**Database checkpoint**

A Database Management System or DBMS is a software that communicates with the database itself, applications, and user interfaces to obtain data and parse it. The DBMS also contains the key instruments to govern the database.

**MySQL**

This is one of the most popular relational database systems. Originally an open-source solution, MySQL now is owned by Oracle Corporation. Today, MySQL is a pillar of LAMP application software. That means it’s a part of Linux, Apache, MySQL, and Perl/PHP/Python stack. Having C and C++ under the hood, MySQL works well with such system platforms as Windows, Linux, MacOS, IRIX, and others.

**Simple syntax and mild complexity.** MySQL’s structure and style are very plain. Developers even consider MySQL a database with a human-like language. As MySQL is often used in tandem with PHP programming language. Because they share a gentle learning curve, you won’t need to hire a skilled developer to manage your database. Also, MySQL is easy to use. For instance, most of the tasks can be executed right in the command line, reducing development steps.

**Cloud-compatible.** Business-oriented by nature and originally developed for the web, MySQL is supported by the most popular cloud providers. It’s available on such leading platforms as Amazon, Microsoft, and others. This makes MySQL even more attractive and gives businesses using it room for growth.

### Cons of MySQL

**Scalability challenges.** MySQL was not built with scalability in mind, which is inherent in its code. In theory, you can scale MySQL, but it will need more engineering effort as compared to any of the NoSQL databases. So, if you expect one day your database will increase substantially, keep this limitation in mind or choose another DBMS option.

**Partial open source.** Although MySQL has the open-source part, it’s mostly under Oracle’s license. This limits the MySQL community in terms of improving the DBMS. Why do you care? Because when you have completely open-source support, you expect many problem-specific implementations and community assistance. This is not the case when the software belongs to corporate owners and you’ll have to pay for support.

**Limited compliance with SQL standards.** Structured Query Language has specific standards. MySQL doesn’t completely follow them, i.e. MySQL provides no support for some standard SQL features. On the other hand, MySQL has some extensions and distinct features that don’t match the Structured Query Language standards. It’s not a big deal for small web applications. The issues may appear when you have to shift to other databases, which is likely to happen when your business starts growing.

### Use cases

**Small web-based solutions.** MySQL database system is the best option when you’re designing a small, web-based solution with a small volume of data. For example, when building a local eCommerce store, MySQL may come in handy.

**OLAP/OLTP systems.** This is one of the best use cases for a MySQL database, as OLAP/OLTP don’t require complex queries and large volumes of data. Also, consider applying MySQL for the same reason if you’re building a [business intelligence tool](https://www.altexsoft.com/blog/business/complete-guide-to-business-intelligence-and-analytics-strategy-steps-processes-and-tools/).

## PostgreSQL

This database management system shares its popularity with MySQL. This is an object-relational DBMS where user-defined objects and table approach are combined to build more complex data structures. Besides that, PostgreSQL has a lot of similarities with MySQL. It’s aimed at strengthening the standards of compliance and extensibility. Consequently, it can process any workload, for both single-machine products and complex applications. Owned and developed by PostgreSQL Global Development Group, it still remains a completely open source. This DBMS is available for use with such platform systems as Microsoft, iOS, Android, and many more.

### Pros of Postgre

**Scalable.** Vertical scalability is a hallmark of PostgreSQL, unlike MySQL DBMS. Considering that almost any custom software solution tends to grow, resulting in database extension, this particular option certainly supports business growth and development.

**Support for custom data types.** PostgreSQL natively supports a large number of data types by default, such as JSON, XML, H-Store, and others. PostgreSQL takes advantage of it, being one of the few relational databases with strong support for NoSQL features. Additionally, it allows users to define their own data types. As your [software business model](https://www.altexsoft.com/blog/business/software-business-models-examples-revenue-streams-and-characteristics-for-products-services-and-platforms/) may need different types of databases throughout its existence for better performance or application comprehensiveness, this option brings improved flexibility to the table.

**Easily-integrated third-party tools.** PostgreSQL database management system has the strong support of [additional tools](https://wiki.postgresql.org/wiki/Community_Guide_to_PostgreSQL_GUI_Tools), both free and commercial. The scope of these includes extensions to improve many aspects. For example, [ClusterControl](https://severalnines.com/product/clustercontrol) provides impressive assistance at managing, monitoring, and scaling SQL and NoSQL open source databases. To make data comparison and synchronization more effective, consider using DB Data Difftective. In case you’re going to scale up your data to heavy workloads, [pgBackRest](https://pgbackrest.org/) backup and restore system will be a nice option to choose.

**Open-source and community-driven.** Postgres is completely open-source and supported by its community, which strengthens it as a complete ecosystem. Additionally, developers can always expect free and prompt community assistance.

### Cons of Postgre

**Inconsistent documentation.** While PostgreSQL has a large community and provides strong support for its participants, the documentation still lacks consistency and completeness. As the PostgreSQL community is rather distributed, the documentation doesn’t follow equal standards for all Postgre features.

**Lack of reporting and auditing instruments.** A significant shortcoming of PostgreSQL is the absence of revising tools that would show the current condition of a database. You have to continuously check if something goes wrong. There’s always a risk that DB engineers will notice a failure too late.

### Use cases

Due to complicated queries and a wide choice of custom interfaces accomplished with predefined functions, PostgreSQL is a perfect match for data analysis and warehousing. If you are building a database automation tool, PostgreSQL is the best fit for it due to its strong analytical capabilities, ACID-compliance, and powerful SQL engine. All in one, it significantly accelerates the processing of vast amounts of data. This DBMS is popular with financial institutions and telecommunication systems.

**SQL Server**

is a [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) developed by [Microsoft](https://en.wikipedia.org/wiki/Microsoft). As a [database server](https://en.wikipedia.org/wiki/Database_server), it is a [software product](https://en.wikipedia.org/wiki/Software_product) with the primary function of storing and retrieving data as requested by other [software applications](https://en.wikipedia.org/wiki/Software_application)—which may run either on the same computer or on another computer across a network (including the Internet). Microsoft markets at least a dozen different editions of Microsoft SQL Server, aimed at different audiences and for workloads ranging from small single-machine applications to large Internet-facing applications with many [concurrent users](https://en.wikipedia.org/wiki/Concurrent_user).

**SQL Server 2019 features**

* Intelligence across all your data with Big Data Clusters. Break down data silos. ...
* Choice of language and **platform**. Run SQL Server anywhere. ...
* Industry-leading **performance**. #1 in **performance**. ...
* Most secured data **platform**. Fewest vulnerabilities for nine years. ...
* Unparalleled high availability. ...
* End-to-end mobile BI. ...
* SQL Server on Azure.