

1) Map strong entities:

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, telephone, login, password)

Book(isbn, title, description, publisher, category, edition, launch_date)

Restock(id, price, restock_date)

Buy(id, buy_date, total_price, status, due_date, paid_at)

Rent(id, rent_date, devolution_date, status, given_back_at)

2) Map weak entities: Doesn't have

3) Map generalization/specialization (inheritance):

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, telephone, login, password)

Customer(cpf(FK), registration_date, active)

FK cpf references Person(cpf)

Employee(cpf(FK), role)

FK cpf references Person(cpf)

Book(isbn, title, description, publisher, category, edition, launch_date)

FisicalBook(isbn(FK), copy_number, price, status)

FK isbn references Book(isbn)

Restock(id, price, restock_date)

Buy(id, buy_date, total_price, status, due_date, paid_at)

Rent(id, rent_date, devolution_date, status, given_back_at)

4) Map binary relationships 1:1: Doesn't have

5) Map binary relationships 1:N

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, address_id(FK), telephone, login, password)

FK address_id references Address(id)

Customer(cpf(FK), registration_date, active)

FK cpf references Person(cpf)

Employee(cpf(FK), role)

FK cpf references Person(cpf)

Book(isbn, title, description, publisher, category, edition, launch_date)

FisicalBook(isbn(FK), copy_number, price, status)

FK isbn references Book(isbn)

Restock(id, employee_cpf(FK), price, restock_date)

FK employee_cpf references Employee(cpf)

Buy(id, customer_cpf(FK), buy_date, total_price, status, due_date, paid_at)

FK customer_cpf references Customer(cpf)

Rent(id, customer_cpf(FK), rent_date, devolution_date, status, given_back_at)

FK customer_cpf references Customer(cpf)

6) Map binary relationships N:N

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, address_id(FK), telephone, login, password)

FK address_id references Address(id)

Customer(cpf(FK), registration_date, active)

FK cpf references Person(cpf)

Employee(cpf(FK), role)

FK cpf references Person(cpf)

Book(isbn, title, description, publisher, category, edition, launch_date)

BookReview(book_isbn(FK), customer_cpf(FK))

FK book_isbn references Book(isbn)

FK customer_cpf references Customer(cpf)

FisicalBook(isbn(FK), copy_number, price, status)

FK isbn references Book(isbn)

Restock(id, employee_cpf(FK), price, restock_date)

FK employee_cpf references Employee(cpf)

RestockItem(restock_id(FK), book_isbn(FK), copy_number(FK))

FK restock_id references Restock(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Buy(id, customer_cpf(FK), buy_date, total_price, status, due_date, paid_at)

FK customer_cpf references Customer(cpf)

BuyItem(buy_id(FK), book_isbn(FK), copy_number(FK))

FK buy_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Rent(id, customer_cpf(FK), rent_date, devolution_date, status, given_back_at)

FK customer_cpf references Customer(cpf)

RentItem(rent_id(FK), book_isbn(FK), copy_number(FK))

FK rent_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

7) Map multivalued attributes:

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, address_id(FK), telephone, login, password)

FK address_id references Address(id)

Customer(cpf(FK), registration_date, active)

FK cpf references Person(cpf)

Employee(cpf(FK), role)

FK cpf references Person(cpf)

Book(isbn, title, description, publisher, category, edition, launch_date)

BookAuthorName(book_isbn(FK), author_name)

FK book_isbn references Book(isbn)

BookReview(book_isbn(FK), customer_cpf(FK))

FK book_isbn references Book(isbn)

FK customer_cpf references Customer(cpf)

FisicalBook(isbn(FK), copy_number, price, status)

FK isbn references Book(isbn)

Restock(id, employee_cpf(FK), price, restock_date)

FK employee_cpf references Employee(cpf)

RestockItem(restock_id(FK), book_isbn(FK), copy_number(FK))

FK restock_id references Restock(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Buy(id, customer_cpf(FK), buy_date, total_price, status, due_date, paid_at)

FK customer_cpf references Customer(cpf)

BuyItem(buy_id(FK), book_isbn(FK), copy_number(FK))

FK buy_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Rent(id, customer_cpf(FK), rent_date, devolution_date, status, given_back_at)

FK customer_cpf references Customer(cpf)

RentItem(rent_id(FK), book_isbn(FK), copy_number(FK))

FK rent_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

8) Map n-ary relationships: Doesn't have

Final template:

Address(id, zip_code, street, district, city, state, number, complement)

Person(cpf, first_name, last_name, gender, birth_date, address_id(FK), telephone, login, password)

FK address_id references Address(id)

Customer(cpf(FK), registration_date, active)

FK cpf references Person(cpf)

Employee(cpf(FK), role)

FK cpf references Person(cpf)

Book(isbn, title, description, publisher, category, edition, launch_date)

BookAuthorName(book_isbn(FK), author_name)

FK book_isbn references Book(isbn)

BookReview(book_isbn(FK), customer_cpf(FK))

FK book_isbn references Book(isbn)

FK customer_cpf references Customer(cpf)

FisicalBook(isbn(FK), copy_number, price, status)

FK isbn references Book(isbn)

Restock(id, employee_cpf(FK), price, restock_date)

FK employee_cpf references Employee(cpf)

RestockItem(restock_id(FK), book_isbn(FK), copy_number(FK))

FK restock_id references Restock(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Buy(id, customer_cpf(FK), buy_date, total_price, status, due_date, paid_at)

FK customer_cpf references Customer(cpf)

BuyItem(buy_id (FK), book_isbn(FK), copy_number(FK))

FK buy_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)

Rent(id, customer_cpf(FK), rent_date, devolution_date, status, given_back_at)

FK customer_cpf references Customer(cpf)

RentItem(rent_id(FK), book_isbn(FK), copy_number(FK))

FK rent_id references Buy(id)

FK book_isbn references FisicalBook(isbn)

FK copy_number references FisicalBook(copy_number)