Database Structure of Online Shopping Website

Database Management System

Final Project

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Part1

Abstract

The proposed ER diagram is used as a tool to facilitate a web-based attire shopping. The structure provides the sellers with opportunity to register themselves to the website and sell their products online. The sellers can advertise their products and include discounts and promotions to their products. The database provides the sellers with opportunity to target a specific group of buyers and send them relevant advertisements. The buyers can also register themselves and search for a product and buy it through the online platform. Finally, there is an option for the buyers to return their purchased items if they are not satisfied.

This database can manage up to 10000 sellers, and each seller is allowed to register up to 100 items. Returning of unlimited purchased items is also acceptable.

Mission statement

The purpose of the online shopping database system is to maintain the sellers/buyers data to be used in online shopping and facilitate business for customers and sellers.

Mission objectives

To maintain (enter, update, and delete) data on Sellers.

To maintain (enter, update, and delete) data on Customers.

To maintain (enter, update, and delete) data on Items.

To maintain (enter, update, and delete) data on Shopping_cart.

To maintain (enter, update, and delete) data on Purchases.

To maintain (enter, update, and delete) data on Discounts.

To maintain (enter, update, and delete) data on Item_Review.

To maintain (enter, update, and delete) data on Card_Info.

To maintain (enter, update, and delete) data on Websie_Owner.

To maintain (enter, update, and delete) data on Return_Items.

To perform searches on Sellers.

To perform searches on Items.

To perform searches on Customers.

To perform searches on Shopping _Cart.

To perform searches on Purchases.

To perform searches on Discounts.

To perform searches on Card_Info.

To perform searches on Return_Items.

To track the status of Purchase.

To track the status of Return_Items.

To report on Sellers.

To report on Customers.

To report on Items.

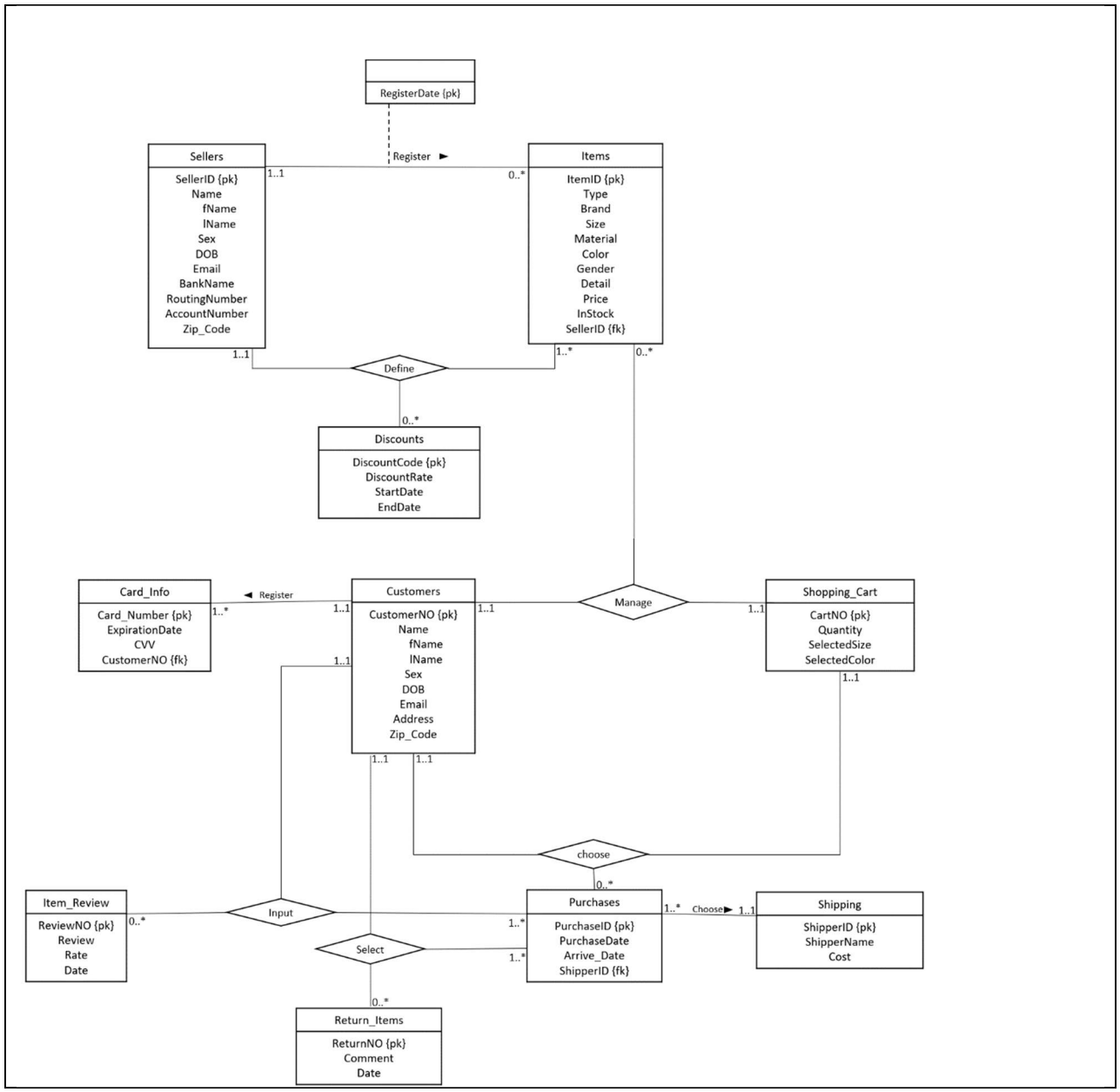
To report on Purchases.

To report on Discounts.

To report on Item_Review.

To report on Return_Items.

An Entity_Relationship (ER) Diagram of Online Shopping Website



Relational Model

Sellers (SellerID, fName, lName, Sex, DOB, Email, BankName, RoutingNO, AccountNO, Zip_Code)
Primary Key SellerID

Items (ItemID, Type, Brand, Size, Material, Color, Gender, Detail, Price, SellerID, RegisterDate)
Primary Key ItemID
Foreign Key SellerID references Sellers (SellerID)

ItemColor (Color, ItemID)
Primary Key Color
Foreign Key ItemID references Item (ItemID)

ItemSize (Size, ItemID)
Primary Key Size
Foreign Key ItemID references Item (ItemID)

Discounts (DiscountCode, DiscountRate, StartDate, EndDate)
Primary Key DiscountCode

Define (DiscountCode, SellerID, ItemID)
Primary Key DiscountCode, SellerID, ItemID
Foreign Key DiscountCode references Discount (Discount_code)
Foreign Key SellerID references Seller (SellerID)
Foreign Key ItemID references Item (ItemID)

Customers (CustomerNO, fName, lName, Sex, DOB, Email, Address, Zip_Code)
Primary Key CustomerNO

Card_Info (Card_Number, ExpirationDate, CVV, CustomerNO)
Primary Key Card_Number
Foreign Key CustomerNO references Customer (CustomerNO)

Shopping_Cart (CartNO, Quantity, SelectedSize, SelectedColor)
Primary Key CartNO

Manage (ItemID, CustomerNO, CartNO)
Primary Key ItemID, CustomerNO, CartNO)
Foreign Key ItemID references Item (ItemID)
Foreign Key CustomerNO references Customer (CustomerNO)
Foreign Key CartNO references Shopping_Cart (CartNO)

Purchases (PurchaseID, PurchaseDate, Arrive_Date, ShipperID)
Primary Key PurchaseID
Foreign Key ShipperID references Shipping (ShipperID)

Shipping (ShipperID, ShipperName, Cost)
Primary Key ShipperID

Choose (PurchaseID, CustomerNO, CartNO)
Primary Key PurchaseID, CustomerNO, CartNO
Foreign Key PurchaseID references Purchases (PurchaseID)
Foreign Key CustomerNO references Customer (CustomerNO)
Foreign Key CartNO references Shopping_Cart (CartNO)

Item_Review (ReviewNO, Review, Rate, Date)
Primary Key ReviewNO

Input (PurchaseID, CustomerNO, ReviewNO)
Primary Key PurchaseID, CustomerNO, ReviewNO)
Foreign Key PurchaseID references Purchases (PurchaseID)
Foreign Key CustomerNO references Customer (CustomerNO)
Foreign Key ReviewNO references Item_Review (ReviewNO)

Return_Items (ReturnNO, Date)
Primary Key Returned_NO

Select (ReturnNO, PurchaseID, CustomerNO)
Primary Key ReturnNO, PurchaseID, CustomerNO
Foreign Key PurchaseID references Purchases (PurchaseID)
Foreign Key Customer_NO references Customer (Customer_NO)

list of all actors and use cases

1.Use Case name: Register a new seller

Actor: Seller

Steps:

1. Actor clicks on “New Seller” button;
2. A new seller ID is shown;
3. Prompt to enter Name, Sex, DOB, Email, BankName, RoutingNO, AccountNO, Zip_Code;
4. All information is displayed; ask for confirmation;
5. Actor clicks on “Confirm” button.

2.Use Case name: Register a new customer

Actor: Customer

Steps:

1. Actor clicks on “New Customer” button;
2. A new costumer number is shown;
3. Prompt to enter Name, Sex, DOB, Email, Address, Zip_Code;
4. All information is displayed; ask for confirmation;
5. Actor clicks on “Confirm” button.

3.Use Case name: Register a new item

Actor: Seller

Steps:

1. Actor clicks on “New Item for Sell” button;
2. A new item ID and register date are shown;
3. Prompt to enter ItemID, Type, Brand, Size, Material, Color, Gender, Detail, Price, SellerID;
4. All information is displayed; ask for confirmation;

5. Actor clicks on “Confirm” button.

4.Use Case name: Define a new discount

Actor: Seller

Steps:

1. Actor clicks on “Enter Discount” button;
2. A new discount code is shown;
3. Actor enter item ID; item information is shown;
4. Prompt to enter DiscountRate, StartDate, EndDate;
5. All information is displayed; ask for confirmation;
6. Actor clicks on “Confirm” button.

5.Use Case name: Adding a new item to shopping cart

Actor: Customer

Steps:

1. Actor selects an existing item;
2. Actor selects size and color;
3. Actor enters quantity;
4. Actor clicks on “Add to Cart” button;
5. A new cart number with all the item information are added in shopping cart.

6.Use Case name: Purchase an item

Actor: Customer

Steps:

1. Actor selects an item in shopping cart and click “Checkout” button;
2. An existing customer’s address is shown; ask for review or edit;
3. Actor click on “Confirm” button.
4. Different shipping options are displayed;
5. Actor select a desirable shipping method;
6. Actor clicks on “Proceed to Checkout” button;

7. An existing customer's bank information is shown, ask for review or edit;
8. Actor click on "Confirm" button;
9. All information is displayed; ask for review or edit order;
10. Actor clicks on "Place Your Order" button;
11. Order details including date, order number, and total price are displayed.

7.Use Case name: Adding a review on purchased item

Actor: Customer

Steps:

1. Actor selects an item in purchased list and click on "Add Review" button;
2. A new review number and date are shown;
3. Prompt to enter Review, Rate;
4. All information is displayed; ask for confirmation;
5. Actor clicks on "Submit" button.

8.Use Case name: Return a purchased item

Actor: Customer

Steps:

1. Actor selects an item in purchased list and click on "Return" button;
2. A new return number is shown;
3. Prompt to enter Comment, Date;
4. All information is displayed; ask for confirmation;
5. Actor clicks on "Confirm" button.

9.Use Case name: Adding a new bank info

Actor: Customer

Steps:

1. Actor clicks on "Add a bank info" button;
2. Prompt to enter Card_Number, ExpirationDate, CVV;
3. All information is displayed; ask for confirmation;

4. Actor clicks on “Confirm” button.

10.Use Case name: Delete a customer

Actor: Customer

Steps:

1. Actor clicks on “Unsubscribe”
2. Confirm that all associated information to be deleted as well.
3. Final reviewing to the action is shown;
4. Actor “Confirm” the unsubscribe action.

11.Use Case name: Delete a Seller

Actor: Seller

Steps:

1. Actor clicks on “Unsubscribe”
2. Confirm that all associated information is to be deleted as well.
3. Final reviewing to the action is shown;
4. Actor “Confirm” the unsubscribe action.

12.Use Case name: Delete an item

Actor: Seller

Steps:

1. Actor selects an existing item;
2. Clicks on “Delete” button
3. Confirm that all associated information is to be deleted as well.
4. Actor “Confirm” the delete action.

13.Use Case name: Delete a discount

Actor: Seller

Steps:

1. Actor selects an existing discount;
2. Clicks on “Delete” button
3. Final reviewing to the action is shown;
4. Actor “Confirm” the delete action.

14.Use Case name: Remove an item from shopping cart

Actor: Customer

Steps:

1. Actor selects an existing item in shopping cart;
2. Actor clicks on “Remove”
3. Final reviewing to the action is shown;
4. Actor “Confirm” the remove action.

15.Use Case name: Remove a review

Actor: Customer

Steps:

1. Actor selects an existing review;
2. Actor clicks on “Remove”
3. Final reviewing to the action is shown;
4. Actor “Confirm” the remove action.

16.Use Case name: Delete a bank info

Actor: Customer

Steps:

1. Actor selects an existing bank info;
2. Actor clicks on “Remove”
3. Final reviewing to the action is shown;
4. Actor “Confirm” the remove action.

17.Use Case name: Update seller

Actor: Seller

Steps:

1. Actor clicks on “Edit Seller” button;
2. Prompt to edit Name, Sex, DOB, Email, BankName, RoutingNO, AccountNO, Zip_Code;
3. Final reviewing to the action is shown;
4. Actor “Confirm” the edit action.

18.Use Case name: Update customer

Actor: Customer

Steps:

1. Actor clicks on “Edit Customer” button;
2. Prompt to edit Name, Sex, DOB, Email, Address, Zip_Code;
3. Final reviewing to the action is shown;
4. Actor “Confirm” the edit action.

19.Use Case name: Update an item

Actor: Seller

Steps:

1. Actor selects an existing item
2. Actor clicks on “Edit” button;
6. Prompt to edit ItemID, Type, Brand, Size, Material, Color, Gender, Detail, Price, SellerID, RegisterDate;
3. Final reviewing to the action is shown;
4. Actor “Confirm” the edit action.

20.Use Case name: Update a discount

Actor: Seller

Steps:

1. Actor selects an existing discount
2. Actor clicks on “Edit” button;
3. Prompt to edit DiscountRate, StartDate, EndDate;
4. Final reviewing to the action is shown;
5. Actor “Confirm” the edit action.

21.Use Case name: Update shopping cart

Actor: Customer

Steps:

1. Actor selects an existing item in shopping cart
2. Actor clicks on “Edit” button;
3. Prompt to edit Quantity, SelectedSize, SelectedColor;
4. Final reviewing to the action is shown;
5. Actor “Confirm” the edit action.

22.Use Case name: Update review

Actor: Customer

Steps:

1. Actor selects a review
2. Actor clicks on “Edit” button;
5. Prompt to edit Review, Rate;
3. Final reviewing to the action is shown;
4. Actor “Confirm” the edit action.

23.Use Case name: Update bank info

Actor: Customer

Steps:

5. Actor selects an existing bank info

6. Actor clicks on “Edit” button;
6. Prompt to edit Card_Number, ExpirationDate, CVV;
7. Final reviewing to the action is shown;
8. Actor “Confirm” the edit action.

24.Use Case name: Count distinct items posted by a seller

Actor: Seller

Steps:

1. Actor clicks on “Distinct Items Posted” button;
2. Information is shown, indicating how many distinct items posted by the seller.

25.Use Case name: Sum of discount added by a seller

Actor: Seller

Steps:

1. Actor clicks on “Total discounts” button;
2. Information is shown, indicating how much discount posted by the seller.

26.Use Case name: Number and list of items in shopping cart

Actor: Customer

Steps:

1. Actor clicks on “Shopping Cart” button;
2. Number of items with list of items are shown.

27.Use Case name: Total price of items in shopping cart

Actor: Customer

Steps:

1. Actor clicks on “Total price” button;
2. Total price is shown.

28.Use Case name: List number of orders for each item posted by a seller

Actor: Seller

Steps:

1. Actor clicks on “Order list” button;
2. A table with ID and name of each item and number of their order is shown.

29.Use Case name: List of all discount

Actor: Seller

Steps:

1. Actor clicks on “Discount list” button;
2. List of IDs and names and discount for all items which contain discount is shown.

30.Use Case name: List items by type

Actor: Customer

Steps:

1. Actor inserts a type;
2. Actor clicks on “Search” button;
3. All attributes for selected items are shown.

Use Case Realization

Entity: Sellers

- INSERT INTO sellers VALUES (SellerID, fName, lName, Sex, DOB, Email, BankName, RoutingNumber, AccountNumber, Zip_Code);
- DELETE FROM sellers WHERE SellerID = dataValue;
- UPDATE sellers SET BankName=dataValue1, RoutingNumber= dataValue2, AccountNumber= dataValue3, Zip_Code= dataValue4 WHERE SellerID = dataValue;

Entity: Customers

- INSERT INTO customers VALUES (CustomerNO, fName, lName, Sex, DOB, Email, Address, Zip_Code);
- DELETE FROM Customers WHERE CustomerNO = dataValue;
- UPDATE customers SET Email=dataValue1, Address= dataValue2, Zip_Code= dataValue3 WHERE CustomerNO = dataValue;

Entity: Items

- INSERT INTO items VALUES (ItemID, Type, Brand, Size, Material, Color, Gender, Detail, Price, SellerID, RegisterDate);
- DELETE FROM items WHERE ItemID = dataValue;
- UPDATE items SET Price=dataValue1 WHERE ItemID = dataValue;
- SELECT COUNT (ItemID) AS NumberOfItems FROM items WHERE SellerID = dataValue;
- SELECT * FROM items WHERE Type= dataValue;

Entity: Discounts

- INSERT INTO discounts VALUES (DiscountCode, DiscountRate, StartDate, EndDate);
- DELETE FROM discounts WHERE DiscountCode = dataValue;
- UPDATE discounts SET DiscountRate =dataValue1 WHERE DiscountCode = dataValue;

Entity: Shopping_Cart

- INSERT INTO shopping_Cart VALUES (CartNO, Quantity, SelectedSize, SelectedColor);
- DELETE FROM shopping_Cart WHERE CartNO = dataValue;

- UPDATE shopping_Cart SET Quantity=dataValue1, SelectedSize =dataValue2, SelectedColor =dataValue3 WHERE CartNO = dataValue;

Entity: Purchases

- INSERT INTO purchases VALUES (PurchaseID, PurchaseDate, Arrive_Date, ShipperID);

Entity: Item_Review

- INSERT INTO item_Review VALUES (ReviewNO, Review, Rate, Date);

Entity: Return_Items

- INSERT INTO return_Items VALUES (ReturnNO, Date);

Entity: Card_Info

- INSERT INTO card_Info VALUES (Card_Number, ExpirationDate, CVV, CustomerNO);
- DELETE FROM card_Info WHERE Card_Number = dataValue;
- UPDATE card_Info SET Card_Number =dataValue1, ExpirationDate =dataValue2, CVV =dataValue3 WHERE CustomerNO = dataValue;

Entity: Sellers, Items, Discount

- SELECT SUM (dis.DiscountRate) AS TotalDicount FROM discounts dis, define d WHERE d.SellerID = dataValue AND dis.DiscountCode=d.DiscountCode;
- SELECT i.ItemID , i.Brand, dis.DiscountRate FROM discounts dis, define d, item WHERE i.ItemID=dis.ItemID;

Entity: Customers, Shopping_Cart, Items

- SELECT COUNT i.Type, i.Brand, i.Details, c.SelectedColor, c.SelectedSize, c.Quantity, (c.CartNO) AS NumberOfItems FROM shopping_cart c, items i, manage m WHERE m.CustomerNO = dataValue AND m.ItemID=i.ItemID;

- SELECT SUM (i.Price) AS TotalPrice FROM shopping_cart c, items i, manage m WHERE m.CustomerNO = dataValue AND m.ItemID=i.ItemID;

Entity: Purchases, Items, Shopping_Cart

- SELECT COUNT(PurchaseID) AS Ordered FROM purchases p, manage m, item i, choose c WHERE i.SellerID = dataValue AND m.ItemID=i.ItemID AND c.CartNO= m.CartNO GROUP BY m.ItemID;

Test plan and record

I have successfully tested 30 use cases; here I am showing a few examples,

```
2 •  INSERT INTO sellers
3    VALUES ('S2', 'Amir', 'Frooqnia', 'M', '1980-02-01', 'a.frroqnia@gmail.com', 'Chase', '2222222', '0011155', '77079');
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

SellerID	fname	lname	Sex	DOB	Email	BankName	RoutingNumber	AccountNumber	Zip_Code
S1	Emili	Ramez	F	2000-04-29	emili.ramez@gmail.com	WellsFargo	123456	65432	77077
S2	Amir	Frooq...	M	1980-02-01	a.frroqnia@gmail.com	Chase	2222222	11155	77079
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
4 •  DELETE FROM sellers WHERE SellerID ='S2' ;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

SellerID	fname	lname	Sex	DOB	Email	BankName	RoutingNumber	AccountNumber	Zip_Code
S1	Emili	Ramez	F	2000-04-29	emili.ramez@gmail.com	WellsFargo	123456	65432	77077
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
7 •  UPDATE sellers
8    SET BankName='America', RoutingNumber= 678999900, AccountNumber= 654789322, Zip_Code= '77090' WHERE SellerID = 'S2';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

SellerID	fname	lname	Sex	DOB	Email	BankName	RoutingNumber	AccountNumber	Zip_Code
S1	Emili	Ramez	F	2000-04-29	emili.ramez@gmail.com	WellsFargo	123456	65432	77077
S2	Amir	Frooqnia	M	1980-02-01	a.frroqnia@gmail.com	America	678999900	654789322	77090
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
2 •  INSERT INTO online_shopping.items
3    VALUES ('I3','Pants', 'SUB70', 'Large','100% Polyester', 'Black','M' , 'Wicks and drys fast ', '40','8','S3', default);
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

ItemID	Type	Brand	Size	Material	Color	Gender	Detail	Price	InStock	Sellers_SellerID	RegisterDate
I1	Shirt	Goodthrs	1	plaid	Navy	M	Herringbone	30	5	S1	2019-05-05 16:23:50
I2	T-Shirt	SUB70	Large	100% Polyester	Yellow	Unisex	Wicks and drys fast	40	8	S2	2019-05-05 16:11:30
I3	Pants	SUB70	Large	100% Polyester	Black	M	Wicks and drys fast	40	8	S3	2019-05-05 16:38:02
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
4 •  DELETE FROM online_shopping.items WHERE ItemID = 'I3';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

ItemID	Type	Brand	Size	Material	Color	Gender	Detail	Price	InStock	Sellers_SellerID	RegisterDate
I1	Shirt	Goodthrs	1	plaid	Navy	M	Herringbone	30	5	S1	2019-05-05 16:23:50
I2	T-Shirt	SUB70	Large	100% Polyester	Yellow	Unisex	Wicks and drys fast	40	8	S2	2019-05-05 16:11:30
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
12 •  UPDATE items SET Price='70' WHERE ItemID = 'I3';
13
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

ItemID	Type	Brand	Size	Material	Color	Gender	Detail	Price	InStock	Sellers_SellerID	RegisterDate
I1	Shirt	Goodthrs	1	plaid	Navy	M	Herringbone	30	5	S1	2019-05-05 16:23:50
I2	T-Shirt	SUB70	Large	100% Polyester	Yellow	Unisex	Wicks and drys fast	40	8	S2	2019-05-05 16:11:30
I3	Pants	SUB70	Large	100% Polyester	Black	M	Wicks and drys fast	70	8	S3	2019-05-05 16:54:09
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

```
9 •  SELECT COUNT(ItemID) AS NumberOfItems FROM online_shopping.items WHERE Sellers_SellerID = 'S3';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

NumberOfItems
1

Conclusion

A thorough investigation was initially carried out to layout the framework required for building the database. The database framework helped to avoid process redundancies and ensured that all the entities and their associations are taken into account. The database was then successfully implemented in the MySQL workbench.

References

Textbook: “Database Systems—A Practical Approach to Design, Implementation, and Management” by Thomas Connolly and Carolyn Begg, Addison Wesley, Latest Edition.

Part2-Demo

For each table show all data

Entity: Items

Show all data

```
1 •  SELECT * FROM online_shopping.items;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

ItemID	Type	Brand	Size	Material	Color	Gender	Detail	Price	InStock	Sellers_SellerID	RegisterDate
I1	Shirt	Goodthrs	1	plaid	Navy	M	Herringbone	30	5	S1	2019-05-05 16:23:
I2	T-Shirt	SUB70	Large	100% Polyester	Yellow	Unisex	Wicks and drys fast	40	8	S2	2019-05-05 16:11:
I3	Pants	SUB70	Large	100% Polyester	Black	M	Wicks and drys fast	40	8	S3	2019-05-05 17:46:
I4	Shorts	Conceited Premium	Small	PREMIUM STRETCH	Red	F	Ultra Soft 40 Trending Prints	17	10	S1	2019-05-05 17:38:
I5	Dress	MiaoYi	Small	Cotton	Blue	F	Off Shoulder Asymmetrical Hem ...	100	8	S2	2019-05-05 17:47:
I6	Dress	Dressystar	Small	Lylon	Blue	F	Lace Off Shoulder Hi-Lo Short Sle...	180	2	S2	2019-05-05 17:52:
I7	Dress	Dymaisei	4	Silk	Red	F	Gold Appliques Mermaid Evening ...	1000	2	S2	2019-05-05 18:04:
I8	Pants	Haggar	XLarge	Polyester	Black	M	Slim Fit Flat Front Casual Pant	67	20	S3	2019-05-05 18:04:

Using aggregate function: Total price of items

```
2 •  SELECT sum(Price) AS MySun From online_shopping.items;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

MySun
1407

Entity: Customers

Show all data

```
1 •  SELECT * FROM online_shopping.customers;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content

CustomerNO	fName	lName	Sex	DOB	Email	Address	Zip_Code
C1	Najme	Vaez	F	1989-02-01	N.vaez@gmail.com	1151 GLENWOO...	99099
C2	Rick	Nelson	M	1956-03-12	r.nelsn@hotmal....	1204 Fry Rd	76034
C3	Alex	Besov	M	1992-06-08	a.besv@gmail.com	342 West Montr...	73134
C4	Mayam	Mousavi	F	1982-05-01	mmsav@yahoo....	127 S Gessner Dr	43198
C5	Behrooz	Raessi	M	1981-05-93	bras@gmail.com	435 Katy Dr	75395
C6	Martin	Albertini	M	1963-02-06	maltin@gmail.com	3428 Westheime...	78305
C7	Wilson	Pineda	M	1968-02-09	wil_pin@yahoo.c...	453 N Post Oak ...	76296

Using aggregate: Number of male customers

```
5 •  SELECT COUNT(CustomerNO) FROM customers WHERE Sex='M';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

COUNT(CustomerNO)
5

Entity: Sellers

Show all data

```
1 •  SELECT * FROM online_shopping.sellers;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

SellerID	fname	lname	Sex	DOB	Email	BankName	RoutingNumber	AccountNumber	Zip_Code
S1	Emili	Ramez	F	2000-04-29	emili.ramez@gmail.com	WellsFargo	123456	65432	77077
S2	Amir	Frooqnia	M	1980-02-01	a.frroqnia@gmail.com	America	678999900	654789322	77090
S3	Mahdi	Haghshenas	M	1984-02-01	mahdi1234@gmail.com	Chase	27865321	1999333	77079
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Using aggregate function: Number of sellers

```
2 •  SELECT count(SellerID) FROM  online_shopping.sellers;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

count(SellerID)
3

Entity: Discounts

Show all data

```
1 •  SELECT * FROM online_shopping.discounts;
```

Result Grid | Filter Rows: | Edit:

DiscountCode	DiscountRate	StartDate	EndDate
D1	30	2019-01-01	2019-05-01
D2	20	2019-01-01	2019-05-01
D3	10	2019-01-01	2019-05-01

Using aggregate function: Maximum discount rate

```
2 •  SELECT max(DiscountRate) From online_shopping.discounts;
```

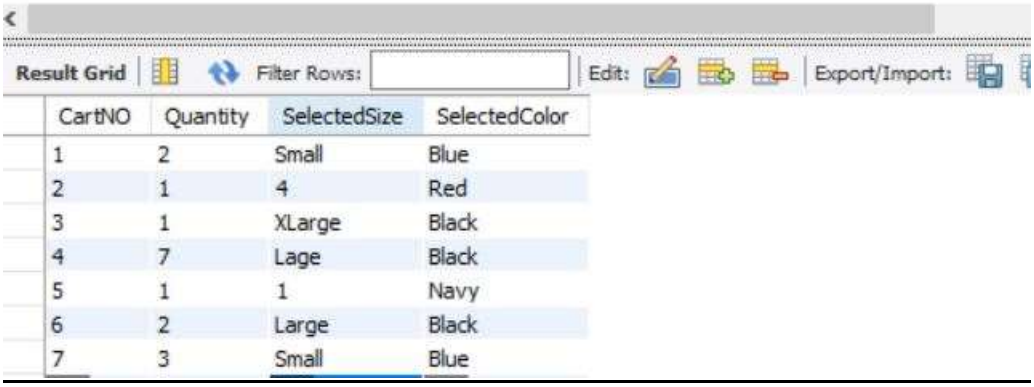
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

max(DiscountRate)
30.00

Entity: Shopping_Cart

Show all data

```
1 •   SELECT * FROM online_shopping.shopping_cart;
```

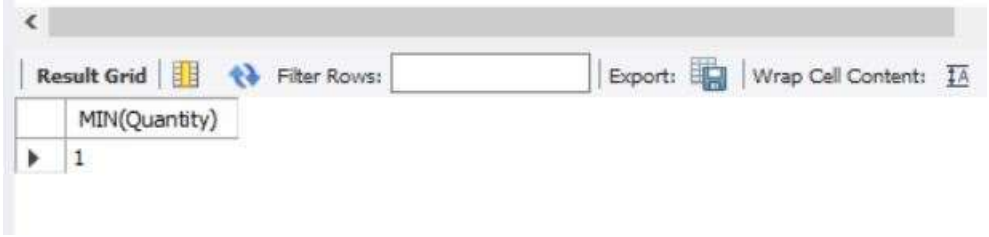


Result Grid | Filter Rows: | Edit: | Export/Import:

CartNO	Quantity	SelectedSize	SelectedColor
1	2	Small	Blue
2	1	4	Red
3	1	XLarge	Black
4	7	Lage	Black
5	1	1	Navy
6	2	Large	Black
7	3	Small	Blue

Using aggregate function: Minimum quantity in shopping_Cart list

```
2 •   SELECT MIN(Quantity) FROM online_shopping.shopping_cart;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

MIN(Quantity)
1

Entity: Purchases

Show all data

```
1 •  SELECT * FROM online_shopping.purchases;
```

Result Grid | Filter Rows: | Edit: | Export/Imp

PurchaseID	PurchaseDate	Arrive_Date	ShipperID
P1	2019-01-05	2019-01-07	SH1
P2	2019-02-08	2019-02-09	SH2
P3	2019-04-02	2019-04-09	SH3

Using aggregate function: Number of purchases

```
2 •  SELECT COUNT(PurchaseID) from online_shopping.purchases;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

COUNT(PurchaseID)
3

Entity: Items, Sellers

Relationships: List name of the sellers and their items

```
4 •  SELECT S.fname, S.lname , I.ItemID
5    FROM online_shopping.sellers S, online_shopping.items I
6    WHere I.Sellers_SellerID=S.SellerID;
7
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

fname	lname	ItemID
Emili	Ramez	I1
Emili	Ramez	I4
Amir	Frooqnia	I2
Amir	Frooqnia	I5
Amir	Frooqnia	I6
Amir	Frooqnia	I7
Mahdi	Haghshenas	I3
Mahdi	Haghshenas	I8

Entity: Items, Customers, Shopping_Cart

```
1 •  SELECT * FROM online_shopping.manage;
2
```

Result Grid | Filter Rows: | Edit:

CartNO	CustomerNO	ItemID
5	C5	I1
4	C4	I3
6	C6	I3
1	C1	I5
2	C2	I7
3	C3	I8
NULL	NULL	NULL

Relationships: List of items which are in customer C5 shopping cart

```
SELECT m.CustomerNO,C.fName,C.lName, I.ItemID
FROM online_shopping.customers C, online_shopping.items I,online_shopping.manage m, online_shopping.shopping_cart sh
WHere m.CustomerNo='C5' and m.ItemID=I.ItemID and m.CartNo=sh.CartNo and m.CustomerNO=C.CustomerNO;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CustomerNO	fName	lName	ItemID
C5	Behrooz	Raessi	I1

Some Sample Codes

```
CREATE TABLE Discounts( DiscountCode VARCHAR(10) NOT NULL,
    DiscountRate Decimal(6,2),
    StartDate DATE,
    EndDate DATE ,
    PRIMARY KEY (DiscountCode));

CREATE TABLE Define(
SellerID varchar(10),
DiscountCode Varchar(10),
ItemID Varchar(10),
PRIMARY KEY (SellerID,DiscountCode,ItemID),
FOREIGN KEY (SellerID)
REFERENCES online_shopping.sellers(SellerID)
ON DELETE CASCADE
ON UPDATE CASCADE,
FOREIGN KEY (ItemID)
REFERENCES online_shopping.items(ItemID)
ON DELETE CASCADE
ON UPDATE CASCADE,
FOREIGN KEY (DiscountCode)
REFERENCES online_shopping.discounts(DiscountCode)
ON DELETE CASCADE
ON UPDATE CASCADE);
```

```
34
35  CREATE TABLE Shopping_Cart( CartNO VARCHAR(10) NOT NULL,
36  Quantity int(10),
37  SelectedSize Varchar(10),
38  SelectedColor Varchar(10),
39   PRIMARY KEY (CartNO));
40
41  CREATE TABLE Manage(
42  CartNO varchar(10),
43  CustomerNO Varchar(10),
44  ItemID Varchar(10),
45  PRIMARY KEY (CartNO,CustomerNO,ItemID),
46  FOREIGN KEY (CartNO)
47  REFERENCES online_shopping.Shopping_Cart(CartNO)
48  ON DELETE NO ACTION
49  ON UPDATE NO ACTION,
50  FOREIGN KEY (ItemID)
51  REFERENCES online_shopping.items(ItemID)
52  ON DELETE NO ACTION
53  ON UPDATE NO ACTION,
54  FOREIGN KEY (CustomerNO)
55  REFERENCES online_shopping.Customers(CustomerNO)
56  ON DELETE NO ACTION
57  ON UPDATE NO ACTION);
58
```