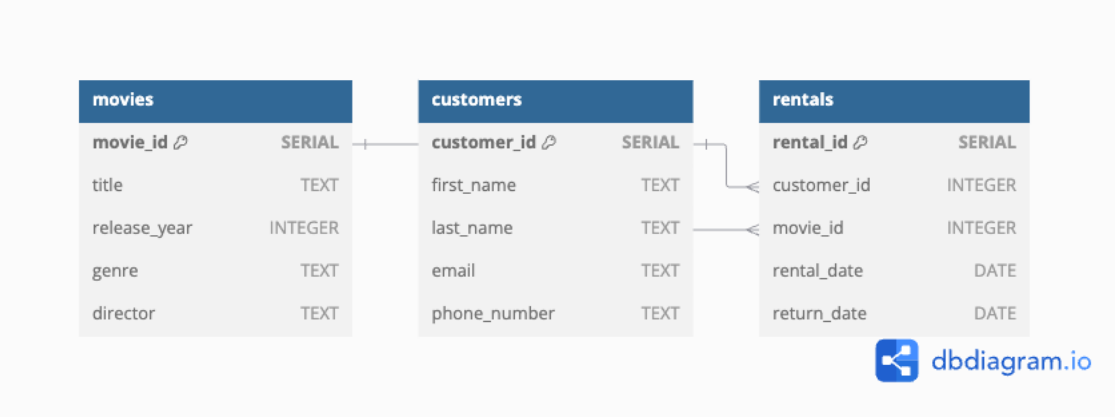
Normalization Explanation (3NF)



1. **First Normal Form (1NF):**
    - Each table has a primary key, ensuring that each record is unique. All attributes contain atomic values, meaning each field contains only indivisible values. There are no repeating groups or arrays within any record.
    - **Example:** A table of customers should not have a field for multiple phone numbers; instead, each phone number should be in its own row or in a related table.
2. **Second Normal Form (2NF):**
    - All non-key attributes are fully functionally dependent on the primary key. This means that non-key attributes cannot depend on only a part of a composite primary key.
    - **Example:** In a rentals table with a composite primary key of customer_id and movie_id, attributes like rental_date should depend on both keys and not just on one of them.
3. **Third Normal Form (3NF):**
    - There are no transitive dependencies, meaning each non-key attribute is dependent only on the primary key and not on another non-key attribute.
    - Example: Customer details, such as name and contact information, are stored solely in the customers table. If customer data were stored in the rentals table, it could lead to redundancy and inconsistency.