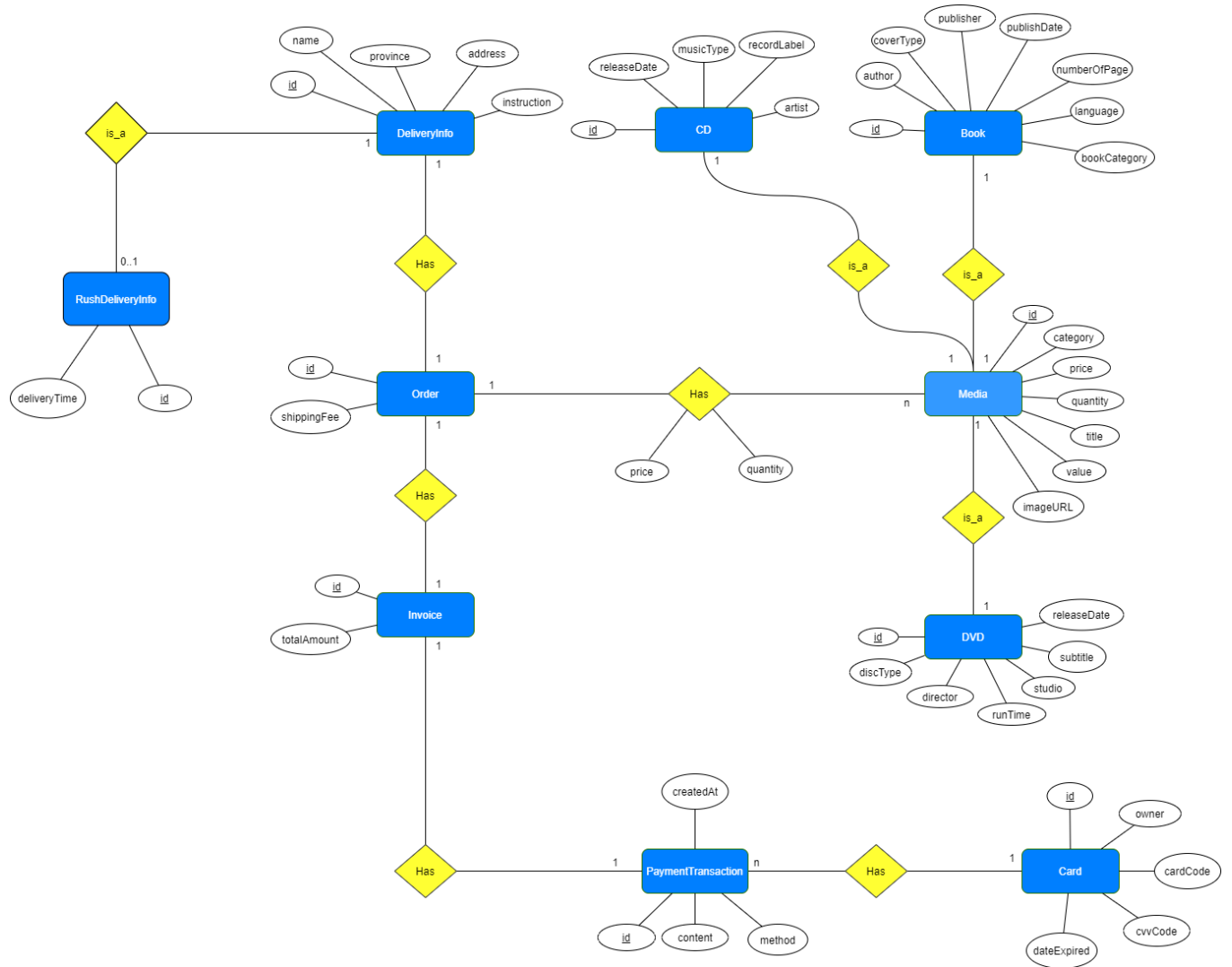


# Data Modeling

## 1. Conceptual Data Model



## 2. Logical Data Model



### 3. Physical Data Model

#### - Media

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Serial	Yes	ID, auto increment
2.			category	VARCHAR(45)	Yes	Media type, e.g., CD, DVD
3.			price	Int	Yes	Current price
4.			quantity	Int	Yes	Number of products
5.			title	VARCHAR(45)	Yes	Product name
6.			value	Int	Yes	Value of the product
7.			imageUrl	VARCHAR(45)	Yes	Product image path

#### - CD

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		x	id	Serial	Yes	ID, same as ID of Media of which type is CD
2.			artist	VARCHAR(45)	Yes	Artist's name
3.			recordLabel	VARCHAR(45)	Yes	Record label
4.			musicType	VARCHAR(45)	Yes	Music genres
5.			releasedDate	DATE	No	Release date

#### - Book

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		x	id	Serial	Yes	ID, same as ID of Media of which type is Book
2.			author	VARCHAR(45)	Yes	Author
3.			coverType	VARCHAR(45)	Yes	Cover type
4.			Publisher	VARCHAR(45)	Yes	Publishing house
5.			publishDate	DATE	Yes	Date of publishing
6.			numOfPages	Int	Yes	Page number
7.			language	VARCHAR(45)	Yes	Language
8.			bookCategory	VARCHAR(45)	Yes	Book category

### - DVD

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		x	id	Serial	Yes	ID, same as ID of Media of which type is DVD
2.			discType	VARCHAR(45)	Yes	Disc type
3.			director	VARCHAR(45)	Yes	Director
4.			runtime	Int	Yes	Duration
5.			studio	VARCHAR(45)	Yes	Manufacturer
6.			subtitle	VARCHAR(45)	Yes	Subtitles
7.			releasedDate	DATE	Yes	Release date
8.			filmType	VARCHAR(45)	Yes	Genres

### - Card

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Serial	Yes	ID, auto increment
2.			cardCode	VARCHAR(45)	Yes	Card code
3.			owner	VARCHAR(45)	Yes	Cardholders
4.			cvvCode	VARCHAR(3)	Yes	CVV code
5.			dateExpired	VARCHAR(4)	Yes	Expiration date

### - DeliveryInfo

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Serial	Yes	ID, auto increment
2.			name	VARCHAR(45)	Yes	Receiver name
3.			province	VARCHAR(45)	Yes	Provinces
4.			instructions	VARCHAR(200)	No	Delivery instructions
5.			address	VARCHAR(100)	Yes	Delivery address

### - Order

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	X		id	Serial	Yes	ID
2.			shippingFees	VARCHAR(45)	Yes	Shipping fee

3.		X	deliveryInfoId	Serial	Yes	Delivery Info ID
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#### - OrderMedia

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		X	mediaId	Serial	Yes	Media ID
2.		X	orderId	Serial	Yes	Order ID
3.			price	Integer	Yes	Selling price
4.			quantity	Integer	Yes	Number

#### - Invoice

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Serial	Yes	ID
2.			totalAmount	Int	Yes	Total
3.		x	orderId	Serial	Yes	Order ID

#### - PaymentTransaction

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Serial	Yes	ID
2.			createAt	DATE	Yes	Date of creation
3.			content	VARCHAR(45)	Yes	Transaction contents
4.			method	VARCHAR(45)	Yes	Payment methods
5.		x	cardId	Serial	Yes	ID of used card
6.		x	invoiceId	Serial	Yes	Invoice ID

#### - RushDeliveryInfo

#	PK	FK	Column name	Data type	Mandatory	Description
1	x	x	id	Serial	Yes	ID, same as ID of DeliveryInfo which type is Rush Order
2	x		deliveryTime	Varchar(10)	Yes	Delivery time

- **Script:**

```
CREATE TABLE Media(  
    id SERIAL PRIMARY KEY NOT NULL,  
    category VARCHAR(45) NOT NULL,  
    price INT NOT NULL,  
    quantity INT NOT NULL,  
    title VARCHAR(45) NOT NULL,  
    value INT NOT NULL,  
    imageUrl VARCHAR(45) NOT NULL  
);
```

```
CREATE TABLE CD(  
    id SERIAL PRIMARY KEY NOT NULL,  
    artist VARCHAR(45) NOT NULL,  
    recordLabel VARCHAR(45) NOT NULL,  
    musicType VARCHAR(45) NOT NULL,  
    releasedDate DATE,  
    CONSTRAINT fk_CD_Media FOREIGN KEY(id)  
    REFERENCES Media(id)  
);
```

```
CREATE TABLE Book(  
    id SERIAL PRIMARY KEY NOT NULL,
```

```
author VARCHAR(45) NOT NULL,  
coverType VARCHAR(45) NOT NULL,  
publisher VARCHAR(45) NOT NULL,  
publishDate DATE NOT NULL,  
numOfPages INT NOT NULL,  
language VARCHAR(45) NOT NULL,  
bookCategory VARCHAR(45) NOT NULL,  
CONSTRAINT fk_Book_Media FOREIGN KEY(id)  
REFERENCES Media(id)  
);
```

```
CREATE TABLE DeliveryInfo(  
    id SERIAL PRIMARY KEY NOT NULL,  
    name VARCHAR(45),  
    province VARCHAR(45),  
    instructions VARCHAR(200),  
    address VARCHAR(100)  
);
```

```
CREATE TABLE Card(  
    id SERIAL PRIMARY KEY NOT NULL,  
    cardCode VARCHAR(15) NOT NULL,  
    owner VARCHAR(45) NOT NULL,
```

```
    cvvCode VARCHAR(3) NOT NULL,  
    dateExpired VARCHAR(4) NOT NULL  
);
```

```
CREATE TABLE DVD(  
    id SERIAL PRIMARY KEY NOT NULL,  
    discType VARCHAR(45) NOT NULL,  
    director VARCHAR(45) NOT NULL,  
    runtime INT NOT NULL,  
    studio VARCHAR(45) NOT NULL,  
    subtitle VARCHAR(45) NOT NULL,  
    releasedDate DATE,  
    CONSTRAINT fk_DVD_Media FOREIGN KEY(id)  
    REFERENCES Media(id)  
);
```

```
CREATE TABLE "Order"(  
    id SERIAL NOT NULL UNIQUE,  
    shippingFees VARCHAR(45),  
    deliveryInfo INT NOT NULL,  
    PRIMARY KEY(id,deliveryInfo),  
    CONSTRAINT fk_Order_DeliveryInfo FOREIGN KEY(deliveryInfo)
```



```
REFERENCES DeliveryInfo(id)
);
```

```
CREATE INDEX Order_DeliveryInfo_idx ON "Order"(deliveryInfoId);
```

```
CREATE TABLE OrderMedia(
    orderID SERIAL NOT NULL,
    price INT NOT NULL,
    quantity INT NOT NULL,
    mediaId SERIAL NOT NULL,
    PRIMARY KEY(orderID,mediaId),
    CONSTRAINT fk_ordermedia_order FOREIGN KEY(orderID)
    REFERENCES "Order"(id),
    CONSTRAINT fk_OrderMedia_Media1 FOREIGN KEY(mediaId)
    REFERENCES Media(id)
);
```

```
CREATE INDEX fk_ordermedia_order_idx ON OrderMedia(orderID);
```

```
CREATE INDEX fk_OrderMedia_Media1_idx ON OrderMedia(mediaId);
```

```
CREATE TABLE Invoice(
    id SERIAL PRIMARY KEY NOT NULL,
```

```
totalAmount INT NOT NULL,  
orderId SERIAL NOT NULL,  
CONSTRAINT fk_Invoice_Order1 FOREIGN KEY(orderId)  
REFERENCES "Order"(id)  
);  
  
CREATE INDEX fk_Invoice_Order1_idx ON Invoice(orderId);  
  
CREATE TABLE PaymentTransaction(  
    id SERIAL NOT NULL,  
    createAt DATE NOT NULL,  
    content VARCHAR(45) NOT NULL,  
    method VARCHAR(45),  
    cardId INT NOT NULL,  
    invoiceId INT NOT NULL,  
    PRIMARY KEY(id,cardId,invoiceId),  
    CONSTRAINT fk_PaymentTransaction_Card1 FOREIGN KEY(cardId)  
    REFERENCES Card(id),  
    CONSTRAINT fk_PaymentTrans_Invoice FOREIGN KEY(invoiceId)  
    REFERENCES Invoice(id)  
);
```

```
CREATE INDEX fk_PaymentTransaction_Card1_idx ON  
PaymentTransaction(cardId);
```

```
CREATE INDEX fk_PaymentTransaction_Invoice1_idx ON  
PaymentTransaction(invoiceId);
```

```
CREATE TABLE RushDeliveryInfo(  
    id SERIAL NOT NULL,  
    deliveryTime VARCHAR(10),  
    PRIMARY KEY(id,deliveryTime),  
    CONSTRAINT fk_RushDeliveryInfo FOREIGN KEY(id)  
    REFERENCES DeliveryInfo(id)  
);
```