Introduction to Database

Chapter Two

Exercise 1 - Marcia's Dry Cleaning

Marcia's Dry Cleaning is an upscale dry cleaners in a well-to-do suburban neighborhood. Marcia makes her business stand out from the competition by providing superior customer service. She wants to keep track of each of her customers and their orders. Ultimately, she wants to notify them that their clothes are ready via email. To provide this service, she has developed an initial database with several tables. Three of those tables are the following:

CUSTOMER (**CustomerID**, FirstName, LastName, Phone, Email)

ORDER (**InvoiceNumber**, DateIn, DateOut, TotalAmount, ***CustomerID***)

ORDER_ITEM (***InvoiceNumber***, **ItemNumber**, Item, Quantity, UnitPrice)

In the database schema above, the primary keys are underlined and the foreign keys are shown in italics.

CUSTOMER

Column Name	Type	Key	Required	Remarks
CustomerID	Number	Primary Key	Yes	Long Integer
FirstName	Text (25)	No	Yes	
LastName	Text (25)	No	Yes	
Phone	Text (12)	No	No	
Email	Text (100)	No	No	

ORDER

Column Name	Type	Key	Required	Remarks
InvoiceNumber	Number	Primary Key	Yes	Long Integer
DataIn	Date/Time	No	Yes	
DataOut	Date/Time	No	No	
TotalAmount	Currency	No	No	Two Decimal Places
CustomerID	Number	Foreign Key	Yes	Long Integer

ORDER_ITEM

Column Name	Type	Key	Required	Remarks
InvoiceNumber	Number	Primary Key, Foreign Key	Yes	Long Integer
ItemNumber	Number	Primary Key	Yes	Long Integer
Item	Text (50)	No	Yes	
Quantity	Number	No	Yes	Long Integer
UnitPrice	Currency	No	Yes	Two Decimal Places

CUSTOMER

CustomerID	FirstName	LastName	Phone	Email
1	Nikki	Kaccaton	723-543-1233	NKaccaton@somewhere.com
2	Brenda	Catnazaro	723-543-2344	BCatnazaro@somewhere.com
3	Bruce	LeCat	723-543-3455	BLeCat@somewhere.com
4	Betsy	Miller	723-654-3211	BMiller@somewhere.com
5	George	Miller	723-654-4322	GMiller@somewhere.com
6	Kathy	Miller	723-514-9877	KMiller@somewhere.com
7	Betsy	Miller	723-514-8766	BMiller@somewhere.com

ORDER

InvoiceNumber	DateIn	DateOut	TotalAmount	CustomerID
2009001	04-Oct-09	06-Oct-09	$158.50	1
2009002	04-Oct-09	06-Oct-09	$25.00	2
2009003	06-Oct-09	08-Oct-09	$55.00	1
2009004	06-Oct-09	08-Oct-09	$17.50	4
2009005	07-Oct-09	11-Oct-09	$12.00	6
2009006	11-Oct-09	13-Oct-09	$152.50	3
2009007	11-Oct-09	13-Oct-09	$7.00	3
2009008	12-Oct-09	14-Oct-09	$140.50	7
2009009	12-Oct-09	14-Oct-09	$27.00	5

ORDER_ITEM

InvoiceNumber	ItemNumber	Item	Quantity	UnitPrice
2009001	1	Blouse	2	$3.50
2009001	2	Dress Shirt	5	$2.50
2009001	3	Formal Gown	2	$10.00
2009001	4	Slacks-Mens	10	$5.00
2009001	5	Slacks-Womens	10	$6.00
2009001	6	Suit-Mens	1	$9.00
2009002	1	Dress Shirt	10	$2.50
2009003	1	Slacks-Mens	5	$5.00
2009003	2	Slacks-Womens	4	$6.00
2009004	1	Dress Shirt	7	$2.50
2009005	1	Blouse	2	$3.50
2009005	2	Dress Shirt	2	$2.50
2009006	1	Blouse	5	$3.50
2009006	2	Dress Shirt	10	$2.50
2009006	3	Slacks-Mens	10	$5.00
2009006	4	Slacks-Womens	10	$6.00
2009007	1	Blouse	2	$3.50
2009008	1	Blouse	3	$3.50
2009008	2	Dress Shirt	12	$2.50
2009008	3	Slacks-Mens	8	$5.00
2009008	4	Slacks-Womens	10	$6.00
2009009	1	Suit-Mens	3	$9.00

Write SQL statements and show the results based on the MDC data for each of the following:

1. Show all data in each of the tables.
2. List the Phone and LastName of all customers.
3. *List the Phone and LastName for all customers with a FirstName of "Nikki".*
4. List the Phone, DateIn, and DateOut of all orders in excess of 100.
5. *List the Phone and FirstName of all customers whose first name starts with 'B'.*
6. List the Phone and FirstName of all customers whose last name includes the characters, 'cat'.
7. *List the Phone, FirstName, and LastName for all customers whose second and third characters of phone number is 23.*
8. Determine the maximum and minimum TotalAmounts.
9. Determine the average TotalAmount.
10. Count the number of customers.
11. Group customers by LastName and then by FirstName.
12. Count the number of customers having each combination of LastName and FirstName.

13. Show the FirstName and LastName of all customers who have had an order with TotalAmount greater than 100. Use a subquery. Present the results sorted by LastName in ascending order and then FirstName in descending order.
14. Show the FirstName and LastName of all customers who have had an order with TotalAmount greater than 100. Use a join. Present the results sorted by LastName in ascending order and then FirstName in descending order.
15. Show the FirstName and LastName of all customers who have had an order with an Item named “Dress Shirt”. Use a subquery. Present the results sorted by LastName in ascending order and then FirstName in descending order.
16. Show the FirstName and LastName of all customers who have had an order with an Item named “Dress Shirt”. Use a join. Present the results sorted by LastName in ascending order and then FirstName in descending order.
17. Show the FirstName, LastName and TotalAmount of all customers who have had an order with an Item named “Dress Shirt”. Use a join with a subquery. Present results sorted by LastName in ascending order and then FirstName in descending order.