

ДЕКОМПОЗИЦИЯ ДАННЫХ В БАЗЕ

УЧЕБНЫЙ КУРС «ОСНОВЫ SQL»

ТАБЛИЦА СУПЕРГЕРОЕВ

| id | name | align | eye | hair | gender | appearances | year | universe |
|------|-------------------------------------|--------------------|------------|------------|-----------------|-------------|------|----------|
| 1 | Spider-Man (Peter Parker) | Good Characters | Hazel Eyes | Brown Hair | Male Characters | 4043 | 1962 | marvel |
| 2 | Captain America (Steven Rogers) | Good Characters | Blue Eyes | White Hair | Male Characters | 3360 | 1941 | marvel |
| 4854 | Batman (Bruce Wayne) | Good Characters | Blue Eyes | Black Hair | Male Characters | 3093 | 1939 | dc |
| 3 | Wolverine (James \"Logan\" Howlett) | Neutral Characters | Blue Eyes | Black Hair | Male Characters | 3061 | 1974 | marvel |
| 4 | Iron Man (Anthony \"Tony\" Stark) | Good Characters | Blue Eyes | Black Hair | Male Characters | 2961 | 1963 | marvel |
| 4855 | Superman (Clark Kent) | Good Characters | Blue Eyes | Black Hair | Male Characters | 2496 | 1986 | dc |
| 5 | Thor (Thor Odinson) | Good Characters | Blue Eyes | Blond Hair | Male Characters | 2258 | 1950 | marvel |
| 6 | Benjamin Grimm (Earth-616) | Good Characters | Blue Eyes | No Hair | Male Characters | 2255 | 1961 | marvel |
| | | | ... | | | | | |

ТАБЛИЦА С ФИЛЬМАМИ О СУПЕРГЕРОЯХ

| id | title | year |
|-----|-------------------------------------|------|
| 1 | Spider-Man | 2002 |
| 2 | The Amazing Spider-Man | 2012 |
| 3 | Captain America: The First Avenger | 2011 |
| 4 | Captain America: The Winter Soldier | 2014 |
| 5 | Batman | 1989 |
| 6 | Batman Returns | 1992 |
| 7 | The Dark Knight Rises | 2012 |
| 8 | Logan | 2017 |
| ... | | |

СВЯЗИ МЕЖДУ ТАБЛИЦАМИ

superheroes

| id | name | ... |
|------|-------------------------------------|-----|
| 1 | Spider-Man (Peter Parker) | ... |
| 2 | Captain America (Steven Rogers) | ... |
| 4854 | Batman (Bruce Wayne) | ... |
| 3 | Wolverine (James \"Logan\" Howlett) | ... |
| 4 | Iron Man (Anthony \"Tony\" Stark) | ... |
| 4855 | Superman (Clark Kent) | ... |
| 5 | Thor (Thor Odinson) | ... |
| 6 | Benjamin Grimm (Earth-616) | ... |
| | | ... |

movies

| id | title | year |
|----|-------------------------------------|------|
| 1 | Spider-Man | 2002 |
| 2 | The Amazing Spider-Man | 2012 |
| 3 | Captain America: The First Avenger | 2011 |
| 4 | Captain America: The Winter Soldier | 2014 |
| 5 | Batman | 1989 |
| 6 | Batman Returns | 1992 |
| 7 | The Dark Knight Rises | 2012 |
| 8 | Logan | 2017 |
| | ... | |

СВЯЗИ МЕЖДУ ТАБЛИЦАМИ

superheroes

| id | name | ... |
|------|-------------------------------------|-----|
| 1 | Spider-Man (Peter Parker) | ... |
| 2 | Captain America (Steven Rogers) | ... |
| 4854 | Batman (Bruce Wayne) | ... |
| 3 | Wolverine (James \"Logan\" Howlett) | ... |
| 4 | Iron Man (Anthony \"Tony\" Stark) | ... |
| 4855 | Superman (Clark Kent) | ... |
| 5 | Thor (Thor Odinson) | ... |
| 6 | Benjamin Grimm (Earth-616) | ... |
| | | ... |

movies

| id | title | year | superhero_id |
|----|-------------------------------------|------|--------------|
| 1 | Spider-Man | 2002 | |
| 2 | The Amazing Spider-Man | 2012 | |
| 3 | Captain America: The First Avenger | 2011 | |
| 4 | Captain America: The Winter Soldier | 2014 | |
| 5 | Batman | 1989 | |
| 6 | Batman Returns | 1992 | |
| 7 | The Dark Knight Rises | 2012 | |
| 8 | Logan | 2017 | |
| | ... | | |

Ссылка

СВЯЗИ МЕЖДУ ТАБЛИЦАМИ

superheroes

| id | name | ... |
|------|-------------------------------------|-----|
| 1 | Spider-Man (Peter Parker) | ... |
| 2 | Captain America (Steven Rogers) | ... |
| 4854 | Batman (Bruce Wayne) | ... |
| 3 | Wolverine (James \"Logan\" Howlett) | ... |
| 4 | Iron Man (Anthony \"Tony\" Stark) | ... |
| 4855 | Superman (Clark Kent) | ... |
| 5 | Thor (Thor Odinson) | ... |
| 6 | Benjamin Grimm (Earth-616) | ... |
| | | ... |

movies

| id | title | year | superhero_id |
|----|-------------------------------------|------|--------------|
| 1 | Spider-Man | 2002 | 1 |
| 2 | The Amazing Spider-Man | 2012 | 1 |
| 3 | Captain America: The First Avenger | 2011 | 2 |
| 4 | Captain America: The Winter Soldier | 2014 | 2 |
| 5 | Batman | 1989 | 4854 |
| 6 | Batman Returns | 1992 | 4854 |
| 7 | The Dark Knight Rises | 2012 | 4854 |
| 8 | Logan | 2017 | 3 |
| | ... | | |

Ссылка

ДЕКОМПОЗИЦИЯ ДАННЫХ В ОДНОЙ ТАБЛИЦЕ

| id | name | align | eye | hair | gender | appearances | year | universe |
|------|-------------------------------------|--------------------|------------|------------|-----------------|-------------|------|----------|
| 1 | Spider-Man (Peter Parker) | Good Characters | Hazel Eyes | Brown Hair | Male Characters | 4043 | 1962 | marvel |
| 2 | Captain America (Steven Rogers) | Good Characters | Blue Eyes | White Hair | Male Characters | 3360 | 1941 | marvel |
| 4854 | Batman (Bruce Wayne) | Good Characters | Blue Eyes | Black Hair | Male Characters | 3093 | 1939 | dc |
| 3 | Wolverine (James \"Logan\" Howlett) | Neutral Characters | Blue Eyes | Black Hair | Male Characters | 3061 | 1974 | marvel |
| 4 | Iron Man (Anthony \"Tony\" Stark) | Good Characters | Blue Eyes | Black Hair | Male Characters | 2961 | 1963 | marvel |
| 4855 | Superman (Clark Kent) | Good Characters | Blue Eyes | Black Hair | Male Characters | 2496 | 1986 | dc |
| 5 | Thor (Thor Odinson) | Good Characters | Blue Eyes | Blond Hair | Male Characters | 2258 | 1950 | marvel |
| 6 | Benjamin Grimm (Earth-616) | Good Characters | Blue Eyes | No Hair | Male Characters | 2255 | 1961 | marvel |
| | | | ... | | | | | |

ТИП СУПЕРГЕРОЯ

| id | name | align_id | eye | hair | gender | appearances | year | universe |
|------|-------------------------------------|----------|------------|------------|-----------------|-------------|------|----------|
| 1 | Spider-Man (Peter Parker) | 1 | Hazel Eyes | Brown Hair | Male Characters | 4043 | 1962 | marvel |
| 2 | Captain America (Steven Rogers) | 1 | Blue Eyes | White Hair | Male Characters | 3360 | 1941 | marvel |
| 4854 | Batman (Bruce Wayne) | 1 | Blue Eyes | Black Hair | Male Characters | 3093 | 1939 | dc |
| 3 | Wolverine (James \"Logan\" Howlett) | 3 | Blue Eyes | Black Hair | Male Characters | 3061 | 1974 | marvel |
| 4 | Iron Man (Anthony \"Tony\" Stark) | 1 | Blue Eyes | Black Hair | Male Characters | 2961 | 1963 | marvel |
| | | | ... | | | | | |

Ссылка

alignment

| id | align |
|----|-------------------|
| 1 | Good |
| 2 | Bad |
| 3 | Neutral |
| 4 | Reformed Criminal |

ИТОГИ



Несколько таблиц в базе данных

Разные сущности

Декомпозиция одной таблицы на несколько



Связи между таблицами

Ссылки из одной таблицы на другую

Внешний ключ (FOREIGN KEY)



Проектирование баз данных

Нормализация: нормальные формы

Типы связей: один к одному, один ко многим, многие ко многим