Mob database design

I call this exercise that we are doing mob database design, but the principle mostly comes from mob programming. So mob programming is: "software development approach where the whole team works on the same thing, at the same time, in the same space, and on the same computer" (agile alliance).

The idea behind this mob design are

- knowledge sharing
- getting the whole team to agree on the design
- reduce unneccassary lead time that arises from questions back and forth between different people in the team
- enhance collaboration

Roles

We will do role playing in this session with the following roles

Role	Responsibility
Driver *(Typist)*	implements according to team instructions
Navigator *(leader)*	guides discussions, instructs the Driver, makes strategic design decisions, and suggests improvements
Observer *(QA)*	monitors progress, ensures quality standards (normalization, naming conventions), identifies potential issues
Businessman *(Stakeholder)*	always take the business perspective, make sure the design aligns with the business, also timekeeper

Even though we have the roles, everyone on the team can contribute with ideas, except the Driver which sole purpose is to implement and write down what the Navigator says. After each 15 min, switch roles.

Tasks

0. Album

An album store has this long table in excel.

Album	Artist	Artist Country	Label	Length	Format	Price	Certified Sales	RIAA Certification	RIAA Cert. ID
Thriller	Michael Jackson	USA	Epic Records	42:19	Vinyl	25.99	34M	Diamond	123456789
Back in Black	AC/DC	Australia	Atlantic Records	42:11	CD	19.99	25M	Diamond	987654321
The Dark Side of the Moon	Pink Floyd	UK	Harvest Records	43:00	Vinyl	22.99	20M	Diamond	567890123
Abbey Road	The Beatles	UK	Apple Records	47:03	Vinyl	24.99	12M	Multi-Platinum	234567890
1989	Taylor Swift	USA	Big Machine	48:41	Digital	14.99	10M	Diamond	876543210

a) Find out problems with this table b) Normalize this table into 3NF

1. Room booking

A university wants to keep track of **room bookings** for events. The initial unnormalized data is stored in a single table:

BookingID	RoomNumber	RoomCapacity	EventName	EventDate	StartTime	EndTime	OrganizerName	OrganizerPhone	Attendees (Comma-Separated)
1	A101	50	AI Workshop	2025-04-10	10:00	12:00	Alice Smith	123-456-7890	Bob, Charlie, David
2	B202	100	Data Science	2025-04-11	14:00	16:00	John Doe	987-654-3210	Eva, Frank, George, Helen
3	A101	50	AI Workshop	2025-04-10	10:00	12:00	Alice Smith	123-456-7890	Charlie, David

Normalize this table into 3NF

For the tasks below you should create

- conceptual model
- logical model
- physical model
- implementation in postgres

Think about possible attributes that each entity needs.

2. Student and teachers

The business requirement for this school are:

- students that can be enrolled in courses in a school
- a course can have up to 3 teachers
- more business requirements up for you to decide

3. Library

A library system have members, a way to borrow books. There are several libraries that have books in their inventory. Also keep track of authors for the books. Libraries can also be in different "stadsdelar" (in Swedish).