

CE 223 - DATABASE SYSTEMS

WEEK #9 RECITATION QUESTIONS

- 7.1.1
- 7.5.2

7.1.1

Exercise 7.1.1: Our running example movie database of Section 2.2.8 has keys defined for all its relations.

```
Movies(title, year, length, genre, studioName, producerC#)
StarsIn(movieTitle, movieYear, starName)
MovieStar(name, address, gender, birthdate)
MovieExec(name, address, cert#, netWorth)
Studio(name, address, presC#)
```

Declare the following referential integrity constraints for the movie database as in Exercise 7.1.1.

- The producer of a movie must be someone mentioned in **MovieExec**. Modifications to **MovieExec** that violate this constraint are rejected.
- Repeat (a), but violations result in the **producerC#** in **Movie** being set to **NULL**.
- Repeat (a), but violations result in the deletion or update of the offending **Movie** tuple.
- A movie that appears in **StarsIn** must also appear in **Movie**. Handle violations by rejecting the modification.
- A star appearing in **StarsIn** must also appear in **MovieStar**. Handle violations by deleting violating tuples.

7.5.2

Exercise 7.5.2: Write the following as triggers. In each case, disallow or undo the modification if it does not satisfy the stated constraint. The database schema is from the “PC” example of Exercise 2.4.1:

```
Product(maker, model, type)
PC(model, speed, ram, hd, price)
Laptop(model, speed, ram, hd, screen, price)
Printer(model, color, type, price)
```

- a) When updating the price of a PC, check that there is no lower priced PC with the same speed.
- b) When inserting a new printer, check that the model number exists in **Product**.
- ! c) When making any modification to the **Laptop** relation, check that the average price of laptops for each manufacturer is at least \$1500.
- ! d) When updating the RAM or hard disk of any PC, check that the updated PC has at least 100 times as much hard disk as RAM.
- ! e) When inserting a new PC, laptop, or printer, make sure that the model number did not previously appear in any of **PC**, **Laptop**, or **Printer**.