**Final project for the course of Database Systems [DT0347]**  
**a.a. 2024/2025**  
Student full name – Student number

This template will serve as the main structure for your final project. Feel free to add more sections, but be sure to keep the ones already here, as they set the essential content that is required from you.

This is a design document, whose purpose is to document your design process, not just the implementation of your database. Whenever applicable, include and argument your design decisions. Be concise and specific.

## Requirements analysis

Transform the high-level requirements that were provided to you in a numbered bullet points list. Also provide a numbering for the use cases. This will help you refer to requirements and use cases throughout the document.

For example, requirements could be numbered like R1, R2, … and use cases like U1, U2, …

If something is ambiguous or underspecified in the requirements specification you received, this is the place to solve such ambiguity.

R1 - The database will include information about products, categories, customers, orders, and reviews.

R2 - For each product, the database will include (at least) its name, description, price, stock quantity, category, manufacturer, and average rating

R3 - Orders must include customer details, order date, delivery date, order status, and total cost.

R4 - Reviews must include customer details, product details, rating, and review text.

U1 – Given their own email and the name of a product, customers can add products to their wishlist.

U2 – Customers can search for products by category and price range.

U3 – Admins can generate a report of all orders within a species date range.

U4 – Customers can view their order history.

U5 – Given a list of product names, admins can update stock quantities for products.

U6 – Admins can generate a report of all orders from the last year.

## Conceptual design

Design an Entity-Relationship Diagram using Chen’s notation (Chapter 3). Additionally, provide a list of the entity types and relationship types you identified, along with the requirement(s) or use case(s) that led you to those design decisions.

For example:

Entity types:

* Film [R1]
* Actor [R2, U1]

Relationship types:

* Film (N) <-> Actor (N) [R3]

## Logical design

Map the ER Diagram into a relational model by following the procedure presented in Chapter 9. For each step, write how you applied it and to which elements. Identify primary keys, foreign keys, and attributes’ data domains. Provide the final relational model.

## SQL schema implementation

Create a SQL schema from the relational model, as it is shown in Chapter 6. The SQL schema must be compliant with MySQL. Also provide the schema as a separate text file during your submission.

## Use cases implementation

Implement the use cases in SQL (MySQL compliant). For each use case, write the SQL statement(s) that implements it. Also provide the SQL statements in a separate text file during your submission.

These use cases have the additional purpose of validating your design. If, at this point, you understand that any of these use cases cannot be realized given your current database, go back to the earlier design phases to change it accordingly.