**Database Schema Documentation**

**Representation**

**Tables and Relationships:**

1. **Customer**
   * **customer\_id**: Primary Key, auto\_generated.
   * **name**: Customer's name and surname.
   * **phone\_number**: Customer's phone number, unique and not null, 12 digits.
2. **Email**
   * **customer\_id**: Foreign key referencing the **Customer** table.
   * **email**: Customer's email address, possible to have more than one for each customer.
3. **Coupon**
   * **coupon\_id**: Primary Key, auto-generated.
   * **customer\_id**: Foreign key referencing the **Customer** table.
   * **percent**: Discount percentage offered by the coupon, between 0 and 100.
4. **Movie**
   * **movie\_id**: Primary Key, 10-digit barcode.
   * **name**: Title of the movie.
   * **year**: Year the movie was released.
   * **status**: Current status of the movie (in stock, rented, lost).
5. **Rental\_rate**
   * **rental\_rate\_id**: Primary Key, auto\_generated.
   * **movie\_id**: Foreign key referencing the **Movie** table.
   * **date**: Date when the rental rate was set.
   * **daily\_charge**: Daily rental charge for the movie.
6. **Employee**
   * **employee\_id**: Primary Key, small number of employee, auto-generated.
   * **name**: Employee's name and surname.
   * **role**: Role of the employee (manager, employee).
   * **password**: Password for employee login.
7. **Timesheet**
   * **timesheet\_id**: Primary Key, auto-generated.
   * **employee\_id**: Foreign key referencing the **Employee** table.
   * **date**: Date.
   * **shift**: Shift number.
8. **Rental**
   * **rental\_id**: Primary Key, auto\_generated.
   * **rental\_rate\_id**: Foreign key referencing the **Rental\_rate** table.
   * **customer\_id**: Foreign key referencing the **Customer** table.
   * **employee\_id**: Foreign key referencing the **Employee** table.
   * **date\_issued**: Date and time when the movie was rented.
9. **Payment**
   * **rental\_id**: Foreign key referencing the **Rental** table (Primary Key).
   * **coupon\_id**: Foreign key referencing the **Coupon** table.
   * **employee\_id**: Foreign key referencing the **Employee** table.
   * **date\_returned**: Date and time when the movie was returned.
   * **status**: Status of the movie upon returning (returned, lost).
   * **amount**: Calculated amount to be paid based on rental duration and coupon discount.
10. **Audit**
    * **table\_name**: Name of the table affected by the operation.
    * **action\_type**: Type of action performed (update, delete).
    * **action\_date**: Date and time when the audit record was created.
    * **date\_of\_operation**: Date of the operation being audited (from table Rental or Payment)
    * **employee\_id**: Employee involved in the operation.
    * **customer\_id**: Customer involved in the operation.
    * **movie\_id**: Movie involved in the operation.

**Data Management**

**Triggers:**

* + **tr\_rental\_before\_insert**: Checks if a movie is available before inserting a new rental.
  + **tr\_rental\_after\_insert**: Updates the movie status to 'rented' after a new rental is inserted.
  + **tr\_payment\_after\_insert**: Updates the movie status upon returning and deletes the coupon if used.
  + **tr\_payment\_calculate\_amount\_before\_insert** - calculate amount before inserting or updating Payment
  + Audit triggers: Log actions performed on the **Rental** and **Payment** tables.
    - **tr\_rental\_after\_update**
    - **tr\_rental\_after\_delete**
    - **tr\_payment\_after\_update**
    - **tr\_payment\_after\_delete**

**Optimization**

**Indexes:** includes nonclustered indexes on most tables.

* + **Customer (phone\_number)**
  + **Movie (name)**
  + **Rental (date\_issued)**
  + **Payment (date\_returned)**

**Views:**

1. **EMovie**

Employees can use this view to:

* Check the availability of movies.
* Retrieve the daily rental charge for a specific movie.
* Manage movie rentals and returns.

**Security**

**Users and Privileges**:

* + **manager**: Has all privileges on the **video\_rental** database.
  + **Sara** and **Tom**: Have specific privileges to perform operations on certain tables. Do not have access to Employee, Timesheet and movies tables. Instead of Movies table, they have access to a view EMovies