**ISEM 3006 Data Management in Business**

**Downtown Video Database**

DownTown Videos is a chain video rental store with many branches. Each branch has a stock of movies for rent. It is important to keep track of each movie title to identify its category (classical, drama, comedy, and so on), release date, and current rental charge. In addition to tracking each movie title, the business must track each indi­vidual disc (DVD or Blue-ray Disc) to note its purchase date and purchase cost. The branch that owns that disc must also be recorded. DownTown records the customer number, name, and phone number for its customers. Each time a disc is rented, the system must keep track of which disc is rented, the rental date, the due date, and the customer renting the disc. Customers pay for rentals when checking out discs at the branches.

The entity-relationship model on the next page was developed to support the operation of DownTown Videos. The Movie entity type holds the information about a movie; the Charge is the current rental charge for that movie. This charge may change over time. The company may have many discs of the same movie. For example, the company has 3 DVD of the movie 'A Christmas Story'. The information of individual disc is stored in the Disc entity type. The primary key is DiscID. The MovieNo in the Disc entity type is a foreign key that refers to the MovieNo of the Movie entity type.

A branch can held a lot of discs. It can even held multiple discs of the same movie. However, if it is a new branch undergoing renovation, it may hold none. One disc is held by only one branch. The BranchNo in the Disc entity type, which indicate the branch holding the disc, is a foreign key that refers to the BranchNo in the Branch entity type.

Customers rent discs of movies. A customer can make many rentals, but a customer can have no related rental record if he or she is a new customer. The Rental entity type holds the detail of each rental. In each rental, a customer may rent many discs. The RentalItem entity type holds the detail of each rental item. The rental charge in RentalItem is the price charged when the rental was made. It can be different from the current charge in the Movie entity type because the company can change the rental charge for a movie over time. The primary key of RentalItem is a combination of RentalID and DiscID. RentalID is also a foreign key that refers to the RentalID in Rental. DiscID is a foreign key which refers to the DiscID in the Disc entity type.

**Entity Relationship Diagram**



**Relational Diagram**



The following tables show the records from the DownTown Video Database.

Branch

|  |  |  |
| --- | --- | --- |
| BranchNo | BranchAddress | BranchPhone |
| 88 | 111 Happy Village | 3422-6789 |
| 99 | 20 Renfrew Road | 3455-9987 |
| 44 | 88 Lucky Drive | 3466-8899 |
| 55 | 53 Good Mall | 5566-1234 |

Movie

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MovieNo | MovieTitle | ReleaseDate | Charge | Category |
| 1 | Batman Ultimate | 2015-09-01 | 20 | Action |
| 2 | Happy Life | 2016-07-03 | 10 | Thriller |
| 3 | A Christmas Story | 2016-11-05 | 5 | Drama |
| 4 | Pyramid Raider | 2013-11-15 | 10 | Action |

Disc

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DiscID | MovieNo | DatePurchased | Cost | BranchNo |
| 1001 | 1 | 2015-09-15 | 200 | 88 |
| 1002 | 1 | 2015-09-25 | 200 | 99 |
| 2001 | 2 | 2016-07-04 | 300 | 99 |
| 3001 | 3 | 2016-11-10 | 150 | 88 |
| 3002 | 3 | 2017-02-22 | 120 | 99 |
| 4001 | 4 | 2016-05-09 | 300 | 99 |
| 3003 | 3 | 2017-05-05 | 120 | 44 |
| 1003 | 1 | 2018-02-27 | 100 | 88 |
| 1004 | 1 | 2018-03-15 | 85 | 99 |

Rental Customer

|  |  |  |
| --- | --- | --- |
| RentalID | RentalDate | CustomerNo |
| 1 | 2016-11-10 | 678 |
| 2 | 2017-05-15 | 678 |
| 3 | 2018-09-13 | 777 |

|  |  |  |
| --- | --- | --- |
| CustomerNo | CustomerName | CustomerPhone |
| 678 | Stella Chan | 9344-1234 |
| 777 | Paul Yeung | 9988-9889 |
| 909 | Tony Hung | 3333-4444 |

RentalItem

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RentalID | DiscID | RentalCharge | DueDate | ReturnDate |
| 1 | 1002 | 40 | 2016-11-16 | 2016-11-13 |
| 2 | 2001 | 10 | 2017-05-16 | 2017-05-20 |
| 2 | 3002 | 10 | 2017-05-21 |  |
| 2 | 4001 | 15 | 2017-05-21 | 2017-05-20 |
| 3 | 1002 | 20 | 2018-09-20 |  |
| 3 | 4001 | 10 | 2018-10-30 |  |