**Planning**

**Course Materials:**

* Basic Security
  + Managing Access
  + Understanding Views
* ACID Transactions
  + ACID Properties
  + Transactions & Atomicity
  + Logging and Recovery

**Sprint 3 goals:**

* control user access to database elements with appropriately chosen GRANT and REVOKE SQL authorisation controls.
* create views to control user access, knowing the effect of INSERT, UPDATE, or DELETE queries on those views.
* differentiate the four ACID properties of a database management system (DBMS)
* batch SQL queries into transactions to achieve an appropriate level of atomicity.
* describe the problems that logging is meant to solve and identify problems that are not addressed with logs.

**How to measure at the end of the sprint:**

* control user access to database elements.
* create views to control user access.
* differentiate the four ACID properties of a database management system.
* batch SQL queries into transactions to achieve an appropriate level of atomicity.
* write down how to batch queries into transactions to guarantee ACID behaviour.
* Write down what to do when a disk fails.

**Course Level Competency**

* Data Analytics
  + level 1: all (evaluated by SQL codes and database output)
  + level 2:
    - Prefers embedding complex logic into RDBMS over handling it in application-layer code.
* Data Modelling
  + level 1:
  + level 2:
* Back-end Engineering
  + level1: Creates conditions to ensure relational databases exhibit ACID behaviour.
    - Creates transactions to batch queries into atomic units.
    - Understands the consistency principle to ensure a database never enters an inconsistent state.
    - Identifies whether a transaction execution schedule is non-serializable and the implications thereof.
    - Can manually restore a database from a log file to ensure durability.