Ahmed Diab, CS 306 Data Base

**Zagui Retail Case Study- Extra credit**

**1)ER Diagram:**

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**Relational Schema:**

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**SQL Code to create Tables:**

CREATE TABLE Region

(

RegionalID CHAR(1) NOT NULL,

RegionName VARCHAR(25) NOT NULL,

PRIMARY KEY (RegionalID)

);

CREATE TABLE Store

(

StoreID VARCHAR(3) NOT NULL,

StoreZip CHAR(5) NOT NULL,

RegionalID CHAR(1) NOT NULL,

PRIMARY KEY (StoreID),

FOREIGN KEY (RegionalID) REFERENCES Region(RegionalID)

);

CREATE TABLE Vendor

(

VendorID CHAR(2) NOT NULL,

VendorName VARCHAR(25) NOT NULL,

PRIMARY KEY (VendorID)

);

CREATE TABLE Customer

(

CustomerID CHAR(7) NOT NULL,

CustomerName VARCHAR(15) NOT NULL,

CustomerZip CHAR(5) NOT NULL,

PRIMARY KEY (CustomerID)

);

CREATE TABLE Category

(

CategoryID CHAR(2) NOT NULL,

CategoryName VARCHAR(25) NOT NULL,

PRIMARY KEY (CategoryID)

);

CREATE TABLE Product

(

ProductID CHAR(3) NOT NULL,

ProductName VARCHAR(25) NOT NULL,

ProductPrice NUMERIC(7,2) NOT NULL,

VendorID CHAR(2) NOT NULL,

CategoryID CHAR(2) NOT NULL,

PRIMARY KEY (ProductID),

FOREIGN KEY (VendorID) REFERENCES Vendor(VendorID),

FOREIGN KEY (CategoryID) REFERENCES Category(CategoryID)

);

CREATE TABLE SalesTransaction

(

TID VARCHAR(8) NOT NULL,

CustomerID CHAR(7) NOT NULL,

StoreID VARCHAR(3) NOT NULL,

TDate DATE NOT NULL,

PRIMARY KEY (TID),

FOREIGN KEY (StoreID) REFERENCES Store(StoreID),

FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID)

);

CREATE TABLE SoldVia

(

ProductID CHAR(3) NOT NULL,

TID VARCHAR(8) NOT NULL,

NoOFItems INT NOT NULL,

PRIMARY KEY (ProductID, TID),

FOREIGN KEY (ProductID) REFERENCES Product(ProductID),

FOREIGN KEY (TID) REFERENCES SalesTransaction(TID)

);

**2)SQL Code to populate Tables:**

INSERT INTO Vendor VALUES ('PG','Pacifica Gear');

INSERT INTO Vendor VALUES ('MK','Mountain King'); A white background with black text

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INSERT INTO Category VALUES ('CP','Camping');

INSERT INTO Category VALUES ('FW','Footwear'); A white background with black text

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INSERT INTO Product VALUES ('1X1','Zzz Bag',100,'PG','CP');

INSERT INTO Product VALUES ('2X2','Easy Boot',70,'MK','FW');

INSERT INTO Product VALUES ('3X3','Cosy Sock',15,'MK','FW');

INSERT INTO Product VALUES ('4X4','Dura Boot',90,'PG','FW');

INSERT INTO Product VALUES ('5X5','Tiny Tent',150,'MK','CP');

INSERT INTO Product VALUES ('6X6','Biggy Tent',250,'MK','CP');

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INSERT INTO Region VALUES ('C','Chicagoland');

INSERT INTO Region VALUES ('T','Tristate');

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INSERT INTO Store VALUES ('S1', '60600', 'C');

INSERT INTO Store VALUES ('S2', '60605', 'C');

INSERT INTO Store VALUES ('S3', '35400', 'T');

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INSERT INTO Customer VALUES ('1-2-333','Tina','60137');

INSERT INTO Customer VALUES ('2-3-444','Tony','60611');

INSERT INTO Customer VALUES ('3-4-555','Pam','35401');

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INSERT INTO SalesTransaction VALUES ('T111','1-2-333','S1','2020-01-01');

INSERT INTO SalesTransaction VALUES ('T222','2-3-444','S2','2020-01-01');

INSERT INTO SalesTransaction VALUES ('T333','1-2-333','S3','2020-01-02');

INSERT INTO SalesTransaction VALUES ('T444','3-4-555','S3','2020-01-02');

INSERT INTO SalesTransaction VALUES ('T555','2-3-444','S3','2020-01-02');

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INSERT INTO SoldVia VALUES ('1X1','T111',1);

INSERT INTO SoldVia VALUES ('2X2','T222',1);

INSERT INTO SoldVia VALUES ('3X3','T333',5);

INSERT INTO SoldVia VALUES ('1X1','T333',1);

INSERT INTO SoldVia VALUES ('4X4','T444',1);

INSERT INTO SoldVia VALUES ('2X2','T444',2);

INSERT INTO SoldVia VALUES ('4X4','T555',4);

INSERT INTO SoldVia VALUES ('5X5','T555',2);

INSERT INTO SoldVia VALUES ('6X6','T555',1);

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**3) create the 10 queries in MySQL:**

**1. Display the VendorID and VendorName for all vendors.**

SELECT VendorID, VendorName

FROM Vendor;

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**2. Display the CustomerName and CustomerZip for all customers.**

SELECT CustomerName, CustomerZip

FROM Customer;

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**3. Display the ProductID, ProductName, and ProductPrice for products with a ProductPrice of $100 or higher.**

SELECT ProductID, ProductName, ProductPrice

FROM Product

WHERE ProductPrice >= 100;

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**4. Display the ProductID, ProductName, ProductPrice, and VendorName for all products. Sort the results by ProductID.**

SELECT Product.ProductID, Product.ProductName, Product.ProductPrice, Vendor.VendorName

FROM Product

INNER JOIN Vendor ON Product.VendorID = Vendor.VendorID

ORDER BY Product.ProductID;

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**5. Display the ProductID, ProductName, ProductPrice, VendorName, and CategoryName for all products. Sort the results by ProductID.**

SELECT

Product.ProductID,

Product.ProductName,

Product.ProductPrice,

Vendor.VendorName,

Category.CategoryName

FROM

Product

INNER JOIN

Vendor ON Product.VendorID = Vendor.VendorID

INNER JOIN

Category ON Product.CategoryID = Category.CategoryID

ORDER BY

Product.ProductID;

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**6. Display the ProductID, ProductName, and ProductPrice for products in the category whose CategoryName value is Camping. Sort the results by ProductID.**

SELECT

Product.ProductID,

Product.ProductName,

Product.ProductPrice

FROM

Product

INNER JOIN

Category ON Product.CategoryID = Category.CategoryID

WHERE

Category.CategoryName = 'Camping'

ORDER BY

Product.ProductID;

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**7. Display the TID, CustomerName, and TDate for sales transactions involving a customer buying a product whose ProductName is Dura Boot.**

SELECT

SalesTransaction.TID,

Customer.CustomerName,

SalesTransaction.TDate

FROM

SalesTransaction

INNER JOIN

Customer ON SalesTransaction.CustomerID = Customer.CustomerID

INNER JOIN

SoldVia ON SalesTransaction.TID = SoldVia.TID

INNER JOIN

Product ON SoldVia.ProductID = Product.ProductID

WHERE

Product.ProductName = 'Dura Boot';

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**8. Display the RegionID, RegionName, and number of stores in the region for all regions.**

SELECT

r.RegionalID,

r.RegionName,

COUNT(s.StoreID) AS NumStores

FROM

Region r

LEFT JOIN

Store s ON r.RegionalID = s.RegionalID

GROUP BY

r.RegionalID, r.RegionName;

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**9. For each product category, display the CategoryID, CategoryName, and average price of a product in the category**

SELECT

p.CategoryID,

c.CategoryName,

AVG(p.ProductPrice) AS AvgPrice

FROM

Product p

JOIN

Category c ON p.CategoryID = c.CategoryID

GROUP BY

p.CategoryID, c.CategoryName;

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**10. For each product category, display the CategoryID and the total number of items purchased in the category**

SELECT

p.CategoryID,

COUNT(sv.NoOFItems) AS TotalItemsPurchased

FROM

Product p

JOIN

SoldVia sv ON p.ProductID = sv.ProductID

GROUP BY

p.CategoryID;

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