

# LAB 1 Work : ER-Diagram!

## Introduction

At first, I studied the task and identified the main entities: Airport, Airline, Flight, Passenger, Booking, Boarding Pass, Baggage, Baggage Check, and Security Check. After that, I listed the attributes for each entity, including primary keys, foreign keys, and unique fields.

Then I analyzed how entities are connected. For instance, one airline can operate multiple flights, and each flight is connected to departure and arrival airports. I also noticed that one passenger can have several bookings, which is a one-to-many relation. To avoid many-to-many problems, I used the Booking table.

After that, I normalized the structure to the third normal form (3NF). I checked that all attributes are atomic (1NF), that all non-key attributes depend on the full primary key (2NF), and that there are no transitive dependencies (3NF).

Finally, I created the ER diagram, added attributes to entities, and drew connections with correct cardinalities. After completing the diagram, I wrote a short description of the entities and exported everything to PDF.

## Entities and Attributes

**Airport:** airport\_id (PK), airport\_name, country, city, created\_at, updated\_at

**Flight:** flight\_id (PK), airline\_id (FK), dep\_airport\_id (FK), arr\_airport\_id (FK), dep\_time, arr\_time, scheduled\_dep\_time, scheduled\_arr\_time, created\_at, updated\_at

**Airline:** airline\_id (PK), airline\_name, country, created\_at, updated\_at

**Passenger:** passenger\_id (PK), first\_name, last\_name, gender, date\_of\_birth, citizenship, residence, passport\_number, created\_at, updated\_at

**Booking:** booking\_id (PK), flight\_id (FK), passenger\_id (FK), status, seat, created\_at, updated\_at

**BoardingPass:** pass\_id (PK), booking\_id (FK), seat, boarding\_time, gate, created\_at, updated\_at

**BookingChange:** change\_id (PK), booking\_id (FK), details, created\_at, updated\_at

**Baggage:** baggage\_id (PK), booking\_id (FK), weight, created\_at, updated\_at

**BaggageCheck:** check\_id (PK), baggage\_id (FK), result, created\_at, updated\_at

**SecurityCheck:** check\_id (PK), passenger\_id (FK), result, created\_at, updated\_at