SQL básico

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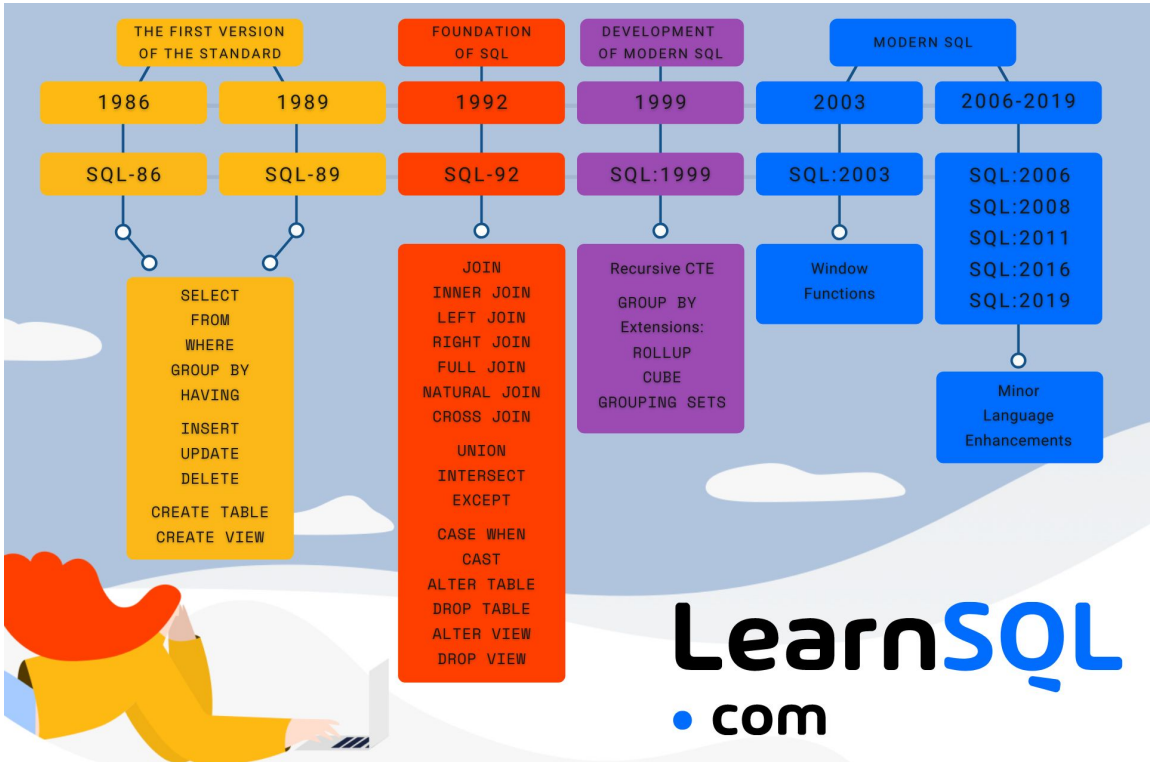
Structured Query Language (SQL) es un estándar

https://www.contrib.andrew.cmu.edu/~shadow/sql/sql1992.txt

SQL ha evolucionado con el tiempo…



https://learnsql.com/blog/history-of-sql-standards/

SQL no está implementado igualmente para los RDBMS

Comparison of different SQL implementations

The goal of this page was to gather information relevant for people who are porting SQL from one product to another and/or are interested in possibilities and limits of 'cross-product' SQL.

The following tables compare how different DBMS products handled various SQL (and related) features. If possible, the tables also stated how the implementations *should* do things, according to the SQL standard.

I'm sorry about the colors. They were a result of wanting to mark each DBMS differently and at the same time wanting to be relatively nice to printers.

Unfortunately, I don't have the time and motivation to keep this page up-to-date any longer.

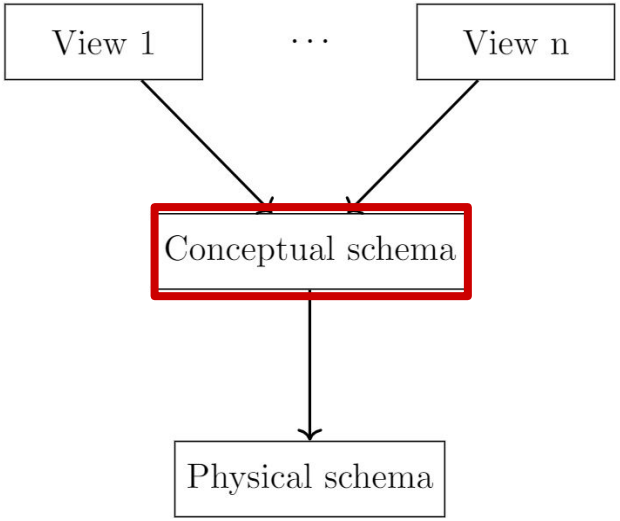
Contents:

http://troels.arvin.dk/db/rdbms/

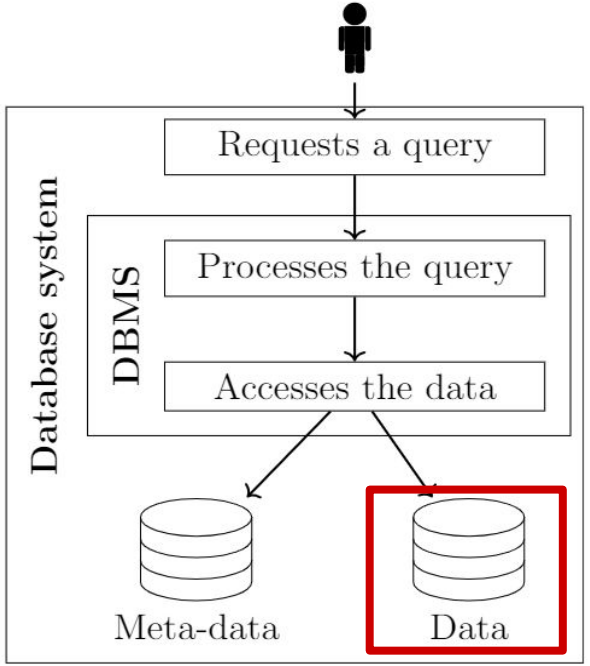
Define **qué** se quiere recuperar, no el **cómo**

SQL define la base de datos a nivel de DDL y DML

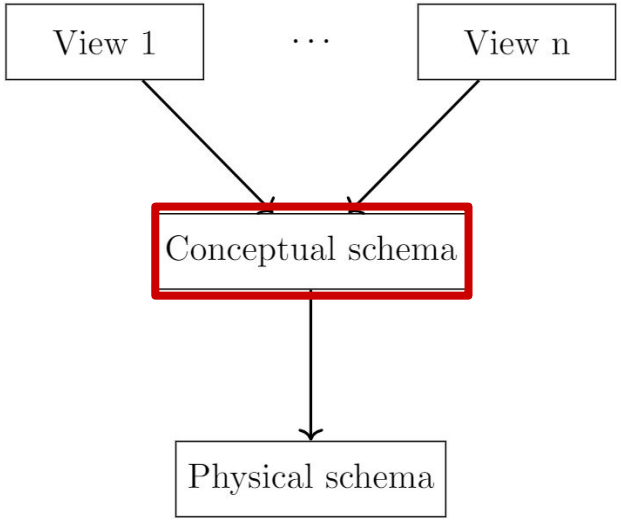
Data Definition Language



Data Manipulation Language



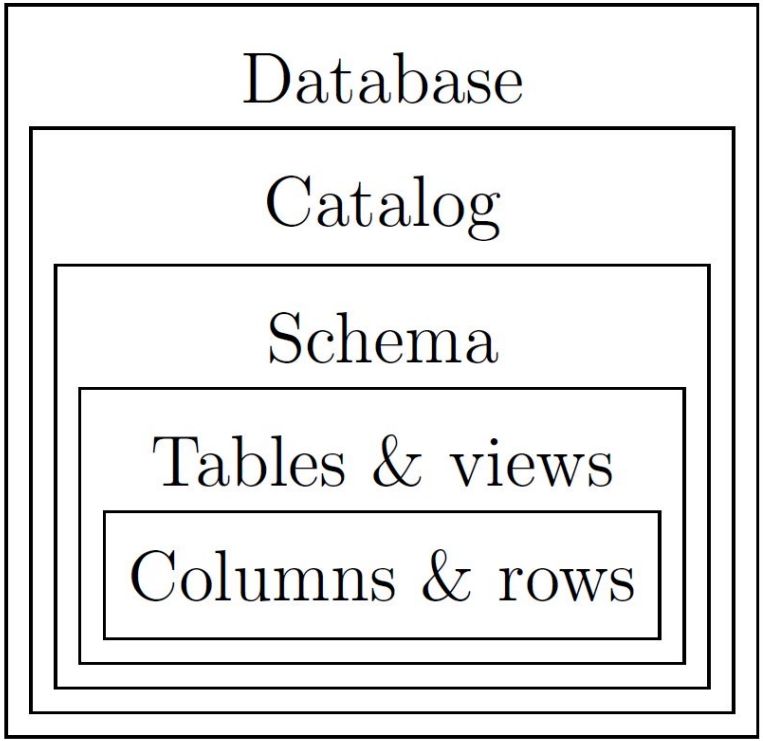
Data Definition Language

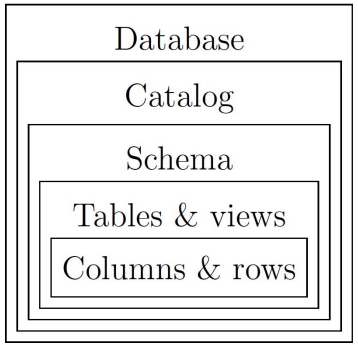


La relación entre elementos del modelos relacional y SQL…

Relational model	SQL
Relation	Table
Tuple	Row
Attribute	Column

Hay distintos niveles de abstracción para los elementos dentro de la base de datos….





STUDENT

Email	First_name	Last_name	Carnet	Image

INSTRUCTOR

ID

COURSE

Acronym	Name	Credits

GROUP

Number	Semester	Year	Acronym

IMPARTS

ID	Number	Semester	Year	Acronym

TAKES

Email	Number	Semester	Year	Acronym

INSTRUCTOR_UNIVERSITY_DEGREES

ID	University_degree

Hay muchos tipos de datos…

Category	Data type	Description	Types
Numeric	Integers	An integer number	INT or INTEGER SMALLINT
	Real	A real number	FLOAT or REAL DOUBLE PRECISION
	Formated	Formated number, where i is the number of decimal digits and j the decimal digits after the decimal point	DECIMAL/DEC/NUMERIC(i, j)
Chars	Fixed length	Fixes a char string to have n chars. If shorter, it is padded with spaces to the right.	CHAR(n)
	Variable length	Strings can have a variable length of maximum n chars	VARCHAR(n)
	Large object	Specifies large texts like documents, where n is a size and s the size type (K,M,G)	CLOB(ns)
Bits	Fixed length	Fixes a bit string to have n bits.	CHAR(n)
	Variable length	Strings can have a variable length of maximum n bits.	BIT VARYING(n)
	Large object	Specifies large bit string, where n is a size and s the size type (K,M,G)	BLOB(ns)
	Boolean	Boolean that can be either TRUE or FALSE	BIT
Dates	Date	Given in 'YYYY-MM-DD'.	DATE
	Time	Given in 'HH-MM-SS'.	TIME

* Hay diferencias entre RDBMS

https://docs.microsoft.com/en-us/sql/t-sql/data-types/data-types-transact-sql

NOT NULL

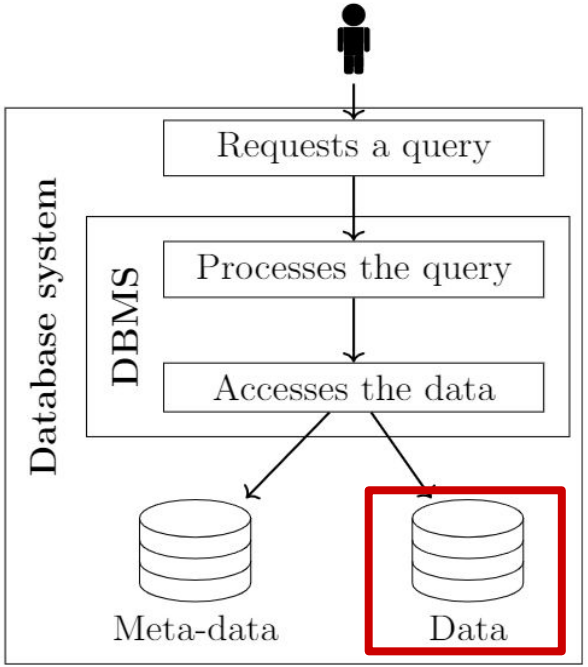
DEFAULT

CHECK

FK

PK

Data Manipulation Language



Name	Acronym	Phone_number	Number_students
Ciencias de la Computación e Informática	ECCI	2511-8000	888
Ciencias de la Comunicación Colectiva	ECCC	2511-3600	999
Lenguas Modernas	ELM	2511 8391	NULL
Administración de Negocios	EAN	2511-9180	3000
Antropología	EAT	2511-6458	500
Matemática	EMat	2511-6551	1500

INSERT
DELETE
UPDATE

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SELECT

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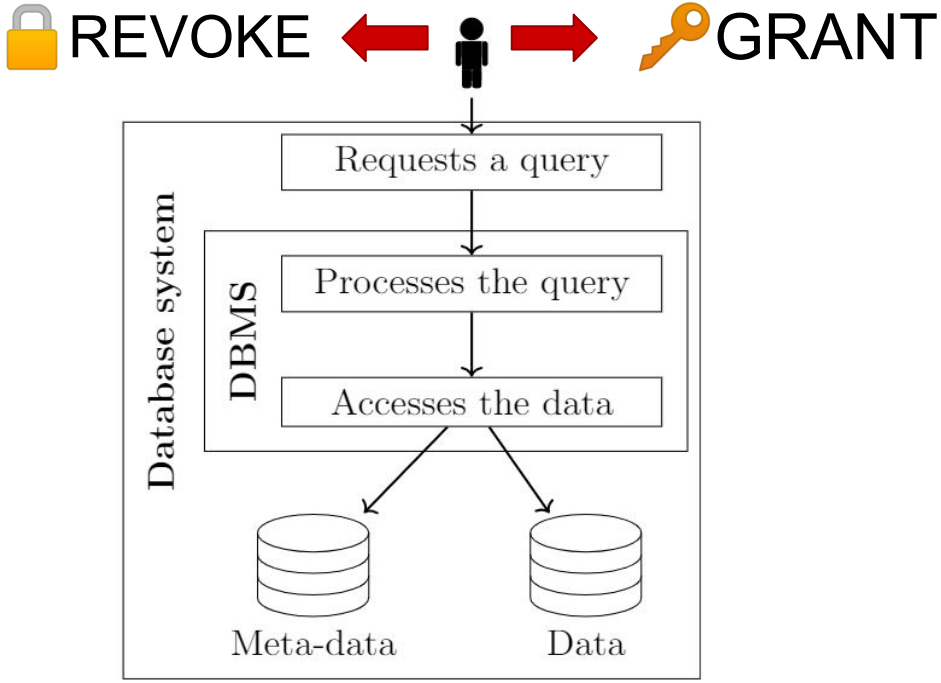
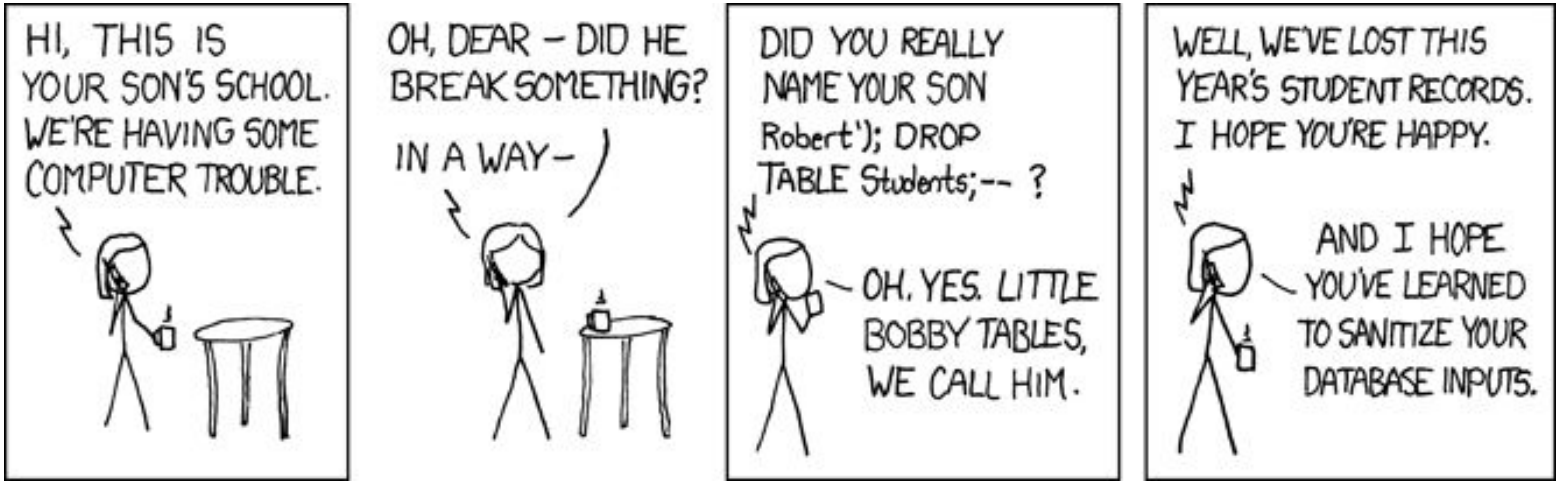
Matemática	EMat	2511-6551	1500

AVG COUNT SUM MIX MAN

Diferentes permisos se pueden dar en una base de datos…




HI, THIS IS YOUR SON'S SCHOOL. WE'RE HAVING SOME COMPUTER TROUBLE.
OH, DEAR – DID HE BREAK SOMETHING?
IN A WAY–
DID YOU REALLY NAME YOUR SON Robert'); DROP TABLE Students;-- ?
OH. YES. LITTLE BOBBY TABLES, WE CALL HIM.
WELL, WE'VE LOST THIS YEAR'S STUDENT RECORDS. I HOPE YOU'RE HAPPY.
AND I HOPE YOU'VE LEARNED TO SANITIZE YOUR DATABASE INPUTS.

Referencias

- R. Elmasri and S. Navathe, Fundamentals of database systems, 7th ed. Pearson, 2016, chapters 6.
- A. Silberschatz, H. F. Korth, and S. Sudarshan, Database System Concepts, 7th ed. New York, NY: McGraw-Hill, 2020, chapter 3.
- E. Malinowski and A. Mart´ınez, Material de Apoyo de Bases de Datos I, 1st ed., Universidad de Costa Rica, 2018, parte VI.
- Microsoft. Microsoft sql documentation. [Online]. Available: https://docs.microsoft.com/en-us/sql