

## Relational Databases

Throughout the course, the students will implement a full database application with safe and efficient methods, based on the concepts learned. Additionally, where necessary, pointers to the NoSQL/non-relational database sessions with MongoDB and Hadoop are given. Basic understanding of Linux and programming (at least C or Python) is required for this session.

The agenda is as follows:

Part 1: The basics

Database management systems - What/How/Why

The relational data model - Modeling languages

Structured Query Language (SQL) - The basics

Part 2: Safe use of databases

ACID - Making sure your data stays safe

Transactions, race conditions, deadlocks

SQL Injection - Malicious user requests

Part 3: Efficient use of databases

Query plans

Indexing

Partitioning

Part 4: Finishing up

Application development with a database backend

Questions/Answers

**Presenter:** LASSNIG (CERN), Mario

**Track Classification:** Big Data and Storage Systems