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Section: BT502

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Advanced Database Hands-on Activity (Subqueries, Views, and Index)

2. Insert Data Text

```
MS SQL

1 CREATE TABLE [Customers](
2     [CustomerID] [varchar](50) NULL,
3     [Cust_Name] [varchar](50) NULL,
4     [Address] [varchar](50) NULL
5 );
6 CREATE TABLE [Items](
7     [ItemID] [varchar](50) NULL,
8     [ItemName] [varchar](50) NULL,
9     [Price] [decimal](18, 2) NULL
10 );
11 CREATE TABLE [Orders](
12     [OrderID] [varchar](50) NULL,
13     [OrderDate] [date] NULL,
14     [ItemID] [varchar](50) NULL,
15     [CustomerID] [varchar](50) NULL
16 );
17 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-1', N'Badang', N'Makati')
18 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-2', N'Hanzo', N'Taguig')
19 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-3', N'Lilia', N'Rizal')
20 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-4', N'Layla', N'Laguna')
21 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-5', N'Lesley', N'Laguna')
22 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-6', N'Balmond', N'Makati')
23 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-7', N'Chou', N'Navotas')
24 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-8', N'Eudora', N'Malabon')
25 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-9', N'Miya', N'Taguig')
26 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-10', N'Cecilion', N'Navotas')
27 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-11', N'Roger', N'Baguio')
28 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-12', N'Cong', N'Cebu')
29 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-13', N'Emman', N'Cebu')
30 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-14', N'Jerome', N'Baguio')
31 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-15', N'Gusion', N'Davao')
32 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-16', N'Lancelot', N'Iloilo')
33 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-17', N'Granger', N'Antipolo')
34 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-18', N'Irithel', N'Makati')
```

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MS SQL

34 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-18', N'Irithel', N'Makati')
35 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-19', N'Alucard', N'Binondo')
36 INSERT [dbo].[Customers] ([CustomerID], [Cust_Name], [Address]) VALUES (N'Cust-20', N'Carmilla', N'Malabon');
37 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-1', N'Samsung S9', CAST(32000.00 AS DECIMAL(18, 2)))
38 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-2', N'Samsung S10', CAST(40000.00 AS DECIMAL(18, 2)))
39 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-3', N'Huawei P30', CAST(29000.00 AS DECIMAL(18, 2)))
40 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-4', N'Huawei Mate30', CAST(31000.00 AS DECIMAL(18, 2)))
41 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-5', N'Realme 6', CAST(9999.99 AS DECIMAL(18, 2)))
42 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-6', N'Realme 6 Pro', CAST(11000.00 AS DECIMAL(18, 2)))
43 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-7', N'Xiaomi Note 9', CAST(8000.00 AS DECIMAL(18, 2)))
44 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-8', N'Xiaomi Note 10', CAST(11000.00 AS DECIMAL(18, 2)))
45 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-9', N'LG V40', CAST(15000.00 AS DECIMAL(18, 2)))
46 INSERT [dbo].[Items] ([ItemID], [ItemName], [Price]) VALUES (N'IT-10', N'LG V50', CAST(23000.00 AS DECIMAL(18, 2)));
47 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-1', CAST(N'2019-08-14' AS Date), N'IT-6', N'Cust-10')
48 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-2', CAST(N'2019-12-04' AS Date), N'IT-3', N'Cust-9')
49 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-3', CAST(N'2017-08-20' AS Date), N'IT-7', N'Cust-13')
50 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-4', CAST(N'2018-06-12' AS Date), N'IT-10', N'Cust-7')
51 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-5', CAST(N'2017-02-28' AS Date), N'IT-5', N'Cust-6')
52 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-6', CAST(N'2019-05-21' AS Date), N'IT-9', N'Cust-11')
53 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-7', CAST(N'2017-12-27' AS Date), N'IT-2', N'Cust-5')
54 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-8', CAST(N'2017-02-10' AS Date), N'IT-4', N'Cust-9')
55 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-9', CAST(N'2018-09-12' AS Date), N'IT-10', N'Cust-9')
56 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-10', CAST(N'2018-01-17' AS Date), N'IT-3', N'Cust-4')
57 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-11', CAST(N'2019-02-11' AS Date), N'IT-6', N'Cust-7')
58 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-12', CAST(N'2018-02-23' AS Date), N'IT-4', N'Cust-9')
59 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-13', CAST(N'2018-11-01' AS Date), N'IT-7', N'Cust-2')
60 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-14', CAST(N'2018-01-11' AS Date), N'IT-8', N'Cust-4')
61 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-15', CAST(N'2018-05-28' AS Date), N'IT-1', N'Cust-2')
62 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-16', CAST(N'2017-01-03' AS Date), N'IT-6', N'Cust-1')
63 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-17', CAST(N'2019-01-17' AS Date), N'IT-8', N'Cust-9')
64 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-18', CAST(N'2017-06-22' AS Date), N'IT-3', N'Cust-7')
65 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-19', CAST(N'2017-04-09' AS Date), N'IT-7', N'Cust-3')
66 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-20', CAST(N'2019-09-15' AS Date), N'IT-5', N'Cust-5')
67 INSERT [dbo].[Orders] ([OrderID], [OrderDate], [ItemID], [CustomerID]) VALUES (N'OR-21', CAST(N'2017-08-13' AS Date), N'IT-9', N'Cust-4');
```

MS SQL

SELECT * FROM Orders

OrderID	OrderDate	ItemID	CustomerID
OR-1	2019-08-14T00:00:00Z	IT-6	Cust-10
OR-2	2019-12-04T00:00:00Z	IT-3	Cust-9
OR-3	2017-08-20T00:00:00Z	IT-7	Cust-13
OR-4	2018-06-12T00:00:00Z	IT-10	Cust-7
OR-5	2017-02-28T00:00:00Z	IT-5	Cust-6
OR-6	2019-05-21T00:00:00Z	IT-9	Cust-11
OR-7	2017-12-27T00:00:00Z	IT-2	Cust-5
OR-8	2017-02-10T00:00:00Z	IT-4	Cust-3
OR-9	2018-09-12T00:00:00Z	IT-10	Cust-9
OR-10	2018-01-17T00:00:00Z	IT-3	Cust-4
OR-11	2019-02-11T00:00:00Z	IT-6	Cust-7
OR-12	2018-02-23T00:00:00Z	IT-4	Cust-9
OR-13	2018-11-01T00:00:00Z	IT-7	Cust-2
OR-14	2018-01-11T00:00:00Z	IT-8	Cust-4
OR-15	2018-05-28T00:00:00Z	IT-1	Cust-2
OR-16	2017-01-03T00:00:00Z	IT-6	Cust-1
OR-17	2019-01-17T00:00:00Z	IT-8	Cust-9
OR-18	2017-06-22T00:00:00Z	IT-3	Cust-7
OR-19	2017-04-09T00:00:00Z	IT-7	Cust-3
OR-20	2019-09-15T00:00:00Z	IT-5	Cust-5
OR-21	2017-08-13T00:00:00Z	IT-9	Cust-4

MS SQL

SELECT * FROM Customers

CustomerID	Cust_Name	Address
Cust-1	Badang	Makati
Cust-2	Hanzo	Taguig
Cust-3	Lila	Rizal
Cust-4	Layla	Laguna
Cust-5	Lesley	Laguna
Cust-6	Balmond	Makati
Cust-7	Chou	Navotas
Cust-8	Eudora	Malabon
Cust-9	Miya	Taguig
Cust-10	Cecilion	Navotas
Cust-11	Roger	Baguio
Cust-12	Cong	Cebu
Cust-13	Emman	Cebu
Cust-14	Jerome	Baguio
Cust-15	Guston	Davao
Cust-16	Lancelot	Iloilo
Cust-17	Granger	Anipolo
Cust-18	Iritheal	Makati
Cust-19	Alucard	Binondo
Cust-20	Carmila	Malabon

MS SQL

SELECT * FROM Items

ItemID	ItemName	Price
IT-1	Samsung S9	32000
IT-2	Samsung S10	40000
IT-3	Huawei P30	29000
IT-4	Huawei Mate30	31000
IT-5	Realme 6	9999.99
IT-6	Realme 6 Pro	11000
IT-7	Xiaomi Note 9	8000
IT-8	Xiaomi Note 10	11000
IT-9	LG V40	15000
IT-10	LG V50	23000

3. Create an index on the customers table with the following columns: *CustomerID*, *Cust_Name*.
Do the same for the tables, Orders, and Items. With the following columns: *ItemID*, *CustomerID*, *OrderID*, *ItemName*.

```
MS SQL

1 CREATE INDEX ix_Orders
2 ON
3 Orders (customerid,orderid)|
```

```
MS SQL

1 CREATE INDEX ix_Items
2 ON
3 Items (itemid, itemname)|
```

```
MS SQL

1 CREATE INDEX ix_Customers
2 ON
3 Customers (customerid,cust_name)|
```

4. Expand the table tab in left-side corner to check if the newly created index exists in the database

MS SQL

TEST - v.4.3

Table

Customers

Column

- CustomerID
- Cust_Name
- Address

Index

- ix_Customers

MS SQL

TEST - v.4.3

Table

- Customers
- demo
- Items

Column

- ItemID
- ItemName
- Price

Index

- ix_Items

MS SQL

TEST - v.4.3

Table

- Customers
- demo
- Items
- Orders

Column

- OrderID
- OrderDate
- ItemID
- CustomerID

Index

- ix_Orders

5. Create a subquery that will return the customers who purchased an item that is more expensive than Badangs's purchased item.

MS SQL		
<pre> 1 SELECT C.Cust_Name, I.ItemName, I.Price 2 FROM Orders O 3 JOIN Customers C ON C.CustomerID = O.CustomerID 4 JOIN Items I ON I.ItemID = O.ItemID 5 WHERE Price > ALL 6 (SELECT Price FROM Items WHERE ItemName IN ('Realme 6 Pro')) 7 GROUP BY cust_name, ItemName, Price 8 9 ORDER BY price ASC; </pre>		
Cust_Name	ItemName	Price
Layla	LG V40	15000
Roger	LG V40	15000
Chou	LG V50	23000
Miya	LG V50	23000
Chou	Huawei P30	29000
Layla	Huawei P30	29000
Miya	Huawei P30	29000
Lilia	Huawei Mate30	31000
Miya	Huawei Mate30	31000
Hanzo	Samsung S9	32000
Lesley	Samsung S10	40000

6. Create a subquery in the SELECT clause that will add a temporary column named 'New OrderId' and modify the returning characters/text of OrderID to 'Lab_OR--##'.

MS SQL				
<pre> 1 SELECT CONCAT ('Lab_',O.OrderId) AS NewOrderId, C.Cust_Name, C.Address, I.ItemName, I.Price 2 FROM 3 Customers C 4 INNER JOIN Orders O 5 ON C.CustomerID = O.CustomerID 6 INNER JOIN Items I 7 ON O.ItemID = I.ItemID 8 WHERE I.Price > ALL 9 (SELECT Price FROM Items WHERE ItemName In ('Realme 6 Pro')); </pre>				
NewOrderId	Cust_Name	Address	ItemName	Price
Lab_OR-2	Miya	Taguig	Huawei P30	29000
Lab_OR-4	Chou	Navotas	LG V50	23000
Lab_OR-6	Roger	Baguio	LG V40	15000
Lab_OR-7	Lesley	Laguna	Samsung S10	40000
Lab_OR-8	Lilia	Rizal	Huawei Mate30	31000
Lab_OR-9	Miya	Taguig	LG V50	23000
Lab_OR-10	Layla	Laguna	Huawei P30	29000
Lab_OR-12	Miya	Taguig	Huawei Mate30	31000
Lab_OR-15	Hanzo	Taguig	Samsung S9	32000
Lab_OR-18	Chou	Navotas	Huawei P30	29000
Lab_OR-21	Layla	Laguna	LG V40	15000

7. Create a view named 'Subqueries_Views' using the data from the table/output above.

MS SQL

```
1 CREATE VIEW Subqueries_View
2 AS
3 SELECT CONCAT ('Lab_', O.OrderID) AS NewOrderID, C.Cust_Name, C.Address, I.ItemName, I.Price
4 FROM
5     Customers C
6     INNER JOIN Orders O
7         ON C.CustomerID = O.CustomerID
8     INNER JOIN items I
9         ON O.ItemID = I.ItemID
10    WHERE I.Price > ALL
11        ( SELECT Price FROM Items WHERE ItemName IN ('Realme 6 Pro'));
12
```

8. Using IN operator, create a query that retrieves all the data with returning address Laguna, Taguig, Navotas, From the Newly created view.

MS SQL

```
1 SELECT * FROM Subqueries_View
2 WHERE Address
3 IN ('Laguna','Taguig','Navotas')
```

NewOrderID	Cust_Name	Address	ItemName	Price
Lab_OR-15	Hanzo	Taguig	Samsung S9	32000
Lab_OR-10	Layla	Laguna	Huawei P30	29000
Lab_OR-21	Layla	Laguna	LG V40	15000
Lab_OR-7	Lesley	Laguna	Samsung S10	40000
Lab_OR-18	Chou	Navotas	Huawei P30	29000
Lab_OR-4	Chou	Navotas	LG V50	23000
Lab_OR-12	Miya	Taguig	Huawei Mate30	31000
Lab_OR-2	Miya	Taguig	Huawei P30	29000
Lab_OR-9	Miya	Taguig	LG V50	23000