

Exercices

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Schema

Schema

Room (Name, Time, MovieTitle)
Movie (MovieTitle, Director, Actor)
Procucer (ProducerName, MovieTitle)
Seen (Spectator, MovieTitle)
Like (Spectator, MovieTitle)

Exercise 1

1. Where and when can we see the movie "Mad Max..."?

```
solution = DROP(FILTER(Room, MovieTitle = "Mad Max"), MovieTitle)
```

2. What are the movies directed by Welles?

```
solution = DROP(FILTER(Movie, Director = "Welles"), [Director, Actor])
```

3. Who are the actors of "Ran"?

```
solution = DROP(FILTER(Movie, MovieTitle = "Ran"), [MovieTitle, Director])
```

4. Where can we see a movie in which Signoret plays?

```
solution = DROP(FILTER(JOIN(Room, Movie, Room.MovieTitle =  
Movie.MovieTitle), Actor = "Signoret"), [Time, MovieTitle, Director, Actor])
```

5. Among the actors who produced at least one movie?

```
solution = DROP(JOIN(Movie, Producer, Movie.Actor = Producer.ProducerName),  
[MovieTitle, Director, Actor])
```

6. Among the actors who directed a movie that they played in?

```
solution = DROP(FILTER(Movie, Director = Actor), [MovieTitle, Director])
```

7. Who plays in one (or more) movie from Varda?

```
solution = DROP(FILTER(Movie, Director = "Varda"), [MovieTitle, Director])
```

Exercise 2

1. Who are the actors playing in all the films from Chloé Zhao?

```
moviesZhao = DROP(FILTER(Movie, Director = "Chloé Zhao"), [Director, Actor])
actors = DROP(Movie, [MovieTitle, Director])
pairs = PRODUCT(moviesZhao, actors)
missing = DIFFERENCE(pairs, Movie)
solution = DIFFERENCE(actors, missing)
```

2. Who produces all the movies from Kurosawa?

```
moviesKurosawa = DROP(FILTER(Movie, Director = "Kurosawa"), [Director,
Actor])
producers = DROP(Producer, MovieTitle)
pairs = PRODUCT(moviesKurosawa, producers)
missing = DIFFERENCE(pairs, Producer)
solution = DIFFERENCE(Producer, missing)
```

3. Who are the spectators watching all the movies?

```
movieTitles = DROP(Movie, [Director, Actor])
spectators = DROP(Seen, MovieTitle)
pairs = PRODUCT(spectators, movieTitles)
missing = DIFFERENCE(pairs, Seen)
solution = DIFFERENCE(Seen, missing)
```

4. Among the spectators, who likes all the movies they see?

```
movieTitles = DROP(Movie, [Director, Actor])
likers = DROP(Like, MovieTitle)
pairs = PRODUCT(likers, movieTitles)
```

```
missing = DIFFERENCE(pairs, Like)
solution = DIFFERENCE(Like, missing)
```

5. Where can we see Adèle Haenel after 16:00?

```
movieTitles = DROP(Movie, [Director, Actor])
moviesAdele = DROP(FILTER(Movie, Actor = "Adèle Haenel"), [Director, Actor])
roomsAfter16 = DROP(FILTER(Room, Time > 16), Time)
solution = DROP(JOIN(moviesAdele, roomsAfter16, moviesAdele.MovieTitle =
roomsAfter16.MovieTitle), MovieTitle)
```

6. What are the movies with no room projecting them?

```
movieTitles = DROP(Movie, [Director, Actor])
rooms = DROP(Room, [Time, MovieTitle])
pairs = PRODUCT(movieTitles, rooms)
missing = DIFFERENCE(pairs, Room)
solution = DROP(missing, Name)
```

Exercise 3

1. Among the producers, who produces a movies shown nowhere?

```
movieTitles = DROP(Movie, [Director, Actor])
rooms = DROP(Room, [Time, MovieTitle])
pairs = PRODUCT(movieTitles, rooms)
missing = DIFFERENCE(pairs, Room)
movieNoRoom = DROP(missing, Name)
solution = DROP(JOIN(movieNoRoom, Producer, movieNoRoom.MovieTitle =
Producer.MovieTitle), ProducerName)
```

2. Among the producers, who saw all the movies they directed?

```
producers = DROP(Producer, MovieTitle)
spectators = DROP(Seen, MovieTitle)
pairs = PRODUCT(producers, spectators)
prodSpec = JOIN(Producer, Seen, Producer.MovieTitle = Seen.MovieTitle)
missing = DIFFERENCE(pairs, prodSpec)
solution = DROP(DIFFERENCE(pairs, missing), MovieTitle)
```

3. Among the spectators, who saw all the movies from Kurosawa?

```
moviesKurosawa = DROP(FILTER(Movie, Director = "Kurosawa"), [Director,  
Actor])  
spectators = DROP(Seen, MovieTitle)  
pairs = PRODUCT(spectators, moviesKurosawa)  
missing = DIFFERENCE(pairs, Seen)  
solution = DIFFERENCE(Seen, missing)
```

4. Among the spectators, who liked a movie they did not watch?

```
seenLike = JOIN(Seen, Like, Seen.Spectator = Like.Spectator)  
solution = DROP(DIFFERENCE(Like, seenLike), MovieTitle)
```

5. Among the spectators, who liked 0 movies?

```
seenLike = JOIN(Seen, Like, Seen.Spectator = Like.Spectator)  
solution = DROP(DIFFERENCE(Seen, seenLike), MovieTitle)
```