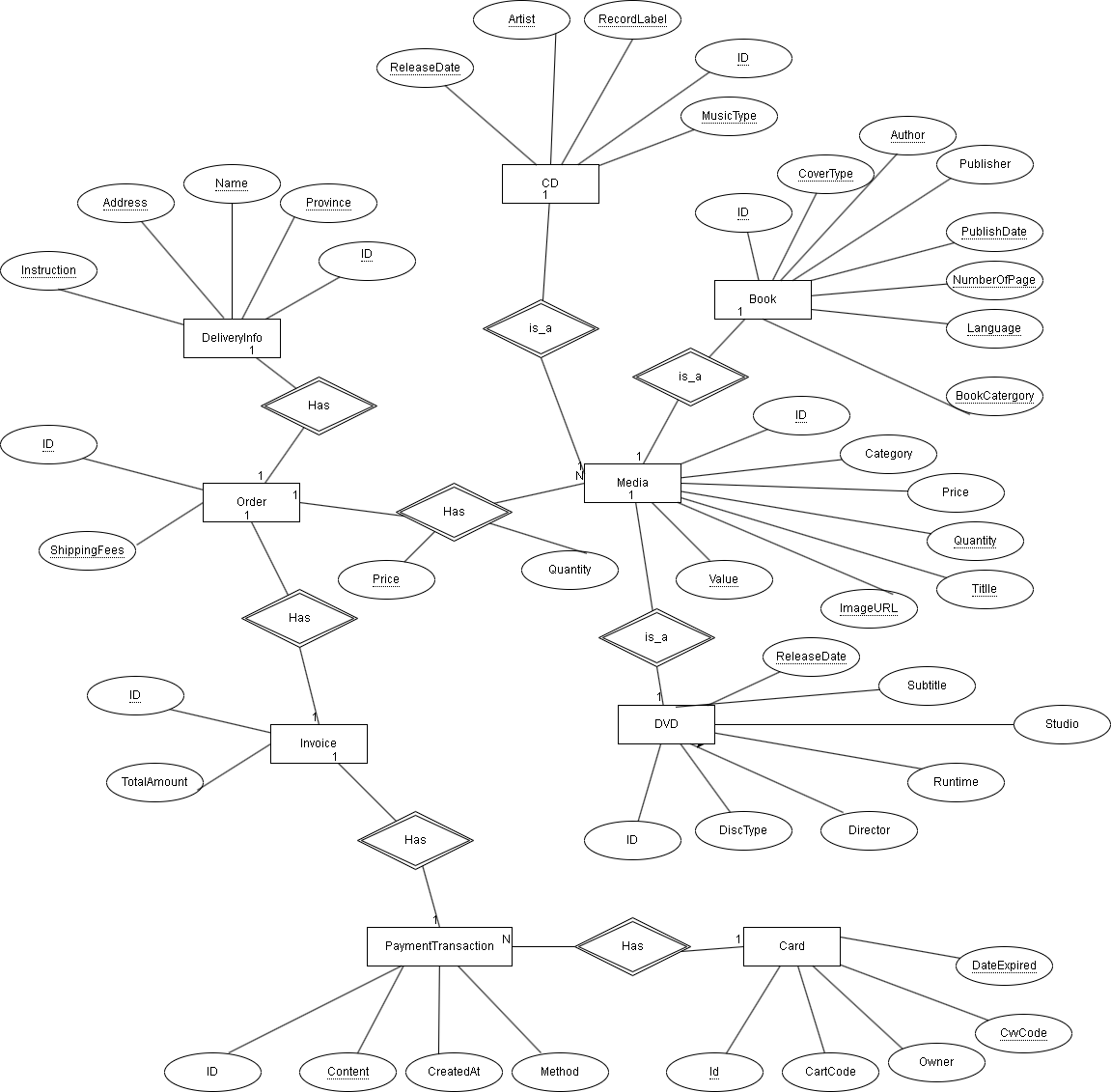
1. **Conceptual data model: Entity-Relation Diagram (ERD)**



1. **Logical data model: Database Design Diagram**

**A diagram of a computer

Description automatically generated**

1. **Physical data model:**
   1. **Table DeliveryInformation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  |  | address | VARCHAR(100) | Yes | Delivery address |
| **3** |  |  | province | VARCHAR(45) | Yes | Provinces |
| **4** |  |  | name | VARCHAR(45) | Yes | Receiver name |
| **5** |  |  | phone | VARCHAR(20) | Yes | Contact number |
| **6** |  |  | shipping\_method | INT | Yes | Shipping Method (normal: 0, rush: 1) |
| **7** |  |  | instructions | VARCHAR(200) | No | Delivery Instructions |

* 1. **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 type (CD, DVD, Book, LP) |
| **4** |  |  | value | INT | Yes | Product value |
| **5** |  |  | quantity | INT | Yes | Number of products |
| **6** |  |  | title | VARCHAR(100) | Yes | Product name |
| **7** |  |  | imageUrl | VARCHAR(200) | No | Product image path |

* 1. **Table CD**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** |  | x | id | INT | Yes | ID, same ID of Media of which category is CD |
| **2** |  |  | artist | VARCHAR(45) | Yes | Artist’s name |
| **3** |  |  | record\_label | VARCHAR(45) | Yes | Record Label |
| **4** |  |  | music\_type | VARCHAR(45) | Yes | Music genres |
| **5** |  |  | track\_list | VARCHAR(200) | No | Track list songs |
| **6** |  |  | release\_date | DATETIME | No | Release Date |

* 1. **Table Book**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** |  | x | id | INT | Yes | ID, same ID of Media of which category is Book |
| **2** |  |  | author | VARCHAR(45) | Yes | Author’s name |
| **3** |  |  | cover\_type | VARCHAR(45) | Yes | Cover Type |
| **4** |  |  | number\_of\_pages | INT | Yes | Page number |
| **5** |  |  | language | VARCHAR(45) | Yes | Language |
| **6** |  |  | book\_category | VARCHAR(45) | Yes | Type of Book |
| **7** |  |  | publisher | VARCHAR(100) | Yes | Publishing house |
| **8** |  |  | publish\_date | DATETIME | Yes | Date of publishing |

* 1. **Table DVD**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** |  | x | id | INT | Yes | ID, same ID of Media of which category is DVD |
| **2** |  |  | director | VARCHAR(45) | Yes | Director’s name |
| **3** |  |  | disk\_type | 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** |  |  | release\_date | DATETIME | Yes | Release Date |

* 1. **Table LP**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** |  | x | id | INT | Yes | ID, same ID of Media of which category is LP |
| **2** |  |  | artist | VARCHAR(45) | Yes | Artist’s name |
| **3** |  |  | record\_label | VARCHAR(45) | Yes | Record Label |
| **4** |  |  | music\_type | VARCHAR(45) | Yes | Music genres |
| **5** |  |  | track\_list | VARCHAR(200) | Yes | Track list songs |
| **6** |  |  | release\_date | DATETIME | Yes | Release Date |

* 1. **Table Order**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  |  | shipping\_fee | DOUBLE | Yes | Shipping fee |
|  |  | x | delivery\_info\_id | INT | Yes | Delivery Information ID |

* 1. **Table Order\_Media**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  | x | media\_id | VARCHAR(100) | Yes | Media ID |
| **3** |  | x | order\_id | VARCHAR(45) | Yes | Order ID |
| **4** |  |  | price | DOUBLE | Yes | Selling price |
| **5** |  |  | quantity | INT | Yes | Number of ordered item |

* 1. **Table Invoice**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  |  | total\_amount | INT | Yes | Totals of items |
| **3** |  |  | total\_price | DOUBLE | Yes | Total of price (include VAT) |
| **4** |  | x | order\_id | INT | Yes | Order ID |

* 1. **Table PaymentTransaction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  |  | amount | DOUBLE | Yes | Transaction Money |
| **3** |  |  | content | VARCHAR(100) | Yes | Transaction contents |
| **4** |  |  | method | VARCHAR(45) | Yes | Payment Methods |
| **5** |  |  | transaction\_time | DATETIME | Yes | Date of creation a transaction |
| **6** |  |  | error\_message | VARCHAR(100) | Yes | Message of error |
| **7** |  | x | card\_id | INT | Yes | ID of used card |
| **8** |  | x | invoice\_id | INT | Yes | Invoice ID |

* 1. **Table Card**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **STT** | **PK** | **FK** | **Column Name** | **Data Type** | **Mandatory** | **Description** |
| **1** | x |  | id | INT | Yes | ID, auto increment |
| **2** |  |  | card\_number | VARCHAR(45) | Yes | Card Number of customer |
| **3** |  |  | card\_holder\_name | VARCHAR(45) | Yes | Card holders |
| **4** |  |  | issuing\_bank | VARCHAR(45) | Yes | Bank’s name |
| **5** |  |  | bank\_code | VARCHAR(45) | Yes | Bank Code |
| **6** |  |  | expiredAt | DATETIME | Yes | Expire Date |

1. **Database Script from Logical Data Model**

CREATE DATABASE "aims" /\*!40100 DEFAULT CHARACTER SET utf8mb4 COLLATE utf8mb4\_0900\_ai\_ci \*/ /\*!80016 DEFAULT ENCRYPTION='N' \*/;

CREATE TABLE "deliveryinformation" (

"id" int NOT NULL AUTO\_INCREMENT,

"address" varchar(100) NOT NULL,

"province" varchar(45) NOT NULL,

"name" varchar(45) NOT NULL,

"phone" varchar(20) NOT NULL,

"shipping\_method" int NOT NULL,

"instructions" varchar(200) DEFAULT NULL,

PRIMARY KEY ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "media" (

"id" int NOT NULL AUTO\_INCREMENT,

"price" int NOT NULL,

"category" varchar(45) NOT NULL,

"value" int NOT NULL,

"quantity" int NOT NULL,

"title" varchar(100) NOT NULL,

"imageUrl" varchar(200) DEFAULT NULL,

PRIMARY KEY ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "book" (

"id" int NOT NULL,

"author" varchar(45) NOT NULL,

"cover\_type" varchar(45) NOT NULL,

"number\_of\_pages" int NOT NULL,

"language" varchar(45) NOT NULL,

"book\_category" varchar(45) NOT NULL,

"publisher" varchar(100) NOT NULL,

"publish\_date" datetime NOT NULL,

KEY "media\_book\_idx" ("id"),

CONSTRAINT "fk\_media\_book" FOREIGN KEY ("id") REFERENCES "media" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "cd" (

"id" int NOT NULL,

"artist" varchar(45) NOT NULL,

"record\_label" varchar(45) NOT NULL,

"music\_type" varchar(45) NOT NULL,

"track\_list" varchar(200) DEFAULT NULL,

"release\_date" datetime DEFAULT NULL,

KEY "media\_cd\_idx" ("id"),

CONSTRAINT "fk\_media\_cd" FOREIGN KEY ("id") REFERENCES "media" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "dvd" (

"id" int NOT NULL,

"director" varchar(45) NOT NULL,

"disk\_type" varchar(45) NOT NULL,

"subtitle" varchar(45) NOT NULL,

"studio" varchar(45) NOT NULL,

"language" varchar(45) NOT NULL,

"runtime" int NOT NULL,

"release\_date" datetime NOT NULL,

PRIMARY KEY ("id"),

CONSTRAINT "fk\_dvd\_media" FOREIGN KEY ("id") REFERENCES "media" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "lp" (

"id" int NOT NULL,

"artist" varchar(45) NOT NULL,

"record\_label" varchar(45) NOT NULL,

"music\_type" varchar(45) NOT NULL,

"track\_list" varchar(200) DEFAULT NULL,

"release\_date" datetime DEFAULT NULL,

PRIMARY KEY ("id"),

CONSTRAINT "fk\_lp\_media" FOREIGN KEY ("id") REFERENCES "media" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "card" (

"id" int NOT NULL AUTO\_INCREMENT,

"card\_number" varchar(45) NOT NULL,

"card\_holder\_name" varchar(45) NOT NULL,

"issuing\_bank" varchar(45) NOT NULL,

"bank\_code" varchar(45) NOT NULL,

"expiredAt" datetime NOT NULL,

PRIMARY KEY ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "order" (

"id" int NOT NULL,

"shipping\_fee" double NOT NULL,

"delivery\_info\_id" int NOT NULL,

PRIMARY KEY ("id"),

KEY "fk\_order\_delivery\_idx" ("delivery\_info\_id"),

CONSTRAINT "fk\_order\_delivery" FOREIGN KEY ("delivery\_info\_id") REFERENCES "deliveryinformation" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "order\_media" (

"id" int NOT NULL AUTO\_INCREMENT,

"media\_id" int NOT NULL,

"order\_id" int NOT NULL,

"price" double NOT NULL,

"quantity" int NOT NULL,

PRIMARY KEY ("id"),

KEY "fk\_order\_media\_media\_idx" ("media\_id"),

KEY "fk\_order\_media\_order\_idx" ("order\_id"),

CONSTRAINT "fk\_order\_media\_media" FOREIGN KEY ("media\_id") REFERENCES "media" ("id"),

CONSTRAINT "fk\_order\_media\_order" FOREIGN KEY ("order\_id") REFERENCES "order" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "invoice" (

"id" int NOT NULL,

"total\_amount" int NOT NULL,

"total\_price" double NOT NULL,

"order\_id" int NOT NULL,

PRIMARY KEY ("id"),

KEY "fk\_invoice\_order\_idx" ("order\_id"),

CONSTRAINT "fk\_invoice\_order" FOREIGN KEY ("order\_id") REFERENCES "order" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE "paymenttransaction" (

"id" int NOT NULL AUTO\_INCREMENT,

"amount" int NOT NULL,

"content" varchar(100) NOT NULL,

"method" varchar(45) NOT NULL,

"transaction\_time" datetime NOT NULL,

"error\_message" varchar(100) NOT NULL,

"card\_id" int NOT NULL,

"invoice\_id" int NOT NULL,

PRIMARY KEY ("id"),

KEY "fk\_payment\_card\_idx" ("card\_id"),

KEY "fk\_payment\_invoice\_idx" ("invoice\_id"),

CONSTRAINT "fk\_payment\_card" FOREIGN KEY ("card\_id") REFERENCES "card" ("id"),

CONSTRAINT "fk\_payment\_invoice" FOREIGN KEY ("invoice\_id") REFERENCES "invoice" ("id")

) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;