

COMPARING THE FOUR LEADING DATABASE TOOLS FOR BUSINESS USERS:

- **AQUA DATA STUDIO**
- **TOAD DATA POINT**
- **DBEAVER**
- **DBVISUALIZER**

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Introduction

Today, numerous roles within an organization routinely work with the ever growing amounts of data contained in databases. No longer are databases the purview of just the information technology professionals such as application developers and database administrators.

Increasingly, business-oriented roles such as data scientists, business analysts, business managers, clerks, and even executives are required to be self-serving and self-sufficient when interacting with various databases. In most cases this self-enablement is due to modern database tools designed for the business oriented user.

One example of a leader among such tools is Aqua Data Studio. In this paper we'll examine the distinctive requirements for these business oriented users and how Aqua Data Studio shines among the competition to meet those needs.



Graphical User Interfaces for **Database Management**

Databases are complicated. They tend to fall into one of four major categories.

First, there are databases that support 3rd party business applications such as Enterprise Resource Planning (ERP), customer relationship management (CRM), human resources management system (HRMS), and supply chain management (SCM). An example is PeopleSoft which has over 15,000 tables.

Second, there are databases that support in-house, custom business applications that are specific to the organization's primary business (e.g. insurance and investment products for an insurance company). These organic databases can easily be every bit as complex and large as 3rd party application databases.

Third, there are databases designed for reporting on the business itself. These can range from traditional operational reporting systems to more tactical and strategic reporting such as those in data warehouses and data lakes.

Fourth, there are databases that are snapshots and/or subsets of the other three types of database but created for a specific department, business unit, or line of business slicing and dicing. These mini-databases may often be temporal in nature, being created and destroyed for specific functional needs.

However, no matter which type of database being accessed, today's business users generally need to work with them all, and on their own terms. And that's where database tools such as Aquafold come in.

Databases aren't typically business-user friendly. Businesses need a Graphical User Interface (GUI) so that users can interact with databses on their own terms. I.e. Through business language and mouse clicks, not programming language and scripts. Even technical users often opt to leverage GUIs.



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The Four Basic Requirements

Now that we have established why business users need database tools, it's time to establish the key requirements of those database tools for the end-user. We can divide the requirements into four basic, and five additional requirements.

The four basic requirements are as follows:

- 1. Client Operating System Support** — the tool must be supported by the client operating system. While most business users still run Windows, Apple's MacOS has become very popular as a legitimate alternative (with Linux interest mostly among just information technology professionals).
- 2. On-Premise and Cloud Database Support** — the tool must be able to connect and work with all the various on-premises and cloud databases deployed by their organizations.
- 3. Tree Browser Support** — business users need the ability to quickly browse and investigate the tables or structures housing the data that they're interested in. The most common and easy way to display that information is a simple browser tree listing all the database connections and expandable nodes beneath those for the database objects. Many business users do not take - or even have - the time to learn all the capabilities of their tools; instead, they focus on the essentials.
- 4. ER Diagramming** — business users need the ability to both visualize and interpret the tables' relationships to each other in order to construct SQL queries. Ideally the diagram appearance should default to a style that's most non-technical, user friendly (i.e. a logical entity-relationship or ER model) and be integrated into the browser tree.

Table 1 below summarizes four database tools competing in this space. Note that only Aqua Data Studio passes these four most basic needs right out of the box.

TABLE 1 Foundational Business User Needs

	Aqua Data Studio Standard Edition	Toad Data Point Pro Edition	DBeaver Enterprise Edition	DBVisualizer Pro
FEATURES				
Client OS	✔ Windows, MacOS, and Linux	✘ Windows only	✔ Windows, MacOS, and Linux	✔ Windows, MacOS, and Linux
Databases	✔ 44 + JDBC	✘ 24 + ODBC	✔ 64 + JDBC	✘ 24 + JDBC
Tree Browser	✔ Default	✘ Custom Setting	✔ Default	✔ Default
ER Diagram	✔ Integrated Logical Style	✘ Integrated Logical Style	✘ Integrated Physical Style	✘ Integrated Physical Style

Database tools that score well on these four issues are highly beneficial to data-driven organizations - where business users are heavily involved with data.



Aqua Data Studio is built from the ground up as a single, easy to use solution that truly empowers non-technical, business users.

User-friendly operating systems are integral to how business users interact with data. A database tool with support for all of the leading operating systems means organizations aren't limited to one operating system for the systems they provide for their users.

Additionally, a single database tool that works with many databases reduces installation and maintenance costs, saves time and simplifies the learning curve. Some software vendors offer a tool per database such as Quest Software's Toad for Oracle, Toad for SQL Server, Toad for Db2, and Toad Edge for MySQL and PostgreSQL. Another example is EMS Software Development, who offers SQL Manager for Oracle, MySQL, PostgreSQL, Db2, and SQL Server as separate products. While all these separate tools might be good, having a hodgepodge of different tools to manage, learn and maintain is inefficient. Simply put, business users do not want lots of tools, just because they work with lots of databases.

Note that some database tool vendors aim to appeal to both single database platform users and multi-database platform users, offering single database platform tools with a premium option for multi-database support.

An example would be PremiumSoft's Navicat. They offer Navicat per database platform, or their premium offering for all database platforms supported. While this may sound like a reasonable strategy, simply bringing together multiple separate products into one executable after the fact falls short of tools purpose-built for supporting multiple platforms. Conversely, Aqua Data Studio is built from the ground up as a single, easy to use solution that truly empowers non-technical, business users.

Additionally, by focusing on the four basic requirements, one can more easily identify tools designed for business users as opposed to tools designed for information technology people. This is significant because it very clearly delineates the product's intended audience and scope.

Capabilities like Tree-browsing and ER-Diagramming are key here. While there are other methods available for browsing and visualizing information, Tree-browsing and ER-Diagramming are particularly palatable methods for business-users.

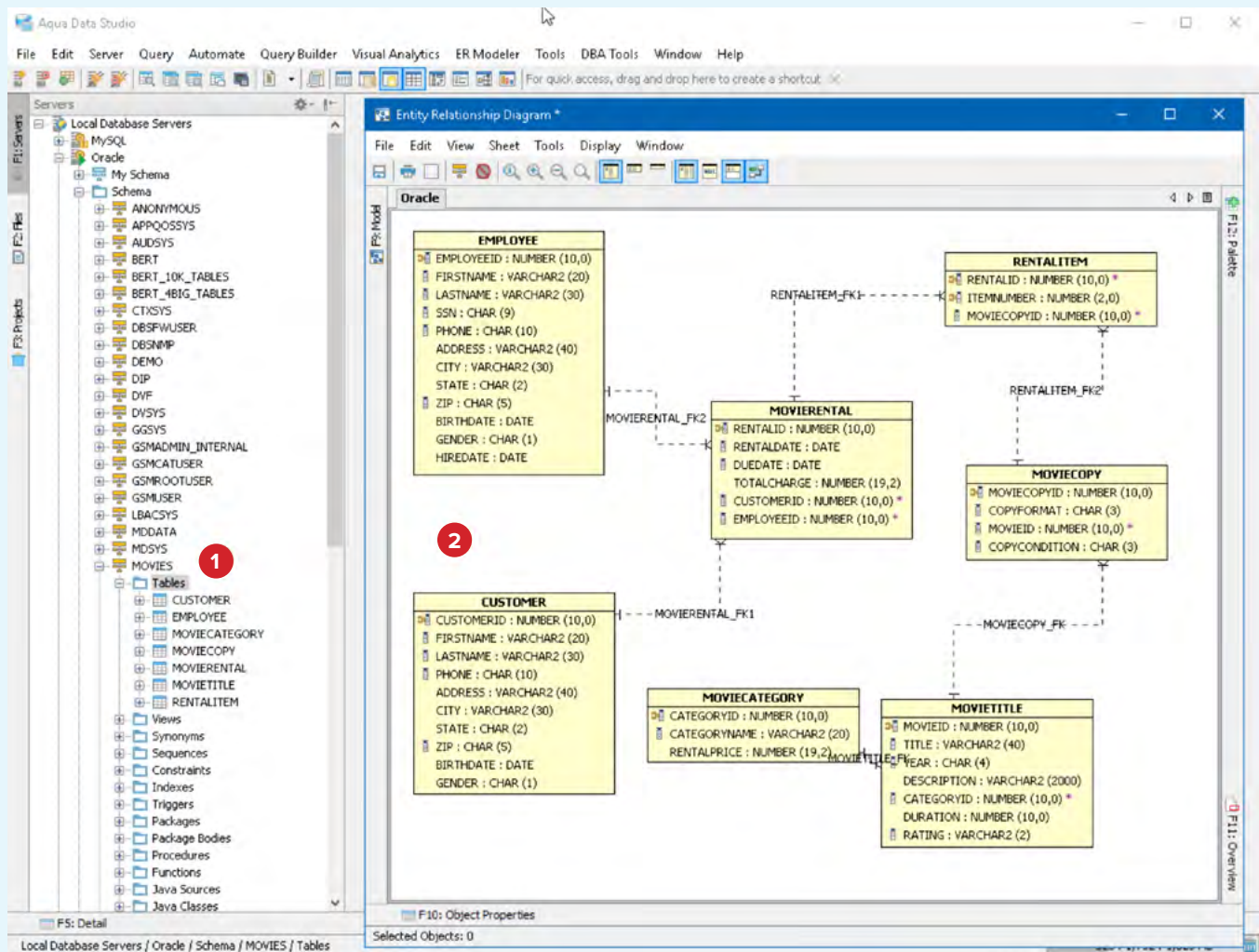
While Information technology users generally desire more robust, in-depth product features per database platform, business users usually favor breadth of functionality across all database platforms. The business user might not care about being able to create or alter fancy database structures such as partitioned or sharded tables, or specifying how they are spread across disks. Nor do they typically care that a particular indexed column in an Oracle database is one of about 30 different methods for creating an index. Simply knowing that it is indexed to support faster queries is often enough for business users.

So for meeting the four basic requirements, Aqua Data Studio offers a very compelling collection of general purpose, cross-database features that match the requirements of business users.

Aqua Data Studio's Intuitive and Easy to Use Database Browser Tree

FIGURE 1 Database Browser and ER Diagram

Figure 1 below shows Aqua Data Studio's intuitive and easy to use database browser tree (highlighted in the screen snapshot as red circle #1) and its effective database ER diagrams (highlighted in the screen snapshot as red circle #2).



Five Additional Requirements

Once business users have their four most basic requirements fulfilled, the next five requirements are as follows:

- 1. A full featured SQL editor** with syntax highlighting, auto completion, and SQL formatter where business users familiar with SQL syntax can construct and execute queries, plus review results.
- 2. An intuitive, easy to use visual query builder** that reliably helps users not familiar with the SQL language syntax construct either complete SQL statements or a start to copy over to the editor.
- 3. Data grids that support basic features** such as drag-and-drop column reorder plus efficient local processing of sorts, filters, hide/show, and other operations without going to the database.
- 4. Microsoft Office integration** that includes cut, copy, and paste between product’s data grids and Excel worksheet, and ability to save data grid contents as CSV or Excel XLSX.
- 5. Simple user option to flip between data grid and chart** of that data with zero manual effort to construct the chart, plus simple interface to modify the resulting automatically created chart.

TABLE 2 Fundamental business user needs

	Aqua Data Studio Standard Edition	Toad Data Point Pro Edition	DBeaver Enterprise Edition	DBVisualizer Pro
FEATURES				
Editor/Formatter	✓	✓	✓	✓
Query Builder	✓	✓	Crashed*	✓
Good Data Grids	✓	✓	✓	✓
Office Integration	✓	✓	✓	✓
Basic Automatic Charting	✓	✗	✓	✓

**During review, the query builder was unable to reliably perform more than a two way join*

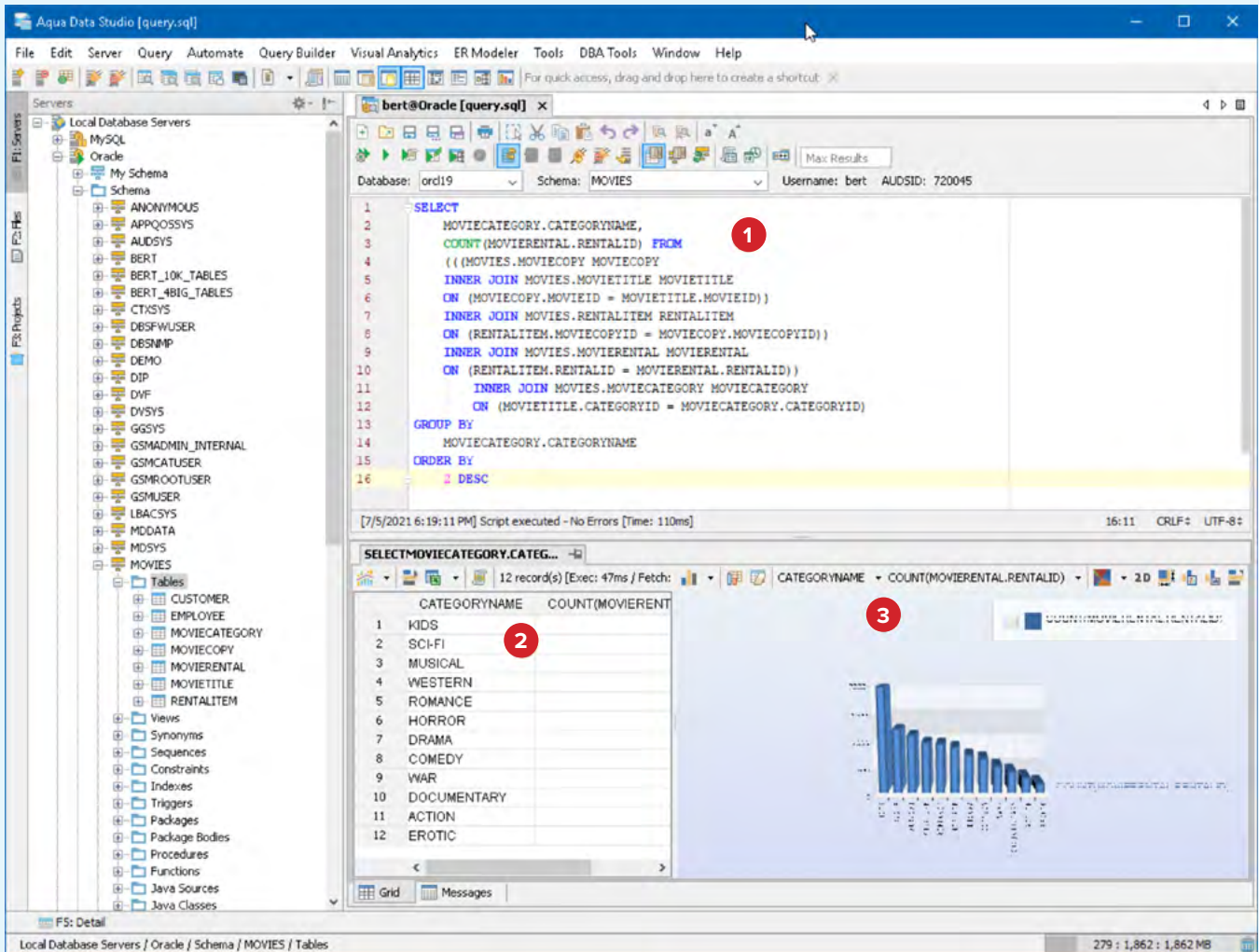
Table 2 (above) shows that Aqua Data Studio is more than competitive in the space. For many business users the two sets of requirements (basic and additional) collectively represent how and where they will spend the majority of their time.

The five additional requirements are relevant because business users care more about the “what” of data than the “how”. Business users’ focus tends to be on transforming raw data into information that the business can react to or plan against. As such, the user will be querying the database (i.e. issuing SQL SELECT commands) in order to understand what the information contained in that data means to the business. For example, a large, national convenience store business user might want to use store sales data to determine whether a recent promotion was successful (i.e. either more sales or better net revenue). So accessing that data, being able to visualize its net effects, and make critical, tactical or strategic business decisions based upon that is paramount. For meeting these objectives, the four basic, and five additional requirements listed above are key. And only Aqua Data Studio gets a perfect score.

Aqua Data Studio's Robust SQL Editor

FIGURE 2 SQL Editor, Data Grid, and Quick Chart

Figure 2 below shows Aqua Data Studio's robust SQL editor (highlighted as #1), its capable data grids (highlighted as #2), and its basic, automatic or quick charting feature (highlighted as #3).



Advanced Analytics

Not all business users’ needs will stop at tables 1 and 2 in terms of their key requirements.

Advanced Analytics — which is far above and beyond just basic quick charting - is a required capability for enabling data mining, knowledge discovery in data (KDD), simple data analysis, business intelligence (BI), and data analytics. One might argue that a dedicated BI or data analytics tool is more appropriate for such needs. However, those tools tend to have far more features than most business users need and are expensive, meaning that users have to overpay for the core features they desire.

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Out of the competition, only Aqua Data Studio and Toad Data Point offer such capabilities as shown below in table 3, although they call them by different names (visual analytics vs. visualization, respectively). Note however, that many power business users might instead choose to fetch the data from their database tool and work upon that data in Excel, where they already have extensive expertise and comfort. But for those looking for their database tool to provide such capabilities, let’s focus on comparing what Aqua Data Studio and Toad Data Point have to offer.

TABLE 3 Advanced Analytics Requirements

	Aqua Data Studio Standard Edition	Toad Data Point Pro Edition	DBeaver Enterprise Edition	DBVisualizer Pro
FEATURES				
Visual Analytics	✓	✓	✗	✗
Repository	✓	✓*	✗	✗

The primary difference is that **Toad Data Point requires a repository (Toad Intelligence Central) for full functionality whereas **Aqua Data Studio does not**. This is important for two reasons.*

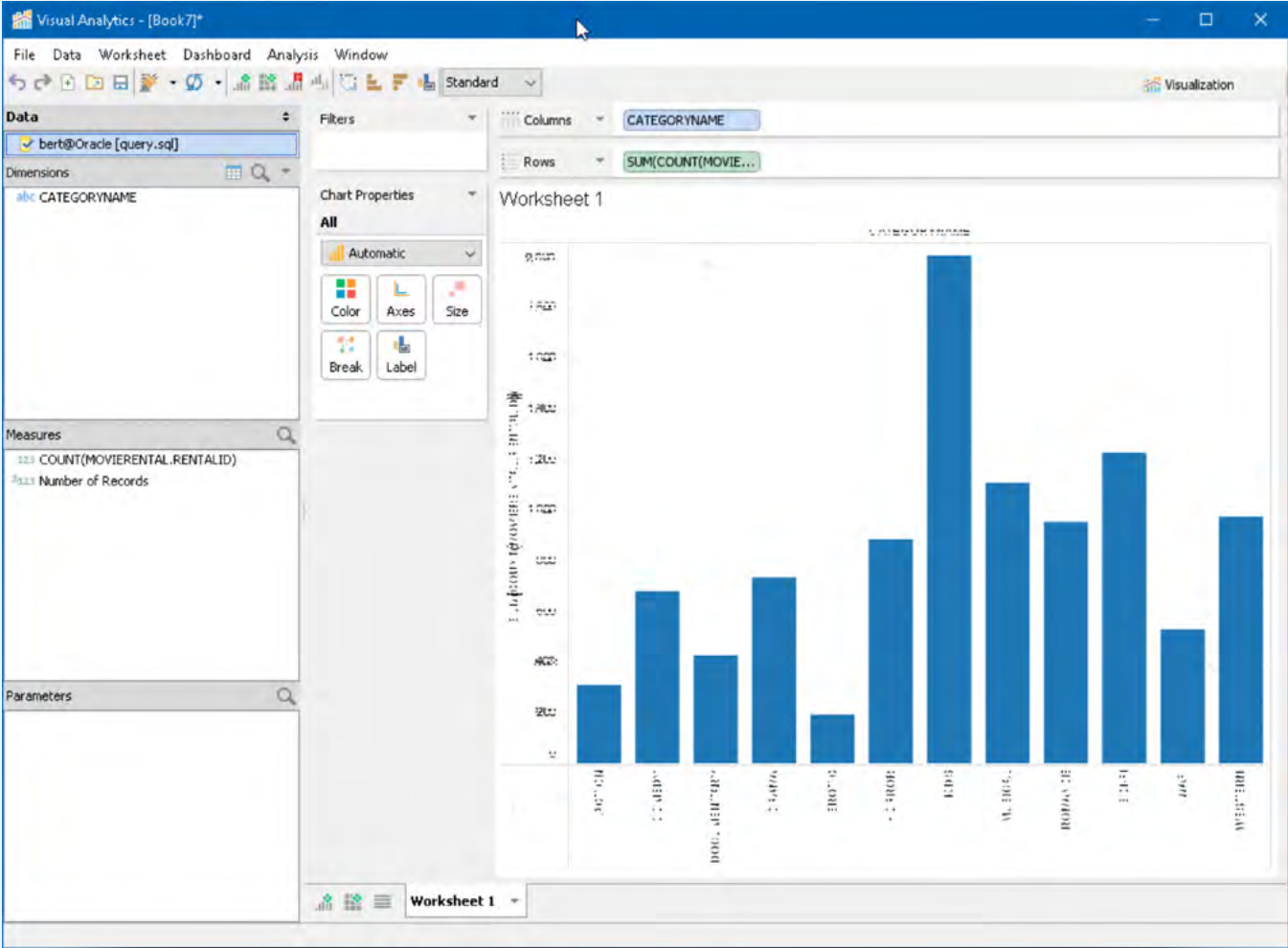
First, there’s the extra licensing cost. Business users need a Windows server running an embedded copy of the MySQL database for that repository. This means organizations have the cost of Toad Intelligence Central, the cost of the Windows server, and the cost for another copy of Windows to account for.

Second, self-serving and self-sufficient business users simply don’t need or want an extra layer of technology to deploy and manage for the benefit of a single tool. A good database tool should enable users without adding extra financial and managerial burdens.

Aqua Data Studio's Visual Analytics

FIGURE 3 Visual Analytics

Figure 3 below shows Aqua Data Studio's unique and powerful visual analytics feature. For many, Aqua Data Studio can replace the need to purchase a separate, specialty business intelligence or data analytics tools.



A Final Thought... **Support for “R”**

One final area where Aqua Data Studio excels and does so without competition, is that it offers full integration and support for the “R” open-source programming language that is popular for statistical computing and graphics.

One might argue that some of the larger database vendors already have such integration and support - but not all do. Having one database tool to extend that functionality across all databases a business user needs to work with is extremely beneficial. Moreover, it guarantees a 100% consistent implementation of R across all those databases.

Aqua Data Studio stands out as the single best database tool for business users needing to work with numerous databases for many key business initiatives. With its extremely intuitive and easy to use interface design, support for numerous database platforms, efficient database browser, intuitive database design diagrams, capable SQL Editor, and repository-free Visual Analytics makes Aqua Data Studio the best choice for business users bar none.

Try Aqua Data Studio for FREE

