

MASTERING

# SQL Essentials: Stored Procedures vs Functions

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# Introduction

- Ever wondered when to use stored procedures or functions in SQL?
- Let's explore the key differences, use cases, performance impacts, and examples to help you answer tricky interview questions!



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# Stored Procedure vs Function

Feature	Stored Procedure	Function
Purpose	Executes a task/operation	Returns a value/result
Input/Output	Can take input & output parameters	Only takes input parameters
Usage	Called using <code>EXEC</code>	Called as part of a query
Transaction Support	Can use transactions	Limited transaction support
Return Types	Returns <code>void</code> or multiple values	Returns single value (scalar/table)



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# When to Use It

## ✓ **Stored Procedures:**

- For executing multiple DML operations.
- Encapsulating complex business logic.
- Reducing repetitive tasks.

## ✓ **Functions:**

- For reusable calculations (e.g., tax, discount).
- For data validation.
- When you need scalar or tabular results in queries.



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# Stored Procedure Syntax:

```
CREATE PROCEDURE GetEmployeeDetails
    @EmpID INT
AS
BEGIN
    SELECT * FROM Employees WHERE EmployeeID = @EmpID;
END;

EXEC GetEmployeeDetails @EmpID = 101;
```



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# Function Syntax:

```
CREATE FUNCTION GetEmployeeSalary (@EmpID INT)
RETURNS INT
AS
BEGIN
    DECLARE @Salary INT;
    SELECT @Salary = Salary FROM Employees WHERE EmployeeID = @EmpID;
    RETURN @Salary;
END;

SELECT dbo.GetEmployeeSalary(101);
```

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# Performance Impact

## ⚡ **Stored Procedures:**

- Precompiled execution plan = faster for complex operations.
- Ideal for bulk operations.

## ⚡ **Functions:**

- Used within queries, but may degrade performance if overused in SELECT statements.
- Best for simple, reusable logic.



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# Interview Questions

## ? Beginner Level

- What are the key differences between stored procedures and functions?
- Can you call a stored procedure within a function?

## ? Intermediate Level

- Explain a scenario where you used a stored procedure.
- How do functions improve code reusability?

## ? Advanced Level

- What are the performance impacts of using scalar functions in SELECT statements?
- How would you optimize stored procedures for large datasets?

