BSc. Artificial Intelligence & Data Science

Level 04

CM 1603

DATABASE SYSTEMS

INDIVIDUAL COURSEWORK REPORT

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Section 1

Assumptions:

Order & Item Relation:

- An order must have at least one item.
- An order may have more than one item.
- An item may or may not be included in an order.
- An item may be in many orders.

Order & Customer Relation:

- An order is placed by only one customer.
- A customer may or may not place an order.
- A customer can place more than one order.

Order & Payment Relation:

- A payment must have at least one order.
- A payment may have more than one order.
- An order must have one payment.

Item & Supplier Relation:

- An item is supplied by at least one supplier.
- An item may be supplied by more than one supplier.
- A supplier supplies at least one item.
- A supplier may supply more than one item.

Item:

- Item is a superclass entity that has two subclasses.
    1. Book
    2. Stationary
- An item may or may not belong to one of the subclasses mentioned.
- An item belongs only to one subclass.

Payment:

- When a customer makes a payment, all the information regarding it will be recorded in the payment table.
- Payment is a superclass entity that has two subclasses.
    1. Online Payment
    2. Bank Transfer
- A payment may or may not belong to the subclasses mentioned.

- A payment belongs only to one subclass.
- No installments are allowed.

Order Item:

- Primary keys of Order table and Item table become foreign keys in Order Item table.

Item Supplier:

- Primary keys of Item table and Supplier table become foreign keys in Item Supplier table.
- ItemCode and SupplierID fields are not sufficient to identify a row uniquely as an item can be supplied by the same supplier more than once. So it is essential to add another field named DateSupplied that records the date an item is supplied. Together these three fields make up the primary key.

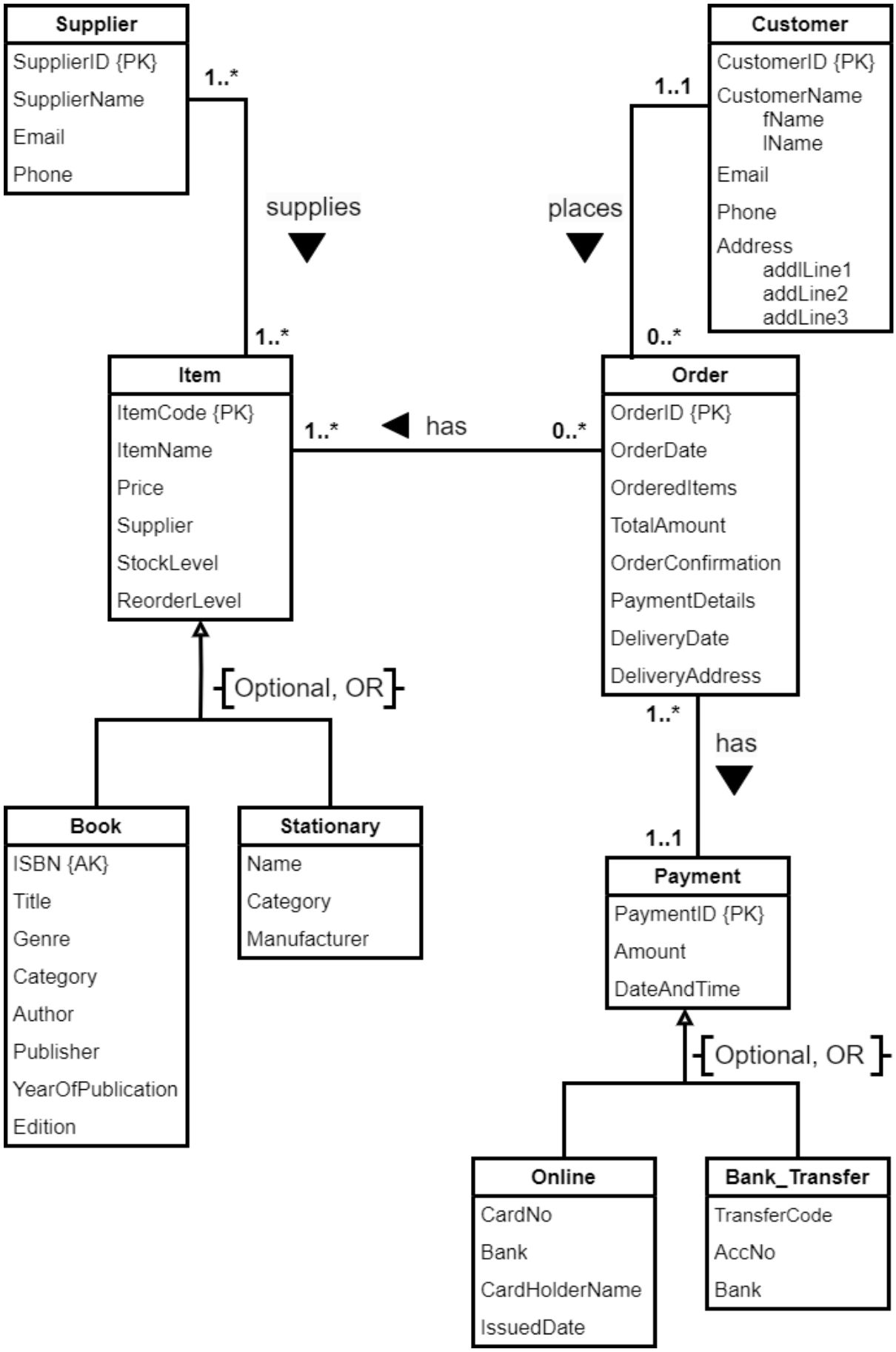


Figure 1 - EERD

Section 2

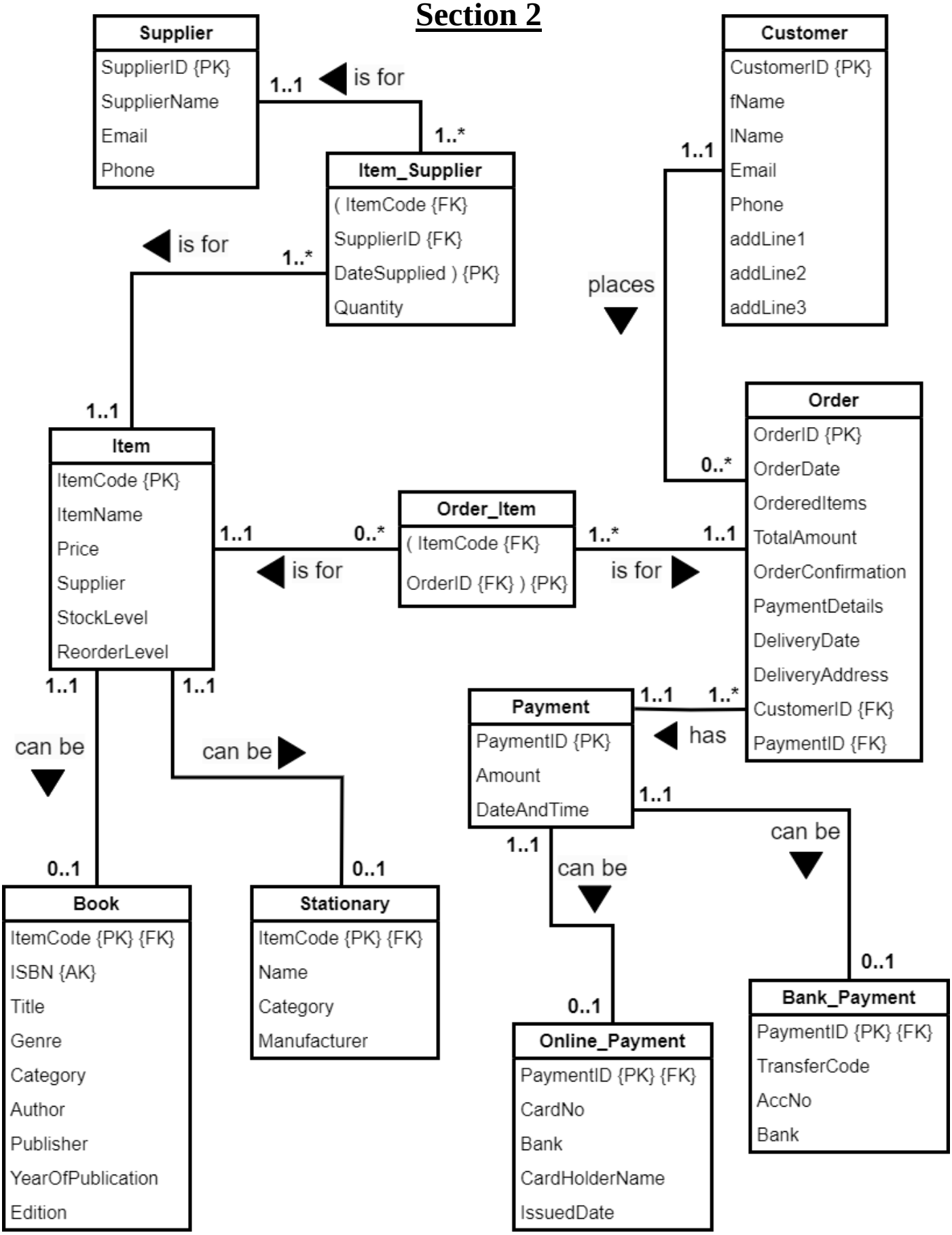


Figure 2 - Relational Schema Diagram

Section 3

Database Creation:

```
1 CREATE DATABASE bookhaven;
```

Figure 3 - Database Creation

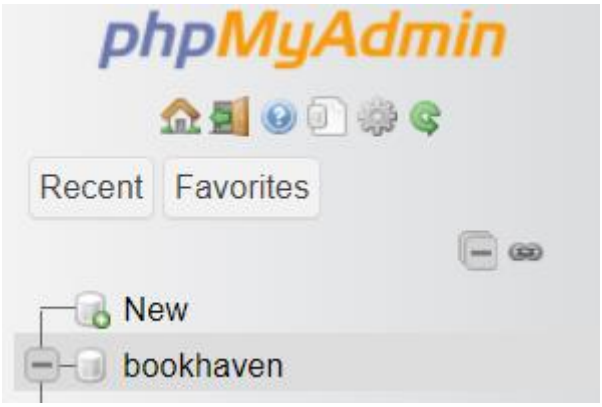


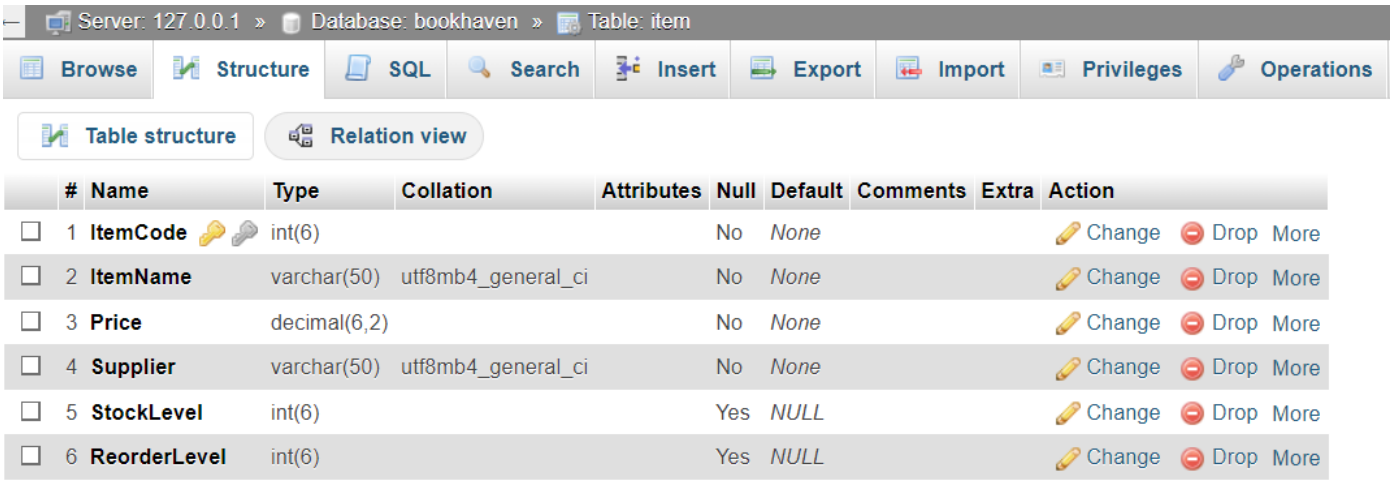
Figure 4 - Created Database

Table Creation:

Item:

```
1  CREATE TABLE Item
2  (
3      ItemCode INT(6) UNIQUE NOT NULL,
4      ItemName VARCHAR(50) NOT NULL,
5      Price DECIMAL(6,2) NOT NULL,
6      Supplier VARCHAR(50) NOT NULL,
7      StockLevel INT(6),
8      ReorderLevel INT(6),
9      CONSTRAINT I_ICo_pk PRIMARY KEY (ItemCode)
10 );
```

Figure 5 - Item Table Creation



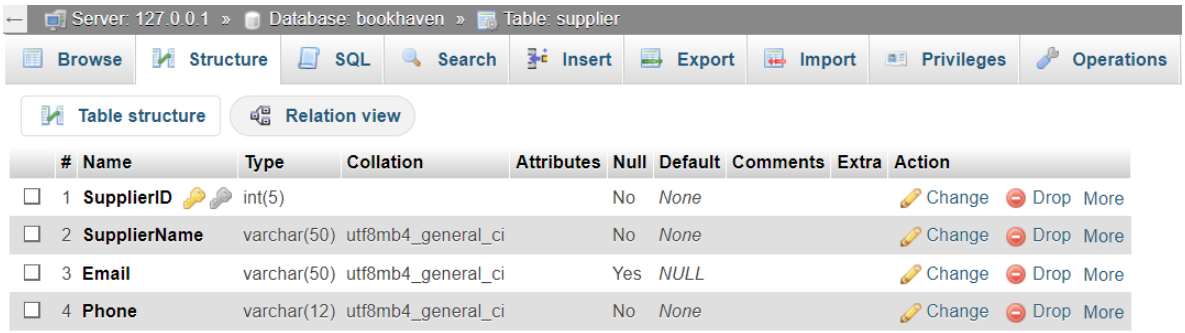
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	ItemCode	int(6)			No	None			Change Drop More
2	ItemName	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
3	Price	decimal(6,2)			No	None			Change Drop More
4	Supplier	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
5	StockLevel	int(6)			Yes	NULL			Change Drop More
6	ReorderLevel	int(6)			Yes	NULL			Change Drop More

Figure 6 - Created Item Table

Supplier:

```
CREATE TABLE Supplier
(
    SupplierID INT(5) UNIQUE NOT NULL,
    SupplierName VARCHAR(50) NOT NULL,
    Email VARCHAR(50),
    Phone VARCHAR(12) NOT NULL,
    CONSTRAINT S_SID_pk PRIMARY KEY (SupplierID)
);
```

Figure 7 - Supplier Table Creation



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	SupplierID	int(5)			No	None			Change Drop More
2	SupplierName	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
3	Email	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More
4	Phone	varchar(12)	utf8mb4_general_ci		No	None			Change Drop More

Figure 8 - Created Supplier Table

Item Supplier:

```
CREATE TABLE `Item_Supplier`
(
    ItemCode INT(6) NOT NULL,
    SupplierID INT(5) NOT NULL,
    DateSupplied DATE NOT NULL,
    Quantity INT(6),
    CONSTRAINT IS_pk PRIMARY KEY (ItemCode, SupplierID, DateSupplied),
    CONSTRAINT IS_ICo_fk FOREIGN KEY (ItemCode) REFERENCES Item(ItemCode),
    CONSTRAINT IS_SID_fk FOREIGN KEY (SupplierID) REFERENCES Supplier(SupplierID)
);
```

Figure 9 - Item Supplier Table Creation

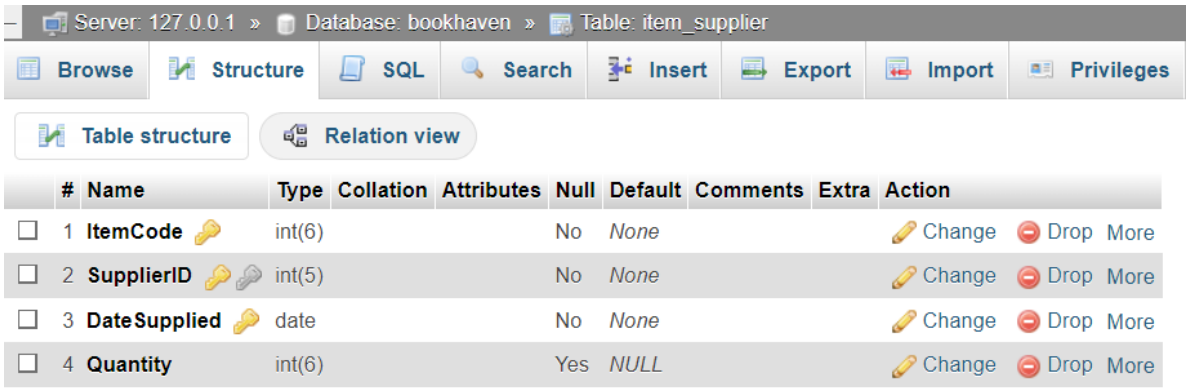
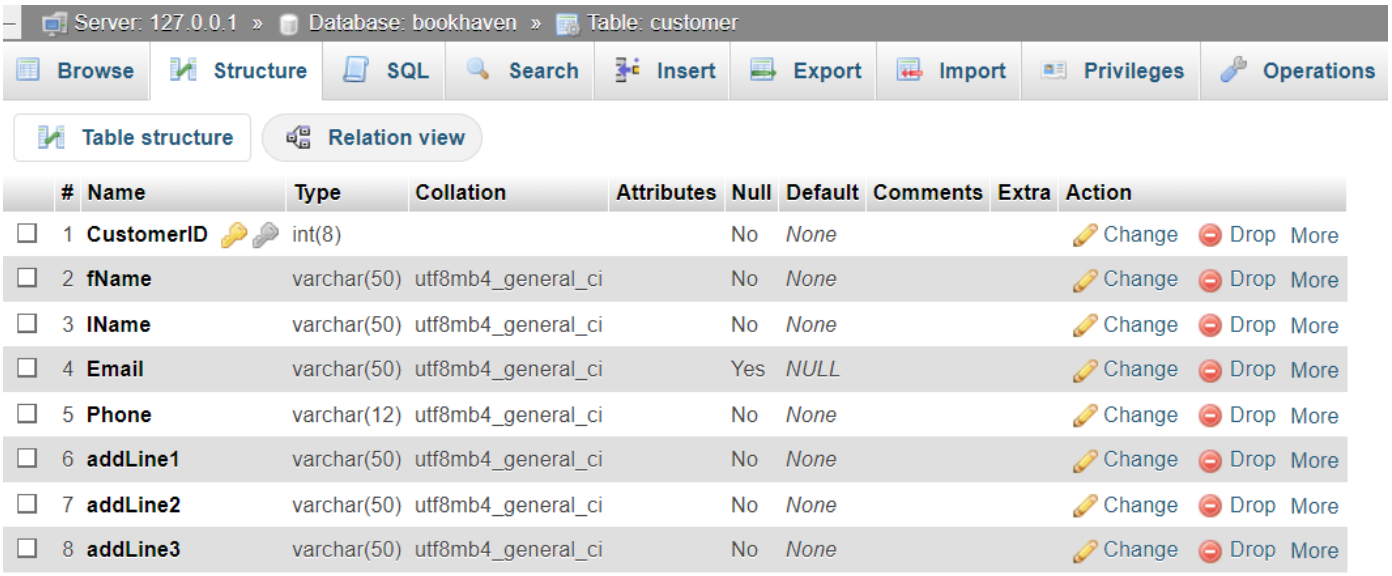


Figure 10 - Created Item Supplier Table

Customer:

```
CREATE TABLE Customer
(
    CustomerID INT(8) UNIQUE NOT NULL,
    fName VARCHAR(50) NOT NULL,
    lName VARCHAR(50) NOT NULL,
    Email VARCHAR(50),
    Phone VARCHAR(12) NOT NULL,
    addLine1 VARCHAR(50) NOT NULL,
    addLine2 VARCHAR(50) NOT NULL,
    addLine3 VARCHAR(50) NOT NULL,
    CONSTRAINT C_CID_pk PRIMARY KEY (CustomerID)
);
```

Figure 11 - Customer Table Creation



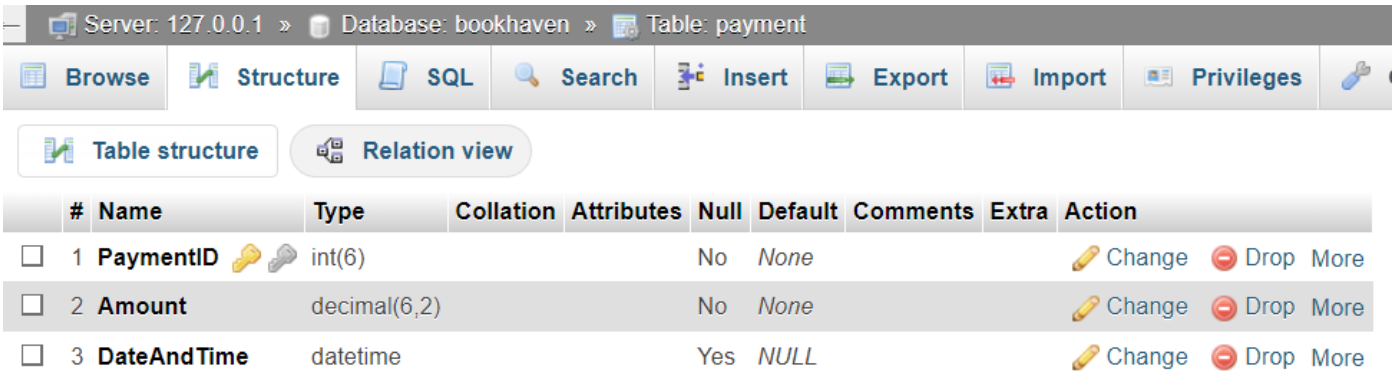
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	CustomerID	int(8)			No	None			Change Drop More
2	fName	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
3	lName	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
4	Email	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More
5	Phone	varchar(12)	utf8mb4_general_ci		No	None			Change Drop More
6	addLine1	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
7	addLine2	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
8	addLine3	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More

Figure 12 - Created Customer Table

Payment:

```
CREATE TABLE Payment
(
    PaymentID INT(6) UNIQUE NOT NULL,
    Amount DECIMAL(6,2) NOT NULL,
    DateAndTime DATETIME,
    CONSTRAINT P_PID_pk PRIMARY KEY (PaymentID)
);
```

Figure 13 - Payment Table Creation



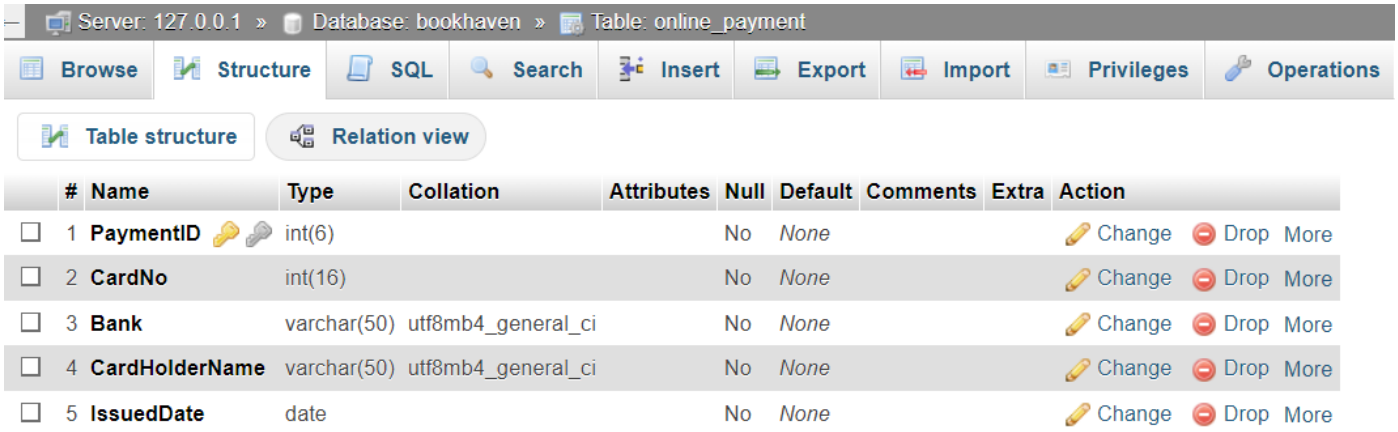
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	PaymentID	int(6)			No	None			Change Drop More
2	Amount	decimal(6,2)			No	None			Change Drop More
3	DateAndTime	datetime			Yes	NULL			Change Drop More

Figure 14 - Created Payment Table

Online Payment:

```
CREATE TABLE Online_Payment
(
    PaymentID INT(6) UNIQUE NOT NULL,
    CardNo INT(16) NOT NULL,
    Bank VARCHAR(50) NOT NULL,
    CardHolderName VARCHAR(50) NOT NULL,
    IssuedDate DATE NOT NULL,
    CONSTRAINT OP_PID_pk PRIMARY KEY (PaymentID),
    CONSTRAINT OP_PID_fk FOREIGN KEY (PaymentID) REFERENCES Payment(PaymentID)
);
```

Figure 15 - Online Payment Table Creation



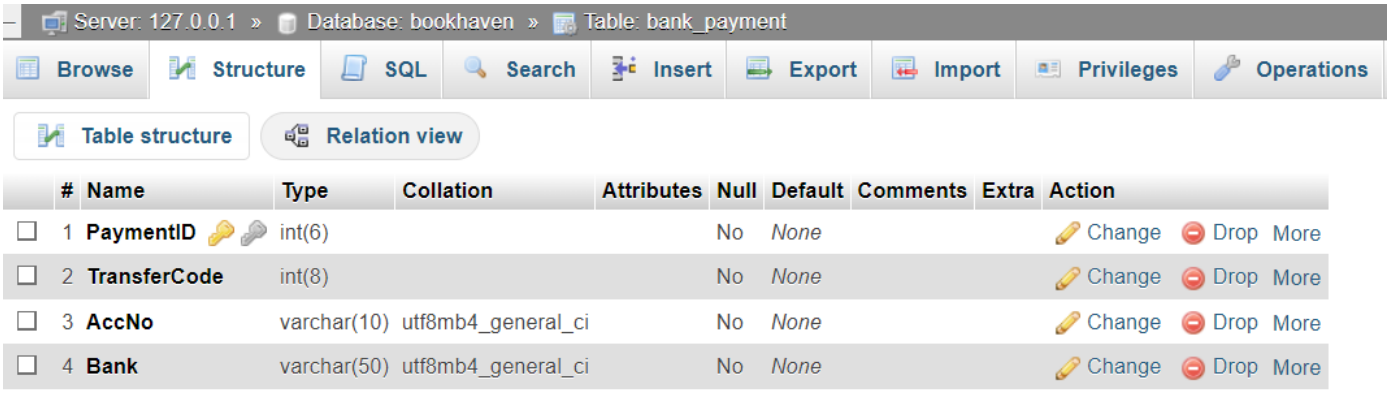
	#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
☐	1	PaymentID	int(6)			No	None			Change Drop More
☐	2	CardNo	int(16)			No	None			Change Drop More
☐	3	Bank	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
☐	4	CardHolderName	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
☐	5	IssuedDate	date			No	None			Change Drop More

Figure 16 - Created Online Payment Table

Bank Payment:

```
CREATE TABLE Bank_Payment
(
    PaymentID INT(6) UNIQUE NOT NULL,
    TransferCode INT(8) NOT NULL,
    AccNo VARCHAR(10) NOT NULL,
    Bank VARCHAR(50) NOT NULL,
    CONSTRAINT BP_PID_pk PRIMARY KEY (PaymentID),
    CONSTRAINT BP_PID_fk FOREIGN KEY (PaymentID) REFERENCES Payment(PaymentID)
);
```

Figure 17 - Bank Payment Table Creation



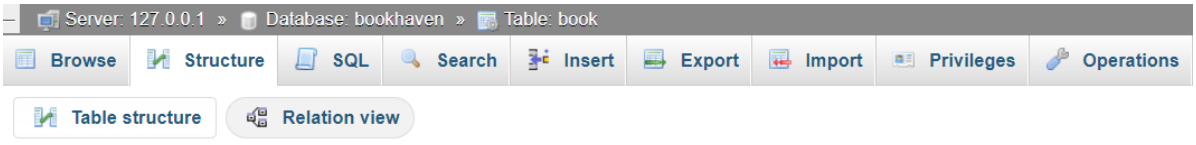
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	PaymentID	int(6)			No	None			Change Drop More
2	TransferCode	int(8)			No	None			Change Drop More
3	AccNo	varchar(10)	utf8mb4_general_ci		No	None			Change Drop More
4	Bank	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More

Figure 18 - Created Bank Payment Table

Book:

```
CREATE TABLE Book
(
    ItemCode INT(6) UNIQUE NOT NULL,
    ISBN INT(13) UNIQUE NOT NULL,
    Title VARCHAR(50) NOT NULL,
    Genre VARCHAR(50) NOT NULL,
    Category VARCHAR(50),
    Author VARCHAR(50) NOT NULL,
    Publisher VARCHAR(50),
    YearOfPublication VARCHAR(4),
    Edition VARCHAR(5),
    CONSTRAINT B_ICo_pk PRIMARY KEY (ItemCode),
    CONSTRAINT I_ICo_fk FOREIGN KEY (ItemCode) REFERENCES Item(ItemCode)
);
```

Figure 19 - Book Table Creation



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	ItemCode	int(6)			No	None			Change Drop More
2	ISBN	int(13)			No	None			Change Drop More
3	Title	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
4	Genre	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
5	Category	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More
6	Author	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
7	Publisher	varchar(50)	utf8mb4_general_ci		Yes	NULL			Change Drop More
8	YearOfPublication	varchar(4)	utf8mb4_general_ci		Yes	NULL			Change Drop More
9	Edition	varchar(5)	utf8mb4_general_ci		Yes	NULL			Change Drop More

Figure 20 - Created Book Table

Stationary:

```
CREATE TABLE Stationary
(
    ItemCode INT(6) UNIQUE NOT NULL,
    Name VARCHAR(50) NOT NULL,
    Category VARCHAR(50) NOT NULL,
    Manufacturer VARCHAR(50),
    CONSTRAINT S_ICo_pk PRIMARY KEY (ItemCode),
    CONSTRAINT S_ICo_fk FOREIGN KEY (ItemCode) REFERENCES Item(ItemCode)
);
```

Figure 21 - Stationary Table Creation

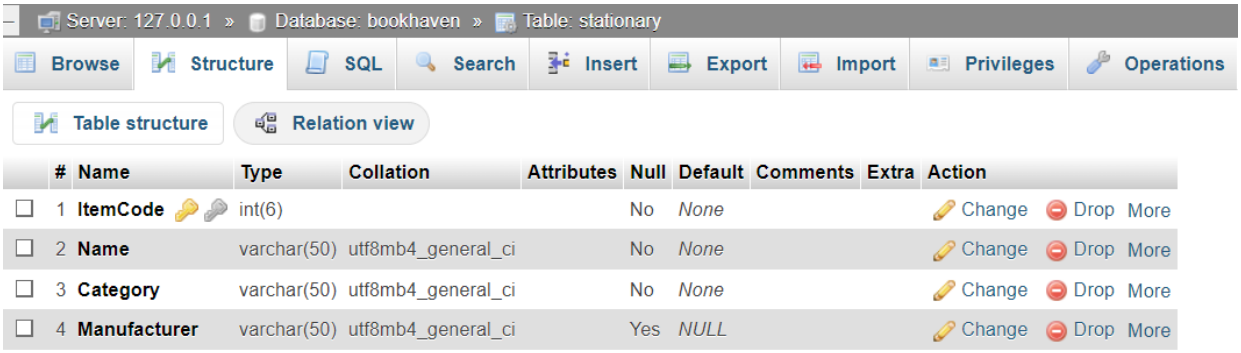
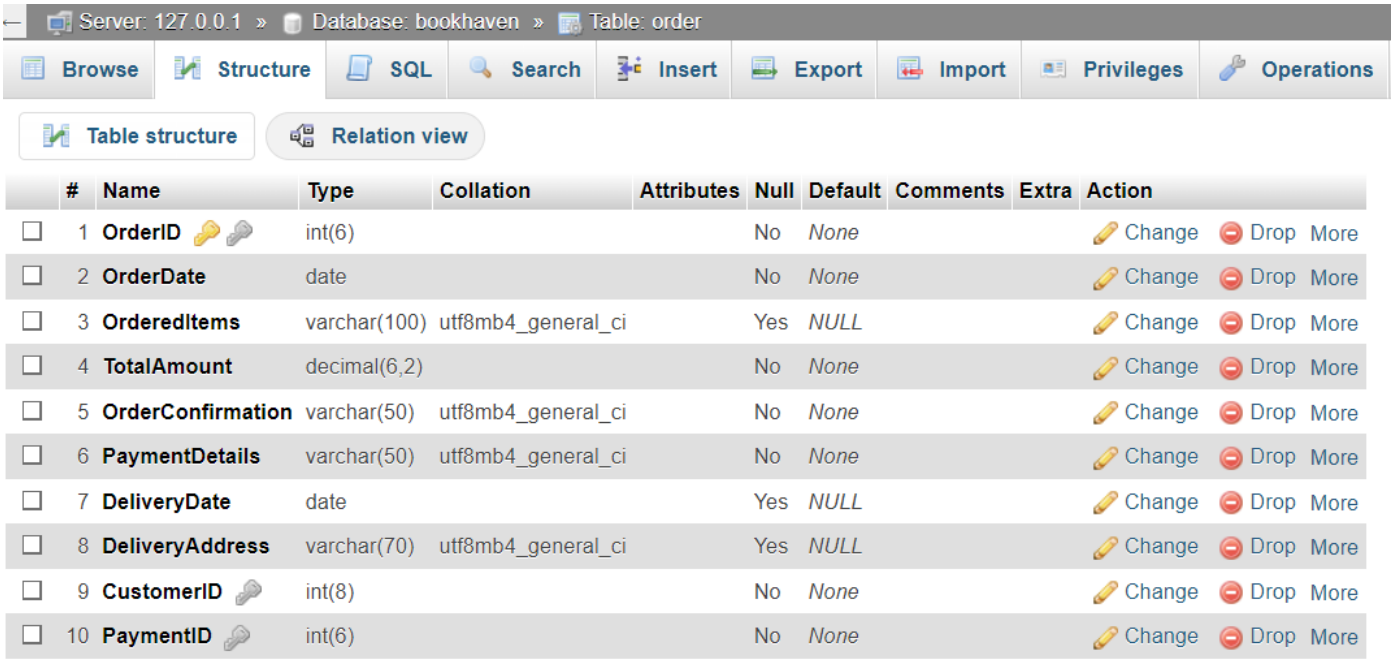


Figure 22 - Created Stationary Table

Order:

```
CREATE TABLE `Order`
(
    OrderID INT(6) UNIQUE NOT NULL,
    OrderDate DATE NOT NULL,
    OrderedItems VARCHAR(100),
    TotalAmount DECIMAL(6,2) NOT NULL,
    OrderConfirmation VARCHAR(50) NOT NULL,
    PaymentDetails VARCHAR(50) NOT NULL,
    DeliveryDate DATE,
    DeliveryAddress VARCHAR(70),
    CustomerID INT(8) NOT NULL,
    PaymentID INT (6) NOT NULL,
    CONSTRAINT O_OID_pk PRIMARY KEY (OrderID),
    CONSTRAINT O_CID_fk FOREIGN KEY (CustomerID) REFERENCES customer(CustomerID),
    CONSTRAINT O_PID_fk FOREIGN KEY (PaymentID) REFERENCES Payment(PaymentID)
);
```

Figure 23 - Order Table Creation



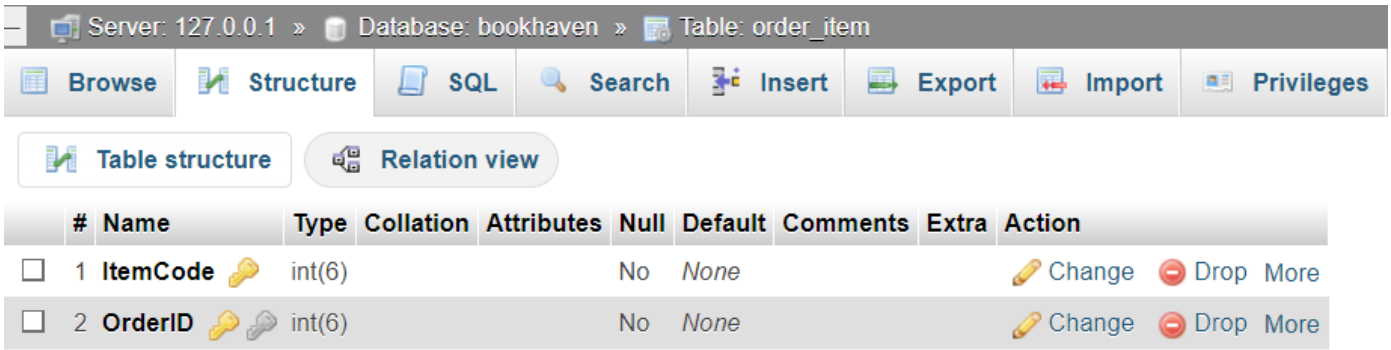
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	OrderID	int(6)			No	None			Change Drop More
2	OrderDate	date			No	None			Change Drop More
3	OrderedItems	varchar(100)	utf8mb4_general_ci		Yes	NULL			Change Drop More
4	TotalAmount	decimal(6,2)			No	None			Change Drop More
5	OrderConfirmation	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
6	PaymentDetails	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
7	DeliveryDate	date			Yes	NULL			Change Drop More
8	DeliveryAddress	varchar(70)	utf8mb4_general_ci		Yes	NULL			Change Drop More
9	CustomerID	int(8)			No	None			Change Drop More
10	PaymentID	int(6)			No	None			Change Drop More

Figure 24 -Created Order Table

Order Item:

```
CREATE TABLE `Order_Item`
(
    ItemCode INT(6) NOT NULL,
    OrderID INT(6) NOT NULL,
    CONSTRAINT OI_pk PRIMARY KEY (ItemCode, OrderID),
    CONSTRAINT OI_ICo_fk FOREIGN KEY (ItemCode) REFERENCES Item(ItemCode),
    CONSTRAINT OI_OID_fk FOREIGN KEY (OrderID) REFERENCES `Order`(OrderID)
);
```

Figure 25 - Order Item Table Creation



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	ItemCode	int(6)			No	None			Change Drop More
2	OrderID	int(6)			No	None			Change Drop More

Figure 26 - Created Order Item Table

Database Diagram:

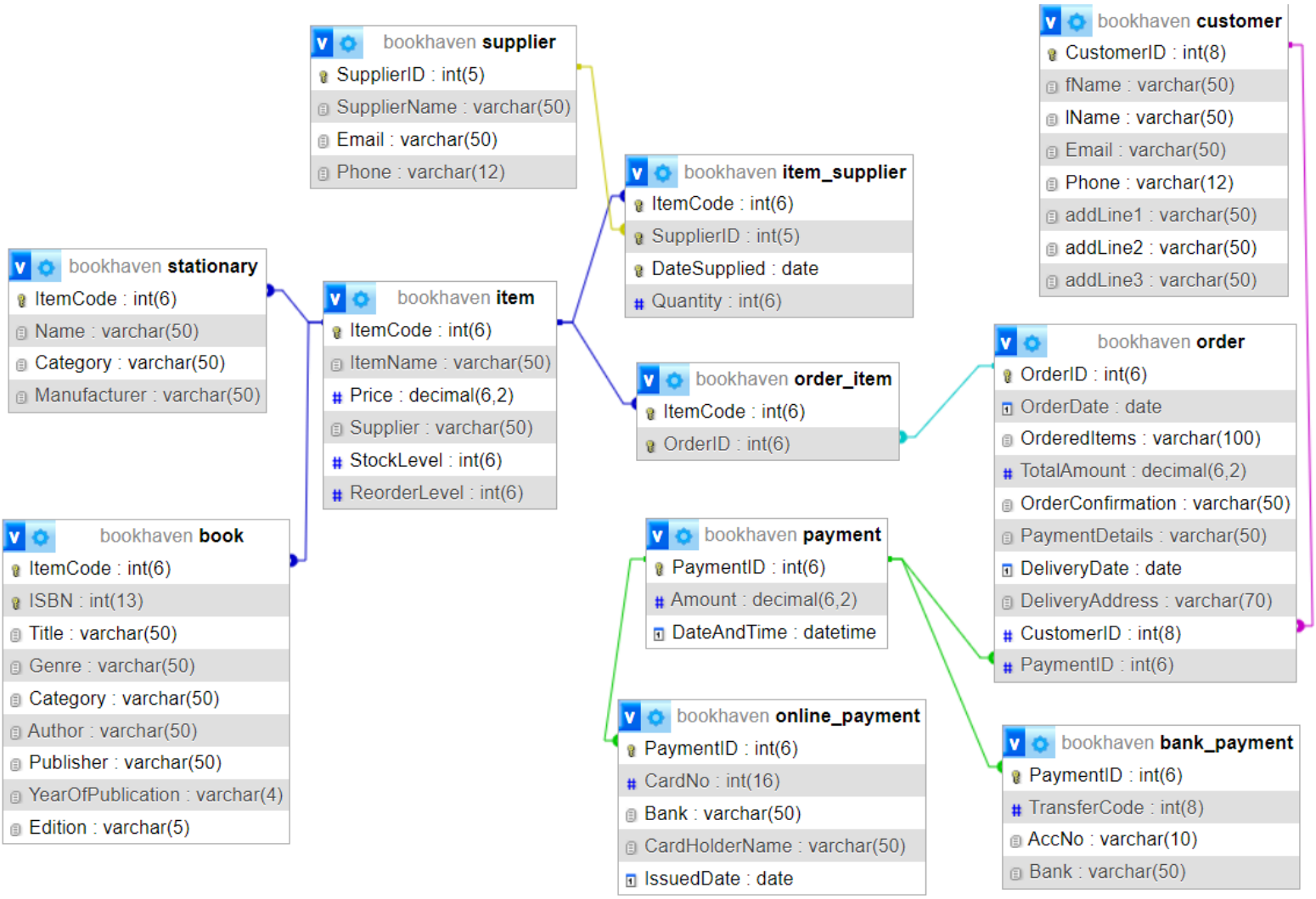


Figure 27 - Database Diagram

Data Entry:

Item:

```
INSERT INTO Item (ItemCode, ItemName, Price, Supplier, StockLevel, ReorderLevel)
VALUES
(001001, 'Blue Pen', 2.00, 'Anderson', 1500, 250),
(001002, '15cm Ruler', 5.00, 'Anderson', 1000, 250),
(001120, 'Harry Potter and the Deathly Hallows', 50.00, 'Peterson', 3000, 1000),
(100560, 'Pencil Box', 10.00, 'Dawkins', 750, 500),
(152000, 'Water Bottle', 8.00, 'Harris', 1200, 500),
(820100, 'Fundamentals of Database Systems', 75.00, 'Peterson', 1640, 200),
(596320, '12 Rules for Life', 12.00, 'Morgan', 4500, 750),
(400201, 'Operating Systems: A Spiral Approach', 30.00, 'Dawkins', 2630, 250),
(805030, 'The Screwtape Letters', 45.00, 'Charles', 3200, 720),
(152010, 'Lunch Box', 13.00, 'Harris', 4000, 1000),
(300502, 'Beginning MySQL Database Design and Optimization', 30.00, 'Charles', 620, 500);
```

Figure 28 - Data Entry into Item Table

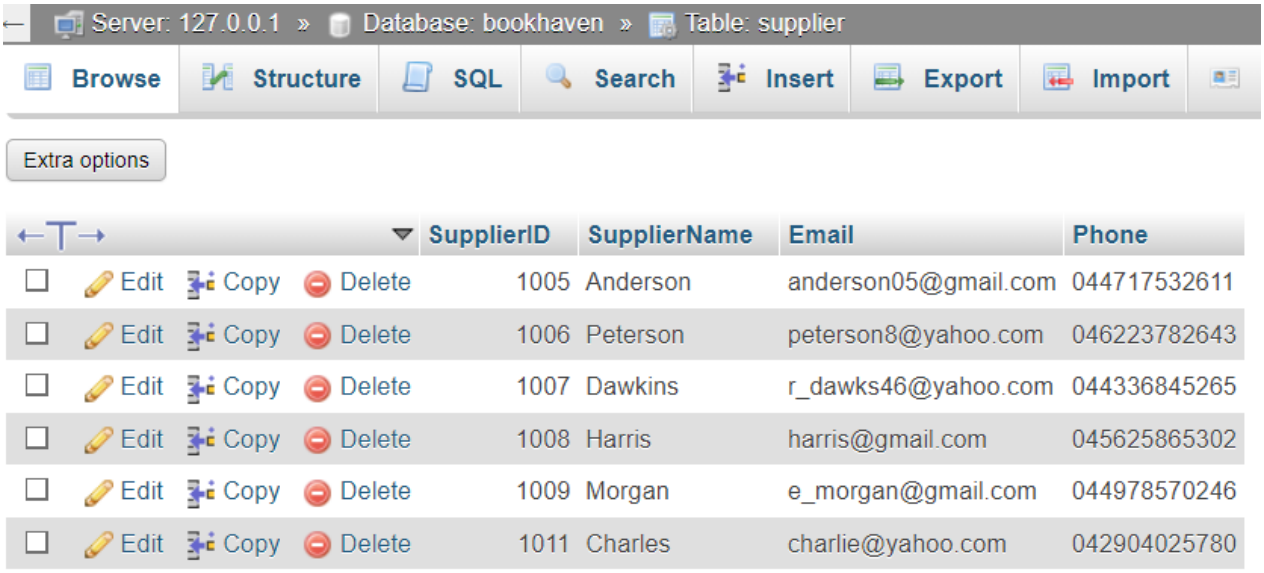
	ItemCode	ItemName	Price	Supplier	StockLevel	ReorderLevel
Edit Copy Delete	1001	Blue Pen	2.00	Anderson	1500	250
Edit Copy Delete	1002	15cm Ruler	5.00	Anderson	1000	250
Edit Copy Delete	1120	Harry Potter and the Deathly Hallows	50.00	Peterson	3000	1000
Edit Copy Delete	100560	Pencil Box	10.00	Dawkins	750	500
Edit Copy Delete	152000	Water Bottle	8.00	Harris	1200	500
Edit Copy Delete	152010	Lunch Box	13.00	Harris	4000	1000
Edit Copy Delete	300502	Beginning MySQL Database Design and Optimization	30.00	Charles	620	500
Edit Copy Delete	400201	Operating Systems: A Spiral Approach	30.00	Dawkins	2630	250
Edit Copy Delete	596320	12 Rules for Life	12.00	Morgan	4500	750
Edit Copy Delete	805030	The Screwtape Letters	45.00	Charles	3200	720
Edit Copy Delete	820100	Fundamentals of Database Systems	75.00	Peterson	1640	200

Figure 29 - Inserted Data into Item Table

Supplier:

```
INSERT INTO supplier (SupplierID, SupplierName, Email, Phone)
VALUES
(1005, 'Anderson', 'anderson05@gmail.com', '044717532611'),
(1006, 'Peterson', 'peterson8@yahoo.com', '046223782643'),
(1007, 'Dawkins', 'r_dawks46@yahoo.com', '044336845265'),
(1008, 'Harris', 'harris@gmail.com', '045625865302'),
(1009, 'Morgan', 'e_morgan@gmail.com', '044978570246'),
(1011, 'Charles', 'charlie@yahoo.com', '042904025780');
```

Figure 28 - Data Entry into Supplier Table



	SupplierID	SupplierName	Email	Phone
Edit Copy Delete	1005	Anderson	anderson05@gmail.com	044717532611
Edit Copy Delete	1006	Peterson	peterson8@yahoo.com	046223782643
Edit Copy Delete	1007	Dawkins	r_dawks46@yahoo.com	044336845265
Edit Copy Delete	1008	Harris	harris@gmail.com	045625865302
Edit Copy Delete	1009	Morgan	e_morgan@gmail.com	044978570246
Edit Copy Delete	1011	Charles	charlie@yahoo.com	042904025780

Figure 29 - Inserted Data into Supplier Table

Item Supplier:

```
INSERT INTO item_supplier (ItemCode, SupplierID, DateSupplied, Quantity)
VALUES
(001120, 1006, '2023-04-06', 500),
(152010, 1008, '2023-10-03', 1000),
(805030, 1011, '2023-01-12', 250),
(596320, 1009, '2023-08-01', 650),
(820100, 1006, '2023-04-06', 1500);
```

Figure 30 - Data Entry into Item Supplier Table

	ItemCode	SupplierID	DateSupplied	Quantity
Edit Copy Delete	1120	1006	2023-04-06	500
Edit Copy Delete	152010	1008	2023-10-03	1000
Edit Copy Delete	596320	1009	2023-08-01	650
Edit Copy Delete	805030	1011	2023-01-12	250
Edit Copy Delete	820100	1006	2023-04-06	1500

Figure 31 - Inserted Data into Item Supplier Table

Customer:

```
INSERT INTO customer (CustomerID, fName, lName, Email, Phone, addLine1, addLine2, addLine3)
VALUES
(65041, 'Matt', 'Fradd', 'm_fradd@gmail.com', '041569307541', '05', 'Trelawny Place', 'California'),
(65042, 'Scott', 'Hahn', 'Hahns50@yahoo.com', '042785304659', '60', ' Marlborough Drive', 'New York'),
(65043, 'Gilbert', 'Chesterton', 'chester01@yahoo.com', '040752643970', '6780', 'St. Albert Place', 'Florida'),
(65044, 'Tammy', 'Peterson', 'tpeter2@gmail.com', '046302157001', '394', 'Madison Avenue', 'Washington'),
(65045, 'Joe', 'Rogan', 'j_roe@gmail.com', '048567020439', '101', 'Theatre Avenue', 'Miami');
```

Figure 32 - Data Entry into Customer Table

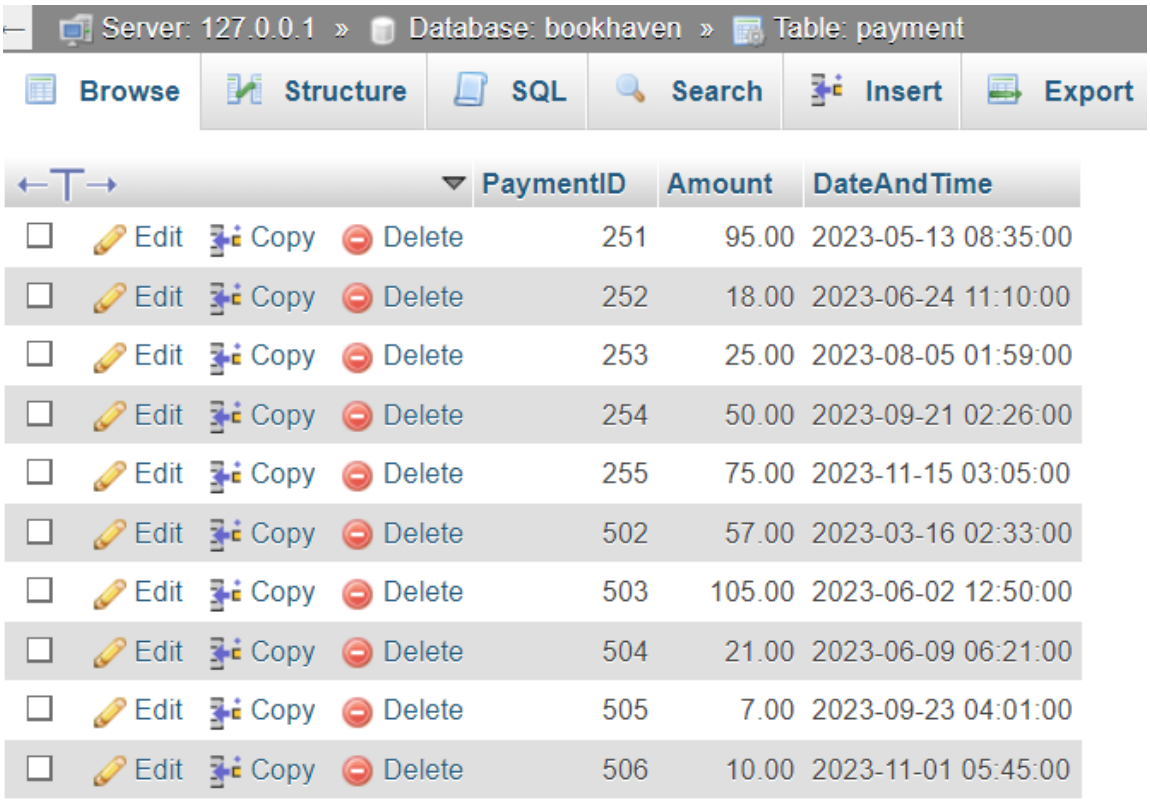
	CustomerID	fName	lName	Email	Phone	addLine1	addLine2	addLine3
Edit Copy Delete	65041	Matt	Fradd	m_fradd@gmail.com	041569307541	05	Trelawny Place	California
Edit Copy Delete	65042	Scott	Hahn	Hahns50@yahoo.com	042785304659	60	Marlborough Drive	New York
Edit Copy Delete	65043	Gilbert	Chesterton	chester01@yahoo.com	040752643970	6780	St. Albert Place	Florida
Edit Copy Delete	65044	Tammy	Peterson	tpeter2@gmail.com	046302157001	394	Madison Avenue	Washington
Edit Copy Delete	65045	Joe	Rogan	j_roe@gmail.com	048567020439	101	Theatre Avenue	Miami

Figure 33 - Inserted Data into Customer Table

Payment:

```
INSERT INTO Payment (PaymentID, Amount, DateAndTime)
VALUES
(502, 57.00, '2023-03-16 02.33'),
(251, 95.00, '2023-05-13 08.35'),
(503, 105.00, '2023-06-02 12.50'),
(504, 21.00, '2023-06-09 06.21'),
(252, 18.00, '2023-06-24 11.10'),
(253, 25.00, '2023-08-05 01.59'),
(254, 50.00, '2023-09-21 02.26'),
(505, 7.00, '2023-09-23 04.01'),
(506, 10.00, '2023-11-01 05.45'),
(255, 75.00, '2023-11-15 03.05');
```

Figure 34 - Data Entry into Payment Table



	PaymentID	Amount	DateAndTime
Edit Copy Delete	251	95.00	2023-05-13 08:35:00
Edit Copy Delete	252	18.00	2023-06-24 11:10:00
Edit Copy Delete	253	25.00	2023-08-05 01:59:00
Edit Copy Delete	254	50.00	2023-09-21 02:26:00
Edit Copy Delete	255	75.00	2023-11-15 03:05:00
Edit Copy Delete	502	57.00	2023-03-16 02:33:00
Edit Copy Delete	503	105.00	2023-06-02 12:50:00
Edit Copy Delete	504	21.00	2023-06-09 06:21:00
Edit Copy Delete	505	7.00	2023-09-23 04:01:00
Edit Copy Delete	506	10.00	2023-11-01 05:45:00

Figure 35 - Inserted Data into Payment Table

Online Payment:

```
INSERT INTO online_payment (PaymentID, CardNo, Bank, CardHolderName, IssuedDate)
VALUES
(251, 495278302846, 'HNB', 'Scott Hahn', '2020-08-06'),
(252, 573071924500, 'HSBC', 'Tammy Peterson', '2018-11-25'),
(253, 501576332089, 'HSBC', 'Joe Rogan', '2021-04-13'),
(254, 485006974188, 'Chartered Bank', 'Gilbert Chesterton', '2019-03-06'),
(255, 501576332089, 'HSBC', 'Joe Rogan', '2021-04-13');
```

Figure 37 – Data Entry into Online Payment Table

	PaymentID	CardNo	Bank	CardHolderName	IssuedDate
Edit Copy Delete	251	2147483647	HNB	Scott Hahn	2020-08-06
Edit Copy Delete	252	2147483647	HSBC	Tammy Peterson	2018-11-25
Edit Copy Delete	253	2147483647	HSBC	Joe Rogan	2021-04-13
Edit Copy Delete	254	2147483647	Chartered Bank	Gilbert Chesterton	2019-03-06
Edit Copy Delete	255	2147483647	HSBC	Joe Rogan	2021-04-13

Figure 36 - Inserted Data into Online Payment Table

Bank Payment:

```
INSERT INTO bank_payment (PaymentID, TransferCode, AccNo, Bank)
VALUES
(502, 90063, '8120056702', 'HSBC'),
(503, 90167, '8056970004', 'Amana Bank'),
(504, 91004, '8625409783', 'Chartered Bank'),
(505, 92059, '8536002471', 'HSBC'),
(506, 95001, '8625409783', 'Chartered Bank');
```

Figure 38 - Data Entry into Bank Payment Table

	PaymentID	TransferCode	AccNo	Bank
Edit Copy Delete	502	90063	8120056702	HSBC
Edit Copy Delete	503	90167	8056970004	Amana Bank
Edit Copy Delete	504	91004	8625409783	Chartered Bank
Edit Copy Delete	505	92059	8536002471	HSBC
Edit Copy Delete	506	95001	8625409783	Chartered Bank

Figure 39 - Inserted Data into Bank Payment Table

Book:

```
INSERT INTO Book (ItemCode, ISBN, Title, Genre, Category, Author, Publisher, YearOfPublication, Edition)
VALUES
(001120, 747591059, 'Harry Potter and the Deathly Hallows', 'Fantasy', 'Young Adult Novel', 'J.K.Rowling', 'Bloomsbury', '2007', '1'),
(820100, 133971248, 'Fundamentals of Database Systems', 'Education', 'Database Management', 'Ramez Elmasri', 'Pearson', '2015', '7'),
(596320, 241351635, '12 Rules for Life', 'Self-help', 'Psychology', 'Jordan Peterson', 'Penguin Allen', '2018', '1'),
(400201, 70164543, 'Operating Systems: A Spiral Approach', 'Education', 'Computer Science', 'Ramez Elmasri', 'Mcgraw Hill Higher Education', '2010', '1'),
(805030, 1444424096, 'The Screwtape Letters', 'Epistolary novel', 'Novel', 'C.S.Lewis', 'Geoffrey Bles', '1942', '2'),
(300502, 1590593324, 'Beginning MySQL Database Design and Optimization', 'Education', 'Database Management', 'Chad Russell', 'Springer', '2004', '1');
```

Figure 40 - Data Entry into Book Table

	ItemCode	ISBN	Title	Genre	Category	Author	Publisher	YearOfPublication	Edition
Edit Copy Delete	1120	747591059	Harry Potter and the Deathly Hallows	Fantasy	Young Adult Novel	J.K.Rowling	Bloomsbury	2007	1
Edit Copy Delete	300502	1590593324	Beginning MySQL Database Design and Optimization	Education	Database Management	Chad Russell	Springer	2004	1
Edit Copy Delete	400201	70164543	Operating Systems: A Spiral Approach	Education	Computer Science	Ramez Elmasri	Mcgraw Hill Higher Education	2010	1
Edit Copy Delete	596320	241351635	12 Rules for Life	Self-help	Psychology	Jordan Peterson	Penguin Allen	2018	1
Edit Copy Delete	805030	1444424096	The Screwtape Letters	Epistolary novel	Novel	C.S.Lewis	Geoffrey Bles	1942	2
Edit Copy Delete	820100	133971248	Fundamentals of Database Systems	Education	Database Management	Ramez Elmasri	Pearson	2015	7

Figure 41 - Inserted Data into Book Table

Stationary:

```
INSERT INTO stationary (ItemCode, Name, Category, Manufacturer)
VALUES
(001001, 'Blue Pen', 'Pen', 'Atlas'),
(001002, '15cm Ruler', 'Ruler', 'Atlas'),
(100560, 'Pencil Box', 'Container', 'Smiggle'),
(152000, 'Water Bottle', 'Bottle', 'Smiggle'),
(152010, 'Lunch Box', 'Container', 'Smiggle');
```

Figure 42 - Data Entry into Stationary Table

	ItemCode	Name	Category	Manufacturer
Edit Copy Delete	1001	Blue Pen	Pen	Atlas
Edit Copy Delete	1002	15cm Ruler	Ruler	Atlas
Edit Copy Delete	100560	Pencil Box	Container	Smiggle
Edit Copy Delete	152000	Water Bottle	Bottle	Smiggle
Edit Copy Delete	152010	Lunch Box	Container	Smiggle

Figure 43 - Inserted Data into Stationary Table

Order:

```
INSERT INTO `order` (`OrderID`, `OrderDate`, `OrderedItems`, `TotalAmount`, `OrderConfirmation`, `PaymentDetails`, `DeliveryDate`, `DeliveryAddress`,  `CustomerID`, `PaymentID`)
VALUES
(04000, '2023-03-09', '12 Rules for Life, The Screwtape Letters', 57.00, 'Bank Payment', 'Successful', '2023-03-19', '394, Madison Avenue, Washington', 65044, 502),
(04001, '2023-05-07', 'The Screwtape Letters, Harry Potter and the Deathly Hallows', 95.00,  'Online Payment', 'Pending', '2023-05-17', '60,  Marlborough Drive, New York', 65042, 251),
(04002, '2023-06-02', 'Fundamentals of Database Systems, Operating Systems: A Spiral Approach', 105.00, 'Bank Payment', 'Successful', '2023-06-12', '6780, St. Albert Place, Florida', 65043, 503),
(04003, '2023-06-03', 'Lunch Box, Water Bottle', 21.00, 'Bank Payment', 'Pending', '2023-06-13',  '101, Theatre Avenue, Miami', 65045, 504),
(04004, '2023-06-20', 'Water Bottle, Pencil Box', 18.00, 'Online Payment', 'Successful', '2023-06-30', '394, Madison Avenue, Washington', 65044, 252),
(04005, '2023-08-01', '15cm Ruler, 12 Rules for Life, Water Bottle', 25.00, 'Online Payment', 'Successful', '2023-08-11', '101, Theatre Avenue, Miami', 65045, 253),
(04006, '2023-09-16', 'Harry Potter and the Deathly Hallows', 50.00, 'Online Payment', 'Pending', '2023-09-26', '6780, St. Albert Place, Florida', 65043, 254),
(04007, '2023-09-18', 'Blue Pen, 15cm Ruler', 7.00, 'Bank Payment', 'Successful', '2023-09-28', '394, Madison Avenue, Washington', 65044, 505),
(04008, '2023-10-27', 'Pencil Box', 10.00, 'Bank Payment', 'Successful', '2023-11-07', '394, Madison Avenue, Washington', 65044, 506),
(04009, '2023-11-10', 'Fundamentals of Database Systems', 75.00, 'Online Payment', 'Pending', '2023-11-20', '101, Theatre Avenue, Miami', 65045, 255);
```

Figure 44 - Data Entry into Order Table

Server: 127.0.0.1 » Database: bookhaven » Table: order

Browse | Structure | SQL | Search | Insert | Export | Import | Privileges | Operations | Tracking | Triggers

	OrderID	OrderDate	OrderedItems	TotalAmount	OrderConfirmation	PaymentDetails	DeliveryDate	DeliveryAddress	CustomerID	PaymentID
Edit Copy Delete	4000	2023-03-09	12 Rules for Life, The Screwtape Letters	57.00	Bank Payment	Successful	2023-03-19	394, Madison Avenue, Washington	65044	502
Edit Copy Delete	4001	2023-05-07	The Screwtape Letters, Harry Potter and the Deathl...	95.00	Online Payment	Pending	2023-05-17	60, Marlborough Drive, New York	65042	251
Edit Copy Delete	4002	2023-06-02	Fundamentals of Database Systems, Operating System...	105.00	Bank Payment	Successful	2023-06-12	6780, St. Albert Place, Florida	65043	503
Edit Copy Delete	4003	2023-06-03	Lunch Box, Water Bottle	21.00	Bank Payment	Pending	2023-06-13	101, Theatre Avenue, Miami	65045	504
Edit Copy Delete	4004	2023-06-20	Water Bottle, Pencil Box	18.00	Online Payment	Successful	2023-06-30	394, Madison Avenue, Washington	65044	252
Edit Copy Delete	4005	2023-08-01	15cm Ruler, 12 Rules for Life, Water Bottle	25.00	Online Payment	Successful	2023-08-11	101, Theatre Avenue, Miami	65045	253
Edit Copy Delete	4006	2023-09-16	Harry Potter and the Deathly Hallows	50.00	Online Payment	Pending	2023-09-26	6780, St. Albert Place, Florida	65043	254
Edit Copy Delete	4007	2023-09-18	Blue Pen, 15cm Ruler	7.00	Bank Payment	Successful	2023-09-28	394, Madison Avenue, Washington	65044	505
Edit Copy Delete	4008	2023-10-27	Pencil Box	10.00	Bank Payment	Successful	2023-11-07	394, Madison Avenue, Washington	65044	506
Edit Copy Delete	4009	2023-11-10	Fundamentals of Database Systems	75.00	Online Payment	Pending	2023-11-20	101, Theatre Avenue, Miami	65045	255

Figure 45 - Inserted Data into Order Table

Order Item:

```
INSERT INTO order_item (ItemCode, OrderID)
VALUES
(1001, 4007),
(1002, 4005),
(1002, 4007),
(1120, 4001),
(1120, 4006),
(100560, 4004),
(100560, 4008),
(152000, 4003),
(152000, 4004),
(152000, 4005),
(152010, 4003),
(400201, 4002),
(596320, 4000),
(596320, 4005),
(805030, 4000),
(805030, 4001),
(820100, 4002),
(820100, 4009);
```

Figure 46 - Data Entry into Order Item Table

	ItemCode	OrderID
Edit Copy Delete	1001	4007
Edit Copy Delete	1002	4005
Edit Copy Delete	1002	4007
Edit Copy Delete	1120	4001
Edit Copy Delete	1120	4006
Edit Copy Delete	100560	4004
Edit Copy Delete	100560	4008
Edit Copy Delete	152000	4003
Edit Copy Delete	152000	4004
Edit Copy Delete	152000	4005
Edit Copy Delete	152010	4003
Edit Copy Delete	400201	4002
Edit Copy Delete	596320	4000
Edit Copy Delete	596320	4005
Edit Copy Delete	805030	4000
Edit Copy Delete	805030	4001
Edit Copy Delete	820100	4002
Edit Copy Delete	820100	4009

Figure 47 - Inserted Data into Order Item Table

Section 4

Data Manipulation:

a)

```
1 SELECT ISBN, Title, Category, Author, Publisher
2 FROM book
3 WHERE (Publisher = 'Pearson' OR Publisher='Springer') AND Category='Database Management' OR Author = 'Ramez Elmasri';
```

Figure 49 - 4a Data Manipulation Query

	ISBN	Title	Category	Author	Publisher
Edit Copy Delete	1590593324	Beginning MySQL Database Design and Optimization	Database management	Chad Russell	Springer
Edit Copy Delete	70164543	Operating Systems: A Spiral Approach	Computer Science	Ramez Elmasri	Mcgraw Hill Higher Education
Edit Copy Delete	133971248	Fundamentals of Database Systems	Database management	Ramez Elmasri	Pearson

Figure 48 - 4a Output

b)

```
1 SELECT CONCAT(C.fname, ' ', C.lName) AS 'Full Name', C.CustomerID, C.Phone, C.Email, COUNT(O.OrderID) AS 'Number of
  Orders'
2 FROM Customer AS C JOIN `order` AS O
3 ON C.CustomerID = O.CustomerID
4 WHERE O.OrderDate >= DATE_SUB(NOW(), INTERVAL 6 MONTH)
5 GROUP BY C.CustomerID
6 HAVING COUNT(O.OrderID) > 2;
```

Figure 50 - 4b Data Manipulation Query

Full Name	CustomerID	Phone	Email	Number of Orders
Tammy Peterson	65044	046302157001	tpeter2@gmail.com	3
Joe Rogan	65045	048567020439	j_roe@gmail.com	3

Figure 51 - 4b Output

References:

Search page | SpringerLink. (n.d.). https://link.springer.com/search?new-search=true&query=database&sortBy=relevance&content-type=Book&dateFrom=&dateTo=