Background to Structured Query Language (SQL): The language of relational databases

SQL has a long history, it is one of the oldest, longest lasting and most widely used of all computer languages. Developed by IBM in the 1970s and founded on complex mathematical and algebra SQL captures the key facets of Edgar Codd's original "database rules".

SQL is not a single unified language, rather is it a set of language standards (with names like ISOSQL1988 or ISOSQL2003). Each language standard defines a different set of SQL Key-words. Different commercial database products use different standards, and all have their own special additions and variations from the core of SQL.

> **SQL is one of the world's most widely used computer languages. There are vast quantities of information about SQL including on-line tutorials, help-guides etc. available on the internet. Wikipedia alone has hundreds of pages dedicated to SQL, starting from:**
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> **https://en.wikipedia.org/wiki/SQL including pages dedicated to individual keywords, how to write SQL and how to structure and design SQL databases.**

The Orixa Back-end database: ElevateDB

Orixa uses Elevate Software's database. Details of this database and its features can also be found in detail on-line.

http://www.elevatesoft.com/products?category=edb.

ElevateDB is a well-featured database. It has been chosen as the backend for Orixa for the following reasons:

- It implements a full-featured ISOSQL2003 language definition, making it one of the most fully-featured truly relational databases.

- It is sold with source-code, meaning that Orixa developers have access to the Source Code of the database engine. This means that even if ElevateDB was to stop operating as a company it would still be possible to use their product. It also means that a diverse range of programmers and can contribute to its development.

- It is Commercial (sold for money) and a commercial company manages and develops the product, selling a licence to Orixa Systems Ltd. We think this model ensures that the products development will continue.

- It is free for distribution. This means when an Orixa system is installed Elevate Software make no charge to users of their database. This helps to keep the cost of licensing systems to large numbers of users low.

ElevateDB as well as having a full set of core SQL capabilities has several key features which really mark it out as a powerful and special product including:

- Replication, the ability to have multiple instances of a database in different locations and synchronize / merge data between them periodically.

- Extremely fast performance

- Very simple installation process

- A fully featured Open Database Communications implementation ("ODBC") allowing users to import and export data between Orixa and other software easily.

- A powerful, easy to use server executable which allows an Orixa system to include regular jobs and procedures that run automatically.

> **In this primer we will only dip into the surface of the language to review SQL language elements which can be used to retrieve data from a database. These simple language elements are mostly the same across all databases, so learning these elements of SQL are very valuable for work with any SQL compliant database. Once you have read this document you should be able to go forward yourself and develop skills in writing SQL queries. As a logical language everything in SQL is built on these basic foundations.**