

# SQL

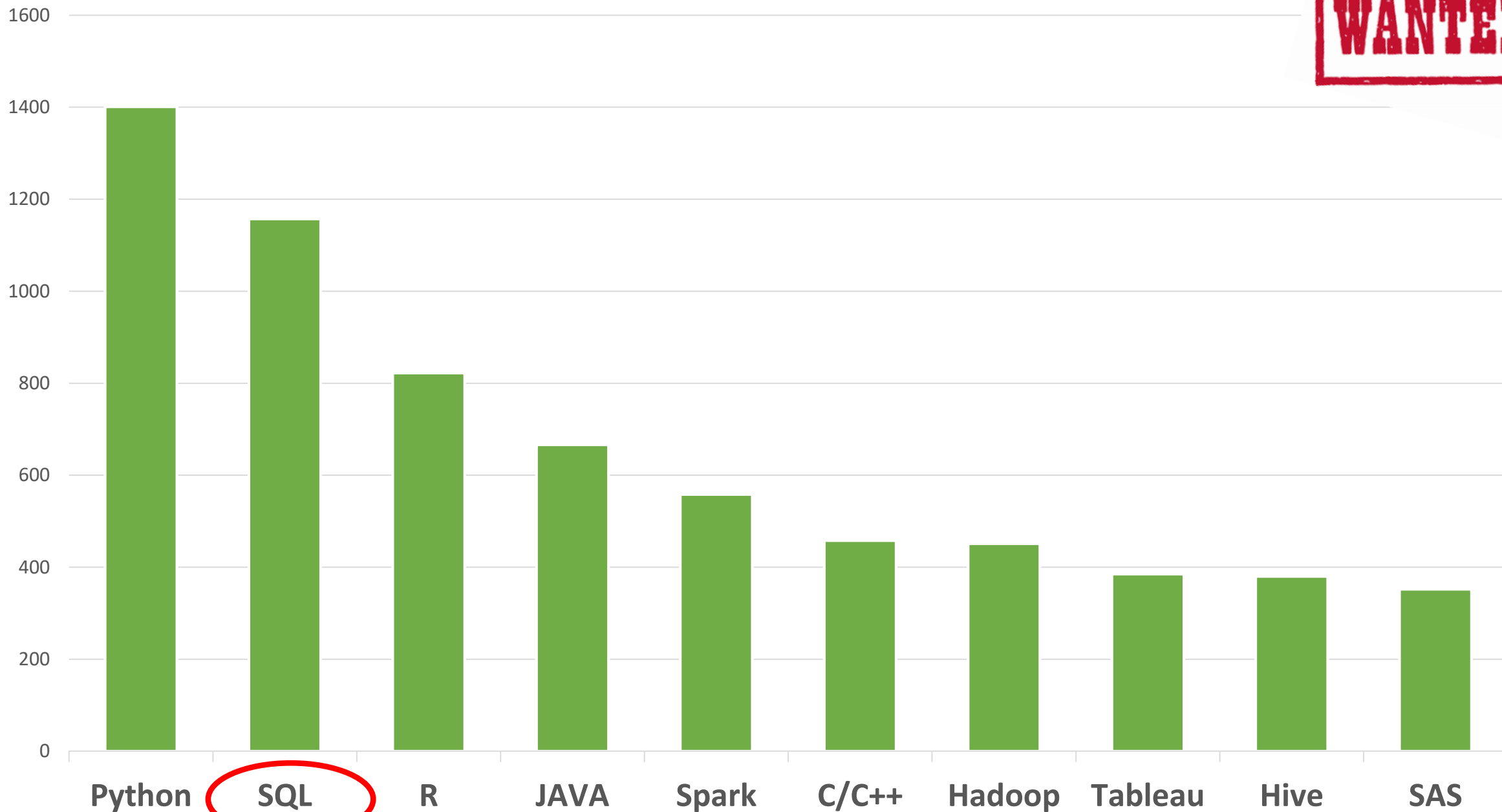
Dr. Villanes

# Introduction



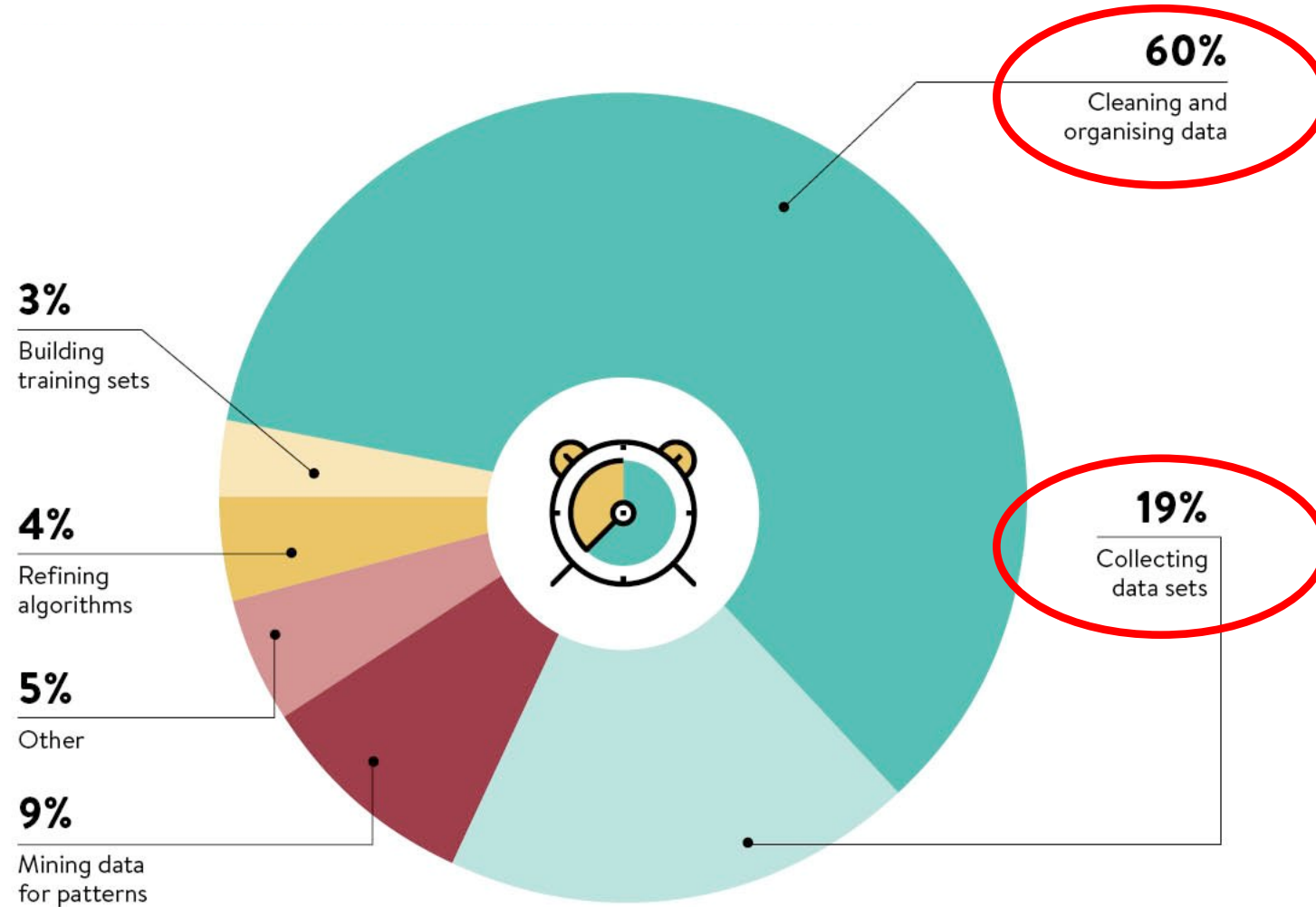
2,583 jobs

related to data science





# What data scientists spend the most time doing



Source: CrowdFlower 2016

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



SQL



uses SQL-like syntax!

# What is SQL?

- *Structured Query Language* (SQL) is a **standardized** 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.

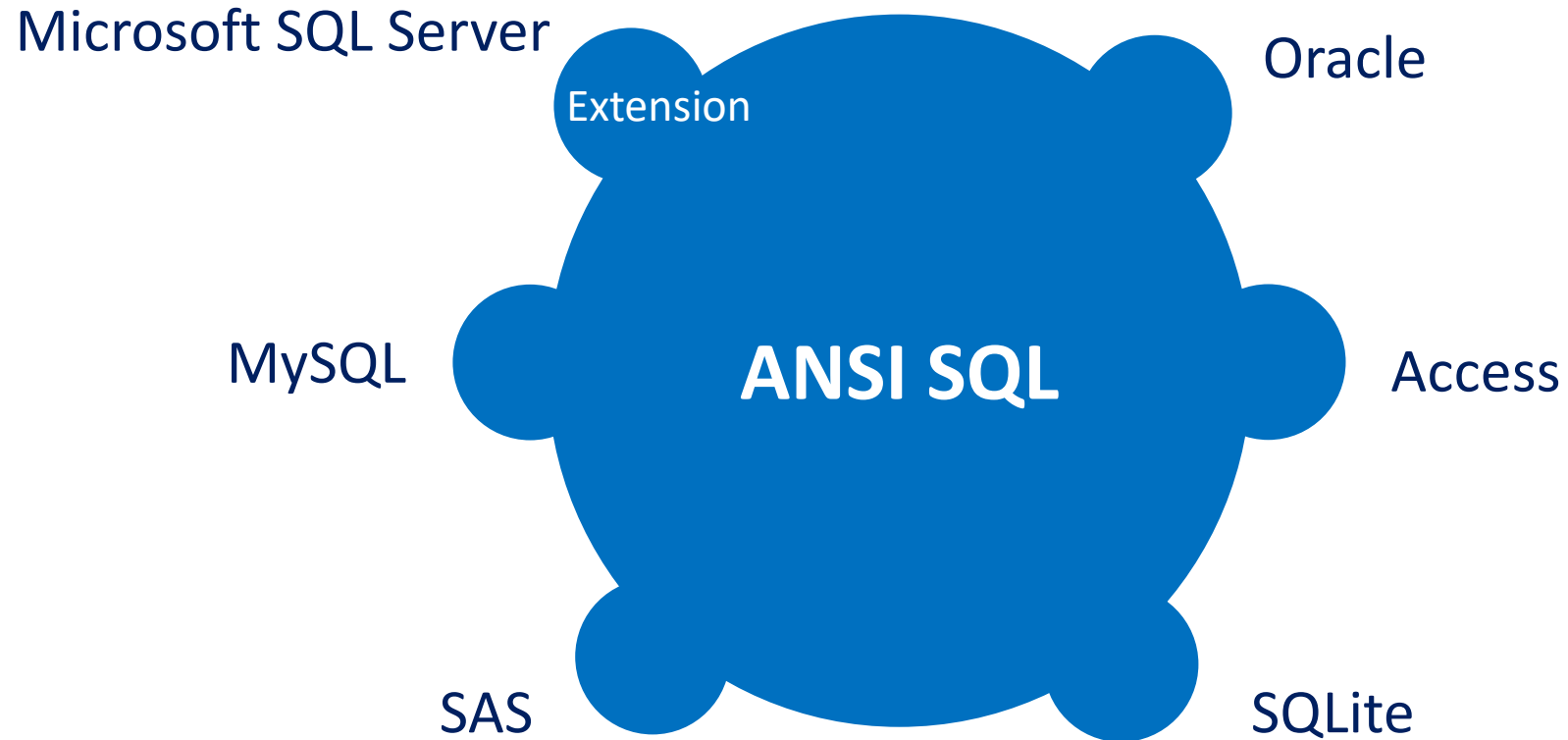




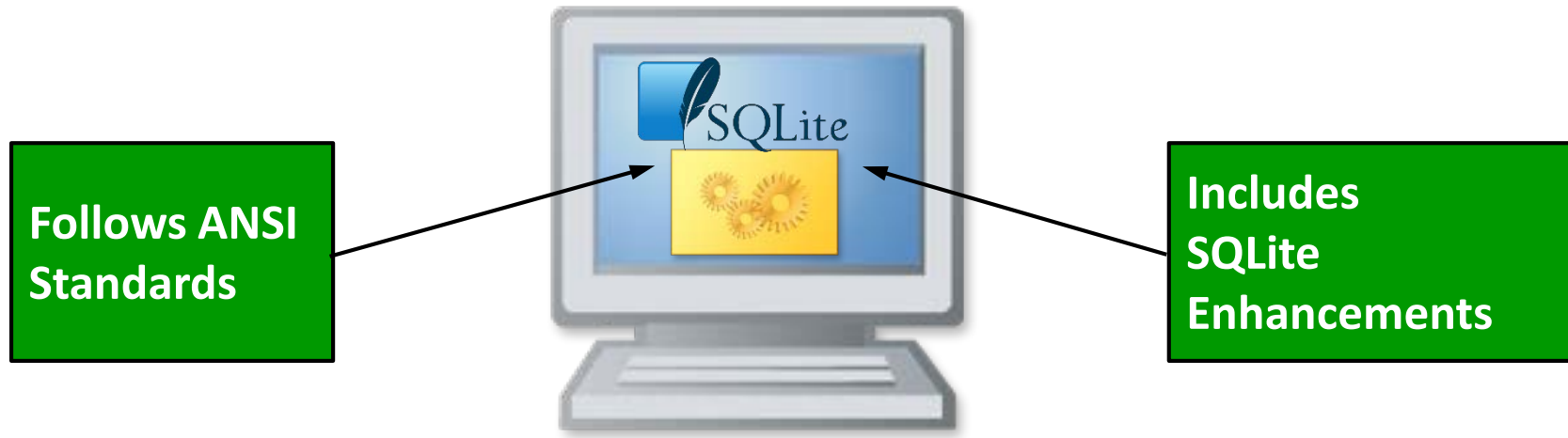
# How is SQL currently being used in **many** software products?

- 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...



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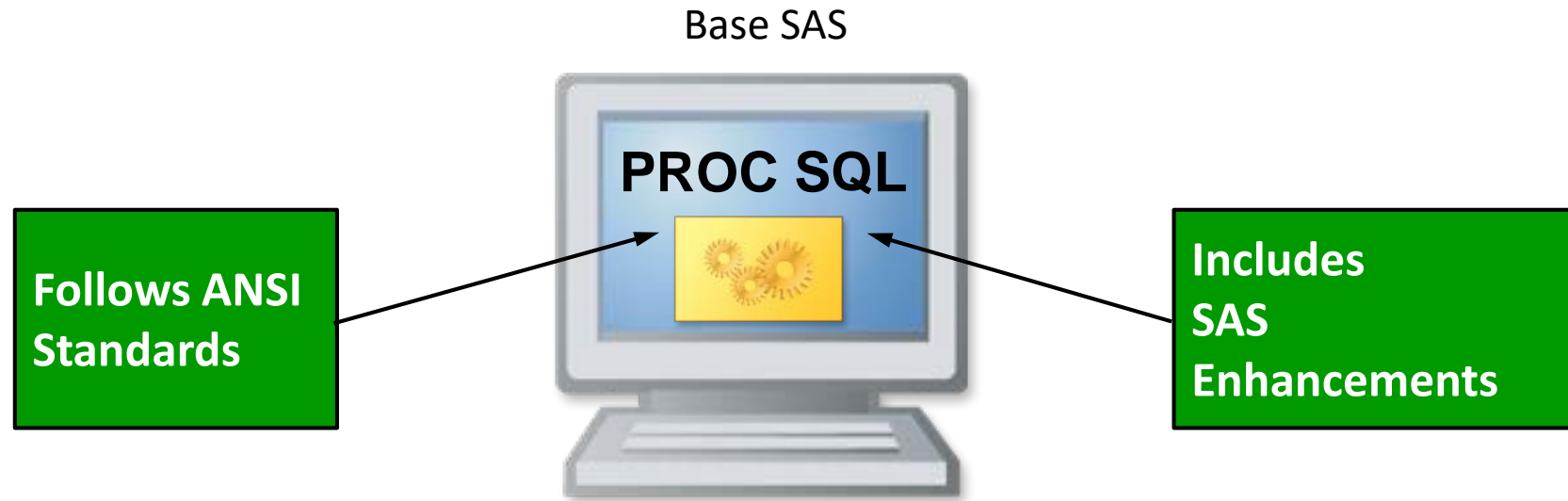
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## SQL As Understood By SQLite

SQLite understands most of the standard SQL language. But it does omit some features while at the same time adding a few features of its own. This document attempts to describe precisely what parts of the SQL language SQLite does and does not support. A list of [SQL keywords](#) is also provided. The SQL language syntax is described by [syntax diagrams](#).

<https://www.sqlite.org/lang.html>

# What about SAS?



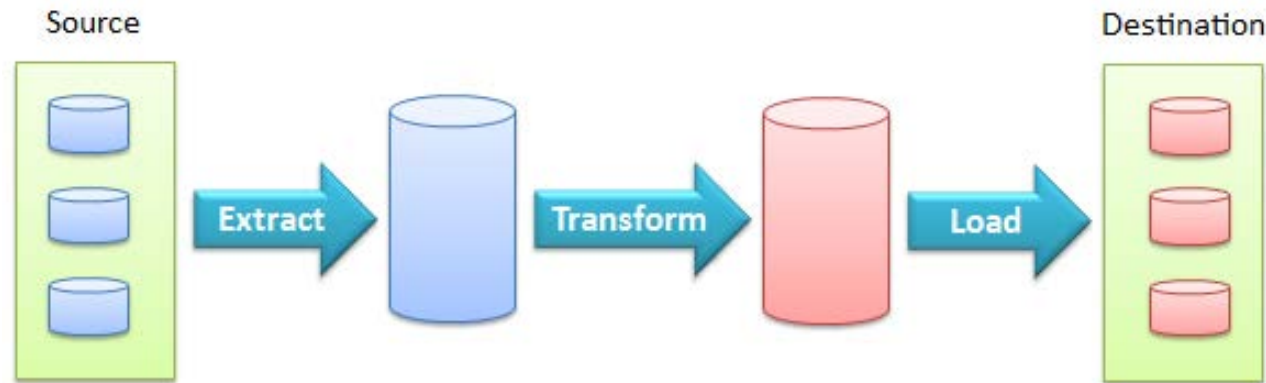
**PROC SQL and the ANSI Standard:**

<http://support.sas.com/documentation/cdl/en/sqlproc/63043/HTML/default/viewer.htm#p0corah7t43hy7n1r7efplde5c8z.htm>

Where is SQL mostly used?

# ETL: extract, transform, and load

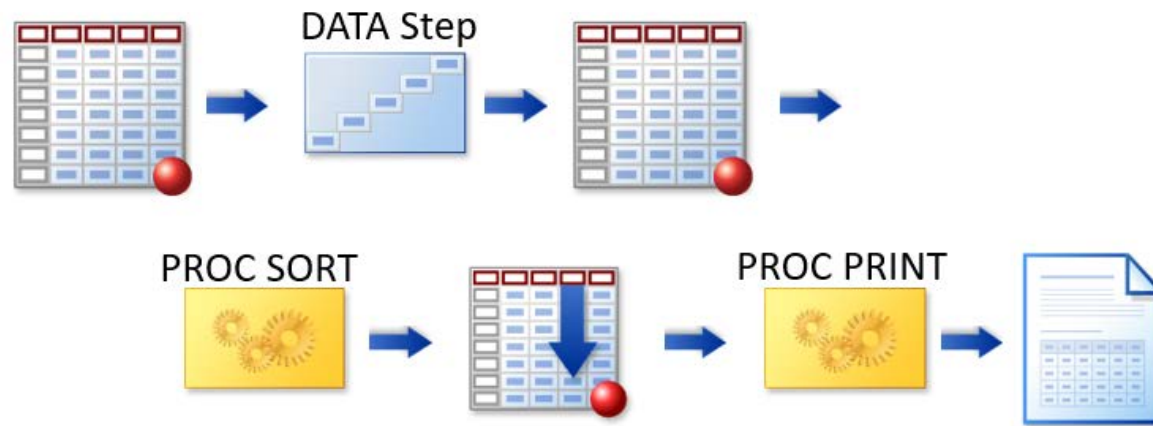
**Challenge:** Data resides in multiple locations and in many formats.



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!