



### Lab Session 3

#### Objective of the Lab:

In this lab session, students will apply the concepts introduced in the lecture concerning:

- **Referential integrity**
- **Database manipulation queries** (retrieval, update, insertion, deletion)

#### Project

Given the following relational database schema:

**CINEMA**(*idCinema*, *nameCinema*, *addressCinema*, *openHour*, *closeHour*)

**FILM**(*idFilm*, *titleFilm*, *durationFilm*)

**PROJECTION**(*#idFilm*, *#idCinema*, *time*)

*#idFilm* and *#idCinema* are foreign keys referencing **FILM(idFilm)** and **CINEMA(idCinema)** respectively.

#### Queries to Formulate

1. The **CINEMA** table
2. The cinemas that are **open at 21:00**
3. The **names** of the cinemas that are open at 21:00
4. The **addresses** of the cinemas
5. The **titles** of the films
6. The **titles of the films** whose duration is **less than 60 minutes**
7. The **identifiers of the films** projected in **cinema 3**
8. The **projection time** of **film 4** in **cinema 3**
9. The **cinema** showing the film **"Jaws"**

#### Tasks to Complete:

Students are required to:

1. **Formulate** the relational algebra expressions for each query on paper.
2. **Create** a new **Access database** named Project\_Cinema.
3. **Create** the tables of the relational schema, configuring **primary and foreign keys**.
4. **Populate** the two tables with **10 rows** of sample data while respecting **referential integrity**.
5. **Create queries in Access** for each of the above data retrieval tasks using the **Query Wizard**.
6. **Compare** the generated **SQL code** with the corresponding **relational algebra formula**.
7. **Submit** the sheet containing the algebraic queries and the database file at the end of the lab session.