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**Information technology — Guidance  
for the use of database language  
SQL —**

Part 9:  
**Online analytic processing (OLAP)  
capabilities (Guide/OLAP)**

*Langages de bases de données utilisés dans les technologies de  
l'information — Recommandations pour l'utilisation du langage de  
base de données SQL —*

*Partie 9: Capacités de traitement analytique en ligne (OLAP), (Guide/  
OLAP)*





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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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## Introduction

This document discusses the syntax and semantics for including online analytic processing (OLAP) capabilities in SQL, as defined in [ISO/IEC 9075-2](#).

The organization of this document is as follows:

- 1) [Clause 1, “Scope”](#), specifies the scope of this document.
- 2) [Clause 2, “Normative references”](#), identifies standards that are referenced as part of requirements by this document.
- 3) [Clause 3, “Terms and definitions”](#), defines the terms and definitions used in this document.
- 4) [Clause 5, “Windows”](#), discusses Feature T611, “Elementary OLAP operations” and Feature T612, “Advanced OLAP operations”, introducing the concept of a window in an SQL query.
- 5) [Clause 6, “Window functions”](#), further discusses Feature T611, “Elementary OLAP operations” and Feature T612, “Advanced OLAP operations”, as well as Feature T614, “NTILE function”, Feature T615, “LEAD and LAG functions”, Feature T616, “Null treatment option for LEAD and LAG functions”, Feature T617, “FIRST\_VALUE and LAST\_VALUE functions”, and Feature T618, “NTH\_VALUE function”.
- 6) [Clause 7, “Nested window functions”](#), discusses the additional window functionality in Feature T619, “Nested window functions”.
- 7) [Clause 8, “Enhanced aggregate functions”](#), discusses Feature T621, “Enhanced numeric functions” and its introduction of enhanced aggregate functions in SQL.

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# Information technology — Guidance for the use of database language SQL —

Part 9:

## Online analytic processing (OLAP) capabilities (Guide/OLAP)

### 1 Scope

This document discusses the syntax and semantics for including online analytic processing (OLAP) capabilities in SQL, as defined in [ISO/IEC 9075-2](#).

It discusses the following features regarding OLAP capabilities of the SQL language:

- Feature T611, “Elementary OLAP operations”,
- Feature T612, “Advanced OLAP operations”,
- Feature T614, “NTILE function”,
- Feature T615, “LEAD and LAG functions”,
- Feature T616, “Null treatment option for LEAD and LAG functions”,
- Feature T617, “FIRST\_VALUE and LAST\_VALUE functions”,
- Feature T618, “NTH\_VALUE function”,
- Feature T619, “Nested window functions”,
- Feature T620, “WINDOW clause: GROUPS option”,
- Feature T621, “Enhanced numeric functions”

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## **2 Normative references**

There are no normative references in this document.