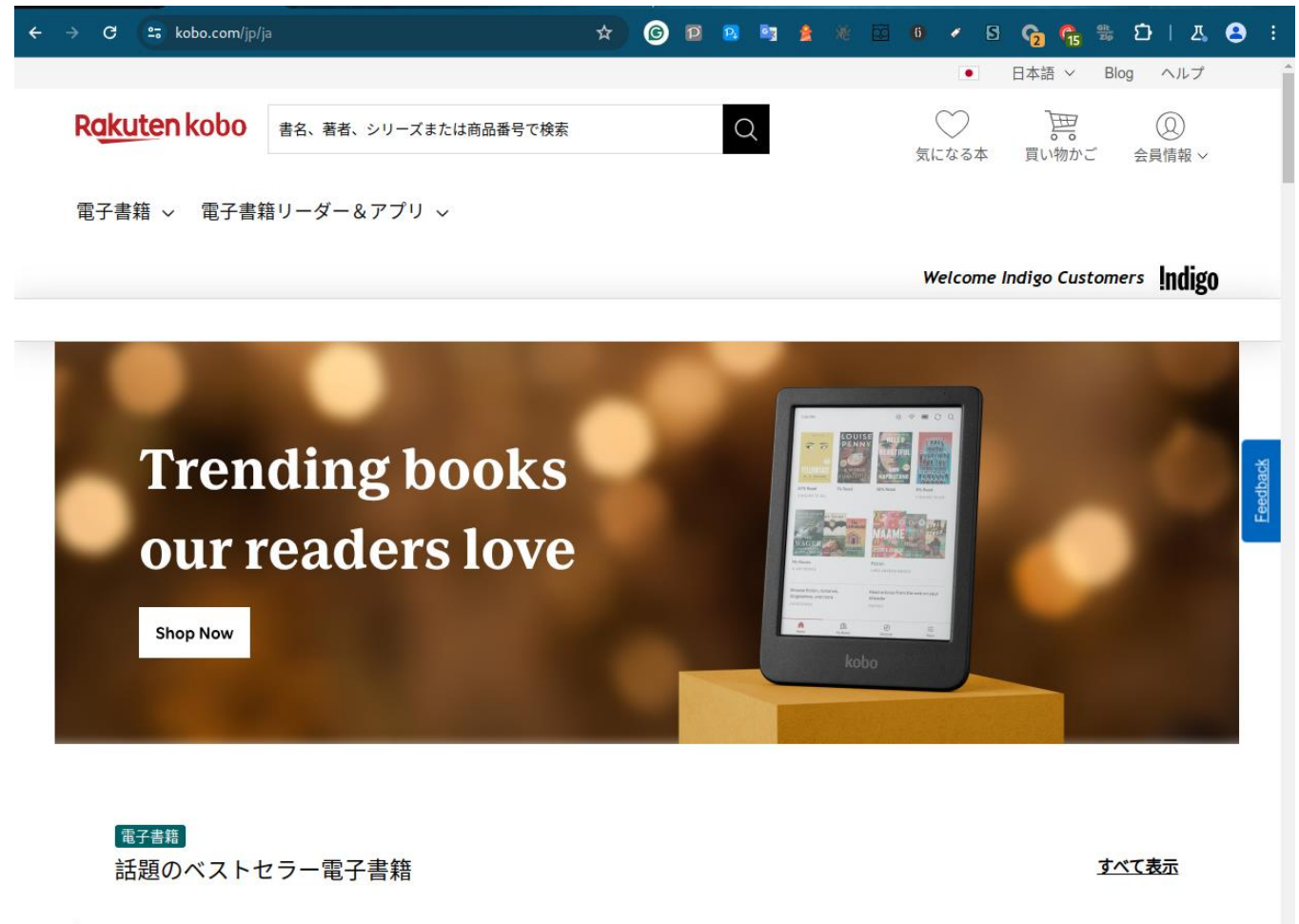


E-Book Management System- Database Design and Implementation

Ruilin Peng(Group 24)

ECE9014 Data Management and
Application



Motivation

北米



アメリカ合衆国



カナダ

アフリカ・インド



インド



南アフリカ

アジア太平洋



オーストラリア



シンガポール



タイ



ニュージーランド



フィリピン



マレーシア



香港

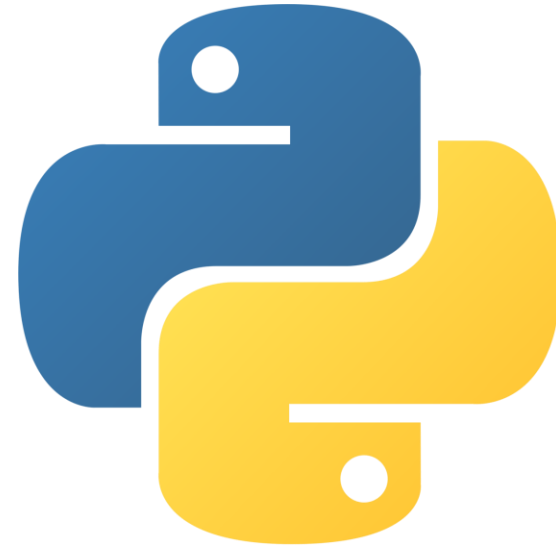


台湾

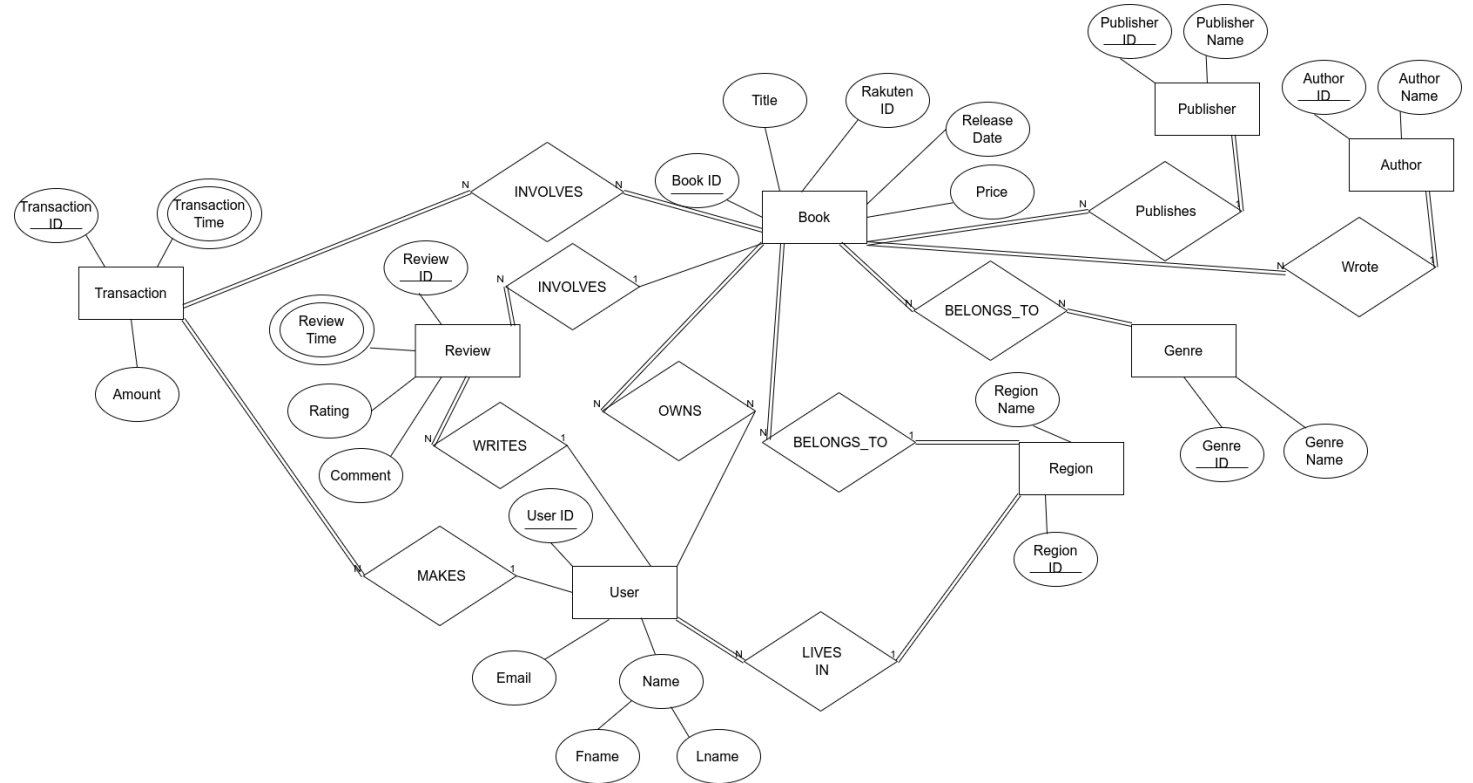


日本

Tech stacks



Database design



Implementation in MariaDB

```
● CREATE TABLE Book (
  book_id INT PRIMARY KEY AUTO_INCREMENT,
  title VARCHAR(200) NOT NULL,
  rakuten_id VARCHAR(20) UNIQUE,
  release_date DATE,
  price DECIMAL(10, 2)
);

● CREATE TABLE Publisher (
  publisher_id INT PRIMARY KEY AUTO_INCREMENT,
  publisher_name VARCHAR(100) NOT NULL
);

● CREATE TABLE Genre (
  genre_id INT PRIMARY KEY AUTO_INCREMENT,
  genre_name VARCHAR(100) NOT NULL
);

● CREATE TABLE Region (
  region_id INT PRIMARY KEY AUTO_INCREMENT,
  region_name VARCHAR(100) NOT NULL
);

● ALTER TABLE Book
  ADD COLUMN publisher_id INT,
  ADD COLUMN region_id INT;

● ALTER TABLE Book
  ADD CONSTRAINT fk_publisher
  FOREIGN KEY (publisher_id) REFERENCES Publisher(publisher_id);

● ALTER TABLE Book
  ADD CONSTRAINT fk_region
  FOREIGN KEY (region_id) REFERENCES Region(region_id);
```



```
● CREATE TABLE Book_Genre (
  book_id INT,
  genre_id INT,
  PRIMARY KEY (book_id, genre_id),
  FOREIGN KEY (book_id) REFERENCES Book(book_id),
  FOREIGN KEY (genre_id) REFERENCES Genre(genre_id)
);
```

```
MariaDB [(none)]> CREATE DATABASE ebook1;
Query OK, 1 row affected (0.007 sec)
MariaDB [(none)]> GRANT ALL PRIVILEGES ON ebook1.*
TO 'ruilin'@'localhost' identified by 'passwd';
Query OK, 0 rows affected (0.010 sec)
MariaDB [(none)]> FLUSH PRIVILEGES ;
Query OK, 0 rows affected (0.012 sec)
```

Data Collection-Web scraping

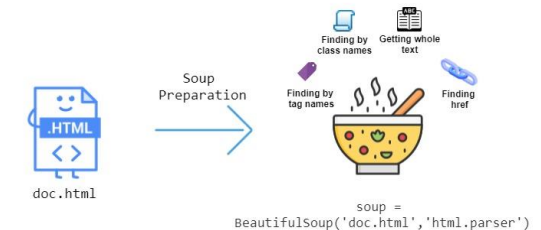


```
# Book details
title = soup.find('h1', class_='title product-field').get_text(strip=True)
```

```
# Rakuten ID (Book ID)
book2ndmeta = soup.find('div', class_='bookitem-secondary-metadata")
table1 = book2ndmeta.find_next('ul')
line = table1.find_all('li')[3]
rakuten_id = line.find_next('span').text.strip()
```

```
# Region
if "/jp/ja/" in url:
    region_id = 3 # Japan
    date_format = "%Y年%m月%d日" # Japanese date format
elif "/tw/zh/" in url:
    region_id = 4 # Taiwan
    date_format = "%Y年%m月%d日" # Taiwanese date format
else:
    region_id = 2 # United States
    date_format = "%B %d, %Y" # English date format
```

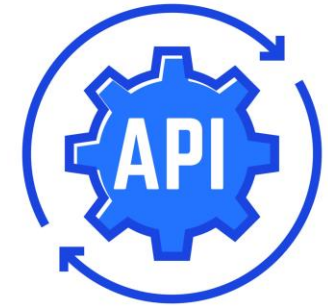
```
LOAD DATA LOCAL INFILE '/home/ruilin/Desktop/ECE9014/Rakuten/books_web_scraped.csv'
INTO TABLE Book
FIELDS TERMINATED BY ',' ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS
(book_id, title, rakuten_id, release_date, price, publisher_id, region_id, description, aut
```



Data import and sample usages

```
SELECT b.*  
FROM Book b  
JOIN Region r ON b.region_id = r.region_id  
WHERE r.region_name = 'Japan'  
ORDER BY price;
```

Book1 X		Output				
		SELECT b.* FROM Book b Enter a SQL expression to filter results (use Ctrl) ▶ ▼				
Grid		book_id	title	rakuten_id	release_date	price
	1	11	小説 君の名は。	4336191000300	2016-06-18	616
	2	5	【推しの子】 8	4972000047588	2022-06-17	659
	3	6	【推しの子】 11	4972000058597	2023-03-17	680
	4	7	【推しの子】 12	4972000064024	2023-07-19	680



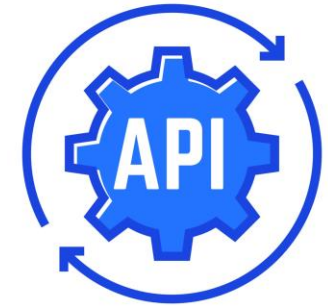
```
INSERT INTO Publisher(publisher_name)  
VALUES  
('Ruilin Press');
```

Statistics 1 X		Output	
Name		Value	
Updated Rows		1	
Query		INSERT INTO Publisher(publisher_name) VALUES ('Ruilin Press')	
Start time		Tue Dec 03 05:10:32 EST 2024	
Finish time		Tue Dec 03 05:10:32 EST 2024	

Data import and sample usages(continued)

```
SELECT b.book_id, b.title, g1.genre_name, g2.genre_name
FROM Book_Genre bg1
JOIN Book_Genre bg2 ON bg1.book_id = bg2.book_id
JOIN Book b ON bg1.book_id = b.book_id
JOIN Genre g1 ON bg1.genre_id = g1.genre_id
JOIN Genre g2 ON bg2.genre_id = g2.genre_id
WHERE g1.genre_name = 'Manga' AND g2.genre_name = 'Romantic';
```

	book_id	title	genre_name	genre_name
1	10	輝夜姫想讓人告白 (9)	Manga	Romantic



```
SELECT t.transaction_id, t.amount, u.user_id, u.fname, u.lname
FROM Transaction t
JOIN User u ON t.user_id = u.user_id
WHERE u.email LIKE 'rpeng%';
```

transaction(+) 1 X

SELECT t.transaction_id, t.amount

transaction_id	amount	user_id	fname	lname
1	1,360	1	Ruilin	Peng
2	659	1	Ruilin	Peng

```
SELECT t.transaction_id, b.title, ti.item_price
FROM Transaction_Items ti
JOIN Transaction t ON ti.transaction_id = t.transaction_id
JOIN Book b ON ti.book_id = b.book_id
WHERE t.transaction_id = 1;
```

transaction(+) 1 X

SELECT t.transaction_id, b.title

transaction_id	title	item_price
1	【推しの子】 11	680
1	【推しの子】 12	680

Conclusion

