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Reading: A guide to the five factors of database performance

Database performance is an important consideration for BI professionals. As you have been learning, database performance is a measure of the workload that can be processed by the database, as well as associated costs. Optimization involves maximizing the speed and efficiency that data is retrieved in order to ensure high levels of database performance. This means that your stakeholders have the fastest access to the data they need to make quick and intelligent decisions. You have also been learning that there are five factors of database performance: workload, throughput, resources, optimization, and contention.

The five factors

In this reading, you will be given a quick overview of the five factors that you can reference at any time and an example to help outline these concepts. In the example, you are a BI professional working with the sales team to gain insights about customer purchasing habits and monitor the success of current marketing campaigns.

Factor	Definition	Example
Workload	The combination of transactions, queries, data warehousing analysis, and system commands being processed by the database system at any given time.	On a daily basis, your database needs to process sales reports, perform revenue calculations, and respond to real-time requests from stakeholders.All of these needs represent the workload the database needs to be able to handle.
Throughput	The overall capability of the database's hardware and software to process requests.	The system's throughput is the combination of input and output speed, the CPU speed, the machine's ability to run parallel processes, the database management system, and the operating system and system software.

Resources	The hardware and software tools available for use in a database system.	The database system is primarily cloud-based, which means it depends on online resources and software to maintain functionality.
Optimization	Maximizing the speed and efficiency with which data is retrieved in order to ensure high levels of database performance.	Continually checking that the database is running optimally is part of your job as the team's BI professional.
Contention	When two or more components attempt to use a single resource in a conflicting way.	Because this system automatically generates reports and responds to user-requests, there are times when it may be trying to run the queries on the same datasets at the same time, causing slowdown for users.
