Completing the SCCHC Database, Part I

Linking forms and constructing queries for the Seattle Central Community Health Clinic

Review of SCCHC Operation

- At the SCCHC there are various operations, some performed for each client, others performed at larger intervals
  - Enter client data
  - Start the process for a client to visit with health professional
  - Health professional fills out consultation chart
- To be covered on Friday (part II)
  - Order tests
  - Label specimens
  - Compare specimens to manifest
  - Record results from test outcome

How Does the Client Provide Information?

- A form has been created called frmClient that will be used to provide personal information by first-time patients
- After the form is filled out, the information from it is entered into the database and is stored in the tblClient table
- One could imagine that this form might be filled out by the Client themselves and returned to the desk, or a volunteer in charge of new patients might enter the information into the form directly after asking questions
- Once the information is entered, another form can be used to view and verify the information just before setting up a Visit with a Health Professional

What Is a Visit?

- When the receptionist is done verifying data from the frmReception form, an output of data from the tblClient table, the client is set up for a face-to-face visit / appointment with a health professional
- What does a visit mean in within the context of our database?
- Remember a Visit in the SCCHC database means to establish the relationship between the Client and the HealthPro … we represent a single one of these relationships by a row in the Visit table, so….
  - Setting up an appointment/visit must involve creating a row in the Visit table with the initial data of a client and a health professional
Construct a Reception Form To Bring a Client and Health Professional Together

- Once the data is verified on the frmReception Form and changes stored in the Client table, the receptionist must choose a medical professional.

Clicking on “Make Appointment…”

- Clicking on the button with the “Make Appointment” caption brings up a linked form with 3 (minimum) fields in it form the Visit table, not from the Client Table.

Pairing the client and the medical professional creates the relationship we want to represent, so...

- By entering the health professionals ID and the client’s ID, the receptionist sets up the visit between doctor and client AND sets up the row in Visit to record the data for the visit.

Getting a Linked Form

- Follow these steps in the Form Wizard to create a linked forms between frmReception and frmSeeHealthPro:
  - Move all of the fields from tblClient table to form
  - Move the three fields from tblVisit: VisitID, ClientID, HealthProID
  - When asked how you want the data displayed, say linked form
  - Linked forms allow the Receptionist to enter or modify data into two tables: tblClient and tblVisit. The entry in tblVisit is through the linked form named frmSeeHealthPro
- You could also use what you learned about adding combo boxes in Lab 17 to be able to display the name of the Health Professional in the linked form.
Creating the Initial frmConsult Form

- You will create the consult form in part I, and add more to it in part II:
  - The form will require information from all three tables
  - What is necessary?

Test Request Information

- There are two aspects to a test request:
  - The information that a test has been requested
  - The outcome of the test
- The two aspects will be treated separately
  - For each <test>, there is a <test>R checkbox field for the request
  - For each <test>, there is a <test>O text field for the outcome
- On the frmConsult form it should make sense that the health professional needs to work with the request checkboxes, but does not need to see the outcome fields since it is assumed that there are no outcomes before a test is even requested

Screen Shot of Form Wizard For Consult

Summary of Form Creation

- Controls a series of critical operations for the clinic database
  - Appointment scheduling .. Setting up the relationship in Visit
  - Consultation between Health Professional and Client .. Establishes the form the Health Professional will be filling out during their visit with the client
- To be covered on Friday…
  - Ordering tests
  - Developing the tracking number
  - Creating Test Manifests
Implementing Table Operations Using Structured Query Language (SQL)

The implementation of table operations in relational database management systems is done through use of SQL, or Structured Query Language, the de facto language allowing users to access and manipulate data in RDBM systems.

 Queries: Create Tables From Tables

- CONCEPT: The operations on databases: Select, Project, Union, Difference, and Product create tables from tables. These actions are done with a Query

- How are queries implemented?
- Database systems come with a "query language" ... SQL is the most common one and is the standard for Relational databases
- The most common clauses used in SQL for queries are shown below:

```sql
SELECT <fields of desired table>
FROM <list of tables>
WHERE <T/F predicate>;
```
SQL: Structured Query Language

- There are many uses for SQL in database structures.
  - SQL can be used to define, or construct, a database
  - SQL can be used to basic management of the database
    - check into table content
    - add to table content
    - delete table content
    - etc.
  - SQL can be used to query the database
    - create virtual tables or "views" from existing table(s)

- We will focus on the basic SQL commands that allow us to
  do simple database management and to create virtual tables
  (views) of the contents of the database

Basic Data Management

- Checking the Tables Contents
  
  SELECT <attributes> FROM <table name(s)>;

  Examples:
  SELECT * FROM Student;

  This will essentially mimic the table Student and show all
  current contents in a view of the table

A Simple ERD

- Advisor and Student tables
  
  - Each student is allowed a single advisor at any one time
  - An advisor may have zero, one or many students to advise

Queries

- Partial Listing of Table Contents
  
  SELECT <attributes> FROM <table name(s)>
  WHERE <T/F predicates>;

  Examples:
  SELECT FName, LName, Major FROM Student
  WHERE SID = 0023892;

  SELECT FName, LName FROM Student
  WHERE Major = "INFO";

  SELECT Student.FName, Student.LName, Advisor.LName
  FROM Student, Advisor
  WHERE Student.AdvisorID = Advisor.AdvisorID
Queries

Using Relationship Operators

Examples:

SELECT FName, Lname FROM Advisor
WHERE HireDate >= 1987;

SELECT FName, LName, Major FROM Student
WHERE SID < > 0023892;

Logical Operators: AND, OR, and NOT

Examples:

SELECT FName, Lname FROM Advisor
WHERE HireDate > 1987 OR
    HireDate < 1962;

SELECT FName, LName FROM Student
WHERE AdvisorID = 44232 AND Major = "INFO";

Just Scratching the Surface

- There are many more commands available in SQL as well as different standards for the language
- You have been shown some common clauses
- In Access you will be provided with a graphical user interface known as QBE, Query by Example, to create queries. But you can look at SQL View to see the SQL clauses that are generated
- Practice interpreting them as a way to see what your query is doing and to be able to explain what the SQL is doing in one of the queries for Project 4, Part II