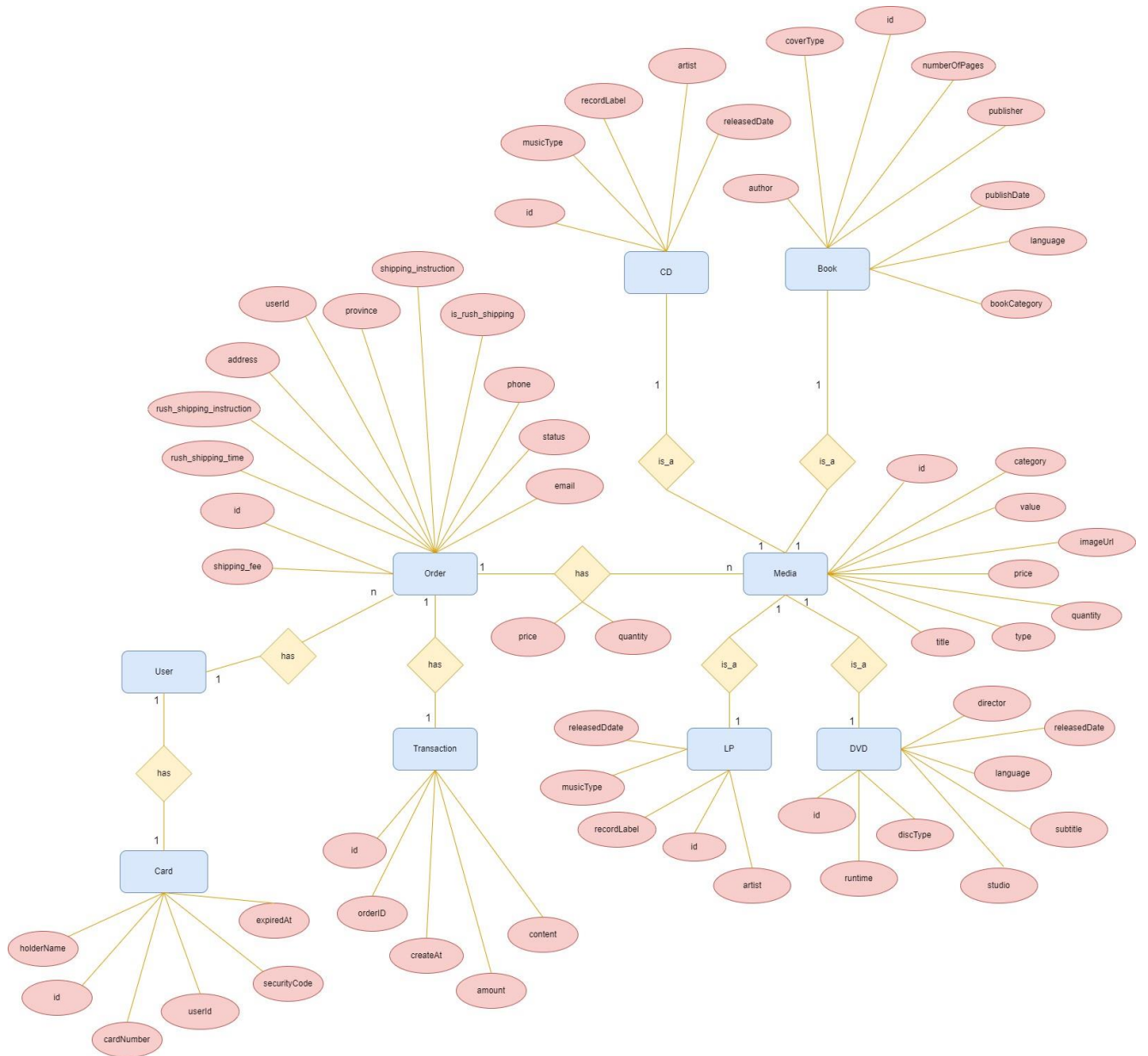
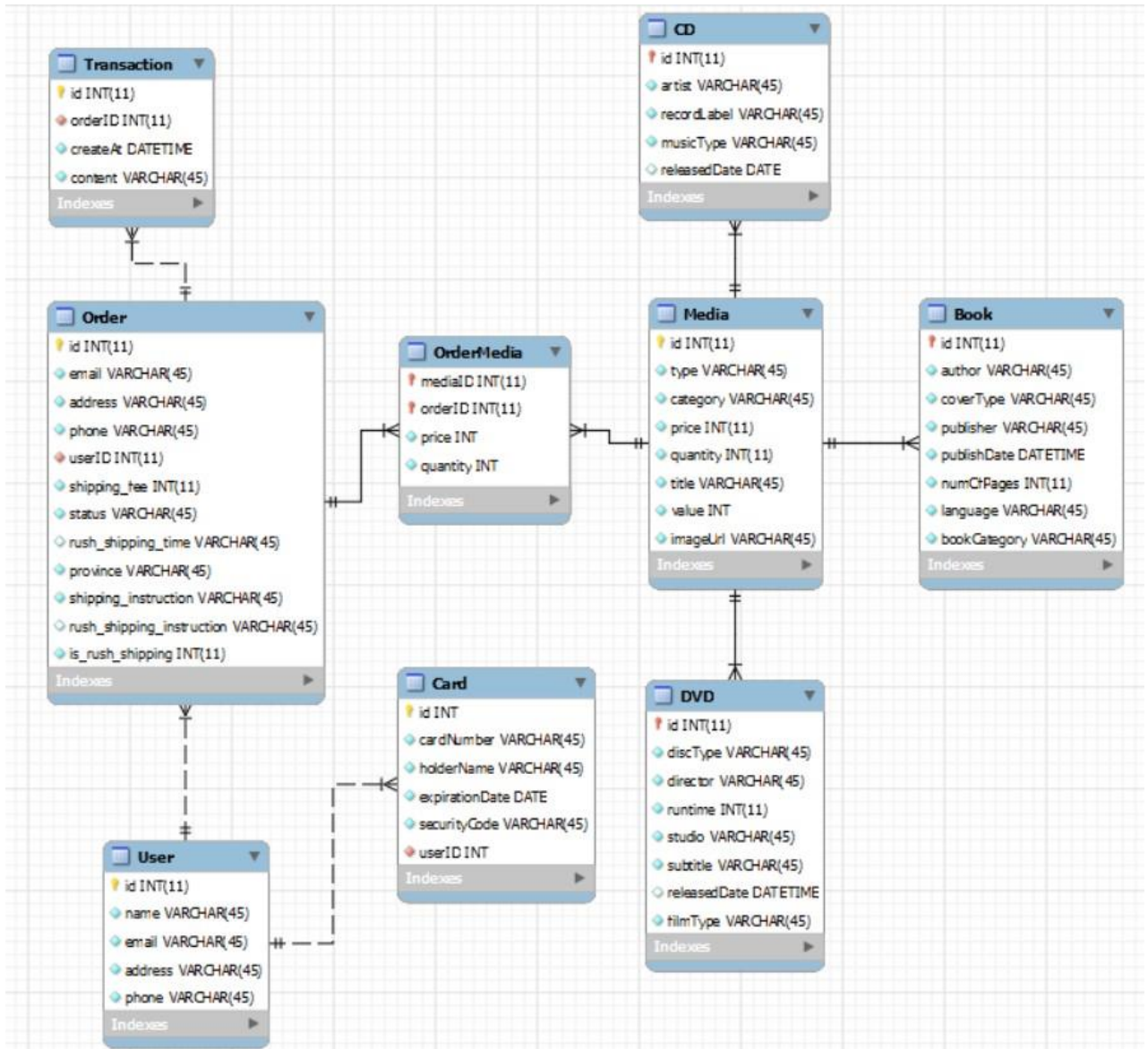


1. Conceptual data model: Entity-Relation Diagram (ERD)



2. Logical data model: Database Design Diagram



3. Physical data model:

3.1. Table User

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|-------------|-------------|-----------|---------------------|
| 1 | x | | id | INT | Yes | ID, auto increment |
| 2 | | | name | VARCHAR(45) | Yes | User name |
| 3 | | | email | VARCHAR(45) | Yes | User email |
| 4 | | | address | VARCHAR(45) | Yes | User address |
| 5 | | | phone | VARCHAR(45) | Yes | User contact number |

3.2. Table Media

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|-------------|-------------|-----------|---|
| 1 | x | | id | INT | Yes | ID, auto increment |
| 2 | | | price | INT | Yes | Current price |
| 3 | | | category | VARCHAR(45) | Yes | Media category (story, pop, adventure) |
| 4 | | | value | INT | Yes | Product value |
| 5 | | | quantity | INT | Yes | Number of products |
| 6 | | | title | VARCHAR(45) | Yes | Product name |
| 7 | | | imageUrl | VARCHAR(45) | No | Product image path |
| 8 | | | type | VARCHAR(45) | Yes | Media type (CD, DVD, Book, LP) |

3.3. Table CD

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|--------------|-------------|-----------|--|
| 1 | x | x | id | INT | Yes | ID, same 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 |
| 6 | | | releasedDate | DATETIME | No | Release Date |

3.4. Table Book

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|---------------|-------------|-----------|--|
| 1 | x | x | id | INT | Yes | ID, same ID of Media of which type is Book |
| 2 | | | author | VARCHAR(45) | Yes | Author's name |
| 3 | | | coverType | VARCHAR(45) | Yes | Cover Type |
| 4 | | | numberOfPages | INT | Yes | Page number |
| 5 | | | language | VARCHAR(45) | Yes | Language |
| 6 | | | bookCategory | VARCHAR(45) | Yes | Type of Book |
| 7 | | | publisher | VARCHAR(45) | Yes | Publishing house |
| 8 | | | publishDate | DATETIME | Yes | Date of publishing |

3.5. Table DVD

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|--------------|-------------|-----------|---|
| 1 | x | x | id | INT | Yes | ID, same ID of Media of which type is DVD |
| 2 | | | director | VARCHAR(45) | Yes | Director's name |
| 3 | | | discType | VARCHAR(45) | Yes | Disc Type |
| 4 | | | subtitle | VARCHAR(45) | Yes | Subtitles |
| 5 | | | studio | VARCHAR(45) | Yes | Manufacturer |
| 6 | | | language | VARCHAR(45) | Yes | Language |
| 7 | | | runtime | INT | Yes | Duration |
| 8 | | | releasedDate | DATETIME | No | Release Date |

3.6. Table LP

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|--------------|-------------|-----------|--|
| 1 | x | x | id | INT | Yes | ID, same ID of Media of which type is LP |
| 2 | | | artist | VARCHAR(45) | Yes | Artist's name |
| 3 | | | recordLabel | VARCHAR(45) | Yes | Record Label |
| 4 | | | musicType | VARCHAR(45) | Yes | Music genres |
| 6 | | | releasedDate | DATETIME | No | Release Date |

3.7. Table Order

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|---------------------------|-------------|-----------|---|
| 1 | x | | id | INT | Yes | ID, auto increment |
| 2 | | | email | VARCHAR(45) | Yes | User's email |
| 3 | | | address | VARCHAR(45) | Yes | User's address |
| 4 | | | phone | VARCHAR(45) | Yes | User's phone number |
| 5 | | x | userID | INT | Yes | User ID |
| 6 | | | shipping_fee | INT | Yes | Shipping fee |
| 7 | | | status | VARCHAR(45) | Yes | Order status(Chờ duyệt, Đã duyệt, Đã từ chối) |
| 8 | | | rush_shipping_time | VARCHAR(45) | No | Rush shipping time |
| 9 | | | province | VARCHAR(45) | Yes | Province |
| 10 | | | shipping_instruction | VARCHAR(45) | Yes | Instruction of shipping |
| 11 | | | rush_shipping_instruction | VARCHAR(45) | No | Instruction of rush shipping |
| 12 | | | is_rush_shipping | INT | Yes | Shipping method |

3.8. Table OrderMedia

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|-------------|-----------|-----------|------------------------|
| 2 | x | x | mediaId | INT | Yes | Media ID |
| 3 | x | x | orderId | INT | Yes | Order ID |
| 4 | | | price | INT | Yes | Selling price |
| 5 | | | quantity | INT | Yes | Number of ordered item |

3.9. Table Transaction

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|-------------|-------------|-----------|--------------------------------|
| 1 | x | | id | INT | Yes | ID, auto increment |
| 3 | | | content | VARCHAR(45) | Yes | Transaction contents |
| 4 | | | amount | INT | Yes | Payment Amount |
| 5 | | | createAt | DATETIME | Yes | Date of creation a transaction |
| 7 | | x | orderId | INT | Yes | ID of order |

3.10. Table Card

| STT | PK | FK | Column Name | Data Type | Mandatory | Description |
|-----|----|----|-------------|-----------|-----------|--------------------|
| 1 | x | | id | INT | Yes | ID, auto increment |

| | | | | | | |
|---|--|---|----------------|-------------|-----|-------------------------|
| 2 | | | cardNumber | VARCHAR(45) | Yes | Card Number of customer |
| 3 | | | holderName | VARCHAR(45) | Yes | Card holders |
| 4 | | x | userId | VARCHAR(45) | Yes | User ID |
| 5 | | | securityCode | VARCHAR(45) | Yes | Bank Code |
| 6 | | | expirationDate | DATETIME | Yes | Expire Date |

• Database Script from Logical Data Model

- BEGIN TRANSACTION;
- CREATE TABLE IF NOT EXISTS "Media" (
 - "id" INTEGER NOT NULL,
 - "type" VARCHAR(45) NOT NULL,
 - "category" VARCHAR(45) NOT NULL,
 - "price" INTEGER NOT NULL,
 - "quantity" INTEGER NOT NULL,
 - "title" VARCHAR(45) NOT NULL,
 - "value" INTEGER NOT NULL,
 - "imageUrl" VARCHAR(45) NOT NULL,
 - PRIMARY KEY("id" AUTOINCREMENT)
-);
- CREATE TABLE IF NOT EXISTS "CD" (
 - "id" INTEGER 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"),
 - PRIMARY KEY("id")
-);
- CREATE TABLE IF NOT EXISTS "Book" (
 - "id" INTEGER NOT NULL,
 - "author" VARCHAR(45) NOT NULL,
 - "coverType" VARCHAR(45) NOT NULL,
 - "publisher" VARCHAR(45) NOT NULL,
 - "publishDate" DATETIME NOT NULL,
 - "numOfPages" INTEGER NOT NULL,
 - "language" VARCHAR(45) NOT NULL,
 - "bookCategory" VARCHAR(45) NOT NULL,
 - CONSTRAINT "fk_book_media" FOREIGN KEY("id") REFERENCES "Media"("id"),
 - PRIMARY KEY("id" AUTOINCREMENT)


```

);
• CREATE TABLE IF NOT EXISTS "User" (
    "id" INTEGER NOT NULL,
    "name" VARCHAR(45) NOT NULL,
    "email" VARCHAR(45) NOT NULL,
    "address" VARCHAR(45) NOT NULL,
    "phone" VARCHAR(45) NOT NULL,
    PRIMARY KEY("id" AUTOINCREMENT)
);
• CREATE TABLE IF NOT EXISTS "DVD" (
    "id" INTEGER NOT NULL,
    "discType" VARCHAR(45) NOT NULL,
    "director" VARCHAR(45) NOT NULL,
    "runtime" INTEGER NOT NULL,
    "studio" VARCHAR(45) NOT NULL,
    "subtitle" VARCHAR(45) NOT NULL,
    "releasedDate" DATETIME,
    "filmType" VARCHAR(45) NOT NULL,
    CONSTRAINT "fk_dvd_media" FOREIGN KEY("id") REFERENCES
"Media"("id"),
    PRIMARY KEY("id")
);
• CREATE TABLE IF NOT EXISTS "OrderMedia" (
    "mediaID" INTEGER NOT NULL,
    "orderID" INTEGER NOT NULL,
    "price" INTEGER NOT NULL,
    "quantity" INTEGER NOT NULL,
    CONSTRAINT "fk_ordermedia_media" FOREIGN KEY("mediaID")
REFERENCES "Media"("id"),
    CONSTRAINT "fk_ordermedia_order" FOREIGN KEY("orderID")
REFERENCES "Order"("id"),
    PRIMARY KEY("mediaID", "orderID")
);
• CREATE TABLE IF NOT EXISTS "Transaction" (
    "id" INTEGER NOT NULL,
    "orderID" INTEGER NOT NULL,
    "createAt" DATETIME NOT NULL,
    "content" VARCHAR(45) NOT NULL,
    CONSTRAINT "fk_transaction_order" FOREIGN KEY("orderID")
REFERENCES "Order"("id"),
    PRIMARY KEY("id" AUTOINCREMENT)
);
• CREATE TABLE IF NOT EXISTS "Card" (
    "id" INTEGER NOT NULL,
    "cardNumber" VARCHAR(45) NOT NULL,
    "holderName" VARCHAR(45) NOT NULL,
    "expirationDate" DATE NOT NULL,
    "securityCode" VARCHAR(45) NOT NULL,
    "userID" INTEGER NOT NULL,
    CONSTRAINT "fk_card_user" FOREIGN KEY("userID") REFERENCES
"User"("id"),

```

```

        PRIMARY KEY("id")
    );

```

- CREATE TABLE IF NOT EXISTS "Order" (
 "id" INTEGER NOT NULL,
 "email" VARCHAR(45) NOT NULL,
 "address" VARCHAR(45) NOT NULL,
 "phone" VARCHAR(45) NOT NULL,
 "userID" INTEGER NOT NULL,
 "shipping_fee" INTEGER NOT NULL,
 "status" VARCHAR(45),
 "rush_shipping_time" VARCHAR(45),
 "province" VARCHAR(45) NOT NULL,
 "shipping_instruction" VARCHAR(45),
 "rush_shipping_instruction" VARCHAR(45),
 "is_rush_shipping" INTEGER,
 CONSTRAINT "fk_order_user" FOREIGN KEY("userID") REFERENCES
 "User"("id"),
 PRIMARY KEY("id" AUTOINCREMENT)
);
- INSERT INTO "Media" VALUES
 (38, 'book', 'story', 32, 12, 'book2', 29, 'assets/images/book/book2.jpg'
 ');
- INSERT INTO "Media" VALUES
 (39, 'book', 'adventure', 21, 2, 'book9', 20, 'assets/images/book/book9.
 jpg');
- INSERT INTO "Media" VALUES
 (40, 'book', 'adventure', 73, 11, 'book10', 69, 'assets/images/book/book
 10.jpg');
- INSERT INTO "Media" VALUES
 (41, 'book', 'story', 66, 2, 'book6', 62, 'assets/images/book/book6.jpg'
);
- INSERT INTO "Media" VALUES
 (42, 'cd', 'pop', 24, 6, 'cd7', 20, 'assets/images/cd/cd7.jpg');
- INSERT INTO "Media" VALUES
 (43, 'book', 'story', 50, 7, 'book12', 44, 'assets/images/book/book12.jp
 g');
- INSERT INTO "Media" VALUES
 (44, 'book', 'story', 57, 10, 'book4', 53, 'assets/images/book/book4.jpg
 ');
- INSERT INTO "Media" VALUES
 (45, 'cd', 'pop', 66, 8, 'cd3', 60, 'assets/images/cd/cd3.jpg');
- INSERT INTO "Media" VALUES
 (46, 'book', 'bussiness', 79, 17, 'book1', 72, 'assets/images/book/book1
 .jpg');
- INSERT INTO "Media" VALUES
 (47, 'dvd', 'cartoon', 82, 1, 'dvd12', 78, 'assets/images/dvd/dvd12.jpg'
);
- INSERT INTO "Media" VALUES
 (48, 'book', 'science', 25, 10, 'book3', 22, 'assets/images/book/book3.j
 pg');

- INSERT INTO "Media" VALUES (49,'dvd','science fiction',75,3,'dvd10',74,'assets/images/dvd/dvd10.jpg');
- INSERT INTO "Media" VALUES (50,'book','bussiness',26,4,'book11',19,'assets/images/book/book11.jpg');
- INSERT INTO "Media" VALUES (51,'dvd','action',61,18,'dvd11',52,'assets/images/dvd/dvd11.jpg');
- INSERT INTO "Media" VALUES (52,'cd','rock',40,4,'cd4',35,'assets/images/cd/cd4.jpg');
- INSERT INTO "Media" VALUES (53,'dvd','action',70,16,'dvd9',60,'assets/images/dvd/dvd9.jpg');
- INSERT INTO "Media" VALUES (54,'dvd','romance',47,19,'dvd2',39,'assets/images/dvd/dvd2.jpg');
- INSERT INTO "Media" VALUES (55,'cd','pop',74,6,'cd2',71,'assets/images/cd/cd2.jpg');
- INSERT INTO "Media" VALUES (56,'cd','rock',70,20,'cd1',60,'assets/images/cd/cd1.jpg');
- INSERT INTO "Media" VALUES (57,'book','adventure',38,2,'book8',36,'assets/images/book/book8.jpg');
- INSERT INTO "Media" VALUES (58,'dvd','cartoon',55,13,'dvd3',51,'assets/images/dvd/dvd3.jpg');
- INSERT INTO "Media" VALUES (59,'dvd','action',28,1,'dvd6',26,'assets/images/dvd/dvd6.jpg');
- INSERT INTO "Media" VALUES (60,'dvd','romance',38,17,'dvd4',33,'assets/images/dvd/dvd4.jpg');
- INSERT INTO "Media" VALUES (61,'cd','pop',42,15,'cd12',38,'assets/images/cd/cd12.jpg');
- INSERT INTO "Media" VALUES (62,'book','bussiness',34,15,'book5',29,'assets/images/book/book5.jpg');
- INSERT INTO "Media" VALUES (63,'cd','ballad',99,4,'cd5',92,'assets/images/cd/cd5.jpg');
- INSERT INTO "Media" VALUES (64,'cd','pop',38,10,'cd8',32,'assets/images/cd/cd8.jpg');
- INSERT INTO "Media" VALUES (65,'cd','classic',37,10,'cd6',31,'assets/images/cd/cd6.jpg');
- INSERT INTO "Media" VALUES (66,'book','bussiness',93,15,'book7',88,'assets/images/book/book7.jpg');
- INSERT INTO "Media" VALUES (67,'cd','classic',25,5,'cd9',23,'assets/images/cd/cd9.jpg');
- INSERT INTO "Media" VALUES (68,'dvd','romance',71,4,'dvd5',64,'assets/images/dvd/dvd5.jpg');

- INSERT INTO "Media" VALUES
(69,'cd','pop',97,17,'cd10',89,'assets/images/cd/cd10.jpg');
- INSERT INTO "Media" VALUES
(70,'dvd','romance',47,19,'dvd8',37,'assets/images/dvd/dvd8.jpg')
;
- INSERT INTO "Media" VALUES (71,'dvd','science
fiction',95,11,'dvd1',92,'assets/images/dvd/dvd1.jpg');
- INSERT INTO "Media" VALUES
(72,'dvd','action',23,9,'dvd7',16,'assets/images/dvd/dvd7.jpg');
- INSERT INTO "Media" VALUES
(73,'cd','classic',28,3,'cd11',20,'assets/images/cd/cd11.jpg');
- CREATE INDEX IF NOT EXISTS "OrderMedia.fk_ordermedia_order_idx"
ON "OrderMedia" (
 "orderID"
);
- CREATE INDEX IF NOT EXISTS "Transaction.fk_transaction_order_idx"
ON "Transaction" (
 "orderID"
);
- CREATE INDEX IF NOT EXISTS "Card.fk_card_user_idx" ON "Card" (
 "userID"
);
- CREATE INDEX IF NOT EXISTS "Order.fk_order_user_idx" ON "Order" (
 "userID"
);
- COMMIT;