**Normalization**

The table design ensures data consistency, minimizes redundancy, and adheres to good database normalization practices. Each table in the movie rental database satisfies the requirements for 3NF.

**First Normal Form (1NF)**

* The tables are in 1NF because they contain atomic values.
  + **Movies:** Each movie has an atomic value for title, release\_year, genre, and director. No column contains multiple values.
  + **Customers:** Each customer has atomic values for first\_name, last\_name, email, and phone\_number. These are unique and do not contain multiple values in one field.
  + **Rentals:** Each rental row refers to a single customer, a single movie, a rental\_date, and a return\_date. No column contains multiple values.

**Second Normal Form (2NF)**

* They are in 2NF because all non-key attributes depend on the entire primary key.
  + **Movies:** The primary key is movie\_id, and all other attributes (title, release\_year, genre, director) depend on the entire primary key, as each of these attributes describes the movie itself.
  + **Customers:** The primary key is customer\_id, and all other attributes (first\_name, last\_name, email, phone\_number) are fully dependent on the customer\_id since each customer is uniquely identified by their customer\_id.
  + **Rentals:** The primary key could be rental\_id, and the attributes movie\_id, customer\_id, rental\_date, and return\_date are all dependent on the entire primary key. The rental\_id uniquely identifies each rental transaction.

**Third Normal Form (3NF)**

* They are in 3NF because there are no transitive dependencies between non-key attributes.
  + **Movies:** The attributes title, release\_year, genre, and director are not dependent on each other, only on the movie\_id (the primary key). There are no transitive dependencies.
  + **Customers:** The attributes first\_name, last\_name, email, and phone\_number are independent of each other and only depend on the primary key, customer\_id. There are no transitive dependencies.
  + **Rentals:** The foreign keys movie\_id and customer\_id are linked to the Movies and Customers tables respectively. The rental\_date and return\_date are dependent only on the primary key rental\_id and not on any other non-key attributes. There are no transitive dependencies between the columns in the Rentals table.

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