current date.

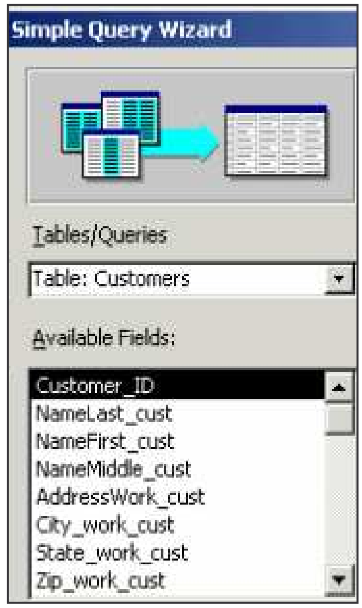
C. Setting Up Functions with Queries and Reports to Create a Count Query and Report

1. Create the Function Column in a Query

- Choose the **Queries** button from the left hand column

- Double click on **Create query by using wizard** and create a "count" query

- Choose **Table: Customers**



- Select the first eight fields. Click **Next.**

- Click **Next** again. Name it **Count Query**. Click **Finish**.

- Go to **Design View**
- Click the **Totals** icon on the toolbar 

- Select **Insert > Column**

- In the new column, choose **Customer_ID** from the pull down menu

- Change the Total row to **Count** by selecting from the pull-down menu.

- Right click anywhere on the new column and choose **Properties**

- On Caption line type **Count.** Close **Field Properties** window.

- Click  to run the query

- Each row will be counted as 1 in the Count column. Save changes. Close the Count Query.

2. Run the Function in a Report

- Choose the **Reports** button from the left hand column

- Click on **Create report by using wizard**

- Choose **Query: Count Query**. Select all fields. Click **Next**.

- Choose grouping, if needed. Click **Next**.

- Sort by NameLast_cust. Click **Next**.

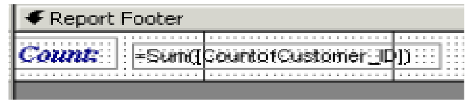
- Choose Landscape. Click **Next**.

- Choose Corporate. Click **Next.**

- Name it **Count Report**. Click **Finish**.

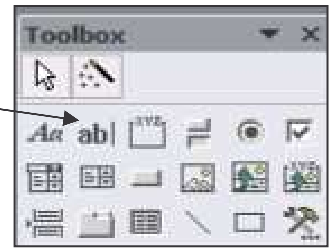
- Go to **Design View**.

- Drag down the line below **Report Footer**



- Locate the **Toolbox**

- Click once on **Textbox** 



- Place mouse in expanded Report Footer area. **Click once**.

- Rename the label by typing **Count** over it

- Type the function over the word Unbound

- =Sum(CountOfCustomer_ID)

- Click on **Layout View**

Part 4: Test Your Database

1. In the **contact_management : Database** window, double click on a table (for example, the **Employees** table).

2. To test referential integrity, attempt to delete a record. Highlight a record by clicking on the selected row. Either right click on the row and choose **Delete Record**, or use the **Delete Record icon** on the top tool bar. You should not be allowed to delete because of referential integrity.

Part 5: Conclusion

1. With What You Know Now, You Can:
   - Design and create simple databases using MS Access
   - Design, create and modify MS Access forms, queries and reports.

2. Assignment – doing this takes practice!
   - Design and create a database that you can use at work or home.
   - Design, create and modify MS Access forms, queries and reports and check to be sure that the results are accurate based on the data you put into your database.

5. Consultations Available
   - Complex databases require the expertise of a professional database designer. UUHSC Data Resource Center also provides consultations. Please see their website: http://uuhsc.utah.edu/drc/summary.htm
   - If you need assistance determining the level of expertise you need for your database, you may set up a consultation with any of the course instructors.
   - Call or email us if you have any questions.