

# Exercício 5

```
{
  "MovieID": "tt10872600",
  "Title": "Spider-Man: No Way Home",
  "Year": "2021",
  "": [
    { "GenreID": "3", "Name": "Action" },
    { "GenreID": "5", "Name": "Adventure" },
    { "GenreID": "8", "Name": "Fantasy" }
  ],
  "": [
    { "ActorID": "2", "Name": "Tom Holland", "Role": "Spider-Man" },
    { "ActorID": "5", "Name": "Zendaya", "Role": "M.J." },
    { "ActorID": "7", "Name": "Benedict Cumberbatch", "Role": "Doctor Strange" },
  ],
  "Plot": "With Spider-Man's identity now revealed, Peter asks Doctor Strange for help. When a spell goes wrong ...",
  "ProducerID": "7",
  "ProducerName": "Walt Disney Pictures"
}
```

- 1) Represente o esquema subjacente a essa instância na forma de uma tabela não normalizada.
- 2) Lista as dependências funcionais na tabela da questão (1).
- 3) Em qual forma normal a tabela da questão (1) se encontra?
- 4) Caso a tabela da questão (1) não se encontre na 3FN, normalize-a descrevendo os esquemas resultantes de cada uma das formas normais até a 3FN. Não se esqueça de descrever as chaves primárias e chaves estrangeiras presentes em cada passo.
- 5) Produza o esquema ER correspondente ao esquema relacional normalizado produzido na questão (4).

# 1) Esquema não-normalizado

```
{
  "MovieID": "tt10872600",
  "Title": "Spider-Man: No Way Home",
  "Year": "2021",
  "": [
    { "GenreID": "3", "Name": "Action" },
    { "GenreID": "5", "Name": "Adventure" },
    { "GenreID": "8", "Name": "Fantasy" }
  ],
  "": [
    { "ActorID": "2", "Name": "Tom Holland", "Role": "Spider-Man" },
    { "ActorID": "5", "Name": "Zendaya", "Role": "M.J." },
    { "ActorID": "7", "Name": "Benedict Cumberbatch", "Role": "Doctor Strange" },
  ],
  "Plot": "With Spider-Man's identity now revealed, Peter asks Doctor Strange for help. When a spell goes wrong ...",
  "ProducerID": "7",
  "ProducerName": "Walt Disney Pictures"
}
```

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
--

## 2) Dependências funcionais

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
---

- { MovieID } → { Title, Year, Plot, ProducerID }
- { ProducerID } → { ProducerName }
- { GenreID } → { Name }
- { ActorID } → { Name }
- { MovieID, ActorID } → { Role }

### 3) Formas normais

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
---

Em qual forma normal o esquema se encontra?

- O esquema não está normalizado!

## 4) Formas normais

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
---

### 1FN

- Movie (MovieID, Title, Year, Plot, ProducerID, ProducerName)
- Genre (MovieID, GenreID, Name)  
MovieID → Movie
- Actor (MovieID, ActorID, Name, Role)  
MovieID → Movie

## 4) Formas normais

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
---

### 2FN

- Movie (MovieID, Title, Year, Plot, ProducerID, ProducerName)
- Genre (GenreID, Name)
- GenreMovie (GenreID, MovieID)  
GenreID → Genre, MovieID → Movie
- Actor (ActorID, Name)
- ActorMovie (ActorID, MovieID, Role)  
ActorID → Actor, MovieID → Movie

## 4) Formas normais

Movie ( MovieID, Title, Year, { ( GenreID, Name) }, { ( ActorID, Name, Role ) }, Plot, ProducerID, ProducerName )
---

### 3FN

- Movie (MovieID, Title, Year, Plot, ProducerID)  
ProducerID → Producer
- Producer (ProducerID, ProducerName)
- Genre (GenreID, Name)
- GenreMovie (GenreID, MovieID)  
GenreID → Genre, MovieID → Movie
- Actor (ActorID, Name)
- ActorMovie (ActorID, MovieID, Role)  
ActorID → Actor, MovieID → Movie

## 5) Esquema ER

- Movie (MovieID, Title, Year, Plot, ProducerID)  
ProducerID → Producer
- Producer (ProducerID, ProducerName)
- Genre (GenreID, Name)
- GenreMovie (GenreID, MovieID)  
GenreID → Genre, MovieID → Movie
- Actor (ActorID, Name)
- ActorMovie (ActorID, MovieID, Role)  
ActorID → Actor, MovieID → Movie

