CMPT 321
FALL 2017

Constraints

Review and exercises

Running example: movies

Movie (title: string, year: int, length: int, inColor: int, studio: string, prodID: int)

MovieStar (name: string, address: string, gender: char, birthdate: date)

StarsIn (title: string, year: int, star: string)

MovieExec (name: string, address: string, certID: int, netWorth: int)

Studio (name: string, address: string, presCertID: int)

Primary keys

Movie (title: string, year: int, length: int, color: int, studio: string, prodID: int)

MovieStar (name: string, address: string, gender: char, birthdate: date)

StarsIn (title: string, year: int, star: string)

MovieExec (name: string, address: string, certID: int, netWorth: int)

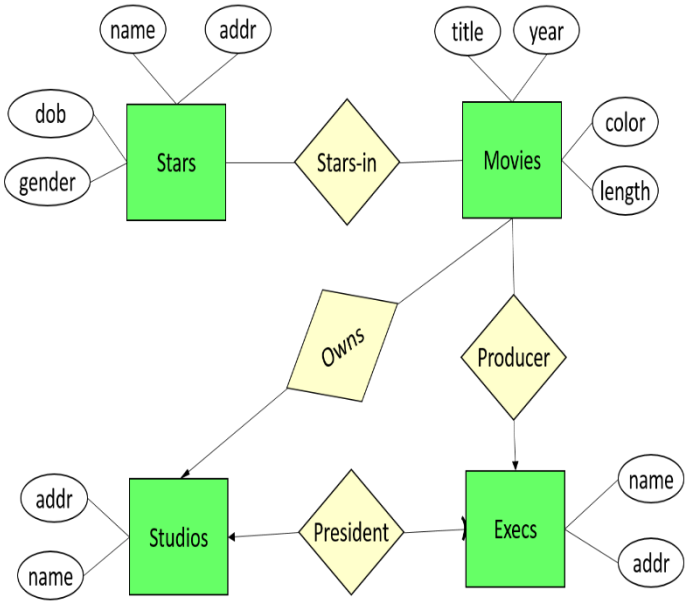
Studio (name: string, address: string, presCertID: int)

1. Foreign keys for table StarsIn

Movie (<u>title</u>, <u>year</u>, length, color, studio, prodID)

MovieStar (<u>name</u>, address, gender, birthdate)

StarsIn (<u>title</u>, <u>year</u>, <u>star</u>)




```
ALTER TABLE StarsIn
  ADD CONSTRAINT fk_stars
  FOREIGN KEY (star)
  REFERENCES MovieStar(name);
```

```
ALTER TABLE StarsIn
  ADD CONSTRAINT fk_movie
  FOREIGN KEY (title, year)
  REFERENCES Movie(title,year);
```

2. Specify the handling of deletes in parent tables in such a way that the tuples in StarsIn will also be deleted. The updates of keys in parent tables should be rejected by the system.

```
ALTER TABLE StarsIn
   DROP CONSTRAINT fk_stars;


ALTER TABLE StarsIn
   ADD CONSTRAINT fk_stars
   FOREIGN KEY (star)
   REFERENCES MovieStar(name)
       ON DELETE CASCADE
       [ON UPDATE RESTRICT]
;
```

3. Specify foreign key constraint(s) for table Movie. Certificate number of a movie producer cannot be updated if it has an entry in table Movie, however if a producer is deleted from MovieExec, its corresponding entry in Movie should be set to null.

Movie (title: string, year: int, length: int, color: int, studio: string, prodID: int)

MovieExec (name: string, address: string, certID: int, netWorth: int)

```
ALTER TABLE Movie
  ADD CONSTRAINT fk_prod
  FOREIGN KEY (prodID)
  REFERENCES MovieExec(certID)
      ON DELETE SET NULL;
```

4. The studio name can only be Disney, Fox, MGM, or Paramount.

Studio (name: string, address: string, presCertID: int)

```
ALTER TABLE Studio
  ADD CONSTRAINT ck_studio
  CHECK studio IN ('Disney', 'Fox', 'MGM', 'Paramount');
```

5. The black-and-white movies should not be more than 90 minutes in length.

Movie (title: string, year: int, length: int, color: int, studio: string, prodID: int)

```
ALTER TABLE Movie
   ADD CONSTRAINT ck_black_white
   CHECK color = ‘yes’ OR length < 90 ;
```

Logical equivalence: p→q same as not p or q

p	q	p→q
T	T	T
T	F	F
F	T	T
F	F	T

p	!p	q	!p or q
T	F	T	T
T	F	F	F
F	T	T	T
F	T	F	T

Logical equivalence: p→q same as not p or q

Color =no	Length<90	p→q
T	T	T
T	F	F
F	T	T
F	F	T

Color =yes	Length<90	!p or q
F	T	T
F	F	F
T	T	T
T	F	T