

# Bits & Bytes

Arkansas' Premier Computer Club



## February 2023

**The Bella Vista Computer Club - John Ruehle Center**

Highlands Crossing Center, 1801 Forest Hills Blvd Suite 208 (lower level), Bella Vista, AR 72715

Website: <http://BVComputerClub.org>

Email: [editor@bvcomputerclub.org](mailto:editor@bvcomputerclub.org)

### MEETINGS

**Board Meeting:** February 13, 6pm, in John Ruehle Training Center, Highlands Crossing Center.

**General Meeting:** February 13, 7pm, "Windows 11 Overview", by Jim Prince, followed by the raffle drawing for a Dell OptiPlex 5060 computer. Any new computer that you acquire these days needs to be capable of fully supporting Windows 11, and preferably should come with Windows 11. All Windows users should be planning ahead to be off Windows 10 before its October 2025 end-of-service date.

We will meet in-person in Room 1001 on the lower level of The Highlands Crossing Center, 1801 Forest Hills Blvd, Bella Vista, or you may attend the meeting on-line via Zoom. Zoom access information is published on our website.

Visitors or Guests are welcome.

Because of the continuing presence of COVID-19, we recommend observing any current guidelines that may be in effect at the time of the meeting. Consider attending by Zoom if you or others in your family are in a high risk category.

### HELP CLINICS

February 4, 9am - noon at John Ruehle center

February 15, 9am - noon at John Ruehle center

Members may request Remote Help on our website at <https://bvcomputerclub.org> at menu path Member Benefits ► Remote Help .

### MEMBERSHIP

Single membership is \$30; \$15 for each additional family member in the same household.

Join on our website at <https://bvcomputerclub.org> at menu path Get Involved ► Join/Renew, by mailing an application (from the web site) with check, or complete an application and pay in person at any meeting.

### CLASSES

(At BVCC Training Center)

Tuesday, February 21, 2pm-4pm, "Basic Computer Security, Part 1", with Justin Sell.

Advance sign up required for each listed class: For reservations: email to [edu@bvcomputerclub.org](mailto:edu@bvcomputerclub.org), or sign up at the General Meeting. Classes are free to Computer Club members.

Check the monthly calendar and announcements for any last minute schedule changes at <https://bvcomputerclub.org> .

## **NEW OR RETURNING BVCC MEMBERS**

We are pleased to welcome the following new members or members returning to BVCC after an absence since last month's newsletter:

Deloris Jennings

Char Brunje

Marlene Doran

Phyllis Gotzh

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## **BVCC DESKTOP COMPUTER FUNDRAISER RAFFLE IN FEBRUARY**

At our February 13th General Meeting we will raffle off an extremely capable desktop computer that has been customized by our own Pete Opland. Someone will win a great Dell Computer tower, keyboard and mouse (monitor not included) for a small donation of \$10 per ticket. You do not need to be present at the meeting or be a member of BVCC to win; but if not present at the drawing, you would need to be able to schedule a time to pick up the prize.

The base machine is a Dell Optiplex 5060 Tower Desktop with an 8th generation CPU that benchmarks at 12.89. It has been enhanced to include Windows 11 Pro (on the solid state drive), MS Office 2021 Pro Plus, and has two mechanical hard drives configured as 1 TB RAID-1 storage to protect user data from a single hard drive failure. A comparably configured computer could easily retail in excess of \$700. For more details about the computer, see the [Feb2023 Computer Raffle](#) on the BVCC website: [www.bvcomputerclub.org](http://www.bvcomputerclub.org).

Raffle tickets are offered for a donation of \$10. Tickets may still be obtained at the February General Meeting, or by contacting Woody Ogden (479-966-9357) or Geri Hoerner (479-340-4886). Other BVCC members distributing tickets need to be sure that all ticket stubs (with donor's contact information on the back) and donations reach Woody Ogden or Geri Hoerner no later than the February General Meeting.

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## **WALMART ROUND-UP PROGRAM**

The Board wishes to thank all who participated in the WalMart Round-Up Program on short notice. The total in donations from on-line transactions so far is only \$22.41, but we were able to surpass the 20-donation threshold for the 30 days ending December 25, with the result that we qualified for and have received a \$1,000 special grant from WalMart for our efforts. WELL DONE!

The Round-Up program continues to be available for the foreseeable future, although there is no way to know whether there is the possibility of another similar grant during the next Christmas buying season.

In any event, it looks like this program will give us more additional annual income than was provided by the Amazon smile program (only \$22 in all of 2022), so for us it will be an improvement over Amazon Smile, which is being terminated by Amazon on February 20, 2023 for lack of significant participation.

Once you have set it up, the Walmart Round-Up program is easier to use, because the round-up option is always present at checkout time and doesn't require use of a special URL to access the website like Amazon Smile. Changing the URL was an additional step if you went to Amazon using links from a search engine, which always sent you to [www.amazon.com](http://www.amazon.com) instead of [smile.amazon.com](http://smile.amazon.com).

# PERSONAL COMPUTER DATABASES

## AN OVERVIEW

by Tom Burt, Vice President, Sun City Summerlin Computer Club  
<https://www.scscc.club>  
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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 includes 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.

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 most straightforward 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 multiple columns to display only a subset of the data. A search can also 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.

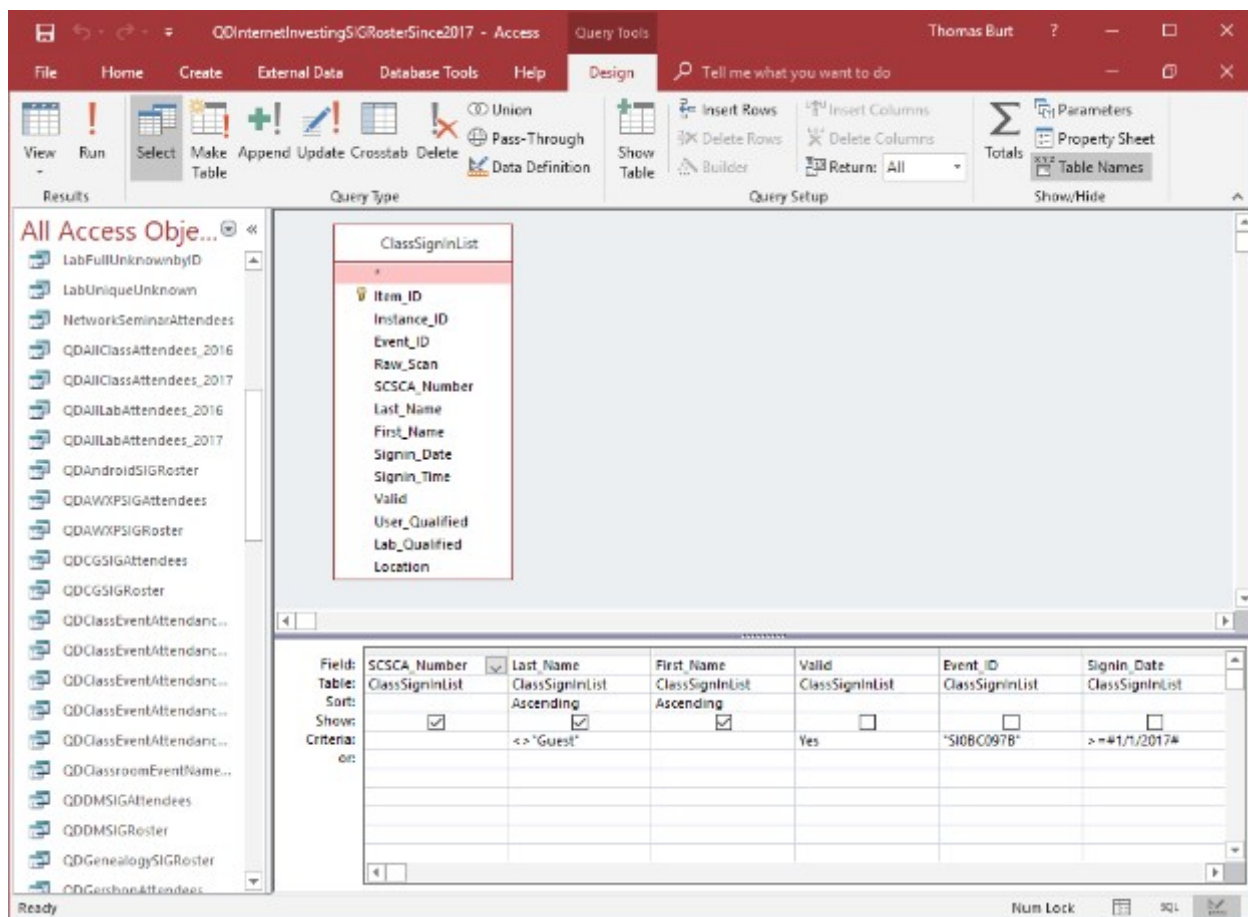
Spreadsheets are great for contact lists, asset tracking, inventories, and catalogs. However, they don't easily support relationships between records in different tables, and there's no SQL support.

### **“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 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.

These commercial tools support multiple concurrent users via “file server” locking technology on a local area network. Each user runs their copy of the database “engine” to do reads, inserts, updates, and deletes, which can lead to access contention. Performance can become an issue if more than a few concurrent users access the database file(s).

The screenshot following shows 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.



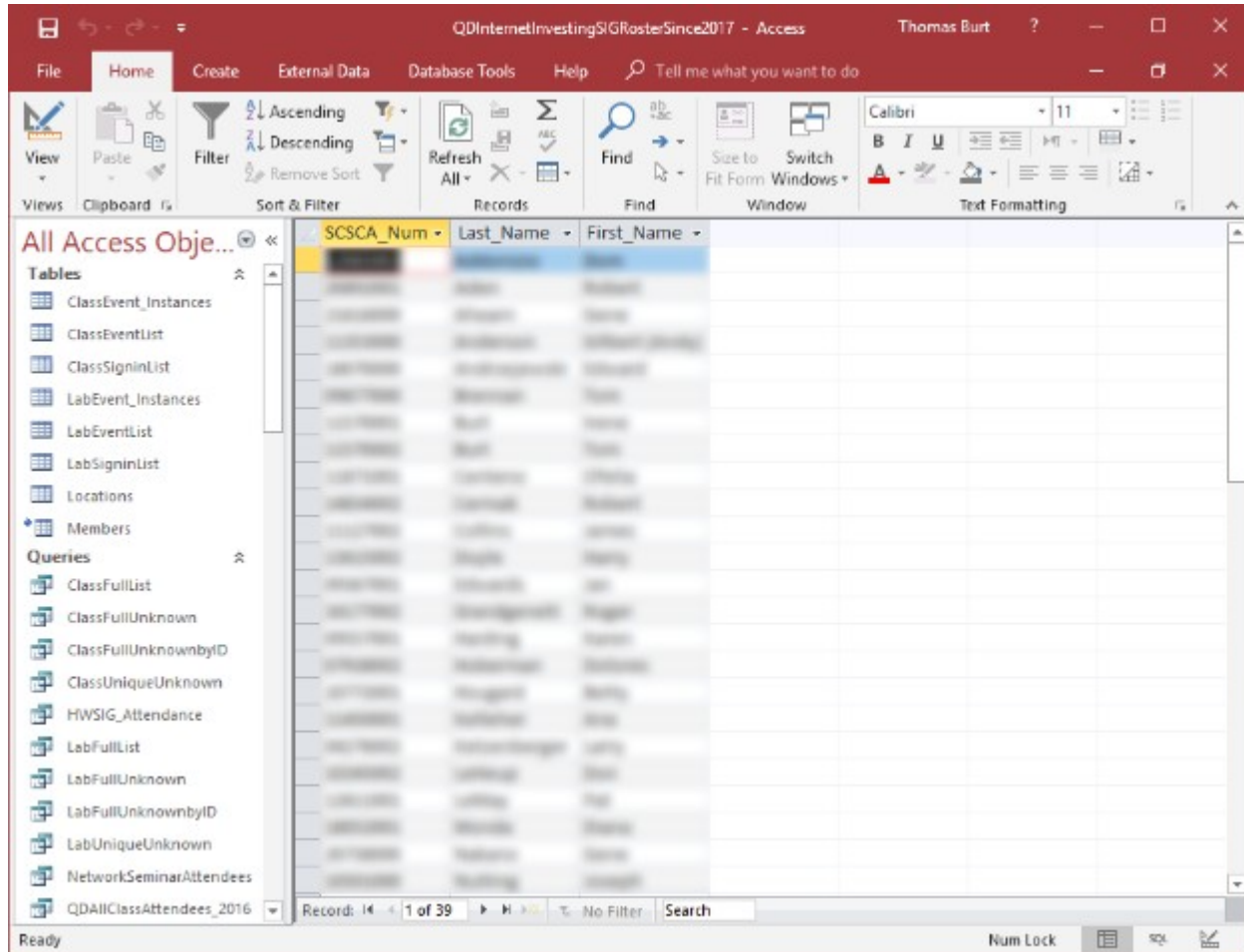
*MS Access Visual Query Designer*

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 that various selection criteria are defined so that we only get the set of rows 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 only to 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, which has worked very well in those contexts.

A good **free alternative** to commercial programs is **LibreOffice Base**. It also has a nice visual front end. 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 recently looked at a few free full-featured database server products running 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 club's sign-in system that uses MySQL databases instead of MS Access. 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](http://www.microsoft.com). It is a "light" version of Microsoft's very high-end SQL Server and only runs on Windows. SQL Server Express is high-performance and has an excellent visual front-end for designing and managing databases.

**PostgreSQL** is a free download from [www.postgresql.org](http://www.postgresql.org). It runs on Windows, Linux, macOS, and Unix. In addition, 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 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 learn their features, including a working knowledge of the Structured Query Language.