

# Laboratory Work 1

## 1. Entities and Attributes

### Airport

- airport\_id (PK)
- airport\_name
- country
- state
- city
- created\_at
- updated\_at

### Airline

- airline\_id (PK)
- airline\_code
- name
- country
- created\_at
- updated\_at

### Flight

- flight\_id (PK)
- airline\_id (FK → Airline)
- departure\_airport\_id (FK → Airport)
- arrival\_airport\_id (FK → Airport)
- departure\_gate
- arrival\_gate
- scheduled\_departure
- scheduled\_arrival
- actual\_departure
- actual\_arrival
- created\_at
- updated\_at

### Passenger

- passenger\_id (PK)
- first\_name
- last\_name
- gender
- date\_of\_birth
- citizenship\_country
- residence\_country
- passport\_number
- created\_at
- updated\_at

### **Booking**

- booking\_id (PK)
- flight\_id (FK → Flight)
- passenger\_id (FK → Passenger)
- status
- booking\_platform
- ticket\_price
- created\_at
- updated\_at

### **Boarding\_Pass**

- boarding\_pass\_id (PK)
- booking\_id (FK → Booking)
- seat
- boarding\_time
- created\_at
- updated\_at

### **Baggage**

- baggage\_id (PK)
- booking\_id (FK → Booking)
- weight\_kg
- created\_at
- updated\_at

### **Baggage\_Checking**

- baggage\_check\_id (PK)

- baggage\_id (FK → Baggage)
- booking\_id (FK → Booking)
- passenger\_id (FK → Passenger)
- check\_results
- checked\_at
- created\_at
- updated\_at

### Security\_Check

- security\_check\_id (PK)
- passenger\_id (FK → Passenger)
- check\_results
- created\_at
- updated\_at

## 2. Relationships

- Airline — Flight → **1 : M**
- Airport — Flight → **1 : M**
- Flight — Booking → **1 : M**
- Passenger — Booking → **1 : M**
- Booking — Boarding\_Pass → **1 : 1**
- Booking — Baggage → **1 : M**
- Baggage — Baggage\_Checking → **1 : M**
- Passenger — Security\_Check → **1 : M**
- Booking — Booking\_Change → **1 : M**

## 3. Normalization

- All tables are normalized up to **Third Normal Form (3NF)**.
- Each entity has its own **primary key (PK)**.
- All non-key attributes depend only on the PK of their table.
- Transitive dependencies and data duplication are eliminated, ensuring data integrity.

