

הנחות עבודה:

- (1) כל ספר מסופק ע"י ספק אחד בלבד.
- (2) לכל לקוח/ספק ישנו מספר טלפון אחד בלבד.
- (3) לקוח מוגדר כמי שרכש לפחות ספר אחד בחנות.
- (4) הזמנה בעלת סטטוס "Delivery" מוגדרת כהזמנה ששולמה ע"י הלקוח וסופקה לו.
- (5) קיים כפל הנחות. אם ללקוח X ישנה הנחה ספציפית ועל ספר Y ישנה הנחה גלובלית, הלקוח יקבל את שתי ההנחות.

שאלות:

(1) הצגת כל הספרים הנמצאים במלאי:

SELECT * FROM book WHERE Num_Of_Books_In_Stock != 0

π Book_Id, Book_Name, Book_Author, Price, Num_Of_Books_In_Stock, Global_Discount

σ Num_Of_Books_In_Stock != 0 (book)

(2) הצגת כל ההזמנות הפתוחות לספרים:

SELECT * FROM orders WHERE Status = "Delivered"

π Order_Id, Book_ID, Customer_ID, Order_Date, Delivery_Date, σ status = "Delivered" (orders)

(3) הצגת רשימת כל הלקוחות:

SELECT * FROM customer

π Customer_ID, First_Name, Last_Name, Phone, Join_Date, Total_Purchase, Total_Discount, Personal_Discount,

Num_Of_Books (customer)

(4) הצגת רשימת כל הספקים:

SELECT * FROM supplier

π Supplier_ID, First_Name, Last_Name, Phone, Book_Price, Num_Of_Books, , Num_Of_Orders (supplier)

(5) הצגת כל העסקאות בין תאריך X לתאריך Y:

SELECT * FROM transactions WHERE Transaction_Date >= ? and Transaction_Date <= ?

π Transaction_Num, Transaction_Date, Book_ID, Customer_ID, Seller_ID, cost

σ Transaction_Date >= ? \wedge Transaction_Date <= ? (transaction)

(6) הצגת כל הספרים המוצעים בהנחה גלובלית ללקוח X:

SELECT * FROM book WHERE Global_Discount > 0

π Book_ID, Book_Name, Book_Author, Price, Num_Of_Books_In_Stock, Global_Discount σ Global_Discount > 0 (book)

(7) בדיקה האם ספר X קיים במלאי:

SELECT * FROM book WHERE Book_Name = ?

π Book_ID, Book_Name, Book_Author, Price, Num_Of_Books_In_Stock, Global_Discount σ Num_Of_Books = ? (book)

(8) רשימת כל הספקים של ספר X:

SELECT Book_ID FROM book WHERE Book_Name = ?

π Book_Id σ Book_Name = ? (book)

SELECT supplier.First_Name, supplier.Last_Name, supplier.Phone FROM supplier Natural JOIN
book_supply ON supplier.Supplier_ID = book_supply.Supplier_ID WHERE
book_supply.Book_ID=?

π supplier.First_Name, supplier.Last_Name, supplier.Phone σ book_supply.Book_ID = ?

(supplier supplier_ID \bowtie book_supply Supplier_ID)

(9) כמה עותקים של ספר X נמכרו מאז Y:

SELECT Book_ID FROM book WHERE Book_Name = ?

π Book_ID σ Book_Name = ? (book)

SELECT COUNT(Book_ID) AS book_count FROM transactions
WHERE Book_ID = ? AND Transaction_Date >= ?

book_countCOUNT(book_ID) π Book_ID σ (Book_ID = ? \wedge Transaction_Date >= ?) (transactions)

(10) כמה ספרים רכז לקוח Z מאז Y:

SELECT COUNT(Customer_ID) AS cus_count FROM transactions
WHERE Customer_ID = ? AND Transaction_Date >= ? AND Transaction_Date >= ?

Cus_count COUNT(Customer_ID) π Customer_ID σ (Customer_ID = ? \wedge Transaction_Date >= ?) (transaction))

(11) פרטי לקוח שרכש הכי הרבה ספרים מאז Y:

SELECT COUNT(Customer_ID), Customer_ID FROM transactions
WHERE Transaction_Date >= ? GROUP BY Customer_ID

ORDER BY COUNT(Customer_ID) DESC

COUNT(Customer_ID) (π Customer_ID σ Transaction_Date \geq ?) (transaction)

(12) פרטי הספק ממנו הוזמנו הכי הרבה ספרים מאז Y:

SELECT COUNT(Supplier_ID), Supplier_ID FROM orders WHERE Order_Date \geq ? GROUP BY Supplier_ID ORDER BY COUNT(Supplier_ID) DESC

COUNT(Supplier_ID) π Supplier_ID σ Order_Date \geq ? (orders)

(13) מספר הספרים שהוזמנו בין תאריך X לתאריך Y:

SELECT COUNT(Order_Date) AS numoforder FROM orders

WHERE Order_Date \geq ? AND Order_Date \leq ?

Numoforder COUNT(Order_Date) π Order_Date σ (Order_Date \geq ? \wedge Order_Date \leq ?) (orders)

(14) מספר ההזמנות שהפכו למכירה בין תאריך X לתאריך Y:

SELECT COUNT(Status) AS paidorder FROM orders

WHERE Order_Date \geq ? AND Order_Date \leq ? AND Status = "Delivered"

Paidorder COUNT(Status) π (Status) σ (Order_Date \geq ? \wedge Order_Date \leq ? \wedge Status = "Delivered") (orders)

(15) סה"כ ההנחה שקיבלת לקוח Z מאז Y:

SELECT SUM(Book_Price) - SUM(cost) AS disc FROM transactions JOIN book

WHERE book.Book_ID = transactions.Book_ID AND transactions.Customer_ID = ?

AND transactions.Transaction_Date \geq ?

π (Book_Price SUM(Book_Price) - SUM(cost)) (disc) σ (book (Book_ID) = transaction (Book_ID)) \wedge

transaction (Customer_ID) = ?) \wedge transaction (Transaction_Date \geq ?) (transactions \bowtie book)

(16) סך כל ההכנסות של החנות במהלך רבעון W:

SELECT SUM(cost) FROM transactions

WHERE Transaction_Date \geq ? AND Transaction_Date \leq ?

π transaction SUM(cost) σ (Transaction_Date \geq ? \wedge Transaction_Date \leq ?)

(17) כמה לקוחות חדשים התווספו מתאריך Y:

SELECT COUNT(Customer_ID) AS newjoined FROM customer WHERE Join_Date \geq ?

Newjoined COUNT(Customer_ID) π (Customer_ID) σ Join_Date \geq ? (customer)

18) סך כל הרכישות מספק X מתאריך Y לתאריך Z:

SELECT SUM(Book_Price) FROM orders JOIN book

WHERE orders.Book_ID = book.Book_ID AND Oorder_Date <= ? AND Oorder_Date >= ?

AND Supplier_ID = ?

π orders SUM(Book_Price) σ (orders (Book_ID) = book (Book_ID)) \wedge orders (Oorder_Date <= ? \wedge Oorder_Date >= ? \wedge

Supplier_ID = ?) (orders \bowtie book)

19) סך כל המכירות של מוכר בין תאריך X לתאריך Y:

SELECT First_Name, Last_Name, SUM(cost) FROM seller INNER JOIN transactions

ON seller.Seller_ID = transactions.Seller_ID WHERE seller.Seller_ID = ? AND

transactions.Transaction_Date >= ? AND transactions.Transaction_Date < ?

π seller ((First_Name, Last_Name) SUM(cost)) σ (seller (Seller_ID = ? \wedge transaction (Transaction_Date >= ? \wedge

Transaction_Date <= ?) (seller (Seller_ID) \bowtie transaction (Seller_ID))

20) רשימת 10 הספרים הנמכרים ביותר בין תאריך X לתאריך Y:

SELECT COUNT(Book_ID), Book_ID FROM transactions WHERE Transaction_Date >= ? AND

Transaction_Date < ? GROUP BY (Book_ID) ORDER BY (COUNT(Book_ID)) DESC LIMIT 10

π transactions COUNT(Book_ID) σ (Transaction_Date >= ? \wedge Transaction_Date <= ?)

Book:

Book_ID	Book_Name	Book_Author	Book_Price	Num_Of_Book_In_Stock	Global_Discount	Supplier_ID
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Supplier:

Supplier_ID	First_Name	Last_Name	Phone	Book_Price	Num_Of_Books	Num_Of_Orders	Book_ID
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Customer:

Customer_ID	First_Name	Last_Name	Phone	Join_Date	Total_Purchase	Personal_Discount	Num_Of_Books
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Order:

Order_ID	Book_ID	Customer_ID	Order_Date	Status
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Seller:

Seller_ID	First_Name	Last_Name	Num_Of_Transaction
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Transaction:

Transaction_Num	Transaction_Date	Cost	Seller_ID
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Book:

Book_ID	Book_Name	Book_Author	Book_Price	Num_Of_Book_In_Stock	Global_Discount
1684052709699	Kings Of Wood	Connor Cabrera	19	1	0
1630121201999	Girl Without Desire	Garth Crosby	60	3	30
1610012343199	Promises Of Secrets	Len Elliott	10	4	30
1616020509299	Prepare For The Dark	Chaim Gay	20	8	0
1684071845299	Woman Of Miracles	John Avery	16	9	0
1678121062399	Heirs Of Agony	Kato Welch	1000	10	0
1601011348699	Jealous Of My Village	Jesse Lopez	20	12	50
1695073047299	Bandits Of The Gods	Nathan Flores	13	16	50
1646023089299	Mischief Secret	Jerry Combs	40	17	25
1670121699799	Hunter Of Tomorrow	Nissim Atkinson	20	20	15

Supplier:

Supplier_ID	First_Name	Last_Name	Phone	Book_Price	Num_Of_Books	Num_Of_Orders
1684102227799	Lillian	Mcdowell	0561468624	15	75	1
1646082698299	Zelenia	Conley	0531324416	8	60	2
1674051565199	Chase	Palmer	0587927399	12	40	2
1688080162699	Graham	Hammond	0591488988	7	43	2
1627061105599	Jhon	Due	0559499527	10	100	3

Book Supply:

Book_ID	Supplier_ID
1601011348699	1627061105599
1684052709699	1627061105599
1610012343199	1646082698299
1684071845299	1646082698299
1616020509299	1674051565199
1695073047299	1674051565199
1630121201999	1684102227799
1646023089299	1688080162699
1678121062399	1688080162699

Customer:

Customer_ID	First_Name	Last_Name	Phone	Join_Date	Total_Purchase	Total_Discount	Personal_Discount	Num_Of_Books
1601072243299	Graham	Shaw	0567192889	2015-05-19	10	10	0	1
1619102752499	Wesley	Lynch	0587559263	2012-09-17	7	3	0	1
1628091290399	Fritz	Mosley	0598754251	2012-05-19	20	0	0	1
1658061163699	Griffin	Gross	0562913439	2015-05-19	42	18	0	1
1658080710899	Janna	Hansen	0587867345	2014-05-19	30	10	0	1
1683040449399	Flavia	Peck	0521913693	2016-01-17	17	3	0	1
1689111853399	Melinda	Nguyen	0563538693	2012-09-17	1018	2	2	2
1690090633499	Griffin	Fox	0515994333	2013-11-17	19	0	0	1
1693101045899	Melinda	Estrada	0559219339	2010-12-18	16	0	0	1
1699110528299	Elmo	Maynard	0522271432	2014-09-18	13	13	0	2

Order:

Order_ID	Book_ID	Customer_ID	Order_Date	Deliver_Date	Supplier_ID	Status
13049003	1601011348699	1693101045899	2018-09-27	19-04-09	1627061105599	Ordered
13688840	1678121062399	1601072243299	2018-11-19	19-11-02	1688080162699	Delivered
14624516	1610012343199	1628091290399	2017-02-20	19-07-23	1646082698299	Delivered
17329978	1646023089299	1699110528299	2016-03-17	19-02-14	1688080162699	Ordered
24051953	1630121201999	1689111853399	2017-08-12	19-02-07	1684102227799	Delivered
35082120	1678121062399	1683040449399	2018-09-08	19-04-15	1688080162699	Delivered
36341531	1630121201999	1619102752499	2015-01-21	19-08-02	1684102227799	Delivered
40004737	1601011348699	1683040449399	2018-09-08	19-02-07	1627061105599	Ordered
44619038	1695073047299	1601072243299	2017-11-08	19-02-14	1674051565199	waiting
98192128	1601011348699	1658080710899	2017-01-31	19-11-08	1627061105599	waiting

Seller:

Seller_ID	First_Name	Last_Name	Num_Of_Transactions
1608032788799	Cassandra	Bernard	10
1608041018999	Ora	Rice	1
1611100674599	Ayanna	Ferrell	1
1619100267699	Eugenia	Aguilar	3
1622081801599	Melinda	Saunders	5
1637041049099	Quyn	Cantrell	10
1654110157599	Hanna	Solomon	2
1661111742199	Bethany	Ray	3
1695042833999	Libby	Cobb	8
1697091266999	Abigail	Rush	12

Transactions:

Transaction_Num	Transaction_Date	Book_ID	Customer_ID	Cost	Seller_ID
1	2015-05-19	1601011348699	1601072243299	10	1637041049099
2	2012-09-17	1610012343199	1619102752499	7	1608032788799
3	2012-05-19	1616020509299	1628091290399	20	1608041018999
4	2015-05-19	1630121201999	1658061163699	42	1661111742199
5	2014-05-19	1646023089299	1658080710899	30	1608041018999
6	2016-01-17	1670121699799	1683040449399	17	1608041018999
7	2012-09-17	1678121062399	1689111853399	1000	1611100674599
8	2013-11-17	1684052709699	1690090633499	19	1611100674599
9	2010-12-18	1684071845299	1693101045899	16	1654110157599
10	2014-09-18	1695073047299	1699110528299	6.5	1697091266999
11	2014-09-19	1695073047299	1699110528299	6.5	1697091266999
12	2012-10-19	1616020509299	1689111853399	18	1608041018999