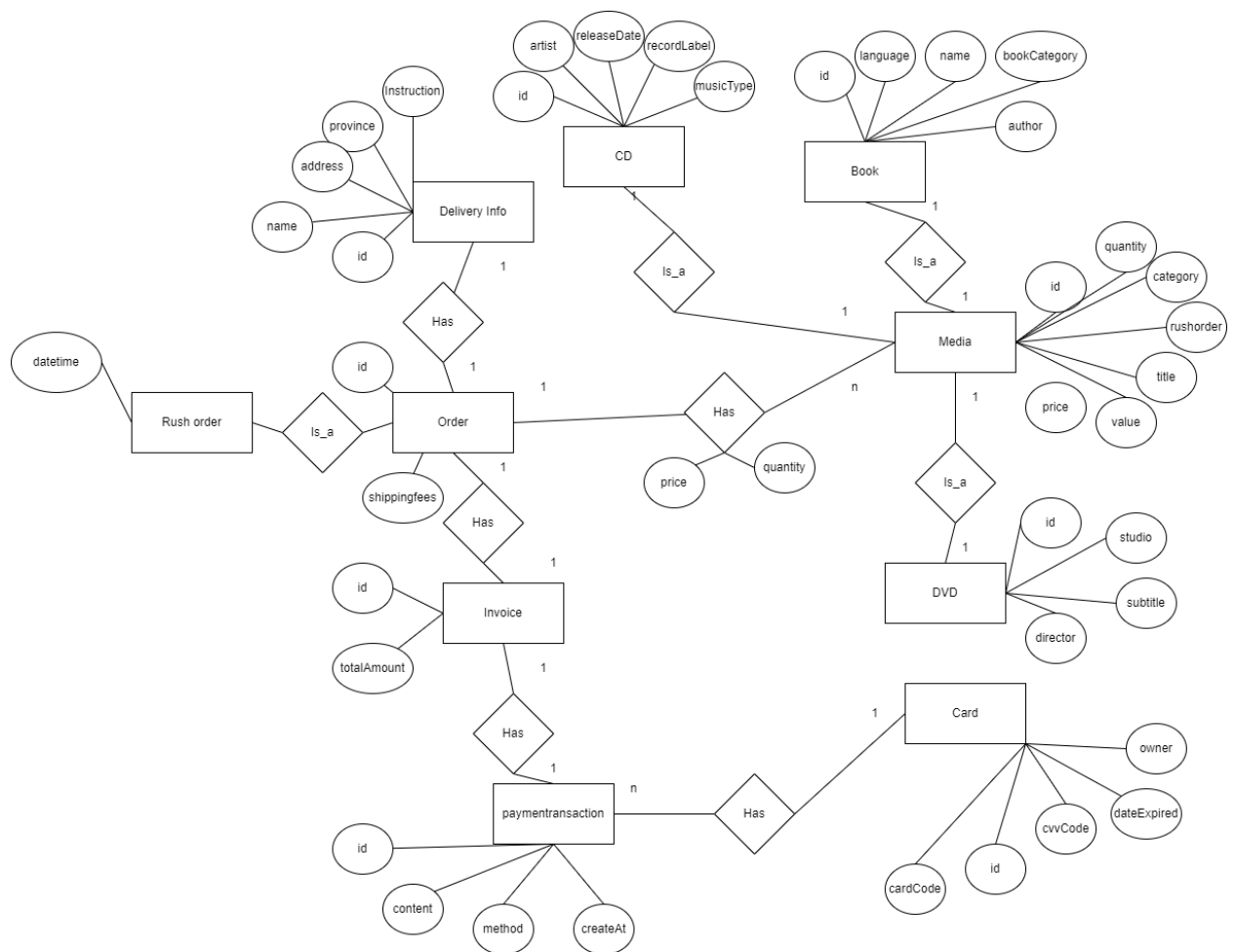


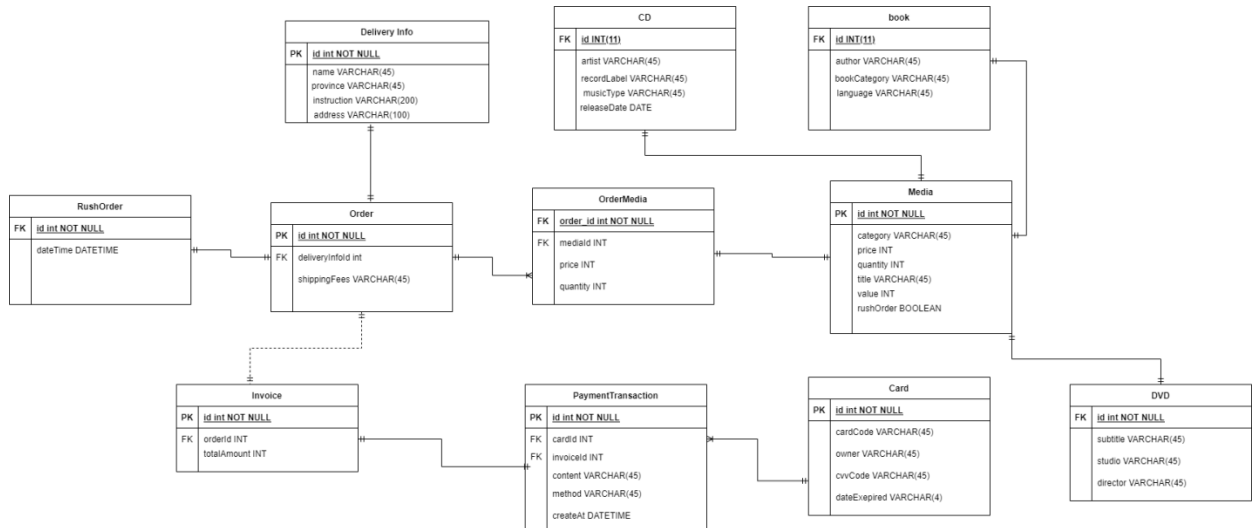
ITSS SOFTWARE DEVELOPMENT

Lab 07 – Data Modeling

ER diagram for AIMS.



Logical Data Model



Physical Data Model

- Media

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Integer	Yes	ID, auto increment
2.			category	VARCHAR(45)	Yes	Media type, e.g., CD, DVD
3.			price	Integer	Yes	Current price
4.			quantity	Integer	Yes	Number of products

#	PK	FK	Column Name	Data type	Mandatory	Description
5.			title	VARCHAR(45)	Yes	Product name
6.			value	Integer	Yes	Value of the product
7.			imageUrl	VARCHAR(45)	Yes	Product image path
8.			rushOrder	boolean	Yes	Support rush order or not

- CD

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		x	id	Integer	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	Integer	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	DATETIME	Yes	Date of publishing
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#	PK	FK	Column Name	Data type	Mandatory	Description
6.			numOfPages	Integer	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	Integer	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.			studio	VARCHAR(45)	Yes	Manufacturer
5.			subtitle	VARCHAR(45)	Yes	Subtitles
6.			releasedDate	DATETIME	Yes	Release date

- Card

#	PK	FK	Column Name	Data type	Mandatory	Description
1.	x		id	Integer	Yes	ID, auto increment
2.			cardCode	VARCHAR(45)	Yes	Card code

#	PK	FK	Column Name	Data type	Mandatory	Description
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	Integer	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	Integer	Yes	ID
2.			shippingFees	VARCHAR(45)	Yes	Shipping fee
3.		X	deliveryInfoId	Integer	Yes	Delivery Info ID

- **Rush Order**

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		X	id	Integer	Yes	ID

2.			dateTime	DATETIME	Yes	
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- **OrderMedia**

#	PK	FK	Column Name	Data type	Mandatory	Description
1.		X	mediaID	Integer	Yes	Media ID
2.		X	orderId	Integer	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	Integer	Yes	ID
2.			totalAmount	Integer	Yes	Total
3.		x	orderId	Integer	Yes	Order ID

- **PaymentTransaction**

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

```

BEGIN;
CREATE TABLE "aims"."Media"(
    "id" INTEGER PRIMARY KEY AUTOINCREMENT 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
);
CREATE TABLE "aims"."CD"(
    "id" INTEGER PRIMARY KEY NOT NULL,
    "artist" VARCHAR(45) NOT NULL,
    "recordLabel" VARCHAR(45) NOT NULL,
    "musicType" VARCHAR(45) NOT NULL,
    "releasedDate" DATE,
    CONSTRAINT "fk_CD_Media1"
        FOREIGN KEY("id")
        REFERENCES "Media"("id")
);
CREATE TABLE "aims"."Book"(
    "id" INTEGER PRIMARY KEY 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_Media1"
            FOREIGN KEY("id")
            REFERENCES "Media"("id")
    );

CREATE TABLE "aims"."DeleveryInfo"(
    "id" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL,
    "name" VARCHAR(45),
    "province" VARCHAR(45),
    "instructions" VARCHAR(200),
    "address" VARCHAR(100)
);

CREATE TABLE "aims"."Card"(
    "id" INTEGER PRIMARY KEY AUTOINCREMENT NOT NULL,
    "cardCode" VARCHAR(15) NOT NULL,
    "owner" VARCHAR(45) NOT NULL,
    "cvvCode" VARCHAR(3) NOT NULL,
    "dateExpired" VARCHAR(4) NOT NULL
);

CREATE TABLE "aims"."DVD"(
    "id" INTEGER PRIMARY KEY 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,
    CONSTRAINT "fk_DVD_Media1"
        FOREIGN KEY("id")
        REFERENCES "Media"("id")
);

CREATE TABLE "aims"."Order"(

```



```

        "id" INTEGER NOT NULL,
        "shippingFees" VARCHAR(45),
        "deleveryInfold" INTEGER NOT NULL,
        PRIMARY KEY("id","deleveryInfold"),
        CONSTRAINT "fk_Order_DeleveryInfo1"
            FOREIGN KEY("deleveryInfold")
            REFERENCES "DeleveryInfo"("id")
    );

CREATE INDEX "aims"."Order.fk_Order_DeleveryInfo1_idx" ON "Order"
("deleveryInfold");

CREATE TABLE "aims"."RushOrder"(
    "id" INTEGER PRIMARY KEY NOT NULL,
    "dateTime" DATETIME,
    CONSTRAINT
        "fk_RushOder_Order"
            FOREIGN KEY("id")
            REFERENCES "Order"("id")
);

CREATE TABLE "aims"."OrderMedia"(
    "orderID" INTEGER NOT NULL,
    "price" INTEGER NOT NULL,
    "quantity" INTEGER NOT NULL,
    "mediaId" INTEGER 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 "aims"."OrderMedia.fk_ordermedia_order_idx" ON "OrderMedia" ("orderId");

CREATE INDEX "aims"."OrderMedia.fk_OrderMedia_Media1_idx" ON "OrderMedia" ("mediaId");

CREATE TABLE "aims"."Invoice"(
 "id" INTEGER PRIMARY KEY NOT NULL,
 "totalAmount" INTEGER NOT NULL,
 "orderId" INTEGER NOT NULL,

 CONSTRAINT "fk_Invoice_Order1"
 FOREIGN KEY("orderId")
 REFERENCES "Order"("id")

);

CREATE INDEX "aims"."Invoice.fk_Invoice_Order1_idx" ON "Invoice" ("orderId");

CREATE TABLE "aims"."PaymentTransaction"(
 "id" INTEGER NOT NULL,
 "createAt" DATETIME NOT NULL,
 "content" VARCHAR(45) NOT NULL,
 "method" VARCHAR(45),
 "cardId" INTEGER NOT NULL,
 "invoiceId" INTEGER NOT NULL,
 PRIMARY KEY("id","cardId","invoiceId"),

 CONSTRAINT "fk_PaymentTransaction_Card1"
 FOREIGN KEY("cardId")
 REFERENCES "Card"("id"),

 CONSTRAINT "fk_PaymentTransaction_Invoice1"
 FOREIGN KEY("invoiceId")
 REFERENCES "Invoice"("id")

);

CREATE INDEX "aims"."PaymentTransaction.fk_PaymentTransaction_Card1_idx" ON "PaymentTransaction" ("cardId");

```
CREATE INDEX "aims"."PaymentTransaction.fk_PaymentTransaction_Invoice1_idx"  
ON "PaymentTransaction" ("invoiceId");  
COMMIT;
```
