SQL Database Objects Reference Sheet

This reference sheet lists common database objects in SQL along with brief descriptions. These objects define the structure, logic, and security of the database.

|  |  |
| --- | --- |
| Database Object | Description |
| Table | Stores data in rows and columns; the primary storage unit in SQL. |
| View | A virtual table based on the result-set of an SQL query. |
| Index | Improves the speed of data retrieval from a table. |
| Stored Procedure | A saved collection of SQL statements that perform a task. |
| Function | Returns a value and can be used in SQL expressions; similar to procedures. |
| Trigger | Executes automatically in response to certain events on a table or view. |
| Schema | A logical container for database objects; helps organize them. |
| Sequence | Generates a sequence of numeric values, often used for auto-incrementing IDs. |
| Synonym | An alias for another database object to simplify access. |
| Constraint | Rules applied to table columns for data validation and integrity. |

**2**.**what are the metadata tables we have in sql**?

| **Metadata Table** | **Description** |
| --- | --- |
| INFORMATION\_SCHEMA.TABLES | Lists all tables in the database |
| INFORMATION\_SCHEMA.COLUMNS | Lists all columns in all tables |
| INFORMATION\_SCHEMA.SCHEMATA | Lists all schemas |
| INFORMATION\_SCHEMA.CONSTRAINTS | Lists table constraints (PK, FK, UNIQUE, etc.) |
| INFORMATION\_SCHEMA.KEY\_COLUMN\_USAGE | Links constraints to their columns |
| INFORMATION\_SCHEMA.VIEWS | Lists all views in the database |
| INFORMATION\_SCHEMA.ROUTINES | Lists stored procedures and functions |
| INFORMATION\_SCHEMA.TRIGGERS | Lists triggers |

**Vendor-Specific Metadata Tables**

Depending on your database system, there are more detailed system views or tables:

**SQL Server**

| **System View / Table** | **Purpose** |
| --- | --- |
| sys.tables, sys.columns | Lists tables and columns |
| sys.objects, sys.schemas | All database objects and schemas |
| sys.indexes, sys.index\_columns | Index metadata |
| sys.procedures, sys.triggers | Stored procedures and triggers |
| sys.foreign\_keys, sys.check\_constraints | Constraints |

**MySQL**

| **System Table** | **Purpose** |
| --- | --- |
| information\_schema.TABLES | Table metadata |
| information\_schema.STATISTICS | Index metadata |
| mysql.user, mysql.db | User privileges and database access |

**PostgreSQL**

| **System View / Table** | **Purpose** |
| --- | --- |
| pg\_tables, pg\_class | Table information |
| pg\_attribute | Column info |
| pg\_indexes, pg\_index | Index info |
| pg\_constraint | Constraints |
| pg\_proc | Functions and procedures |

**Oracle**

| **System View** | **Purpose** |
| --- | --- |
| ALL\_TABLES, ALL\_TAB\_COLUMNS | Tables and columns |
| USER\_CONSTRAINTS, USER\_INDEXES | Constraints and indexes |
| DBA\_OBJECTS, DBA\_TABLES | All objects in the database |

**SQL Server (T-SQL)**

**1. List All Tables**

sql

CopyEdit

SELECT name, schema\_id

FROM sys.tables;

**2. List All Columns in a Specific Table**

sql

CopyEdit

SELECT name, column\_id, system\_type\_id

FROM sys.columns

WHERE object\_id = OBJECT\_ID('YourTableName');

**3. List Indexes on a Table**

sql

CopyEdit

SELECT i.name AS IndexName, i.type\_desc, c.name AS ColumnName

FROM sys.indexes i

JOIN sys.index\_columns ic ON i.object\_id = ic.object\_id AND i.index\_id = ic.index\_id

JOIN sys.columns c ON ic.object\_id = c.object\_id AND ic.column\_id = c.column\_id

WHERE i.object\_id = OBJECT\_ID('YourTableName');

**4. List All Stored Procedures**

sql

CopyEdit

SELECT name, type\_desc

FROM sys.procedures;

**✅ MySQL**

**1. List All Tables**

sql

CopyEdit

SELECT table\_name

FROM information\_schema.tables

WHERE table\_schema = 'your\_database';

**2. List All Columns in a Table**

sql

CopyEdit

SELECT column\_name, data\_type, is\_nullable

FROM information\_schema.columns

WHERE table\_name = 'your\_table' AND table\_schema = 'your\_database';

**3. List Indexes on a Table**

sql

CopyEdit

SHOW INDEXES FROM your\_table;

**4. List Stored Procedures**

sql

CopyEdit

SELECT routine\_name, routine\_type

FROM information\_schema.routines

WHERE routine\_schema = 'your\_database';

**✅ PostgreSQL**

**1. List All Tables**

sql

CopyEdit

SELECT tablename

FROM pg\_tables

WHERE schemaname NOT IN ('pg\_catalog', 'information\_schema');

**2. List Columns in a Table**

sql

CopyEdit

SELECT column\_name, data\_type

FROM information\_schema.columns

WHERE table\_name = 'your\_table';

**3. List Indexes**

sql

CopyEdit

SELECT indexname, indexdef

FROM pg\_indexes

WHERE tablename = 'your\_table';

**4. List All Functions**

sql

CopyEdit

SELECT proname, proargtypes

FROM pg\_proc

JOIN pg\_namespace ON pg\_proc.pronamespace = pg\_namespace.oid

WHERE nspname NOT IN ('pg\_catalog', 'information\_schema');

**✅ Oracle**

**1. List All Tables**

sql

CopyEdit

SELECT table\_name FROM user\_tables;

**2. List Columns in a Table**

sql

CopyEdit

SELECT column\_name, data\_type

FROM user\_tab\_columns

WHERE table\_name = 'YOUR\_TABLE';

**3. List Constraints**

sql

CopyEdit

SELECT constraint\_name, constraint\_type, table\_name

FROM user\_constraints;

**4. List Indexes**

sql

CopyEdit

SELECT index\_name, table\_name

FROM user\_indexes;