# When would one use stored procedures?

1. Stored procedures make running SQL queries much more efficient. Rather than typing out a bunch of duplicate code every time you want to call a well used query, you can simply define a stored procedure and run EXEC procedure\_name every time you want to run it.
2. When you want a lot of extra security for your application. If you don’t want to give your users full administrative permissions without limiting their ability to practically use your application stored procedures can be very helpful.

# The advantages of stored procedures

1. As stated above, it makes common queries easier to make.
2. Going into a little more depth on reason number two of the first question above, you can make it so that your users are not able to make standard SQL queries. Essentially you can limit you users so that they can only use stored procedures to interact with your application. This means that your application as a whole is a lot more secure as a user cannot, intentionally or not, mess with your database or gain access to highly sensitive information. There’s a great segment on that in the video *SQL Stored Procedures – What They Are, Best Practices, Security, and More…* below. Go to the *DB Security: Users and Roles* section of the video which is about 10 minutes long.
3. When executing inside of a SQL server, procedures are faster than running SELECT \* most of the time.

# The differences between stored procedure and application-level database queries

For this particular question I’ll paraphrase/**directly quote**/summarize (just want to make sure I make it clear that some of his sentences were already very understandable so I left them as is) the answer given by Grant Fritchey, who has 30+ years in DBMS, answer found on Quora:

1. A stored procedure, when called, will be optimized based on the values of the parameters passed. The optimization will be stored in memory as an execution plan. Because of the parameters, it can be reused over and over until it ages out of cache.
2. Ad hoc queries are query strings passed directly to the server. They are compiled and stored in memory but when you run a similar query with different values a new plan is generated which leads to more CPU time and memory being used up.

Note: There is a really good article I found, *Ad Hoc Query VS Stored Procedure,* that takes a deeper look at what these two things mean. I recommend reading it if you want to have a better understanding of what makes stored procedures more efficient than Ad Hoc Queries.

*Great summary and short example of Stored Procedure:*

[*https://www.youtube.com/watch?v=dC5aa-8NP04*](https://www.youtube.com/watch?v=dC5aa-8NP04)

*SQL Stored Procedures – What They Are, Best Practices, Security, and More…*

[*https://www.youtube.com/watch?v=Sggdhot-MoM*](https://www.youtube.com/watch?v=Sggdhot-MoM)

*Grant Fritchey on Quora:*

<https://www.quora.com/What-are-the-pros-and-cons-of-stored-procedures-vs-queries-in-database-systems-Under-what-conditions-should-I-use-each-one-I-am-currently-using-MySQL-does-this-matter?share=1>

*Ad Hoc Query VS Stored Procedure:*

<https://powerbidiary.blogspot.com/2021/02/ad-hoc-query-vs-stored-procedure.html>