MYSQL, POSTGRESQL AND SQL SERVER

MySQL

- MySQL happens to be one of the most popular databases, according to DB Engines Ranking.It’s a definite leader among SQL solutions,used by Google, LinkedIn,Amazon, Netflix,Twitter, and others. MySQL popularity has been growing a lot because teams increasingly prefer open-source solutions instead of commercial ones.
- **Price**: the database solution is developed by Oracle and has additional paid tools; the core functionality can be accessed for free.
- **Language**: MySQL is written in C++; database management is done with Structured Query Language.

POSTGRESQL

- A tried-and-proven relational database that is known for supporting a lot of data types, intuitive storage of schemaless data, and rich functionality. Some developers go even as far as to claim that it's the most advanced open-source database on the market. We wouldn't go that far, but it's definitely a highly universal solution.
- **Price**:open-source
- **Language**:C

SQL SERVER

- Unlike Postgresql vs MySQL, SQL Server is a commercial solution. It’s preferred by companies who are dealing with large traffic workloads on a regular basis. It’s also considered to be one of the most compatible systems withWindows services.
- The SQL Server infrastructure includes a lot of additional tools, like reporting services, integration systems, and analytics. For companies that manage multiple teams, these tools make a big difference in day-to-daywork.
- **Price**: the database has a free edition for developers and small businesses but only supports 1 processor, 1GB of maximum memory used by the database engine and 10GB maximum database size.

COMPARISON OF SQLTOOLS

In this comparison, we’ll take a look at the functionality of the three most popular SQL databases, examine their use cases, respective advantages, and disadvantages. Firstly, we’ll start by exploring the in-depth functionality.

Data Changes

Here we evaluate the ease that the data can be modified with and the database defragmented. The key priority is the systems’ flexibility, security, and usability.

Row updates

This criterion refers to the algorithms that a database uses to update its contents, speed, and efficiency.

MySQL :a solution updates data automatically to the rollback storage. If something goes wrong, developers can always go back to the previous version.

PostgreSQL: developers insert a new column and row in order to update the database. All updated rows have unique IDs.This multiplies the number of columns and rows and increases the size of the database, but in turn, developers benefit from higher readability.

SQL Server: the database has three engines that are responsible for row updates.The ROW Store handles the information on all previous row updates, IDs, and modified content.The in-memory engine allows analyzing the quality of an updated database with a garbage collector.The column-store database lets store updates in columns, like in column-driven databases.

- **Defragmentation**
- **MySQL** offers several approaches to defragmentation – during backup, index creation, and with an OPTIMIZE Table command. Without going into much detail, we'll just say that having that many options for table maintenance is convenient for developers, and it surely saves a lot of time.
- **PostgreSQL** allows scanning the entire tables of a data layer to find empty rows and delete the unnecessary elements. By doing so, the system frees up the disk space. However, the method requires a lot of CPU and can affect the application's performance.
- **SQL Server** offers an efficient garbage collector that doesn't create more than 15-20% of overhead. Technically, developers can even run garbage collector on a continuous basis, because it's that efficient.

- **TemporaryTables**

Temporary tables allow storing intermediate results from complex procedures and branched business logic. If you need some information only to power the next process, it doesn't make sense to store it in a regular table. Temporary tables improve database performance and organization by separating intermediary data from the essential information.

- **MySQL** offers limited functionality for temporary tables. Developers cannot set variables or create global templates. The software even limits the number of times that a temporary table can be referred to – not more than once.
- **Postgresql** offers a lot more functionality when it comes to temporary content. You divide temporary tables into local and global and configure them with flexible variables.
- **SQL Server** also offers rich functionality for temporary table management. You can create local and global temporary tables, as well as oversee and create variables.