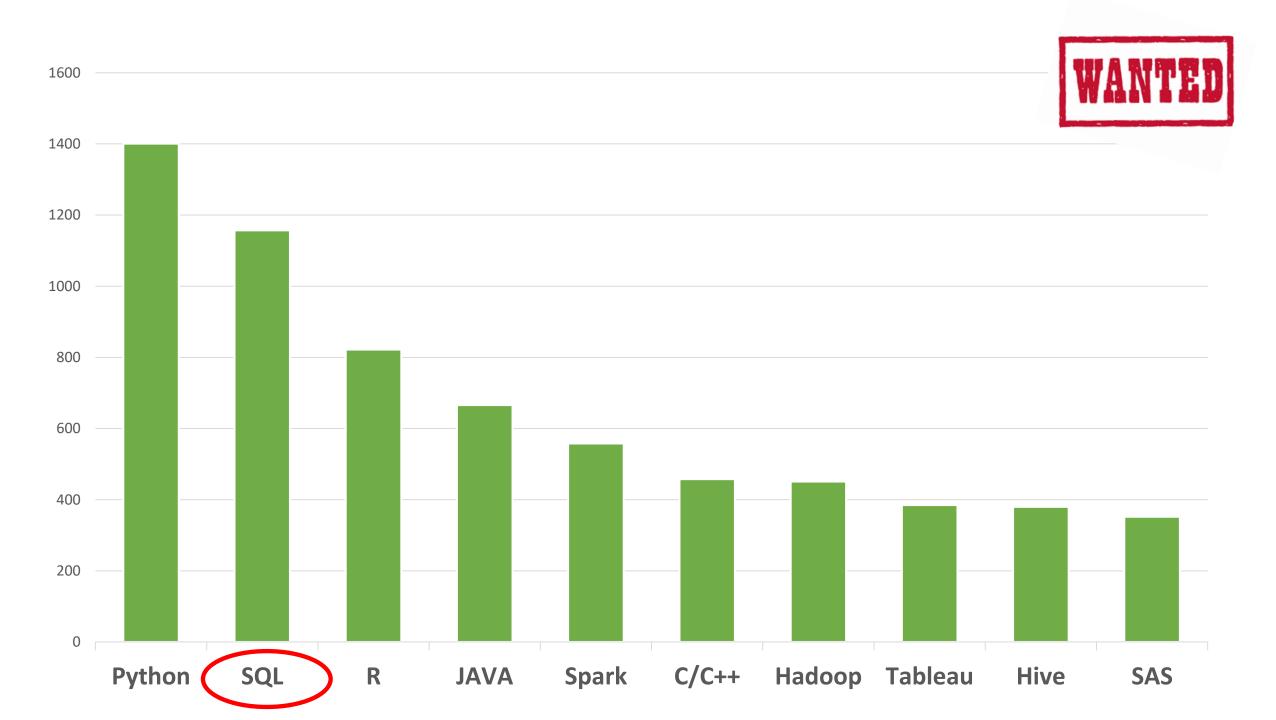
SQL

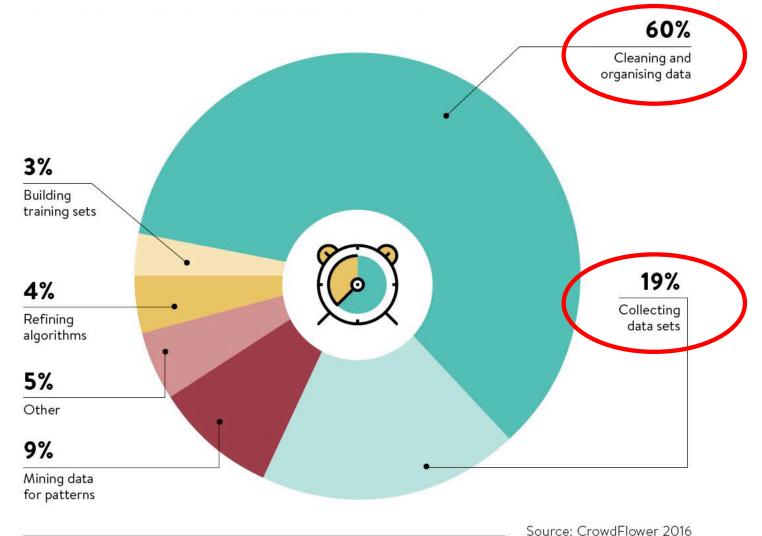
Dr. Villanes

Introduction





What data scientists spend the most time doing



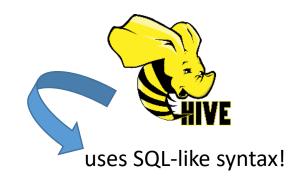
Programming tools available for data extraction/cleaning/organizing...











What is SQL?

- Structured Query Language (SQL) is a <u>standardized</u> language originally designed as a relational database query tool.
- SQL is currently used in **many** software products to retrieve and update data.



Why is SQL a **standardized** language?

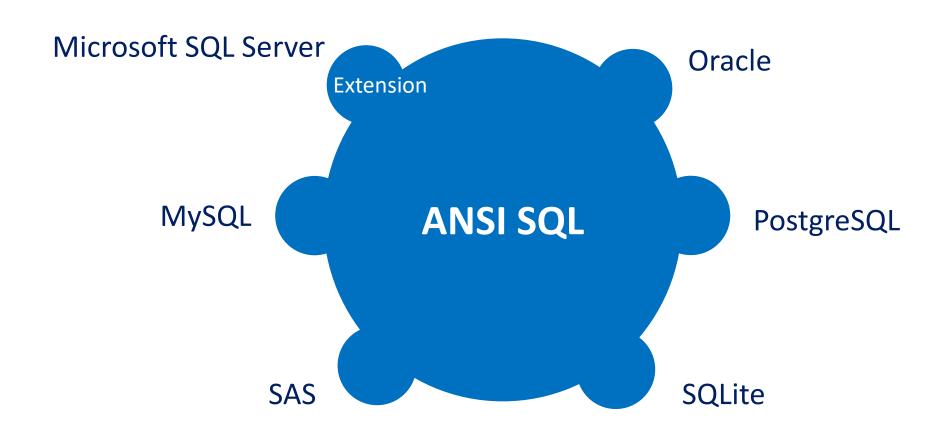
- SQL became a **standard** of the American National Standards Institute (ANSI) in 1986, and of the International Organization for Standardization (ISO) in 1987.
- Since then, the standard has been revised to include a larger set of features.
- Despite the existence of such standards, most SQL code is not completely portable among different database systems without adjustments.



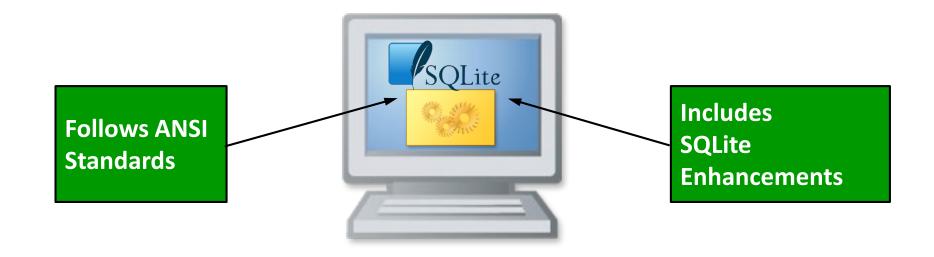
How is SQL currently being used in many software products?

- Although most database systems use SQL, most of them also have their own additional proprietary extensions that are usually only used on their system.
- However, the standard SQL commands such as "Select", "Insert", "Update", "Delete", "Create", and "Drop" can be used to accomplish almost everything that one needs to do with a database.

SQL is a standard... BUT...

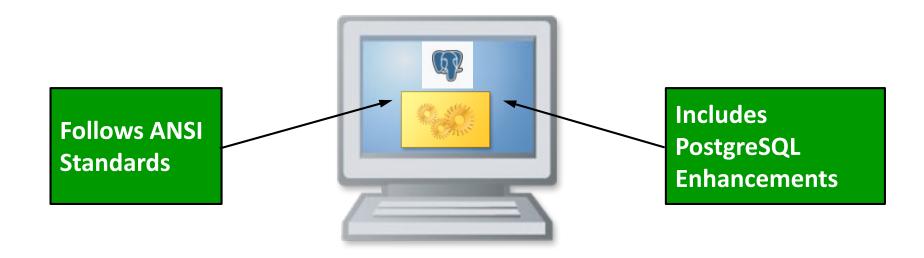


For example...





What about PostgreSQL?

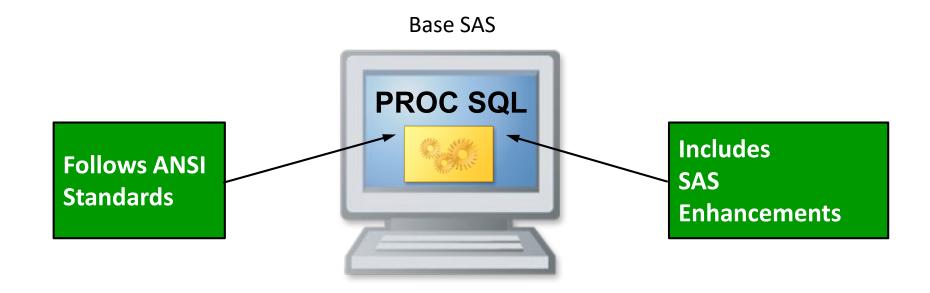


1. What Is PostgreSQL?

PostgreSQL is an object-relational database management system (ORDBMS) based on **POSTGRES**, **Version 4.2**, developed at the University of California at Berkeley Computer Science Department. POSTGRES pioneered many concepts that only became available in some commercial database systems much later.

PostgreSQL is an open-source descendant of this original Berkeley code. It supports a large part of the SQL standard and offers many modern features

What about SAS?

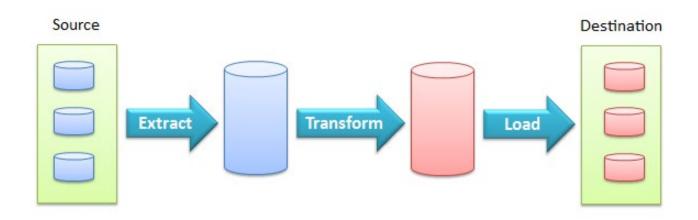


PROC SQL and the ANSI Standard:

http://support.sas.com/documentation/cdl/en/sqlproc/63043/HTML/default/viewer.htm#p0corah7t4 3hy7n1r7efplde5c8z.htm Where is SQL mostly used?

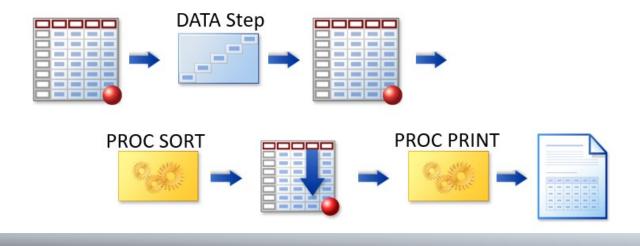
ETL: extract, transform, and load

Challenge: Data resides in multiple locations and in many formats.



SQL is very useful for the ETL process

Why is SQL so awesome?





Why is SQL so awesome?

... and because they will ask you SQL questions in interviews!