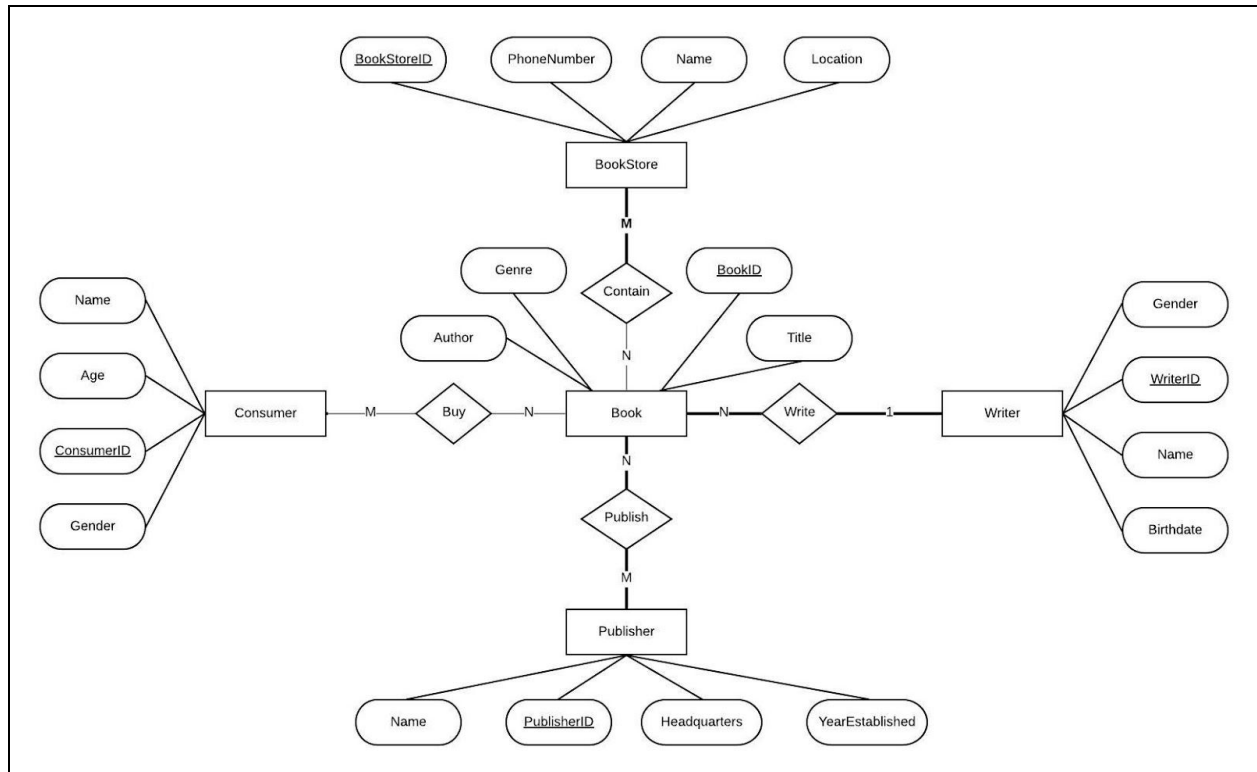


IB CS: Database Building

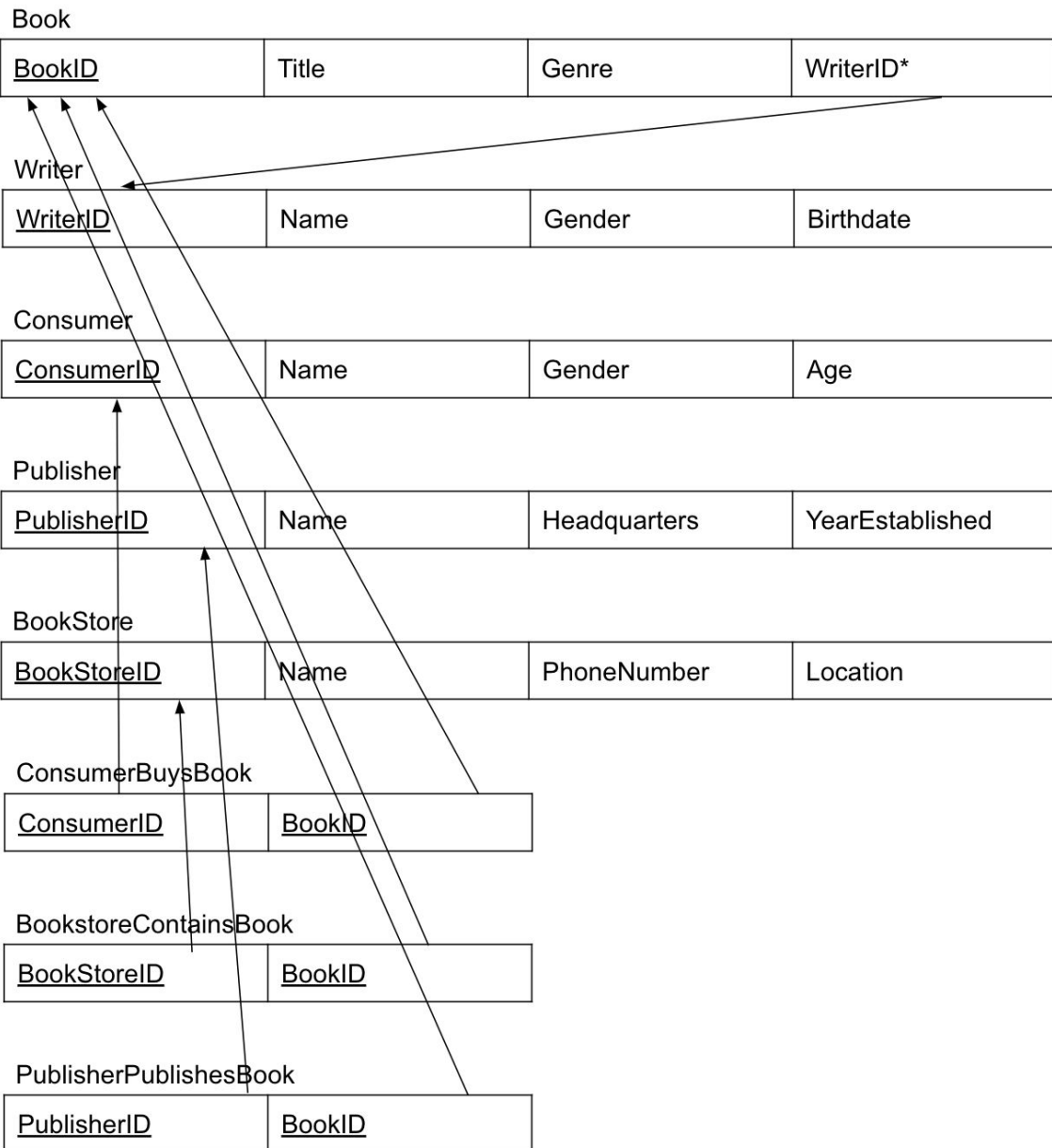
Hina Sekine and Tung Hoang

Example 2: Consumers buy novels all the time in bookstores. Novels are written by one writer. Each novel can be published by multiple publishers (due to different languages and different publication dates). A bookstore contains a variety of books.

Entity Relationship Diagram (Hina)



Relational Map (Tung)



Data Dictionary (Hina)

Book

<u>BookID</u>	INT	NOT NULL
Title	VARCHAR(100)	NOT NULL
Genre	VARCHAR(50)	NOT NULL
WriterID*	INT	NOT NULL

Publisher

<u>PublisherID</u>	INT	NOT NULL
Name	VARCHAR(100)	NOT NULL
Headquarters	VARCHAR(100)	NOT NULL
YearEstablished	DATE	NOT NULL

Writer

<u>WriterID</u>	INT	NOT NULL
Name	VARCHAR(100)	NOT NULL
Gender	VARCHAR(10)	NOT NULL
Birthdate	DATE	NOT NULL

Consumer

<u>ConsumerID</u>	INT	NOT NULL
Name	VARCHAR(100)	NOT NULL
Gender	VARCHAR(10)	NOT NULL
Birthdate	DATE	NOT NULL

BookStore

<u>BookStoreID</u>	INT	NOT NULL
Name	VARCHAR(100)	NOT NULL

PhoneNumber	INT	NOT NULL
Location	VARCHAR(100)	NOT NULL

ConsumerBuysBook

<u>ConsumerID</u>	INT	NOT NULL
<u>BookID</u>	INT	NOT NULL

BookStoreContainsBook

<u>BookStoreID</u>	INT	NOT NULL
<u>BookID</u>	INT	NOT NULL

PublisherPublishesBooks

<u>PublisherID</u>	INT	NOT NULL
<u>BookID</u>	INT	NOT NULL

Data Definition Language (Tung)

```
DROP TABLE IF EXISTS ConsumerBuysBook;  
DROP TABLE IF EXISTS BookStoreContainsBook;  
DROP TABLE IF EXISTS PublisherPublishesBook;  
DROP TABLE IF EXISTS Book;  
DROP TABLE IF EXISTS Publisher;  
DROP TABLE IF EXISTS Writer;  
DROP TABLE IF EXISTS Consumer;  
DROP TABLE IF EXISTS BookStore;
```

```
CREATE TABLE Writer
```

```
(  
    WriterID INTEGER NOT NULL,  
    Name VARCHAR(100) NOT NULL,  
    Gender VARCHAR(10) NOT NULL,  
    Birthdate DATE NOT NULL,  
    PRIMARY KEY (WriterID)  
);
```

```
CREATE TABLE Book
```

```
(  
    BookID INTEGER NOT NULL,  
    Title VARCHAR(100) NOT NULL,  
    Genre VARCHAR(50) NOT NULL,  
    WriterID INTEGER NOT NULL,  
    PRIMARY KEY (BookID),  
    FOREIGN KEY (WriterID) REFERENCES Writer(WriterID)  
);
```

```
CREATE TABLE Publisher
```

```
(  
    PublisherID INTEGER NOT NULL,  
    Name VARCHAR(100) NOT NULL,  
    Headquarters VARCHAR(50) NOT NULL,  
    YearEstablished DATE NOT NULL,  
    PRIMARY KEY (PublisherID)  
);
```

```
CREATE TABLE Consumer
```

```
(  
    ConsumerID INTEGER NOT NULL,
```

```
    Name VARCHAR(100) NOT NULL,  
    Gender VARCHAR(10) NOT NULL,  
    Birthdate DATE NOT NULL,  
    PRIMARY KEY (ConsumerID)  
);
```

```
CREATE TABLE BookStore  
(  
    BookStoreID INTEGER NOT NULL,  
    Name VARCHAR(100) NOT NULL,  
    PhoneNumber INTEGER NOT NULL,  
    Location VARCHAR(100) NOT NULL,  
    PRIMARY KEY (BookStoreID)  
);
```

```
CREATE TABLE ConsumerBuysBook  
(  
    ConsumerID INTEGER NOT NULL,  
    BookID INTEGER NOT NULL,  
    PRIMARY KEY (ConsumerID, BookID),  
    FOREIGN KEY (ConsumerID) REFERENCES Consumer(ConsumerID),  
    FOREIGN KEY (BookID) REFERENCES Book(BookID)  
);
```

```
CREATE TABLE BookStoreContainsBook  
(  
    BookStoreID INTEGER NOT NULL,  
    BookID INTEGER NOT NULL,  
    PRIMARY KEY (BookStoreID, BookID),  
    FOREIGN KEY (BookStoreID) REFERENCES BookStore(BookStoreID),  
    FOREIGN KEY (BookID) REFERENCES Book(BookID)  
);
```

```
CREATE TABLE PublisherPublishesBook  
(  
    PublisherID INTEGER NOT NULL,  
    BookID INTEGER NOT NULL,  
    PRIMARY KEY (PublisherID, BookID),  
    FOREIGN KEY (PublisherID) REFERENCES Publisher(PublisherID),  
    FOREIGN KEY (BookID) REFERENCES Book(BookID)  
);
```

POPULATING TABLES (Hina)

INSERT INTO Writer (WriterID, Name, Gender, Birthdate) VALUES (1, 'Harper Lee', 'Female', '4/28/1926');

INSERT INTO Writer (WriterID, Name, Gender, Birthdate) VALUES (2, 'Jane Austen', 'Female', '12/16/1775');

INSERT INTO Book (BookID, Title, Genre, WriterID) VALUES (1, 'To Kill a Mockingbird', 'Historical Fiction', 1);

INSERT INTO Book (BookID, Title, Genre, WriterID) VALUES (2, 'Pride and Prejudice', 'Romance', 2);

INSERT INTO Book (BookID, Title, Genre, WriterID) VALUES (3, 'Emma', 'Romance', 2);

INSERT INTO Book (BookID, Title, Genre, WriterID) VALUES (4, 'Sense and Sensibility', 'Romance', 2);

INSERT INTO Book (BookID, Title, Genre, WriterID) VALUES (5, 'Go Set a Watchman', 'Historical Fiction', 1);

INSERT INTO Publisher (PublisherID, Name, Headquarters, YearEstablished) VALUES (1, 'Penguin Books', 'London, United Kingdom', 1935);

INSERT INTO Publisher (PublisherID, Name, Headquarters, YearEstablished) VALUES (2, 'HarperCollins', 'Newyork, Newyork, United States', 1989);

INSERT INTO Consumer (ConsumerID, Name, Gender, Birthdate) VALUES (1, 'Hina Sekine', 'Female', '2/5/2003');

INSERT INTO Consumer (ConsumerID, Name, Gender, Birthdate) VALUES (2, 'Tung Hoang', 'Male', '11/9/2003');

INSERT INTO Consumer (ConsumerID, Name, Gender, Birthdate) VALUES (3, 'Miki Ando', 'Female', '5/17/2002');

INSERT INTO Consumer (ConsumerID, Name, Gender, Birthdate) VALUES (4, 'Albert Wang', 'Male', '9/9/2003');

INSERT INTO BookStore (BookStoreID, Name, PhoneNumber, Location) VALUES (1, 'Lovely Books', 0908777777, '56 Nguyen Duc Canh, Saigon, Vietnam');

INSERT INTO BookStore (BookStoreID, Name, PhoneNumber, Location) VALUES (2, 'Yay Life Books', 09056463647, '48 1st Street, New York');

INSERT INTO ConsumerBuysBook (ConsumerID, BookID) VALUES (1, 2);

INSERT INTO ConsumerBuysBook (ConsumerID, BookID) VALUES (1, 5);

INSERT INTO ConsumerBuysBook (ConsumerID, BookID) VALUES (2, 1);

INSERT INTO ConsumerBuysBook (ConsumerID, BookID) VALUES (3, 1);

INSERT INTO ConsumerBuysBook (ConsumerID, BookID) VALUES (4, 4);


```
INSERT INTO BookStoreContainsBook (BookStoreID, BookID) VALUES (1, 2);  
INSERT INTO BookStoreContainsBook (BookStoreID, BookID) VALUES (1, 3);  
INSERT INTO BookStoreContainsBook (BookStoreID, BookID) VALUES (2, 3);  
INSERT INTO BookStoreContainsBook (BookStoreID, BookID) VALUES (2, 4);
```

```
INSERT INTO PublisherPublishesBook (PublisherID, BookID) VALUES (1, 1);  
INSERT INTO PublisherPublishesBook (PublisherID, BookID) VALUES (1, 5);  
INSERT INTO PublisherPublishesBook (PublisherID, BookID) VALUES (2, 2);  
INSERT INTO PublisherPublishesBook (PublisherID, BookID) VALUES (2, 3);  
INSERT INTO PublisherPublishesBook (PublisherID, BookID) VALUES (2, 4);
```