**Pontificia Universidad Católica Madre y Maestra**

**Campus Santo Tomás de Aquino**

**Facultad de Ciencias de la Ingeniería**



**Departamento de ISC**

**Programa:**

Base de datos I

**Profesor:**

Alicia Santos

**Proyecto Final**

**Grupo:**

SD-ISC-347-T-001

**Integrantes:**

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2016-5468 - Manuel Molina

2016-5265 - Javier Falcon

# **Tabla original 0NF**

**Theater**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_theatre | theater\_name | theater\_location | screen\_quantity | id\_movie | movie\_name | movie\_duration | movie\_type | movie\_genre | movie\_clasification | movie\_copies | time\_movie |

continuación…

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_screen | seats\_no | screen\_category | screen\_no | screen\_inauguration\_date | id\_slot | time\_slot | attendance | price\_charged | id\_schedule | schedule |

continuación…

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| week\_day | id\_seat | seat\_pos | seat\_type | id\_ticket | movie\_date | purchase\_date | id\_employee | emp\_name | emp\_address | id\_emp\_position | emp\_position |

continuación…

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| emp\_phone | birth\_date | mail | emp\_wage | id\_log | log\_description | log\_time | log\_date | price |

Fin

Dependencias funcionales **0NF**:

Id\_theatre, id\_screen → { screen\_inauguration\_date }

Id\_slot, id\_movie → { time\_movie(start, end) }

Id\_schedule → { schedule (start, end) }

Id\_schedule, id\_slot, id\_screen → { week\_day }

Id\_seat → { seat\_pos, seat\_type, id\_screen → { seats\_no, screen\_category, screen\_no} }

Id\_ticket → { movie\_date, purchase\_date, Id\_slot → { time\_slot(start, end), attendance, price\_charged }

Id\_employee → {emp\_name(first\_name, last\_name), emp\_address(zip, building, street), id\_emp\_position → { emp\_position }, emp\_phone, birth\_date, mail, Id\_theatre → { theater\_name, theater\_location (zip, building, street), screen\_quantity } }

Id\_employee, id\_emp\_position → { emp\_wage }

Id\_log → log\_description, Id\_movie → { movie\_name, movie\_duratio, movie\_type, movie\_genre, movie\_clasification, movie\_copies } }

Id\_employee, id\_log, id\_screen → { log\_time, log\_date }

Id\_ticket, id\_seat → { price }

# **Normalización en 1NF**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_theatre | theater\_name | theater\_street | address\_zip | building\_no | screen\_quantity | id\_movie | movie\_name | movie\_duration | movie\_type | movie\_genre | movie\_clasification | movie\_copies |

Continuación…

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_screen | seats\_no | screen\_category | screen\_no | screen\_inauguration\_date | id\_slot | slot\_start\_time | slot\_end\_time | attendance | price\_charged | movie\_start\_time | movie\_end\_time | id\_schedule |

Continuación…

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| week\_start | week\_end | week\_day | id\_seat | seat\_pos | seat\_type | id\_ticket | movie\_date | purchase\_date | id\_employee | emp\_Fname | emp\_Lname | emp\_street |

Continuación…

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| emp\_zip | house\_no | id\_emp\_position | emp\_position | emp\_phone | birth\_date | mail | emp\_wage | id\_log | log\_description | log\_time | log\_date | price |

Fin.

Dependencias funcionales **1NF**:

Id\_theatre, id\_screen → { screen\_inauguration\_date }

Id\_slot, id\_movie → { movie\_start\_time, movie\_end\_time }

Id\_schedule → { week\_start, week\_end }

Id\_schedule, id\_slot, id\_screen → { week\_day }

Id\_seat → { seat\_pos, seat\_type, id\_screen → { seats\_no, screen\_category, screen\_no} }

Id\_ticket → { movie\_date, purchase\_date, Id\_slot → { slot\_start\_time, slot\_end\_time, attendance, price\_charged }

Id\_employee → {first\_name, last\_name, emp\_zip, building\_no, address\_street, id\_emp\_position → { emp\_position }, emp\_phone, birth\_date, mail, Id\_theatre → { theater\_name, address\_zip, building\_no, theater\_street, screen\_quantity } }

Id\_employee, id\_emp\_position → { emp\_wage }

Id\_log → log\_description, Id\_movie → { movie\_name, movie\_duratio, movie\_type, movie\_genre, movie\_clasification, movie\_copies } }

Id\_employee, id\_log, id\_screen → { log\_time, log\_date }

Id\_ticket, id\_seat → { price }

# **Normalización en 2NF**

**Theater\_Screen**

|  |  |  |
| --- | --- | --- |
| id\_theatre | id\_screen | screen\_inauguration\_date |

**Slot\_movie**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_slot | id\_movie | movie\_start\_time | movie\_end\_time |

**Schedule**

|  |  |  |
| --- | --- | --- |
| id\_schedule | week\_start | week\_end |

**Schedule\_slot\_screen**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_schedule | id\_slot | id\_screen | week\_day |

**Seat**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| id\_seat | seat\_pos | seat\_type | id\_screen | seats\_no | screen\_category | screen\_no |

**Ticket**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| id\_ticket | movie\_date | purchase\_date | id\_slot | slot\_start\_time | slot\_end\_time | Attendance | price\_charged |

**Employee**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_employee | emp\_Fname | emp\_Lname | emp\_street | emp\_zip | house\_no | id\_emp\_position | emp\_position | emp\_phone | birth\_date | mail | id\_theatre | theater\_name | theater\_location | screen\_quantity |

**Employee\_Position**

|  |  |  |
| --- | --- | --- |
| id\_employee | id\_emp\_position | emp\_wage |

**Retrieving\_log**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_log | log\_description | id\_movie | movie\_name | movie\_duration | movie\_type | movie\_genre | movie\_clasification | movie\_copies |

**Employee\_log\_screen**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| id\_log | id\_employee | id\_screen | log\_time | log\_date |

**Ticket\_price**

|  |  |  |
| --- | --- | --- |
| id\_ticket | id\_seat | price |

Dependencias funcionales **2NF**:

Id\_theatre, id\_screen → { screen\_inauguration\_date }

Id\_slot, id\_movie → { movie\_start\_time, movie\_end\_time }

Id\_schedule → { week\_start, week\_end }

Id\_schedule, id\_slot, id\_screen → { week\_day }

Id\_seat → { seat\_pos, seat\_type, id\_screen → { seats\_no, screen\_category, screen\_no} }

Id\_ticket → { movie\_date, purchase\_date, Id\_slot → { slot\_start\_time, slot\_end\_time, attendance, price\_charged }

Id\_employee → {first\_name, last\_name, emp\_zip, building\_no, address\_street, id\_emp\_position → { emp\_position }, emp\_phone, birth\_date, mail, Id\_theatre → { theater\_name, address\_zip, building\_no, theater\_street, screen\_quantity } }

Id\_employee, id\_emp\_position → { emp\_wage }

Id\_log → log\_description, Id\_movie → { movie\_name, movie\_duratio, movie\_type, movie\_genre, movie\_clasification, movie\_copies } }

Id\_employee, id\_log, id\_screen → { log\_time, log\_date }

Id\_ticket, id\_seat → { price }

# **Normalización en 3NF**

**Theater**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| id\_theatre | theater\_name | theater\_street | address\_zip | building\_no | screen\_quantity |

**Movie**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| id\_movie | movie\_name | movie\_duration | movie\_type | movie\_genre | movie\_clasification | movie\_copies |

**Screen**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_screen | seats\_no | screen\_category | screen\_no |

**Theater\_Screen**

|  |  |  |
| --- | --- | --- |
| id\_theatre | id\_screen | screen\_inauguration\_date |

**Slot**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| id\_slot | slot\_start\_time | slot\_end\_time | attendance | price\_charged |

**Slot\_movie**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_slot | id\_movie | movie\_start\_time | movie\_end\_time |

**Schedule**

|  |  |  |
| --- | --- | --- |
| id\_schedule | week\_start | week\_end |

**Schedule\_slot\_screen**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_schedule | id\_slot | id\_screen | week\_day |

**Seat**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_seat | seat\_pos | seat\_type | id\_screen |

**Ticket**

|  |  |  |  |
| --- | --- | --- | --- |
| id\_ticket | movie\_date | purchase\_date | id\_slot |

**Employee**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| id\_employee | emp\_Fname | emp\_Lname | emp\_street | emp\_zip | house\_no | id\_emp\_position | emp\_phone | birth\_date | mail | id\_theatre |

**Employee\_position**

|  |  |
| --- | --- |
| id\_emp\_position | emp\_position |

**Employee\_Position**

|  |  |  |
| --- | --- | --- |
| id\_employee | id\_emp\_position | emp\_wage |

**Retrieving\_log**

|  |  |  |
| --- | --- | --- |
| id\_log | log\_description | id\_movie |

**Employee\_log\_screen**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| id\_log | id\_employee | id\_screen | log\_time | log\_date |

**Ticket\_price**

|  |  |  |
| --- | --- | --- |
| id\_ticket | id\_seat | price |

Dependencias funcionales **3NF**:

Id\_theatre → { theater\_name, address\_zip, building\_no, theater\_street, screen\_quantity }

Id\_movie → { movie\_name, movie\_duratio, movie\_type, movie\_genre, movie\_clasification, movie\_copies}

Id\_screen → { seats\_no, screen\_category, screen\_no }

Id\_theatre, id\_screen → { screen\_inauguration\_date }

Id\_slot → { slot\_start\_time, slot\_end\_time, attendance, price\_charged }

Id\_slot, id\_movie → { movie\_start\_time, movie\_end\_time }

Id\_schedule → { week\_start, week\_end }

Id\_schedule, id\_slot, id\_screen → { week\_day }

Id\_seat → { seat\_pos, seat\_type, id\_screen }

Id\_ticket → { movie\_date, purchase\_date, Id\_slot }

Id\_employee → {first\_name, last\_name, emp\_zip, building\_no, address\_street, id\_emp\_position, emp\_phone, birth\_date, mail, Id\_theatre }

Id\_employee, id\_emp\_position → { emp\_wage }

Id\_emp\_position → { emp\_position }

Id\_log → { log\_description, Id\_movie }

Id\_employee, id\_log, id\_screen → { log\_time, log\_date }

Id\_ticket, id\_seat → { price }

***Asunciones:***

* La entidad weekly\_schedule se antojó necesaria para poder otorgar una programación semanal a cada pantalla. Según nuestra investigación, los cines actualizan su cartelera disponible de manera semanal y, adicionalmente, se pide un ratstreo de las películas que se proyectan en una sala para un día especifíco.
* La información de los seats se decidió agregar debido a que encontramos que pueden haber distintos tipos de asientos en una sala y de esta manera es más fácil identificar los asientos escogidos en los tickets.
* Se decidió agregar la entidad ticket con el objetivo de tener un mecanismo de control de asistencia y de precio acumulado. Aprendimos que el precio del ticket estará relacionado al tipo de asiento que se compre.
* Género y clasificación de películas, comerciales y tráilers: campos agregados a la entidad movie los cuales también son registrados en la vida real. En nuestra investigación observamos que los tráilers y los comerciales también contienen género y clasificación.
* En la entidad screen fue añadido el atributo screen\_category ya que observamos que existen varios tipos o categorías de salas en un cine/teatro de la vida real, debido a la llegada de tecnologías 3D y 4D.
* La entidad de retrieving\_log fue concebida luego de verse necesario tener un registro de cuál empleado retira la película del inventario para poder rastrearla. En caso de una pérdida, se puede ver quién fue el último que retiró la película.
* La entidad de employee fue necesaria para guardar los datos de los empleados que maipulan las proyecciones de las salas.