Tom's Tech-Notes

Personal Computer Databases, An Overview

By Tom Burt, Editor, Sun City Summerlin Computer Club, NV

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Introduction

I've spent much of my career in software development working with various database programs, including a stint at Ashton-Tate / Borland as Director of the dBase development team. For this month's Tech Notes discussion, we'll do an overview of what database technology is available for regular personal computer users. Interestingly, some of the best database programs are free. The tradeoff is that you have to invest some time learning how to use them.

The basic idea of a database is that it's a way to save and organize information so that specific pieces can be quickly retrieved on demand for either display or computational analysis. The most common way this is done is to impose some tabular structure (rows and columns) on the data so that a standardized set of retrieval interfaces can be used. Such databases are referred to as "relational" databases.

A relational database is comprised of one or more data tables. Each table contains one or more rows of data. Each row contains one or more columns. Individual columns have a column name, a size and a data type such as text, integer, float, date or Boolean. One column is commonly designated the primary key and contains a unique value that can be used to identify and refer to that row in the table.

Questions or comments on this New Journal E-mail Click here

Lake County Area

Computer Enthusiasts

c/o Group Ambassador

"J.J." Johnson

News Journal

The LCACE News Journal is published eleven times annually. Members are encouraged to submit contributions which will be acknowledged in this newsletter. Send articles to editor@lcace.org Permission is granted to reproduce any or all parts of this newsletter in other User Group publications, provided that credit is given to LCACE and the individual author (s). Logo designed on an Atari Stacy Laptop in 1989 by Dwight Johnson Jr.

Membership

LCACE membership is open to all individuals and families interested in personal computing. Annual dues are $20.00 per individual/family. Applications for membership may be obtained at the monthly meeting, by request on the club hotline, and are now available on our web site at http://www.lcace.org.

Meetings

LCACE meetings are usually held on Saturdays at the Grayslake Area Public Library, 100 Library Lane, Grayslake, Illinois. The meeting room opens at noon and the formal meeting begins at 12:30 p.m. All meetings are open to the public. Bring a friend!

Newsletter Submissions

Club members are welcome to submit classified ads, reviews, tips and other articles for publication, to our newsletter editor in Microsoft Word format (.doc). **Publication deadline is the 20th of the month for all ads and articles.** Please do not use tabs or special formatting.

Newsletter Advertising

Ad rates per issue: Full page - $25, Half page - $15, Quarter page - $10, Business Card - $5. Discounts are available on advance purchase of multiple issues. Please send camera-ready copy and payment to the club address by the 15th of the month preceding publication. For more information on ad pricing, please call our Hotline. Ads are **FREE** to all paid members.

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Phil's Ramblings

Hello, everyone! Not lots of tech news this month….

Microsoft is still investigating the various problems with their October 2018 Windows Update, and as of this writing has not yet started sending it to user's computers. Meanwhile, it is working fine on my desktop and laptop – but then I have not investigated and tried the new features introduced by this update. Continuing to use my computers in the same fashion as in the past, I've not experienced any problems.

For those with Apple desktop or laptop computers, Mojave is now showing up on your screens as a recommended operating system upgrade. I'm not an Apple expert, but most commentary I've seen on the Web about Mojave is favorable and installation is recommended. The November 2018 issue of Macworld contains a related article, "5 Reasons Why You Should Upgrade to MACOS MOJAVE"". (If you are not a subscriber, you can read this magazine for free if your library offers access to "rb digital" as part of their e-Library services.)

Speaking of which, I encourage you to check out the e-Library offerings at your library. You may find that you can view magazines and books, listen to music and/or audio-books and even view movies – on your smartphone, tablet or computer - all at no charge. If you find that such services are offered by your library but are not sure how to access / use them, you can stop by and ask a reference librarian for assistance.

Our annual Holiday party is coming up before long – on Saturday, December 8th, to be exact. Please put this on your calendar, and plan to join us for a relaxing and fun time. As a reminder, one of the highlights of the event is the drawing for our big raffle prizes. This raffle can be a money-maker for our club – but only if we sell enough raffle tickets to more than cover the cost of the prizes. This where you come in – please get in touch with J.J. or Judy, either in person or otherwise, to pick up raffle tickets to sell to friends, family or yourself!

And don't forget the Ugly Sweater Contest! Time to dig through those old clothes you have always meant to get rid of, in search of the perfect sweater.

As always, our party will be in the downstairs meeting room at the Grayslake State Bank of the Lakes. And, as always, please remember to park on the side of the bank, leaving room in front for bank customers! Thank you!

Have a Happy Thanksgiving!

**Lake County Area
Computer Enthusiasts**
"Members Helping Members"
(since 1983)

HOLIDAY RAFFLE 2018

1st Prize:
- **Dell Inspiron**
- **11.6" Touchscreen**
- **2 in 1 Laptop**
- **500 GB HD**

2nd Prize

$150.00 gift CARD

3rd Prize:

$50.00 gift CARD

4th Prize:
1-Year's Membership LCACE
"Members Helping Members"

Tickets: $1 each, 6 for $5, or 25 for $20

Drawing December 8, 2018
WINNER NEED NOT BE PRESENT

It's possible to link data from one column of a set of rows in a table to the "key" column of a row in another table, creating a relationship between the "master" row in one table and a set of "detail" rows in another. For example: think of the bill for a meal at a restaurant (a row in the Chits table) with the individual itemized entrees, sides and beverages as details (one or more rows in the Chit_Items table).

To support data retrieval and other operations (e.g. Add, Update, Delete), relational databases use a special language: Structured Query Language (SQL for short, often pronounced "sequel"). Many database programs also have a visual front end that makes it easy to design SQL queries that will retrieve specific subsets of the data.

Spreadsheets

The simplest database programs are traditional spreadsheet tools like MS Excel or the free LibreOffice Calc. These have a natural rows and columns structure. It's easy to sort the rows based on values in various columns. You can set filters on various columns to display only a subset of the data. There's also a search that can look for specific values in a column or anywhere in the sheet. You can also include computational columns and rows that aren't part of the actual data, but "sum up", count, average or perhaps show minimum and maximum values.

Spreadsheets are great for things like contact lists, asset tracking, inventories and catalogs. However, they don't easily support relation-

Newsletter Team

Eleven times a year it takes a **TEAM** to produce the LCACE Newsletter. Mike McEnery (Newsletter Editor) publishers the club newsletter to keeping our members informed of the latest news on computers and technology. Phil Bock submits his Presidents RAM, and Lester Larkin submits the Club History. After hours of formatting these articles and searching for additional articles to fill the pages. Mike emails the completed Newsletter to J.J. Johnson (Assistant Editor) and then he converts it from Microsoft Publisher format to an PDF and FlipPage format. J.J. (webmaster) then uploads the newsletter to the LCACE website and sends out a message on Google Groups to inform the members that the newsletter is available online for members to view.

Occasionally Mikes gets some feedback from members but he is always open for more of your comments. This goes along with Mike asking you to submit articles to help cut his time searching for articles from other computer clubs.

APCUG (Association of Personal Computer User Groups) gathers articles from many of their member groups, and publishers them quarterly for other groups to publish in their newsletters. This is convenient for Mike, but as a club he would like more articles from our members. This would highlight what our club is doing to contribute to the world of computers and technology.

Join the TEAM

So, if you have taken the time to completely read this article, consider taking the time to share you experiences of a new or old piece of software or equipment by writing an article and share it with your fellow members. **Remember our moto**.
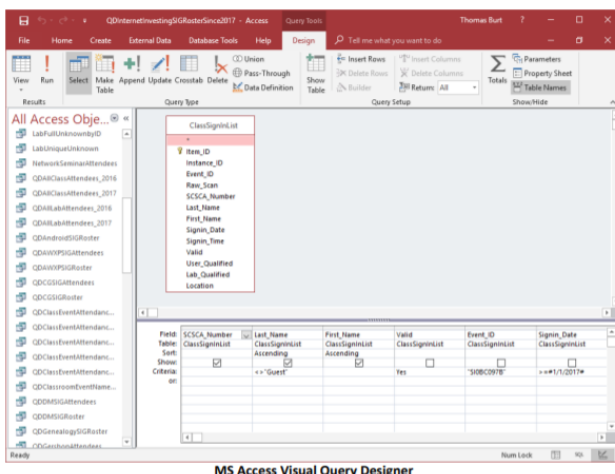
"Members Helping Members."

ships between records in different tables and there's no SQL support.

"Flat File" Database Programs

Commercial database programs like MS Access, Word Perfect Paradox (formerly a Borland product) and Apple FileMaker are more full-featured database tools with true relational support and SQL support. These tools can be used to build relatively sophisticated applications with complex relational data structures, input forms, result viewers and printable reports. However, these commercial tools aren't free and take some serious time to learn.

On a local area network, these commercial tools support multiple concurrent users via "file server" locking technology. Each user is running their own copy of the database "engine" to do reads, inserts, updates and deletes, which can lead to access contention. Performance can become an issue if there are more than a few concurrent users accessing the database file(s).

Here's an example of the MS Access visual query designer, setting up a query to retrieve a list of club members who attended at least one session of the Internet Investing SIG since January 2017.
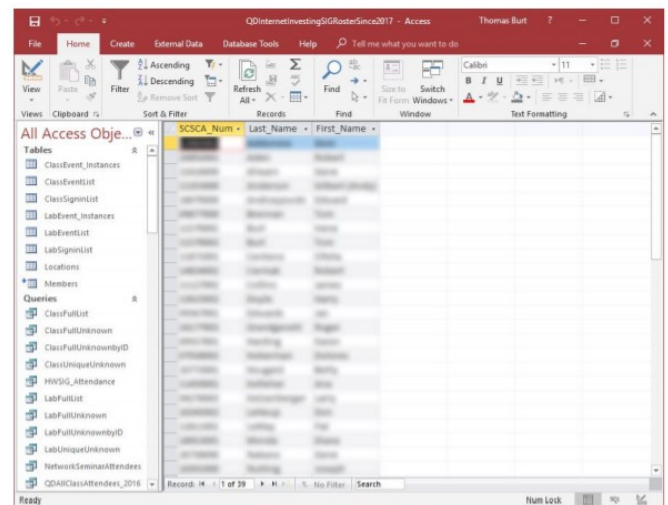

MS Access Visual Query Designer

Once the query has been set up, you can click the View button in the ribbon to see the results as a data table. Note there are various selection criteria defined so that we only get the set of rows that we're interested in.

The equivalent Structured Query Language (SQL) statement would look like this: SELECT DISTINCT SCSCA_Number, Last_Name, First_Name FROM ClassSignInList WHERE ((Last_Name<>"Guest") AND (Valid=Yes) AND (Event_ID="SI0BC097B") AND (Signin_Date>=#1/1/2017#)) ORDER BY Last_Name, First_Name;

The SELECT DISTINCT tells the database engine to only return each unique attendee once, no matter how many times that person attended the SIG. Here's a display of the results of running the SELECT query. I've intentionally blurred the results.

MS Access Results Display
Members who attended a session of the Investing SIG since 1-1-2017

I use MS Access and its databases (along with the VB.Net programming system) for the Computer Club's membership roster and the event sign-in systems and it has worked very well in those contexts.

A good free alternative to the commercial programs is LibreOffice Base. It also has a nice visual frontend. However, the native database engine in Base is fairly limited, so it's best to use Base as a visual front-end to a more sophisticated database engine / server, such as MySQL or PostgreSQL (see below).

Full-Featured FREE Relational Database Servers

I've been recently looking at a few free full-featured database server products that run on Windows. Of these, Microsoft's SQL Server Express, Oracle's MySQL and the open source PostgreSQL all combine high-end server functionality and performance with the ultimate low price (FREE). You can run these on the same PC as your end-user applications, or you can run them on another PC acting as a network database server.

At this point, I'm most familiar with Oracle's MySQL, which runs on Windows, Linux and MacOS. I've built an experimental version of the sign-in system that uses MySQL databases instead of MS Access databases. As a true database server engine, its performance on a network is much better than that of MS Access. MySQL is often used as the database engine to support websites. It can scale to retrieve thousands of records per second. Despite this, MySQL was very quick to download and install on my Windows desktop at home. MySQL is accompanied by the MySQL Workbench visual front-end, which isn't quite as nice as MS Access, but does a decent job. You can get MySQL at: https://www.mysql.com

SQL Server Express is a free download from www.Microsoft.com. It is a "light" version of Mi-

crosoft's very high-end SQL Server and only runs on Windows. SQL Server Express is also very high performance and has an excellent visual front-end for designing and managing databases.

PostgreSQL is a free download from www.PostgreSQL.org. It runs on Windows, Linux, MacOS and Unix. It has a very rich browser-based visual front-end, pgAdmin, for designing and managing databases.

Summary

Depending on your needs and skills, a simple MS Excel or LibreOffice Calc spreadsheet may be the perfect solution for managing your various data collections. Spreadsheets are also easy to back up and to share with others.

For more sophisticated users, the flat file database tools may be the way to go – especially if you're running a small business or supporting a non-profit or charity.

The full-featured database server products may be overkill for a home user, but it's hard to beat the price. To use them, you will need to spend time on learning their features, including getting a working knowledge of the Structured Query Language.

Membership

Membership Report
September 21, 2018

J.J. Johnson
Membership Chairperson

Members: 44
Meeting Attendee: 14/32%

THANKS FOR JOINING
None

THANKS FOR RENEWING
Barton & Diane Berendtson

THANKS FOR VISITING

Win Door Prizes !

Joyce Page

50/50 Draw

George Becht

L.C.A.C.E.
Club Historian

L.C.A.C.E. Club Historian
History Report, 2018-10-13 Meeting
By Les Larkin
LesLarkin@AIM.com <mailto:LesLarkin@AIM.com>

Our October meeting was conducted by Phil Bock. Since the annual Holiday Party & Raffle is approaching, Phil encouraged us to get the raffle tickets out so we can help pay for the prizes.

Joyce Page won the door prize. She selected an LED desk light. Our 50/50 winner was George Becht, who won $7.00. Congratulations to both winners!

Thanks to Linda Busch for making the coffee, and to Linda, Liz Barnett, and DeBorah Sirilla for providing munchables for us.

This month's program was "Social Networks and Privacy" by Bobby Jacobs.

Another great meeting, and I hope to see you at our November 10 meeting at the Grayslake library.

HAPPY BIRTHDAY To You
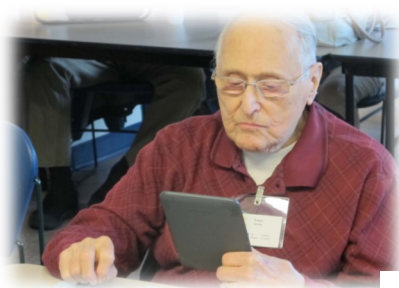
Diane Carlson

Lake County Area Computer Enthusiasts

Do you have computer questions
or need help with your computer,

smartphone or tablet?
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11:15 a.m.-12:15 p.m.

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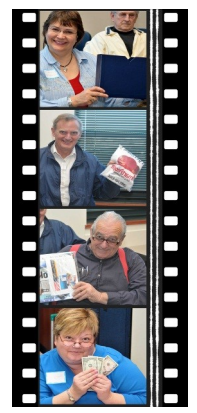
CONTACT JIM AT 847.372.0656 OR JIMJACOBSMUSIC@GMAIL.COM

Liz Barnett
Chief Cookie Baker

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