**Planning**

**Course Materials:**

* ACID Transactions
  + Logging and Recovery
  + Concurrency & Isolation Levels
* Advanced Conceptual Design
  + Inheritance & weak entity sets.
  + Design Quality
* Advanced Relational Design
  + Minimal Bases & Projecting FD's
  + Third Normal Form (3NF)

**Sprint 3 goals:**

* perform a basic restoration of a database from a log file to demonstrate understanding of how ACID properties are maintained in the presence of external failures.
* select an appropriate isolation level for transaction to maximise concurrency without compromising correctness.
* simplify conceptual designs using entity sets that are defined in terms of other entity sets.
* improve the quality of a conceptual schema and objectively argue for the merit of your improvements.
* calculate the set of FDs for a sub-relation, for future broader decomposition task.
* decompose a relation into 3NF after identifying conditions that make 3NF an appropriate alternative.

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

* perform a basic restoration of a database from a log file.
* select an appropriate isolation level for transaction.
* simplify conceptual designs.
* improve the quality of a conceptual schema and objectively argue.
* Show how to calculate the set of FDs for a sub-relation.
* decompose a relation into 3NF.

**Course Level Competency**

* Data Analytics
  + level 1: all (evaluated by SQL codes and database output)
  + level 2:
* 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.