

Online Bookstore Database Management System

Project Scope:

Design and implement a SQL database for an online bookstore. The database should handle various aspects of book inventory, customer orders, and administrative functions.

Steps to Implement the Project:

1. Database Design (DDL - Data Definition Language):

- Step 1: Identify and define the entities (tables) needed for the bookstore database. Examples include:
 - Books (ISBN, title, author, publisher, genre, price, etc.)
 - Customers (customer_id, name, address, email, etc.)
 - Orders (order_id, customer_id, order_date, status, total_amount, etc.)
 - Order Details (order_id, ISBN, quantity, price)
 - Employees (employee_id, name, position, etc.)
 - Categories, Publishers, Reviews, etc.
- Step 2: Define the relationships between the tables (primary keys, foreign keys).
- Step 3: Implement the schema using SQL commands (`CREATE TABLE`, `ALTER TABLE` for constraints, etc.).

2. Populating Data (DML - Data Manipulation Language):

- Step 4: Insert sample data into the tables to populate them (`INSERT INTO` statements).

3. Querying Data (DQL - Data Query Language):

- Step 5: Write SQL queries to retrieve information such as:
 - List of books by a specific author.
 - Total sales by month.
 - Customers who purchased more than a certain amount.
 - Best-selling books.
 - Pending orders.
 - etc.

4. Advanced Queries and Subqueries:

- Step 6: Incorporate subqueries to solve complex queries. For example:
 - Find customers who have placed orders exceeding a certain total amount.
 - Identify books that have never been ordered.

5. Using Joins:

- Step 7: Utilize different types of joins (`INNER JOIN`, `LEFT JOIN`, `RIGHT JOIN`) to combine data from multiple tables. For example:
 - Retrieve order details along with customer information.
 - List books along with their publishers.

6. Creating Views:

- Step 8: Design and create views for commonly used queries. For instance:
 - Create a view to show all orders along with customer details.
 - Create a view for books that are currently in stock.

7. Testing and Optimization:

- Step 9: Test the database queries and ensure they return accurate results.
- Step 10: Optimize queries for better performance if necessary (indexing, query restructuring).

8. Documentation:

- Step 11: Document the database schema, sample queries, and any specific business rules or assumptions made during the design phase by making ER Diagram.

QUERIES:

1) CREATING DATABASE:

```
CREATE DATABASE BOOKSTORE;  
USE BOOKSTORE;
```

2) CREATING TABLES:

```
CREATE TABLE Publishers (  
    publisher_id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(255) NOT NULL,  
    address VARCHAR(255),  
    contact_number VARCHAR(15),  
    email VARCHAR(255) UNIQUE  
);
```

```
CREATE TABLE Books (  
    ISBN VARCHAR(13) PRIMARY KEY,  
    title VARCHAR(255) NOT NULL,  
    author VARCHAR(255) NOT NULL,  
    publisher_id INT,  
    genre VARCHAR(255),  
    price DECIMAL(10, 2) NOT NULL,  
    publication_year INT,  
    stock_quantity INT,  
    FOREIGN KEY (publisher_id) REFERENCES Publishers(publisher_id)  
);
```

```
CREATE TABLE Customers (  
    customer_id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(255) NOT NULL,  
    address VARCHAR(255),  
    email VARCHAR(255) UNIQUE,  
    phone_number VARCHAR(15),  
    registration_date DATE  
);
```

```
CREATE TABLE Orders (  
    order_id INT AUTO_INCREMENT PRIMARY KEY,  
    customer_id INT,  
    order_date DATE NOT NULL,  
    status VARCHAR(50),  
    total_amount DECIMAL(10, 2) NOT NULL,  
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)  
);
```

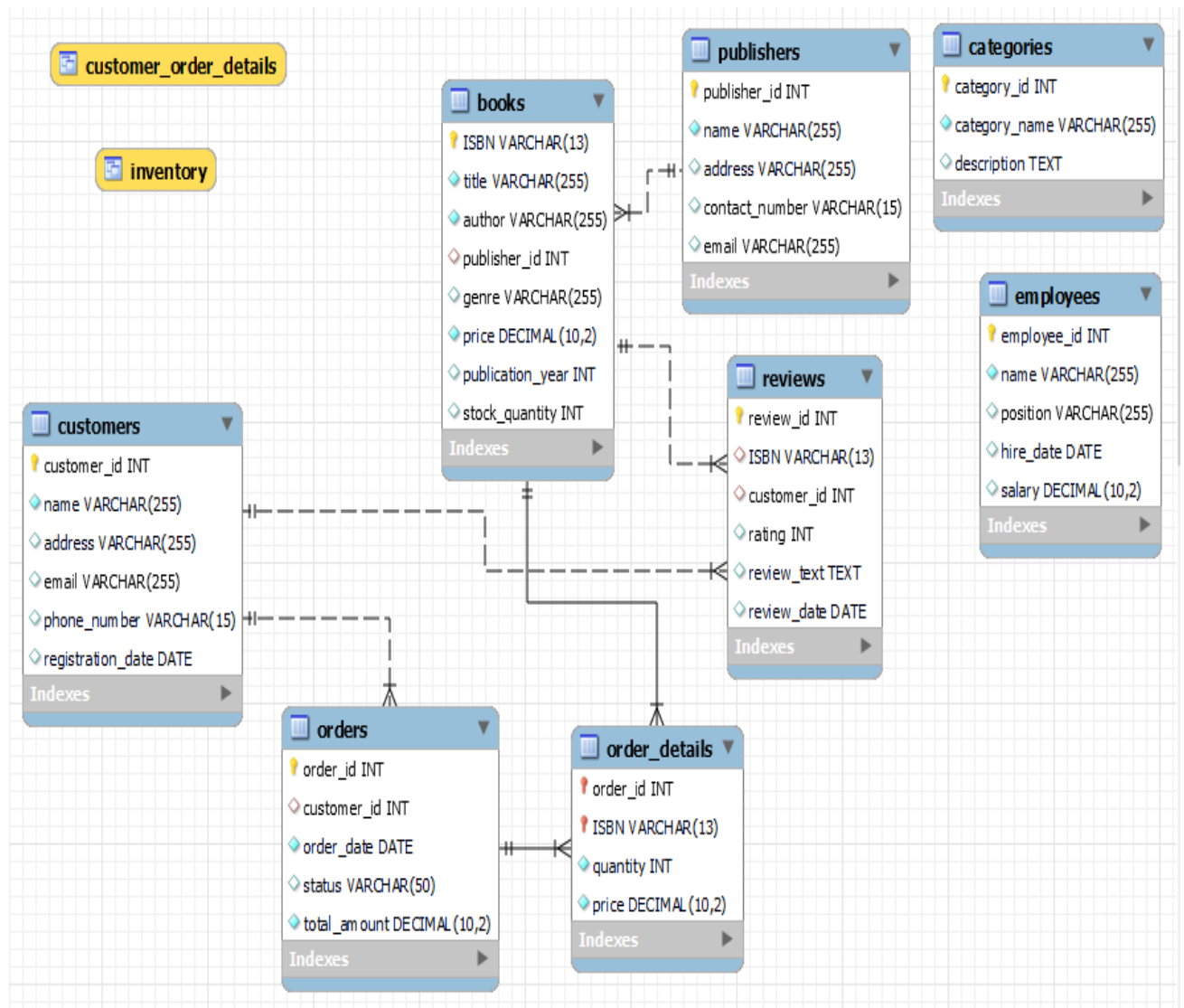
```
CREATE TABLE Order_Details (  
    order_id INT,  
    ISBN VARCHAR(13),  
    quantity INT NOT NULL,  
    price DECIMAL(10, 2) NOT NULL,  
    PRIMARY KEY (order_id, ISBN),  
    FOREIGN KEY (order_id) REFERENCES Orders(order_id),  
    FOREIGN KEY (ISBN) REFERENCES Books(ISBN)  
);
```

```
CREATE TABLE Employees (  
    employee_id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(255) NOT NULL,  
    position VARCHAR(255),  
    hire_date DATE,  
    salary DECIMAL(10, 2)  
);
```

```
CREATE TABLE Categories (  
    category_id INT AUTO_INCREMENT PRIMARY KEY,  
    category_name VARCHAR(255) NOT NULL,  
    description TEXT  
);
```

```
CREATE TABLE Reviews (  
    review_id INT AUTO_INCREMENT PRIMARY KEY,  
    ISBN VARCHAR(13),  
    customer_id INT,  
    rating INT CHECK (rating >= 1 AND rating <= 5),  
    review_text TEXT,  
    review_date DATE,  
    FOREIGN KEY (ISBN) REFERENCES Books(ISBN),  
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)  
);
```

3) ER DIAGRAM:



4) INSERTINTG VALUES IN TABLES:

```
INSERT INTO Publishers (name, address, contact_number, email) VALUES
('Marvel Comics', '135 W 50th St, New York, NY', '212-576-4000', 'info@marvel.com'),
('DC Comics', '1700 Broadway, New York, NY', '212-636-5400', 'info@dccomics.com'),
('Image Comics', '2701 Harbor Bay Parkway, Alameda, CA', '510-644-4980',
'info@imagecomics.com'),
('Dark Horse Comics', '10956 SE Main St, Milwaukie, OR', '503-652-8815', 'info@darkhorse.com'),
('IDW Publishing', '2765 Truxtun Rd, San Diego, CA', '858-270-1315', 'info@idwpublishing.com'),
('Boom! Studios', '5126 Clareton Dr #180, Agoura Hills, CA', '818-889-2666', 'info@boom-
studios.com'),
('Archie Comics', '325 Fayette Ave, Mamaroneck, NY', '914-381-5155', 'info@archiecomics.com'),
('Valiant Comics', '424 Madison Ave, New York, NY', '646-216-9785', 'info@valiantcomics.com'),
('Dynamite Entertainment', '555 8th Ave, New York, NY', '212-695-4300', 'info@dynamite.com'),
('Oni Press', '933 SE Oak St, Portland, OR', '503-233-6545', 'info@onipress.com');
```

```
INSERT INTO Books (ISBN, title, author, publisher_id, genre, price, publication_year, stock_quantity)
VALUES
('9780785167899', 'Avengers: Infinity War', 'Jim Starlin', 1, 'Superhero', 19.99, 2018, 50),
('9781401238964', 'Batman: The Dark Knight Returns', 'Frank Miller', 2, 'Superhero', 24.99, 1986,
30),
('9781534306320', 'Saga: Volume 1', 'Brian K. Vaughan', 3, 'Sci-Fi', 9.99, 2012, 40),
('9781616557678', 'Hellboy: Seed of Destruction', 'Mike Mignola', 4, 'Horror', 17.99, 1994, 25),
('9781631403998', 'Transformers: The IDW Collection', 'Various', 5, 'Action', 49.99, 2015, 15),
('9781608862904', 'Lumberjanes: Volume 1', 'Noelle Stevenson', 6, 'Adventure', 14.99, 2014, 35),
('9781936975488', 'The Best of Archie Comics: Deluxe Edition', 'Various', 7, 'Humor', 29.99, 2011,
20),
('9781939346186', 'X-O Manowar: Enter Ninjak', 'Robert Venditti', 8, 'Action', 16.99, 2013, 10),
('9781606906617', 'Red Sonja: She-Devil with a Sword', 'Gail Simone', 9, 'Fantasy', 19.99, 2014, 12),
('9781934964385', 'Scott Pilgrim: Precious Little Life', 'Bryan Lee O'Malley', 10, 'Comedy', 11.99,
2004, 45);
```

```
INSERT INTO Customers (name, address, email, phone_number, registration_date) VALUES
('John Doe', '123 Main St, Springfield, IL', 'johndoe@example.com', '217-555-1234', '2023-01-15'),
('Jane Smith', '456 Oak St, Springfield, IL', 'janesmith@example.com', '217-555-5678', '2023-02-10'),
('Alice Johnson', '789 Pine St, Springfield, IL', 'alicej@example.com', '217-555-9012', '2023-03-05'),
('Bob Brown', '101 Maple St, Springfield, IL', 'bobbrown@example.com', '217-555-3456', '2023-04-01'),
('Carol White', '202 Birch St, Springfield, IL', 'carolwhite@example.com', '217-555-7890', '2023-05-20'),
('David Wilson', '303 Cedar St, Springfield, IL', 'davidwilson@example.com', '217-555-2345', '2023-06-15'),
('Eve Davis', '404 Walnut St, Springfield, IL', 'evedavis@example.com', '217-555-6789', '2023-07-10'),
('Frank Moore', '505 Hickory St, Springfield, IL', 'frankmoore@example.com', '217-555-0123', '2023-08-05'),
('Grace Taylor', '606 Poplar St, Springfield, IL', 'gracetaylor@example.com', '217-555-4567', '2023-09-01'),
('Hank Martin', '707 Elm St, Springfield, IL', 'hankmartin@example.com', '217-555-8901', '2023-10-25');
```

```
INSERT INTO Orders (customer_id, order_date, status, total_amount) VALUES
(1, '2023-02-01', 'Shipped', 39.98),
(2, '2023-02-15', 'Processing', 24.99),
(3, '2023-03-10', 'Delivered', 49.99),
(4, '2023-04-05', 'Cancelled', 17.99),
(5, '2023-05-25', 'Shipped', 9.99),
(6, '2023-06-20', 'Processing', 14.99),
(7, '2023-07-15', 'Delivered', 29.99),
(8, '2023-08-10', 'Shipped', 16.99),
(9, '2023-09-05', 'Delivered', 19.99),
(10, '2023-10-30', 'Processing', 11.99);
```

```
INSERT INTO Order_Details (order_id, ISBN, quantity, price) VALUES
(1, '9780785167899', 2, 19.99),
(2, '9781401238964', 1, 24.99),
(3, '9781534306320', 5, 9.99),
(4, '9781616557678', 1, 17.99),
(5, '9781631403998', 1, 9.99),
(6, '9781608862904', 1, 14.99),
(7, '9781936975488', 1, 29.99),
(8, '9781939346186', 1, 16.99),
(9, '9781606906617', 1, 19.99),
(10, '9781934964385', 1, 11.99);
```

```
INSERT INTO Employees (name, position, hire_date, salary) VALUES
('Paul Walker', 'Manager', '2022-01-01', 55000.00),
('Linda Green', 'Cashier', '2022-03-15', 30000.00),
('Mark Brown', 'Stock Clerk', '2022-05-20', 25000.00),
('Emily White', 'Assistant Manager', '2022-07-10', 45000.00),
('James Black', 'Customer Service', '2022-09-25', 28000.00),
('Natalie Grey', 'Sales Associate', '2022-11-30', 32000.00),
('Chris Red', 'Inventory Specialist', '2023-01-12', 37000.00),
('Amanda Blue', 'Marketing Coordinator', '2023-03-05', 40000.00),
('Michael Yellow', 'Security', '2023-05-22', 27000.00),
('Sophia Purple', 'Janitor', '2023-07-18', 22000.00);
```

```
INSERT INTO Categories (category_name, description) VALUES
('Superhero', 'Comic books featuring superheroes and their adventures'),
('Sci-Fi', 'Science fiction comic books exploring futuristic concepts and technologies'),
('Horror', 'Comic books designed to frighten and invoke fear'),
('Action', 'Comic books with intense action sequences and physical feats'),
('Adventure', 'Comic books with exciting journeys and explorations'),
('Humor', 'Comic books intended to be humorous and entertaining'),
('Fantasy', 'Comic books with magical and supernatural elements'),
('Comedy', 'Comic books with humorous and comedic storylines'),
('Drama', 'Comic books with serious and intense storylines'),
('Romance', 'Comic books focused on romantic relationships and love stories');
```

```
INSERT INTO Reviews (ISBN, customer_id, rating, review_text, review_date) VALUES
('9780785167899', 1, 5, 'Amazing story and artwork!', '2023-02-02'),
('9781401238964', 2, 4, 'A classic must-read for any Batman fan.', '2023-02-16'),
('9781534306320', 3, 5, 'An incredible start to a fantastic series.', '2023-03-11'),
('9781616557678', 4, 3, 'Good but not great.', '2023-04-06'),
('9781631403998', 5, 4, 'A solid collection of Transformers stories.', '2023-05-26'),
('9781608862904', 6, 5, 'Fun and entertaining!', '2023-06-21'),
('9781936975488', 7, 4, 'Great compilation of Archie stories.', '2023-07-16'),
('9781939346186', 8, 4, 'Entertaining action-packed comic.', '2023-08-11'),
('9781606906617', 9, 5, 'Red Sonja at her best!', '2023-09-06'),
('9781934964385', 10, 4, 'Funny and relatable.', '2023-10-31');
```


5) TABLE STRUCTURES:

DESC Publishers;

	Field	Type	Null	Key	Default	Extra
►	publisher_id	int	NO	PRI	NULL	auto_increment
	name	varchar(255)	NO		NULL	
	address	varchar(255)	YES		NULL	
	contact_number	varchar(15)	YES		NULL	
	email	varchar(255)	YES	UNI	NULL	

DESC Books;

	Field	Type	Null	Key	Default	Extra
►	ISBN	varchar(13)	NO	PRI	NULL	
	title	varchar(255)	NO		NULL	
	author	varchar(255)	NO		NULL	
	publisher_id	int	YES	MUL	NULL	
	genre	varchar(255)	YES		NULL	
	price	decimal(10,2)	NO		NULL	
	publication_year	int	YES		NULL	
	stock_quantity	int	YES		NULL	

DESC Customers;

	Field	Type	Null	Key	Default	Extra
►	customer_id	int	NO	PRI	NULL	auto_increment
	name	varchar(255)	NO		NULL	
	address	varchar(255)	YES		NULL	
	email	varchar(255)	YES	UNI	NULL	
	phone_number	varchar(15)	YES		NULL	
	registration_date	date	YES		NULL	

DESC Orders;

	Field	Type	Null	Key	Default	Extra
►	order_id	int	NO	PRI	NULL	auto_increment
	customer_id	int	YES	MUL	NULL	
	order_date	date	NO		NULL	
	status	varchar(50)	YES		NULL	
	total_amount	decimal(10,2)	NO		NULL	

DESC Order_Details;

	Field	Type	Null	Key	Default	Extra
►	order_id	int	NO	PRI	NULL	
	ISBN	varchar(13)	NO	PRI	NULL	
	quantity	int	NO		NULL	
	price	decimal(10,2)	NO		NULL	

DESC Categories;

	Field	Type	Null	Key	Default	Extra
►	category_id	int	NO	PRI	NULL	auto_increment
	category_name	varchar(255)	NO		NULL	
	description	text	YES		NULL	

DESC Employees;

	Field	Type	Null	Key	Default	Extra
►	employee_id	int	NO	PRI	NULL	auto_increment
	name	varchar(255)	NO		NULL	
	position	varchar(255)	YES		NULL	
	hire_date	date	YES		NULL	
	salary	decimal(10,2)	YES		NULL	

DESC Reviews;

	Field	Type	Null	Key	Default	Extra
►	review_id	int	NO	PRI	NULL	auto_increment
	ISBN	varchar(13)	YES	MUL	NULL	
	customer_id	int	YES	MUL	NULL	
	rating	int	YES		NULL	
	review_text	text	YES		NULL	
	review_date	date	YES		NULL	

6) TABLE CONTENT:

SELECT * FROM Publishers;

	publisher_id	name	address	contact_number	email
▶	1	Marvel Comics	135 W 50th St, New York, NY	212-576-4000	info@marvel.com
	2	DC Comics	1700 Broadway, New York, NY	212-636-5400	info@dccomics.com
	3	Image Comics	2701 Harbor Bay Parkway, Alameda, CA	510-644-4980	info@imagecomics.com
	4	Dark Horse Comics	10956 SE Main St, Milwaukie, OR	503-652-8815	info@darkhorse.com
	5	IDW Publishing	2765 Truxtun Rd, San Diego, CA	858-270-1315	info@idwpublishing.com
	6	Boom! Studios	5126 Clareton Dr #180, Agoura Hills, CA	818-889-2666	info@boom-studios.com
	7	Archie Comics	325 Fayette Ave, Mamaroneck, NY	914-381-5155	info@archiecomics.com
	8	Valiant Comics	424 Madison Ave, New York, NY	646-216-9785	info@valiantcomics.com
	9	Dynamite Entertainment	555 8th Ave, New York, NY	212-695-4300	info@dynamite.com
	10	Oni Press	933 SE Oak St, Portland, OR	503-233-6545	info@onipress.com
✱	NULL	NULL	NULL	NULL	NULL

SELECT * FROM Books;

	ISBN	title	author	publisher_id	genre	price	publication_year	stock_quantity
▶	9780785167899	Avengers: Infinity War	Jim Starlin	1	Superhero	19.99	2018	50
	9781401238964	Batman: The Dark Knight Returns	Frank Miller	2	Superhero	24.99	1986	30
	9781534306320	Saga: Volume 1	Brian K. Vaughan	3	Sci-Fi	9.99	2012	40
	9781606906617	Red Sonja: She-Devil with a Sword	Gail Simone	9	Fantasy	19.99	2014	12
	9781608862904	Lumberjanes: Volume 1	Noelle Stevenson	6	Adventure	14.99	2014	35
	9781616557678	Hellboy: Seed of Destruction	Mike Mignola	4	Horror	17.99	1994	25
	9781631403998	Transformers: The IDW Collection	Various	5	Action	49.99	2015	15
	9781934964385	Scott Pilgrim: Precious Little Life	Bryan Lee O'Malley	10	Comedy	11.99	2004	45
	9781936975488	The Best of Archie Comics: Deluxe Edition	Various	7	Humor	29.99	2011	20
	9781939346186	X-O Manowar: Enter Ninjak	Robert Venditti	8	Action	16.99	2013	10
✱	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

SELECT * FROM Customers;

	customer_id	name	address	email	phone_number	registration_date
▶	1	John Doe	123 Main St, Springfield, IL	johndoe@example.com	217-555-1234	2023-01-15
	2	Jane Smith	456 Oak St, Springfield, IL	janesmith@example.com	217-555-5678	2023-02-10
	3	Alice Johnson	789 Pine St, Springfield, IL	alicej@example.com	217-555-9012	2023-03-05
	4	Bob Brown	101 Maple St, Springfield, IL	bobbrown@example.com	217-555-3456	2023-04-01
	5	Carol White	202 Birch St, Springfield, IL	carolwhite@example.com	217-555-7890	2023-05-20
	6	David Wilson	303 Cedar St, Springfield, IL	davidwilson@example.com	217-555-2345	2023-06-15
	7	Eve Davis	404 Walnut St, Springfield, IL	evedavis@example.com	217-555-6789	2023-07-10
	8	Frank Moore	505 Hickory St, Springfield, IL	frankmoore@example.com	217-555-0123	2023-08-05
	9	Grace Taylor	606 Poplar St, Springfield, IL	gracetaylor@example.com	217-555-4567	2023-09-01
	10	Hank Martin	707 Elm St, Springfield, IL	hankmartin@example.com	217-555-8901	2023-10-25
✱	NULL	NULL	NULL	NULL	NULL	NULL

SELECT * FROM Orders;

	customer_id	name	address	email	phone_number	registration_date
▶	1	John Doe	123 Main St, Springfield, IL	johndoe@example.com	217-555-1234	2023-01-15
	2	Jane Smith	456 Oak St, Springfield, IL	janesmith@example.com	217-555-5678	2023-02-10
	3	Alice Johnson	789 Pine St, Springfield, IL	alicej@example.com	217-555-9012	2023-03-05
	4	Bob Brown	101 Maple St, Springfield, IL	bobbrown@example.com	217-555-3456	2023-04-01
	5	Carol White	202 Birch St, Springfield, IL	carolwhite@example.com	217-555-7890	2023-05-20
	6	David Wilson	303 Cedar St, Springfield, IL	davidwilson@example.com	217-555-2345	2023-06-15
	7	Eve Davis	404 Walnut St, Springfield, IL	evedavis@example.com	217-555-6789	2023-07-10
	8	Frank Moore	505 Hickory St, Springfield, IL	frankmoore@example.com	217-555-0123	2023-08-05
	9	Grace Taylor	606 Poplar St, Springfield, IL	gracetaylor@example.com	217-555-4567	2023-09-01
	10	Hank Martin	707 Elm St, Springfield, IL	hankmartin@example.com	217-555-8901	2023-10-25
✱	NULL	NULL	NULL	NULL	NULL	NULL

SELECT * FROM Order_Details;

	order_id	ISBN	quantity	price
▶	1	9780785167899	2	19.99
	2	9781401238964	1	24.99
	3	9781534306320	5	9.99
	4	9781616557678	1	17.99
	6	9781608862904	1	14.99
	7	9781936975488	1	29.99
	8	9781939346186	1	16.99
	10	9781934964385	1	11.99
*	NULL	NULL	NULL	NULL

SELECT * FROM Categories;

	category_id	category_name	description
▶	1	Superhero	Comic books featuring superheroes and their adventures
	2	Sci-Fi	Science fiction comic books exploring futuristic concepts and technologies
	3	Horror	Comic books designed to frighten and invoke fear
	4	Action	Comic books with intense action sequences and physical feats
	5	Adventure	Comic books with exciting journeys and explorations
	6	Humor	Comic books intended to be humorous and entertaining
	7	Fantasy	Comic books with magical and supernatural elements
	8	Comedy	Comic books with humorous and comedic storylines
	9	Drama	Comic books with serious and intense storylines
	10	Romance	Comic books focused on romantic relationships and love stories
*	NULL	NULL	NULL

SELECT * FROM Employees;

	employee_id	name	position	hire_date	salary
▶	1	Paul Walker	Manager	2022-01-01	55000.00
	2	Linda Green	Cashier	2022-03-15	30000.00
	3	Mark Brown	Stock Clerk	2022-05-20	25000.00
	4	Emily White	Assistant Manager	2022-07-10	45000.00
	5	James Black	Customer Service	2022-09-25	28000.00
	6	Natalie Grey	Sales Associate	2022-11-30	32000.00
	7	Chris Red	Inventory Specialist	2023-01-12	37000.00
	8	Amanda Blue	Marketing Coordinator	2023-03-05	40000.00
	9	Michael Yellow	Security	2023-05-22	27000.00
	10	Sophia Purple	Janitor	2023-07-18	22000.00
*	NULL	NULL	NULL	NULL	NULL

SELECT * FROM Reviews;

	review_id	ISBN	customer_id	rating	review_text	review_date
▶	1	9780785167899	1	5	Amazing story and artwork!	2023-02-02
	2	9781401238964	2	4	A classic must-read for any Batman fan.	2023-02-16
	3	9781534306320	3	5	An incredible start to a fantastic series.	2023-03-11
	4	9781616557678	4	3	Good but not great.	2023-04-06
	5	9781631403998	5	4	A solid collection of Transformers stories.	2023-05-26
	6	9781608862904	6	5	Fun and entertaining!	2023-06-21
	7	9781936975488	7	4	Great compilation of Archie stories.	2023-07-16
	8	9781939346186	8	4	Entertaining action-packed comic.	2023-08-11
	9	9781606906617	9	5	Red Sonja at her best!	2023-09-06
	10	9781934964385	10	4	Funny and relatable.	2023-10-31
★	NULL	NULL	NULL	NULL	NULL	NULL

7) DQL QUERIES:





a) List of Books by specific Author:

SELECT * FROM BOOKS WHERE AUTHOR LIKE 'FRANK MILLER';

	ISBN	title	author	publisher_id	genre	price	publication_year	stock_quantity
▶	9781401238964	Batman: The Dark Knight Returns	Frank Miller	2	Superhero	24.99	1986	30
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

b) List of Books where Author Name starts with 'B':

SELECT TITLE, AUTHOR, GENRE, PUBLICATION_YEAR FROM BOOKS WHERE AUTHOR LIKE 'B%';

Result Grid				Filter Rows:	<input type="text"/>	Export:		Wrap Cell Content:	
	TITLE	AUTHOR	GENRE	PUBLICATION_YEAR					
▶	Saga: Volume 1	Brian K. Vaughan	Sci-Fi	2012					
	Scott Pilgrim: Precious Little Life	Bryan Lee O'Malley	Comedy	2004					

c) Total Sales by Month:

SELECT DATE_FORMAT(Order_Date, '%Y-%m') AS Month, SUM(Total_Amount) AS Total_Sales

FROM Orders WHERE Status = 'Shipped' OR Status = 'Delivered' GROUP BY

DATE_FORMAT(Order_Date, '%Y-%m') ORDER BY Month;

	Month	Total_Sales
▶	2023-02	39.98
	2023-03	49.99
	2023-05	9.99
	2023-07	29.99
	2023-08	16.99
	2023-09	19.99

d) Customers who purchased more than a certain amount:

SELECT CUSTOMERS.NAME, ORDERS.CUSTOMER_ID, ORDERS.TOTAL_AMOUNT FROM CUSTOMERS

JOIN ORDERS ON CUSTOMERS.CUSTOMER_ID= ORDERS.CUSTOMER_ID

WHERE TOTAL_AMOUNT> 15;

	NAME	CUSTOMER_ID	TOTAL_AMOUNT
▶	John Doe	1	39.98
	Jane Smith	2	24.99
	Alice Johnson	3	49.99
	Bob Brown	4	17.99
	Eve Davis	7	29.99
	Frank Moore	8	16.99
	Grace Taylor	9	19.99

e) Best-Selling Books:

```
SELECT BOOKS.TITLE, BOOKS.AUTHOR, REVIEWS.RATING FROM BOOKS JOIN REVIEWS  
ON BOOKS.ISBN = REVIEWS.ISBN WHERE REVIEWS.RATING=5;
```

	TITLE	AUTHOR	RATING
▶	Avengers: Infinity War	Jim Starlin	5
	Saga: Volume 1	Brian K. Vaughan	5
	Lumberjanes: Volume 1	Noelle Stevenson	5
	Red Sonja: She-Devil with a Sword	Gail Simone	5

f) Pending Orders:

```
SELECT * FROM ORDERS WHERE STATUS = 'PROCESSING';
```

	order_id	customer_id	order_date	status	total_amount
▶	2	2	2023-02-15	Processing	24.99
	6	6	2023-06-20	Processing	14.99
	10	10	2023-10-30	Processing	11.99
★	NULL	NULL	NULL	NULL	NULL

8) SUBQUERIES:

a) Customers who have placed orders exceeding a amount of another customer:

```
SELECT * FROM ORDERS WHERE TOTAL_AMOUNT>(SELECT TOTAL_AMOUNT FROM ORDERS
WHERE CUSTOMER_ID=9);
```

	order_id	customer_id	order_date	status	total_amount
▶	1	1	2023-02-01	Shipped	39.98
	2	2	2023-02-15	Processing	24.99
	3	3	2023-03-10	Delivered	49.99
	7	7	2023-07-15	Delivered	29.99
✱	NULL	NULL	NULL	NULL	NULL

b) Books that haven't been ordered:

```
SELECT * FROM BOOKS WHERE ISBN NOT IN(SELECT ISBN FROM ORDER_DETAILS);
```

[illegible]

9) JOINS:

a) Order Details with Customer Information:

```
SELECT ORDERS.ORDER_ID AS ORDER_ID, CUSTOMERS.CUSTOMER_ID AS CUSTOMER_ID,
CUSTOMERS.NAME AS CUSTOMER_NAME, CUSTOMERS.PHONE_NUMBER AS
CUSTOMER_CONTACT, ORDERS.ORDER_DATE AS ORDER_DATE, ORDERS.TOTAL_AMOUNT
AS CART_VALUE, ORDERS.STATUS AS ORDER_STATUS FROM ORDERS JOIN CUSTOMERS
ON ORDERS.CUSTOMER_ID = CUSTOMERS.CUSTOMER_ID;
```

	ORDER_ID	CUSTOMER_ID	CUSTOMER_NAME	CUSTOMER_CONTACT	ORDER_DATE	CART_VALUE	ORDER_STATUS
▶	1	1	John Doe	217-555-1234	2023-02-01	39.98	Shipped
	2	2	Jane Smith	217-555-5678	2023-02-15	24.99	Processing
	3	3	Alice Johnson	217-555-9012	2023-03-10	49.99	Delivered
	4	4	Bob Brown	217-555-3456	2023-04-05	17.99	Cancelled
	5	5	Carol White	217-555-7890	2023-05-25	9.99	Shipped
	6	6	David Wilson	217-555-2345	2023-06-20	14.99	Processing
	7	7	Eve Davis	217-555-6789	2023-07-15	29.99	Delivered
	8	8	Frank Moore	217-555-0123	2023-08-10	16.99	Shipped
	9	9	Grace Taylor	217-555-4567	2023-09-05	19.99	Delivered
	10	10	Hank Martin	217-555-8901	2023-10-30	11.99	Processing

b) Book Details along with Publisher Details:

```
SELECT BOOKS.TITLE AS TITLE, BOOKS.AUTHOR AS AUTHOR, BOOKS.GENRE AS GENRE,
PUBLISHERS.PUBLISHER_ID AS PUBLISHER_ID, PUBLISHERS.NAME AS PUBLISHER,
PUBLISHERS.EMAIL AS PUBLISHER_EMAIL FROM BOOKS JOIN PUBLISHERS ON
BOOKS.PUBLISHER_ID = PUBLISHERS.PUBLISHER_ID;
```

	TITLE	AUTHOR	GENRE	PUBLISHER_ID	PUBLISHER	PUBLISHER_EMAIL
▶	Avengers: Infinity War	Jim Starlin	Superhero	1	Marvel Comics	info@marvel.com
	Batman: The Dark Knight Returns	Frank Miller	Superhero	2	DC Comics	info@dccomics.com
	Saga: Volume 1	Brian K. Vaughan	Sci-Fi	3	Image Comics	info@imagecomics.com
	Red Sonja: She-Devil with a Sword	Gail Simone	Fantasy	9	Dynamite Entertainment	info@dynamite.com
	Lumberjanes: Volume 1	Noelle Stevenson	Adventure	6	Boom! Studios	info@boom-studios.com
	Hellboy: Seed of Destruction	Mike Mignola	Horror	4	Dark Horse Comics	info@darkhorse.com
	Transformers: The IDW Collection	Various	Action	5	IDW Publishing	info@idwpublishing.com
	Scott Pilgrim: Precious Little Life	Bryan Lee O'Malley	Comedy	10	Oni Press	info@onipress.com
	The Best of Archie Comics: Deluxe Edition	Various	Humor	7	Archie Comics	info@archiecomics.com
	X-O Manowar: Enter Ninjak	Robert Venditti	Action	8	Valiant Comics	info@valiantcomics.com

10) VIEWS:

a) Creating a View containing Customer Order Details:

```
CREATE VIEW INVENTORY AS (SELECT BOOKS.TITLE AS TITLE, BOOKS.AUTHOR AS AUTHOR,  
BOOKS.GENRE AS GENRE, BOOKS.PUBLICATION_YEAR AS PUBLICATION_YEAR,  
BOOKS.PRICE AS PRICE, REVIEWS.RATING AS RATING, BOOKS.STOCK_QUANTITY AS  
STOCK_QUANTITY FROM BOOKS JOIN REVIEWS ON BOOKS.ISBN = REVIEWS.ISBN WHERE  
STOCK_QUANTITY>0);
```

```
SELECT * FROM CUSTOMER_ORDER_DETAILS;
```

	ORDER_ID	CUSTOMER_ID	CUSTOMER_NAME	CUSTOMER_CONTACT	CUSTOMER_EMAIL	ORDER_DATE	CART_VALUE	ORDER_STATUS
▶	1	1	John Doe	217-555-1234	johndoe@example.com	2023-02-01	39.98	Shipped
	2	2	Jane Smith	217-555-5678	janesmith@example.com	2023-02-15	24.99	Processing
	3	3	Alice Johnson	217-555-9012	alicej@example.com	2023-03-10	49.99	Delivered
	4	4	Bob Brown	217-555-3456	bobbrown@example.com	2023-04-05	17.99	Cancelled
	5	5	Carol White	217-555-7890	carolwhite@example.com	2023-05-25	9.99	Shipped
	6	6	David Wilson	217-555-2345	davidwilson@example.com	2023-06-20	14.99	Processing
	7	7	Eve Davis	217-555-6789	evedavis@example.com	2023-07-15	29.99	Delivered
	8	8	Frank Moore	217-555-0123	frankmoore@example.com	2023-08-10	16.99	Shipped
	9	9	Grace Taylor	217-555-4567	gracetaylor@example.com	2023-09-05	19.99	Delivered
	10	10	Hank Martin	217-555-8901	hankmartin@example.com	2023-10-30	11.99	Processing

b) Creating a View containing Books in Stock:

```
CREATE VIEW INVENTORY AS (SELECT BOOKS.TITLE AS TITLE, BOOKS.AUTHOR AS AUTHOR,  
BOOKS.GENRE AS GENRE, BOOKS.PUBLICATION_YEAR AS PUBLICATION_YEAR,  
BOOKS.PRICE AS PRICE, REVIEWS.RATING AS RATING, BOOKS.STOCK_QUANTITY AS  
STOCK_QUANTITY FROM BOOKS JOIN REVIEWS ON BOOKS.ISBN = REVIEWS.ISBN WHERE  
STOCK_QUANTITY>0);
```

```
SELECT * FROM INVENTORY;
```

	TITLE	AUTHOR	GENRE	PUBLICATION_YEAR	PRICE	RATING	STOCK_QUANTITY
▶	Avengers: Infinity War	Jim Starlin	Superhero	2018	19.99	5	50
	Batman: The Dark Knight Returns	Frank Miller	Superhero	1986	24.99	4	30
	Saga: Volume 1	Brian K. Vaughan	Sci-Fi	2012	9.99	5	40
	Red Sonja: She-Devil with a Sword	Gail Simone	Fantasy	2014	19.99	5	12
	Lumberjanes: Volume 1	Noelle Stevenson	Adventure	2014	14.99	5	35
	Hellboy: Seed of Destruction	Mike Mignola	Horror	1994	17.99	3	25
	Transformers: The IDW Collection	Various	Action	2015	49.99	4	15
	Scott Pilgrim: Precious Little Life	Bryan Lee O'Malley	Comedy	2004	11.99	4	45
	The Best of Archie Comics: Deluxe Edition	Various	Humor	2011	29.99	4	20
	X-O Manowar: Enter Ninjak	Robert Venditti	Action	2013	16.99	4	10