

# **Deliverable 3**

## **SQL Database and Menu Driven Application with UI**

**Team Number:** 11

**Section:** CS-631 009

**Team Members:**

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## **Goals of this Phase:**

The aim of this phase is to create a SQL database for the computer store using the Relational Schema developed in Phase 2. To create the database we have used [MySQL](#) on the phpMyAdmin server provided by the university. To generate an User Interface (UI) we chose [StreamLit](#) library on python and the connection to the server at backend is done in python using [mysql-connector](#) library.

## **SQL Database:**

To create the database we have considered the example relational schema shared, since our relational schema had some intricacies.

### **Create Database:**

The following SQL commands are used to create the database and add tables to it according to the example relational schema:

```
-- CREATE DATABASE
```

```
DROP DATABASE IF EXISTS eComputerStore;  
CREATE DATABASE eComputerStore;  
USE eComputerStore;
```

```
-- CREATE TABLES
```

```
DROP TABLE IF EXISTS CUSTOMER;  
CREATE TABLE CUSTOMER(  
    CID CHAR(5) NOT NULL,  
    FName VARCHAR(20) NOT NULL,  
    LName VARCHAR(20) NOT NULL,  
    EMail VARCHAR(50) NOT NULL,  
    Address VARCHAR(250),  
    Phone VARCHAR(12),  
    Status VARCHAR(10) CHECK (Status IN ('platinum','gold','silver','bronze')),  
    PRIMARY KEY (CID),  
    UNIQUE(EMail));
```

```
DROP TABLE IF EXISTS SILVER_AND_ABOVE;  
CREATE TABLE SILVER_AND_ABOVE(  
    CID CHAR(5) NOT NULL,  
    CreditLine VARCHAR(250),
```

```
PRIMARY KEY (CID),
FOREIGN KEY (CID) REFERENCES CUSTOMER(CID));
```

```
DROP TABLE IF EXISTS CREDIT_CARD;
CREATE TABLE CREDIT_CARD(
    CCNumber VARCHAR(20) NOT NULL,
    SecNumber VARCHAR(4) NOT NULL,
    OwnerName VARCHAR(20) NOT NULL,
    CCType VARCHAR(15),
    BillAddress VARCHAR(250),
    ExpDate date,
    StoredCardCID CHAR(5),

PRIMARY KEY(CCNumber),
FOREIGN KEY(StoredCardCID) REFERENCES CUSTOMER(CID));
```

```
DROP TABLE IF EXISTS SHIPPING_ADDRESS;
CREATE TABLE SHIPPING_ADDRESS(
    CID CHAR(5) NOT NULL,
    SName VARCHAR(20) NOT NULL,
    RecipientName VARCHAR(25),
    SNumber VARCHAR(10),
    Street VARCHAR(50),
    City VARCHAR(15),
    State VARCHAR(20),
    Country VARCHAR(20),
    Zip VARCHAR(6),

PRIMARY KEY(CID,SName),
FOREIGN KEY(CID) REFERENCES SILVER_AND_ABOVE(CID));
```

```
DROP TABLE IF EXISTS BASKET;
CREATE TABLE BASKET(
    BID CHAR(7) NOT NULL,
    CID CHAR(5),

PRIMARY KEY(BID),
FOREIGN KEY(CID) REFERENCES CUSTOMER(CID));
```

```
DROP TABLE IF EXISTS TRANSACTION;
```

```
CREATE TABLE TRANSACTION(
    BID CHAR(7) NOT NULL,
    CID CHAR(5) NOT NULL,
    SAName VARCHAR(20) NOT NULL,
    TDate DATE,
    CCNumber VARCHAR(20) NOT NULL,
    TTag VARCHAR(20),
    PRIMARY KEY(BID, CCNumber, CID, SAName),
    CONSTRAINT TR_SA_FK
        FOREIGN KEY(CID,SAName) REFERENCES SHIPPING_ADDRESS(CID,SAName),
    CONSTRAINT TR_CC_FK
        FOREIGN KEY(CCNumber) REFERENCES CREDIT_CARD(CCNUMBER),
    CONSTRAINT TR_BID_FK
        FOREIGN KEY(BID) REFERENCES BASKET(BID));
```

```
DROP TABLE IF EXISTS PRODUCT;
```

```
CREATE TABLE PRODUCT(
    PID CHAR(4) NOT NULL,
    PName VARCHAR(30) NOT NULL,
    PType VARCHAR(30),
    PPrice DECIMAL(10,2),
    PQuantity INT DEFAULT(0),
    Description VARCHAR(255),
    PRIMARY KEY(PID),
    UNIQUE(PName));
```

```
DROP TABLE IF EXISTS APPEARS_IN;
```

```
CREATE TABLE APPEARS_IN(
    BID CHAR(7) NOT NULL,
    PID CHAR(4) NOT NULL,
    Quantity INT,
    PriceSold DECIMAL(10,2),
    PRIMARY KEY(BID, PID),
    FOREIGN KEY(BID) REFERENCES BASKET(BID),
    FOREIGN KEY(PID) REFERENCES PRODUCT(PID));
```

```
DROP TABLE IF EXISTS OFFER_PRODUCT;
```

```
CREATE TABLE OFFER_PRODUCT(
```

```
PID CHAR(4) NOT NULL,  
OfferPrice DECIMAL(10,2) NOT NULL,  
  
PRIMARY KEY(PID),  
FOREIGN KEY(PID) REFERENCES PRODUCT(PID));
```

```
DROP TABLE IF EXISTS COMPUTER;  
CREATE TABLE COMPUTER(  
    PID CHAR(4) NOT NULL,  
    CPUType VARCHAR(30),  
  
    PRIMARY KEY(PID),  
    FOREIGN KEY(PID) REFERENCES PRODUCT(PID));
```

```
DROP TABLE IF EXISTS PRINTER;  
CREATE TABLE PRINTER(  
    PID CHAR(4) NOT NULL,  
    PrinterType VARCHAR(25),  
    Resolution VARCHAR(10),  
  
    PRIMARY KEY(PID),  
    FOREIGN KEY(PID) REFERENCES PRODUCT(PID));
```

```
DROP TABLE IF EXISTS LAPTOP;  
CREATE TABLE LAPTOP(  
    PID CHAR(4) NOT NULL,  
    BType VARCHAR(25),  
    Weight DECIMAL(3,2),  
  
    PRIMARY KEY(PID),  
    FOREIGN KEY(PID) REFERENCES COMPUTER(PID));
```

## Populate Database:

The following SQL commands are used to populate the store database:

```
-- POPULATE THE DATABASE
```

```
INSERT INTO CUSTOMER VALUES(10001, 'Vinay', 'Gazula', 'vinayram@gmail.com', '359  
Broad Ave', '6404449400', 'platinum');  
INSERT INTO CUSTOMER VALUES(10002, 'Ganesh', 'Ravuru', 'ganesh@gmail.com', '0001  
World street', '9500000001', 'platinum');
```

```
INSERT INTO CUSTOMER VALUES(10003, 'Shivrishvith',
'Palthyavathu','shivrishvith@gmail.com','333 cross street','6123697401', 'platinum');
INSERT INTO CUSTOMER VALUES(10004, 'Manikanta', 'Rayala','manikantar@gmail.com',
'456 Central Ave','3338449000', 'platinum');
INSERT INTO CUSTOMER VALUES(10005, 'Rohan', 'Katkam','rohank@gmail.com', '2015
Davis Ave','9908333028', 'bronze');
INSERT INTO CUSTOMER VALUES(10006, 'Virat', 'Kohli','vk18@gmail.com', '099
RCB','9598450018', 'gold');
INSERT INTO CUSTOMER VALUES(10007, 'Mahendhar', 'Dhoni','msd07@gmail.com', '184
Newark Ave','987654007', 'gold');
INSERT INTO CUSTOMER VALUES(10008, 'Stephen',
'Hawking','stephenhawking@gmail.com', '2108 Central Ave','2565552233', 'silver');
INSERT INTO CUSTOMER VALUES(10009, 'Robbert', 'Parker','robbertparker@gmail.com', '155
William', '4567809024', 'silver');
INSERT INTO CUSTOMER VALUES(10010, 'Charles', 'Leclerc','cl16@gmail.com', '132
Hamilton Ave', '6742087421','gold');
INSERT INTO CUSTOMER VALUES(10011, 'Lewis', 'Hamilton','lh44@gmail.com', '112 Hamilton
Ave', '6768608742', 'silver');
INSERT INTO CUSTOMER VALUES(10012, 'Sebastian', 'Vette','sv5@gmail.com', '185
Hamilton Ave', '4568608742', 'bronze');
INSERT INTO CUSTOMER VALUES(10013, 'Carlos', 'Sainz','cs55@gmail.com', '155 Hamilton
Ave', '4348608742', 'gold');
INSERT INTO CUSTOMER VALUES(10014, 'Toto', 'Wolf','tw99@gmail.com', '195 Hamilton
Ave', '7660874251', 'bronze');
INSERT INTO CUSTOMER VALUES(10016, 'ABC', 'XYZ','abc@gmail.com', '0001 World
street','9500000001', 'platinum');
```

```
INSERT INTO SILVER_AND_ABOVE VALUES(10001, 700);
INSERT INTO SILVER_AND_ABOVE VALUES(10002, 718);
INSERT INTO SILVER_AND_ABOVE VALUES(10003, 680);
INSERT INTO SILVER_AND_ABOVE VALUES(10004, 696);
INSERT INTO SILVER_AND_ABOVE VALUES(10006, 850);
INSERT INTO SILVER_AND_ABOVE VALUES(10007, 800);
INSERT INTO SILVER_AND_ABOVE VALUES(10008, 767);
INSERT INTO SILVER_AND_ABOVE VALUES(10009, 723);
INSERT INTO SILVER_AND_ABOVE VALUES(10010, 750);
INSERT INTO SILVER_AND_ABOVE VALUES(10011, 703);
INSERT INTO SILVER_AND_ABOVE VALUES(10013, 725);
```

```
INSERT INTO CREDIT_CARD VALUES('4233523342018794', '5698', 'Charles','RuPay', '132
Hamilton Ave', '2028-09-14','10010');
INSERT INTO CREDIT_CARD VALUES('4233523302354581', '7894', 'Lewis','Visa', '112
Hamilton Ave', '2028-09-14','10011');
```

```
INSERT INTO CREDIT_CARD VALUES('4233523378520078', '1248', 'Sebastian','Visa', '185 Hamilton Ave', '2028-09-14','10012');
INSERT INTO CREDIT_CARD VALUES('4233523312569840', '789', 'Fernando','MasterCard', '199 Hamilton Ave', '2028-09-14','10012');
INSERT INTO CREDIT_CARD VALUES('4233523378950479', '4005', 'Sebastian','Visa', '185 Hamilton Ave', '2028-09-14','10012');
INSERT INTO CREDIT_CARD VALUES('4233523346287910', '745', 'Vinay','MasterCard', '359 Broad Ave', '2028-09-14','10001');
INSERT INTO CREDIT_CARD VALUES('4233523356845978', '4890', 'Ganesh','Visa', '0001 World street', '2028-09-14','10002');
INSERT INTO CREDIT_CARD VALUES('4233523356845788', '890', 'Manikanta','MasterCard', '456 Central Ave', '2028-09-14','10004');
INSERT INTO CREDIT_CARD VALUES('4233523378124566', '123', 'Stephen','MasterCard', '2108 Central Ave', '2028-09-14','10008');
INSERT INTO CREDIT_CARD VALUES('4233523396201485', '996', 'Rohan','MasterCard', '2015 Davis Ave', '2028-09-14','10005');
INSERT INTO CREDIT_CARD VALUES('4233523374259617', '007', 'Toto','MasterCard', '195 Hamilton Ave', '2028-09-14','10014');
INSERT INTO CREDIT_CARD VALUES('4233523359831478', '7849', 'Susie','Visa', '195 Hamilton Ave', '2028-09-14','10014');
INSERT INTO CREDIT_CARD VALUES('4233523343457005', '365', 'Lewis','MasterCard', '112 Hamilton Ave', '2028-09-14','10011');
INSERT INTO CREDIT_CARD VALUES('4233523343785418', '1899', 'Virat','Visa', '009 RCB', '2028-09-14','10006');
INSERT INTO CREDIT_CARD VALUES('4233523343785408', '199', 'Virat','MasterCard', '009 RCB', '2028-09-14','10006');
INSERT INTO CREDIT_CARD VALUES('4233523348794163', '209', 'Carlos','MasterCard', '155 Hamilton Ave', '2028-09-14','10013');

INSERT INTO SHIPPING_ADDRESS VALUES(10013, 'Carlos Home', 'Carlos Sainz', NULL, '185 Hamilton Ave', 'Harrison', 'NJ', 'USA', '07029');
INSERT INTO SHIPPING_ADDRESS VALUES(10013, 'Carlos Office', 'Carlos Sainz', 26, 'MG Ave', 'Nurburg', 'NJ', 'Germany', '156325');
INSERT INTO SHIPPING_ADDRESS VALUES(10001, 'Vinay Home', 'Vinay Ram', '32-8', '01 ABC', 'Vijayawada', 'AP', 'India', '520003');
INSERT INTO SHIPPING_ADDRESS VALUES(10002, 'Ganesh Office', 'Ganesh Sai', 5, '487 ACHYD', 'Hyderabad', 'TS', 'India', '525003');
INSERT INTO SHIPPING_ADDRESS VALUES(10003, 'Shivrishi Home', 'Shivrishi', 96, '101 XYz', 'Chennai', 'TN', 'India', '548962');
INSERT INTO SHIPPING_ADDRESS VALUES(10010, 'Charles Home', 'Charles Leclerc', NULL, '132 Hamilton Ave', 'Harrison', 'NJ', 'USA', '07126');
INSERT INTO SHIPPING_ADDRESS VALUES(10011, 'Lewis Home', 'Lewis Hamilton', NULL, '112 Hamilton Ave', 'Harrison', 'NJ', 'USA', '07126');
```

```
INSERT INTO SHIPPING_ADDRESS VALUES(10008, 'Hawking Home', 'Stephen Hawking', '5-89', 'Brooks Field', 'Oxford', 'LN', 'UK', '48725');
INSERT INTO SHIPPING_ADDRESS VALUES(10006, 'Virat Home', 'Virat Kohli', 5, '099 RCB', 'Banglore', 'KA', 'India', '523102');
INSERT INTO SHIPPING_ADDRESS VALUES(10006, 'Virat Office', 'Anushka', 89, 'Bandra Kurla', 'Mumbai', 'MH', 'India', '54789');
INSERT INTO SHIPPING_ADDRESS VALUES(10007, 'MSD Home', 'MS Dhoni', 1, 'AXCYU Street', 'Eluru', 'AP', 'India', '521106');
INSERT INTO SHIPPING_ADDRESS VALUES(10004, 'Manikanta Home', 'Manikanta', 189, 'BHUK Street', 'Eluru', 'AP', 'India', '521106');

INSERT INTO BASKET VALUES(1000101, 10005);
INSERT INTO BASKET VALUES(1000102, 10004);
INSERT INTO BASKET VALUES(1000103, 10006);
INSERT INTO BASKET VALUES(1000104, 10013);
INSERT INTO BASKET VALUES(1000105, 10010);
INSERT INTO BASKET VALUES(1000106, 10003);
INSERT INTO BASKET VALUES(1000107, 10001);
INSERT INTO BASKET VALUES(1000108, 10007);
INSERT INTO BASKET VALUES(1000109, 10002);
INSERT INTO BASKET VALUES(1000110, 10008);
INSERT INTO BASKET VALUES(1000111, 10006);
INSERT INTO BASKET VALUES(1000112, 10013);
INSERT INTO BASKET VALUES(1000113, 10013);

INSERT INTO TRANSACTION VALUES(1000102, 10004, 'Manikanta Home', '2023-01-20', '4233523356845788', 'Delivered');
INSERT INTO TRANSACTION VALUES(1000103, 10006, 'Virat Home', '2023-11-20', '4233523343785418', 'Delivered');
INSERT INTO TRANSACTION VALUES(1000111, 10006, 'Virat Office', '2023-09-01', '4233523343785408', 'Not Delivered');
INSERT INTO TRANSACTION VALUES(1000107, 10001, 'Vinay Home', '2023-12-09', '4233523346287910', 'Delivered');
INSERT INTO TRANSACTION VALUES(1000105, 10010, 'Charles Home', '2023-11-30', '4233523342018794', 'Not Delivered');
INSERT INTO TRANSACTION VALUES(1000110, 10008, 'Hawking Home', '2022-01-20', '4233523378124566', 'Delivered');
INSERT INTO TRANSACTION VALUES(1000104, 10013, 'Charlos Home', '2023-06-25', '4233523348794163', 'Delivered');
INSERT INTO TRANSACTION VALUES(1000112, 10013, 'Charlos Office', '2023-12-12', '4233523348794163', 'Not Delivered');
INSERT INTO TRANSACTION VALUES(1000109, 10002, 'Ganesh Office', '2023-12-12', '4233523356845978', 'Failed Transaction');
```

```
INSERT INTO PRODUCT VALUES(8732, 'Alienware M15', 'Laptop', 1999.99, 506, 'Super slim gaming laptop from Alienware with Intel i9 processor and Nvidia GPU.');?>
INSERT INTO PRODUCT VALUES(1267, 'MacBook Air 15', 'Laptop', 1599.99, 260, 'Super light and long lasting laptop from Apple with M2 Chip and 10 core GPU with intergrated MacOS and new 15 inch HDR display.');?>
INSERT INTO PRODUCT VALUES(7856, 'MacBook Pro 16', 'Laptop', 2999.99, 120, 'New MacBook Pro with M3 Ultra processor for faster processing speeds and comes with built-in HDMI port for productivity.');?>
INSERT INTO PRODUCT VALUES(3235, 'Lenovo Legion', 'Computer', 2249.99, 70, 'All in one desktop computer with Intel i9 processor and liquid cooling CPU setup.');?>
INSERT INTO PRODUCT VALUES(5980, 'Dell 8569', 'Computer', 599.99, 86, 'Basic computer with Intel i3 CPU and 8 GB RAM.');?>
INSERT INTO PRODUCT VALUES(5554, 'HP 8785', 'Computer', 649.99, 100, 'Basic computer with Intel i3 CPU and 8 GB RAM.');?>
INSERT INTO PRODUCT VALUES(9874, 'Asus 5896', 'Computer', 499.99, 50, 'Basic computer with Intel i3 CPU and 8 GB RAM.');?>
INSERT INTO PRODUCT VALUES(1112, 'HP Inkjet 5825', 'Printer', 249.99, 30, 'Basic printer.');?>
INSERT INTO PRODUCT VALUES(1113, 'Epson 5825', 'Printer', 249.99, 30, 'Basic printer.');?>
INSERT INTO PRODUCT VALUES(1114, 'Canon 9778', 'Printer', 249.99, 30, 'Basic printer.');?>
INSERT INTO PRODUCT VALUES(8975, 'Dell 9999', 'Desktop', 1649.99, 261, 'Dell All in one desktop with Intel i9, 16 GB DDR5 RAM, NVIDIA 4070 MaxQ GPU and 27 inch QHD display.');?>
INSERT INTO PRODUCT VALUES(8940, 'HP 9999', 'Desktop', 1749.99, 261, 'HP All in one desktop with Intel i9, 16 GB DDR5 RAM, NVIDIA 4070 MaxQ GPU and 27 inch QHD display.');?>
  
  
INSERT INTO APPEARS_IN VALUES(1000101, 8732, 1, 1999.99);
INSERT INTO APPEARS_IN VALUES(1000103, 5980, 1, 599.99);
INSERT INTO APPEARS_IN VALUES(1000103, 1113, 1, 249.99);
INSERT INTO APPEARS_IN VALUES(1000103, 8975, 1, 1649.99);
INSERT INTO APPEARS_IN VALUES(1000102, 1267, 2, 1599.99);
INSERT INTO APPEARS_IN VALUES(1000102, 7856, 1, 2999.99);
INSERT INTO APPEARS_IN VALUES(1000104, 3235, 1, 2249.99);
INSERT INTO APPEARS_IN VALUES(1000105, 5980, 1, 599.99);
INSERT INTO APPEARS_IN VALUES(1000106, 5554, 1, 649.99);
INSERT INTO APPEARS_IN VALUES(1000107, 8732, 2, 1999.99);
INSERT INTO APPEARS_IN VALUES(1000107, 7856, 2, 2999.99);
INSERT INTO APPEARS_IN VALUES(1000108, 1112, 1, 249.99);
INSERT INTO APPEARS_IN VALUES(1000109, 1113, 3, 249.99);
INSERT INTO APPEARS_IN VALUES(1000109, 7856, 1, 2999.99);
INSERT INTO APPEARS_IN VALUES(1000109, 3235, 2, 2249.99);
INSERT INTO APPEARS_IN VALUES(1000110, 1114, 5, 249.99);
INSERT INTO APPEARS_IN VALUES(1000111, 8975, 1, 1649.99);
INSERT INTO APPEARS_IN VALUES(1000112, 8940, 3, 1749.99);
INSERT INTO APPEARS_IN VALUES(1000113, 8975, 1, 1649.99);
INSERT INTO APPEARS_IN VALUES(1000113, 1112, 1, 249.99);
```

```

INSERT INTO APPEARS_IN VALUES(1000113, 3235, 2, 2249.99);

INSERT INTO OFFER_PRODUCT VALUES(8940, 1499.99);
INSERT INTO OFFER_PRODUCT VALUES(1114, 99.99);
INSERT INTO OFFER_PRODUCT VALUES(1112, 99.99);
INSERT INTO OFFER_PRODUCT VALUES(3235, 1999.99);
INSERT INTO OFFER_PRODUCT VALUES(5554, 499.99);

INSERT INTO COMPUTER VALUES(3235, 'Intel i9');
INSERT INTO COMPUTER VALUES(5980, 'Intel i3');
INSERT INTO COMPUTER VALUES(5554, 'Intel i3');
INSERT INTO COMPUTER VALUES(9874, 'Intel i3');
INSERT INTO COMPUTER VALUES(8975, 'Intel i9');
INSERT INTO COMPUTER VALUES(8940, 'Intel i9');
INSERT INTO COMPUTER VALUES(8732, 'Intel i9');
INSERT INTO COMPUTER VALUES(1267, 'M2');
INSERT INTO COMPUTER VALUES(7856, 'M3 Ultra Max');

INSERT INTO PRINTER VALUES(1112, 'A4 Inkjet', 'HD');
INSERT INTO PRINTER VALUES(1113, 'A4 Laser', '4K');
INSERT INTO PRINTER VALUES(1114, 'A3 Laser', 'HD');

INSERT INTO LAPTOP VALUES(8732, 'Lithium Ion', 2.60);
INSERT INTO LAPTOP VALUES(1267, 'Lithium Ion', 1.80);
INSERT INTO LAPTOP VALUES(7856, 'LI-Cad Ion', 2.20);

```

### **Query Database:**

The following SQL queries are executed on the database to acquire the required sales statistics:

-- QUERIES

```

-- Total amount charged per CCNUMBER
SELECT CCNumber, SUM(PriceSold)
FROM TRANSACTION
NATURAL JOIN APPEARS_IN
GROUP BY CCNumber;

-- Best 10 CUSTOMER
SELECT TRANSACTION.CID,APPEARS_IN.PriceSold
FROM TRANSACTION
JOIN BASKET ON TRANSACTION.BID = BASKET.BID
JOIN APPEARS_IN ON APPEARS_IN.BID = BASKET.BID
JOIN PRODUCT ON PRODUCT.PID = APPEARS_IN.PID
WHERE (TRANSACTION.TDate >= '2022-01-01' )

```

```

ORDER BY PriceSold DESC LIMIT 10;

-- Best sold PRODUCT in a time period
SELECT PRODUCT.PID, PRODUCT.PNAME, APPEARS_IN.QUANTITY
FROM TRANSACTION
JOIN BASKET ON TRANSACTION.BID = BASKET.BID
JOIN APPEARS_IN ON APPEARS_IN.BID = BASKET.BID
JOIN PRODUCT ON PRODUCT.PID = APPEARS_IN.PID
WHERE (TRANSACTION.TDate >= '2022-01-01') AND (TRANSACTION.TDate <=
'2023-11-30')
GROUP BY PID, APPEARS_IN.QUANTITY
ORDER BY SUM(QUANTITY) DESC LIMIT 10;

-- Most distinct CUSTOMER for a PRODUCT in a given time period
SELECT PID, COUNT(DISTINCT CID) AS 'distinct customers'
FROM TRANSACTION T, APPEARS_IN A
WHERE T.BID = A.BID AND T.TDate BETWEEN '2022-01-01' AND '2023-12-30'
GROUP BY PID;

-- Max BASKET total amount per CCNUMBER in a given time period
SELECT TRANSACTION.CCNUMBER, APPEARS_IN.QUANTITY * APPEARS_IN.PriceSold
as TOTAL
FROM TRANSACTION
JOIN BASKET ON TRANSACTION.BID = BASKET.BID
JOIN APPEARS_IN ON APPEARS_IN.BID = BASKET.BID
WHERE (TRANSACTION.TDate >= '2022-01-01' AND TRANSACTION.TDate <= '2023-12-30')
GROUP BY CCNUMBER, APPEARS_IN.QUANTITY, APPEARS_IN.PriceSold ORDER BY
MAX(TOTAL) DESC;

-- Avg PriceSold per PType in a given time period
SELECT PRODUCT.PType, AVG(PriceSold)
FROM APPEARS_IN
JOIN PRODUCT ON PRODUCT.PID = APPEARS_IN.PID
JOIN TRANSACTION ON TRANSACTION.BID = APPEARS_IN.BID
WHERE (TRANSACTION.TDate >= '2022-01-01' AND TRANSACTION.TDate <= '2023-12-30')
AND PRODUCT.PType IN ("Desktop", "Laptop", "Printer")
GROUP BY PRODUCT.PType;

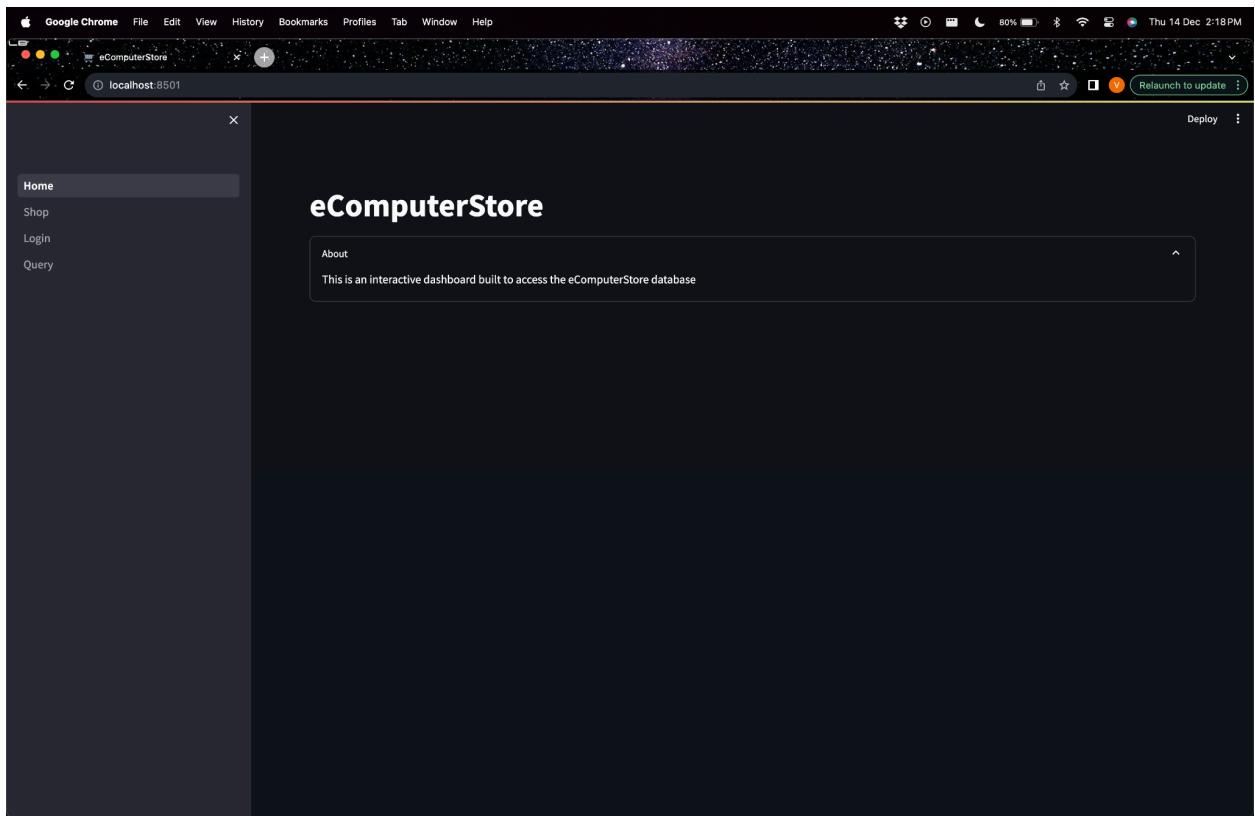
```

## Source Code:

The source code is posted on GitHub (<https://github.com/vinay-ram1999/CS631-DMSD>). For any clarifications or to report a bug please contact through email on the GitHub user account.

**NOTE:** The application only works on the local system (URL: <http://localhost:8501>) and it must be connected to the NJIT network to access the MySQL database on phpMyAdmin server.

## UI Screenshots:



This screenshot shows the "Shop" page of the eComputerStore application. The title bar reads "Shop". The sidebar menu is identical to the main dashboard. The main content area displays a table of products. A dropdown menu above the table allows selecting a product type, with "All" currently selected. The table has columns: PID, PName, PType, PPrice, PQuantity, and Description.

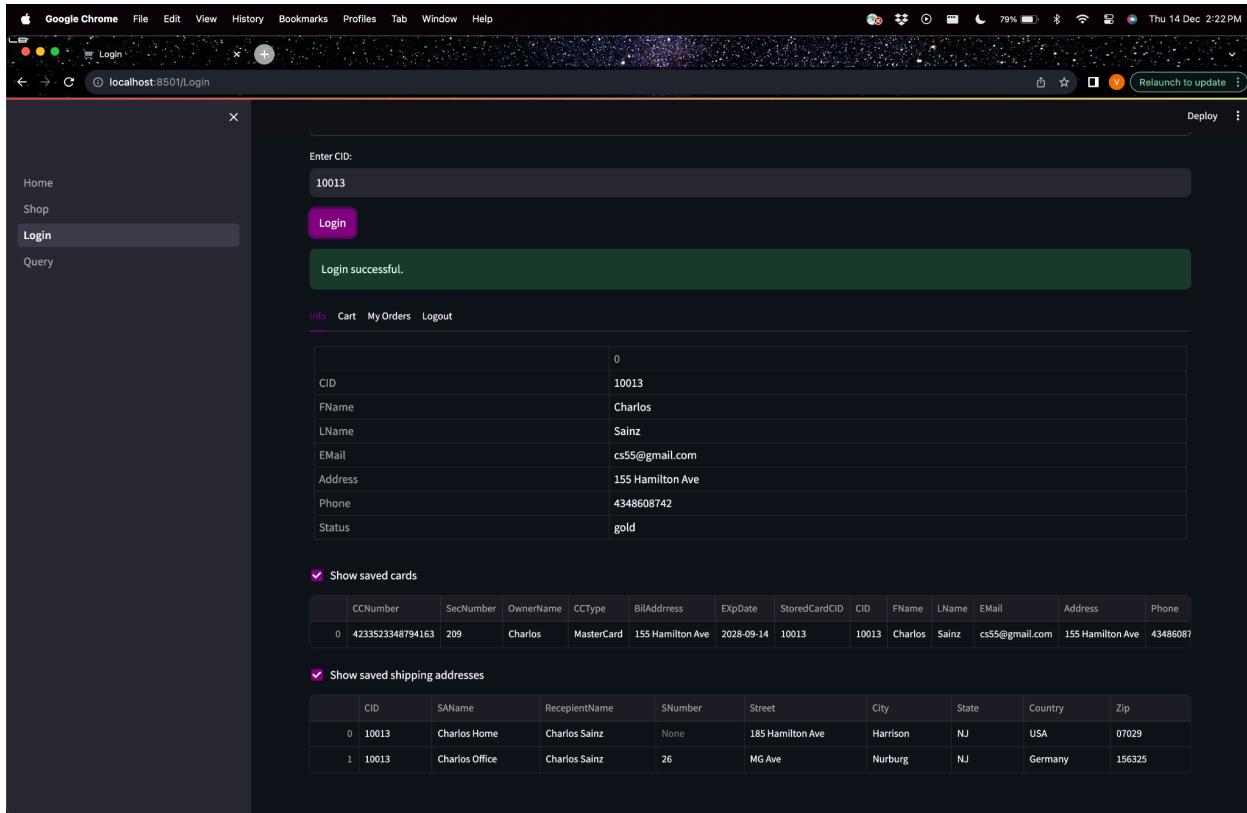
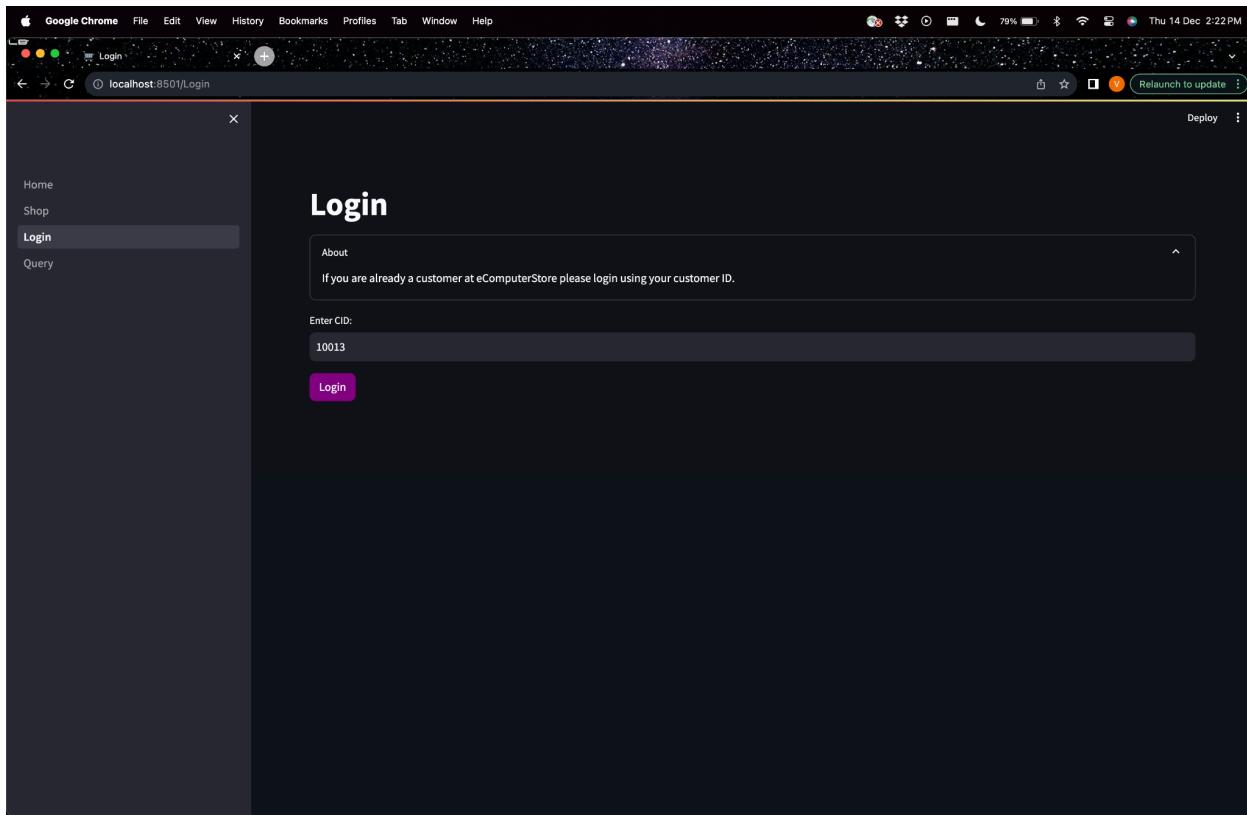
	PID	PName	PType	PPrice	PQuantity	Description
0	1112	HP Inkjet 5825	Printer	249.99	30	Basic printer.
1	1113	Epson 5825	Printer	249.99	30	Basic printer.
2	1114	Canon 9778	Printer	249.99	30	Basic printer.
3	1267	MacBook Air 15	Laptop	1,599.99	260	Super light and long lasting laptop from Apple with M2 Chip and 10 core GPU with integrated graphics.
4	3235	Lenovo Legion	Computer	2,249.99	70	All in one desktop computer with Intel i9 processor and liquid cooling CPU setup.
5	5554	HP 8785	Computer	649.99	100	Basic computer with Intel i3 CPU and 8 GB RAM.
6	5980	Dell 8569	Computer	599.99	86	Basic computer with Intel i3 CPU and 8 GB RAM.
7	7856	MacBook Pro 16	Laptop	2,999.99	120	New MacBook Pro with M3 Ultra processor for faster processing speeds and comes with built-in Liquid Cooling.
8	8732	Alienware M15	Laptop	1,999.99	506	Super slim gaming laptop from Alienware with Intel i9 processor and Nvidia GPU.
9	8940	HP 9999	Desktop	1,749.99	261	HP All in one desktop with Intel i9, 16 GB DDR5 RAM, NVIDIA 4070 MaxQ GPU and 27 inch QHD display.

The screenshot shows the eComputerStore homepage. On the left, there's a sidebar with links for Home, Shop (which is selected), Login, and Query. Below that is a 'Menu' section with 'Products' (selected) and 'Offers'. The main content area has a title 'eComputerStore' and a sub-instruction 'Select the product type to view available products'. A dropdown menu is open, showing 'All' as the current selection, with other options like Computer, Desktop, Laptop, and Printer. Below the dropdown is a table listing various computer products:

	PID	PName	PType	PPrice	PQuantity	Description
4	3235	Lenovo Legion	Computer	2,249.99	70	All in one desktop computer with Intel i9 processor and liquid cooling CPU setup.
5	5554	HP 8785	Computer	649.99	100	Basic computer with Intel i3 CPU and 8 GB RAM.
6	5980	Dell 8569	Computer	599.99	86	Basic computer with Intel i3 CPU and 8 GB RAM.
7	7856	MacBook Pro 16	Laptop	2,999.99	120	New MacBook Pro with M3 Ultra processor for faster processing speeds and comes with built-in Apple M3 Pro chip.
8	8732	Alienware M15	Laptop	1,999.99	506	Super slim gaming laptop from Alienware with Intel i9 processor and Nvidia GPU.
9	8940	HP 9999	Desktop	1,749.99	261	HP All in one desktop with Intel i9, 16 GB DDR5 RAM, NVIDIA 4070 MaxQ GPU and 27 inch QHD display.

This screenshot is similar to the first one but with a different dropdown selection. The 'Computer' option is now selected in the dropdown menu. The table below shows a subset of the products:

	PID	PName	PType	PPrice	PQuantity	Description
0	3235	Lenovo Legion	Computer	2,249.99	70	All in one desktop computer with Intel i9 processor and liquid cooling CPU setup.
1	5554	HP 8785	Computer	649.99	100	Basic computer with Intel i3 CPU and 8 GB RAM.
2	5980	Dell 8569	Computer	599.99	86	Basic computer with Intel i3 CPU and 8 GB RAM.
3	9874	Asus 5996	Computer	499.99	50	Basic computer with Intel i3 CPU and 8 GB RAM.



This screenshot shows a web application running in Google Chrome on a Mac OS X system. The URL is `localhost:8501/Login`. The browser's status bar indicates the date as Thu 14 Dec 2:23 PM.

The application has a dark-themed sidebar with links: Home, Shop, **Login**, and Query. The main content area shows a success message "Login successful." and a table of products in a shopping cart.

**Product Table:**

BID	PID	PName	PType	PPrice	PQuantity	Description	Quantity	PriceSold	CID	
0	1000113	1112	HP Inkjet 5825	Printer	249.99	30	Basic printer.	1	249.99	10013
1	1000113	3235	Lenovo Legion	Computer	2,249.99	70	All in one desktop computer with Intel i9 processor and liquid cooling CPU setup.	2	2,249.99	10013
2	1000113	8975	Dell 9999	Desktop	1,649.99	261	Dell All in one desktop with Intel i9, 16 GB DDR5 RAM, NVIDIA 4070 MaxQ GPU and 27 i	1	1,649.99	10013

**Cart Fields:**

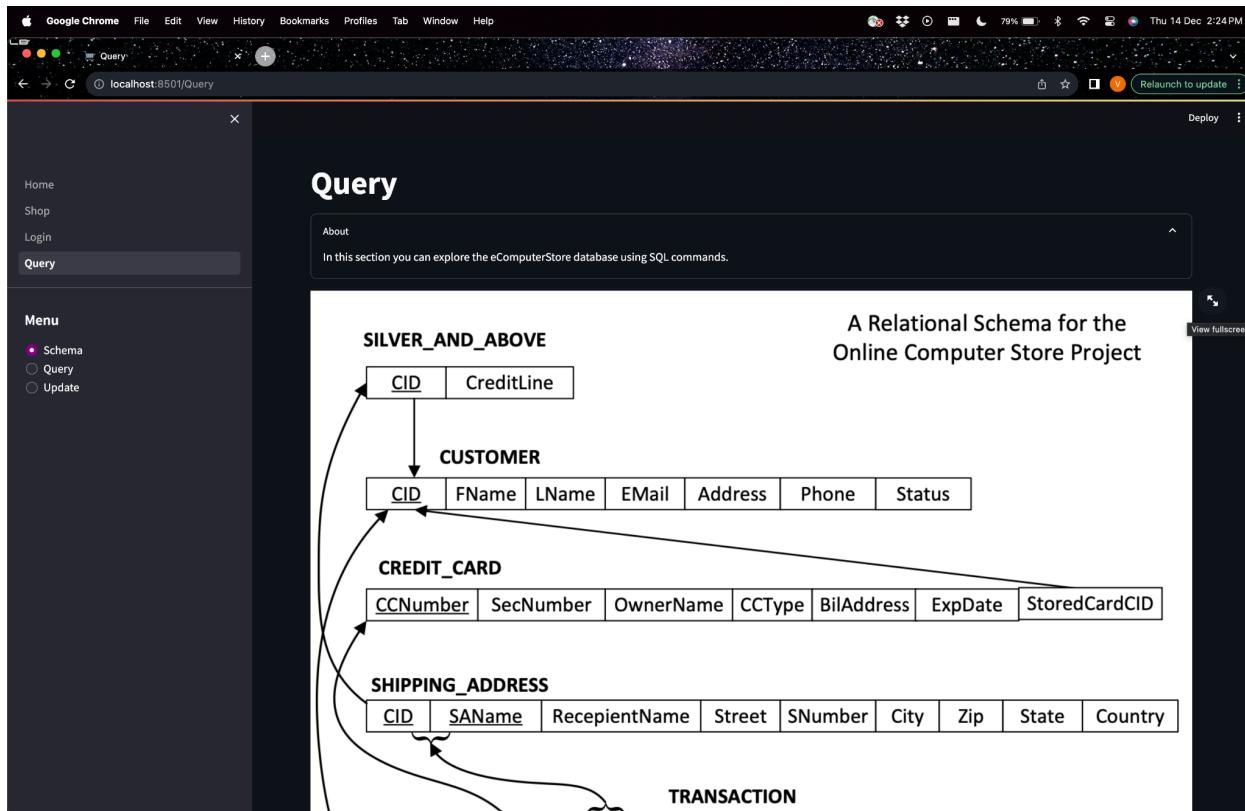
- Basket ID: 0.00
- Date: 2023/12/14
- Customer ID: 0.00
- Card Number: 0.00
- Shipping Address: (empty)
- Tag: Not Delivered
- BUY
- Not implemented yet!

This screenshot shows the same web application in Google Chrome, but the URL is now `localhost:8501/Login`. The browser's status bar indicates the date as Thu 14 Dec 2:23 PM.

The sidebar remains the same with links: Home, Shop, **Login**, and Query. The main content area shows a "Login" message and a table of orders.

**Order Table:**

	BID	CID	SName	TDate	CCNumber	TTag
0	1000104	10013	Carlos Home	2023-06-25	4233523348794163	Delivered
1	1000112	10013	Carlos Office	2023-12-12	4233523348794163	Not Delivered



Google Chrome - Query - localhost:8501/Query

**Query**

About  
In this section you can explore the eComputerStore database using SQL commands.

Enter the query:

```
-- Best sold PRODUCT in a time period
SELECT PRODUCT.PID, PRODUCT.PNAME, APPEARS_IN.QUANTITY
FROM TRANSACTION
JOIN BASKET ON TRANSACTION.BID = BASKET.BID
JOIN APPEARS_IN ON APPEARS_IN.BID = BASKET.BID
JOIN PRODUCT ON PRODUCT.PID = APPEARS_IN.PID
WHERE (TRANSACTION.TDate >= '2022-01-01') AND (TRANSACTION.TDate <= '2023-11-30')
GROUP BY PID, APPEARS_IN.QUANTITY
ORDER BY SUM(QUANTITY) DESC LIMIT 10;
```

**RUN**

	PID	PNAME	QUANTITY
0	1114	Canon 9778	5
1	1267	MacBook Air 15	2
2	5980	Dell 8569	1
3	8975	Dell 9999	1
4	3235	Lenovo Legion	1
5	7856	MacBook Pro 16	1
6	1113	Epson 5825	1