

# SQL with a Smile

## Audiobook Companion

### Introduction

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Figure 1

#### Sales

Date	CustomerID	OrderID	Item	Quantity
2/5/2016	12	100	Widget	5
2/5/2016	15	101	Thingy	2
2/6/2016	17	102	Widget	100
2/6/2016	15	103	Doodad	4
2/6/2016	14	104	Doodad	12
2/6/2016	16	105	Doodad	1

#### Customers

CustomerID	Name	State
12	John Smith	WA
13	George Washington	DC
14	Jasmine Cassim	WI
15	Suzie Fields	OR
16	Madison Wisconsin	WI
17	Olivia Bensen	OR

### Chapter 1

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Figure 2

Operator	Operation
=	Equal
<> OR !=	Not Equal
>	Greater Than
<	Less Than
>=	Greater Than or Equal To
<=	Less Than or Equal To
<b>BETWEEN</b>	Between two values
<b>LIKE</b>	Lets you search for a 'fuzzy match', like all words that start with the letter 'A', or any record with a 'B' in it.
<b>IN</b>	Allows you to specify a list of values. It's like saying "Equal this OR this OR this." A very important operator that you'll use often.

## Chapter 2

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Figure 3

DrinkType	DrinkName	DrinkPrice	DrinkID
Beer	Local IPA	5.00	1
Beer	Foreign Porter	6.00	2
Wine	Cabernet	8.00	3
Wine	Merlot	9.00	4
Wine	Chardonnay	7.00	5

Figure 4

### DrinkType

DrinkTypeID	DrinkTypeName
1	Beer
2	Wine

### Menu

DrinkTypeID	DrinkName	DrinkPrice	DrinkID
1	Local IPA	5.00	1
1	Foreign Porter	6.00	2
2	Cabernet	8.00	3
2	Merlot	9.00	4
2	Chardonnay	7.00	5

Figure 5



Figure 6

```
CREATE DATABASE SQL_Smile
GO

USE SQL_Smile
GO

CREATE TABLE Menu
(
  DrinkTypeID INT
  ,DrinkName VARCHAR(50)
  ,DrinkPrice MONEY
  ,DrinkID INT)
GO

INSERT INTO Menu (DrinkTypeID, DrinkName, DrinkPrice, DrinkID)
VALUES (1,'Local IPA',5,1),
(1,'Foreign Porter',6,2),
(2,'Cabernet',8,3),
(2,'Merlot',9,4),
(2,'Chardonnay',7,5)
GO

CREATE TABLE DrinkOrders
(
  OrderDate DATE
  ,OrderID VARCHAR(50)
  ,DrinkID INT
)
GO

INSERT INTO DrinkOrders (OrderDate, OrderID, DrinkID)
VALUES ('2/5/2016',1,2),
('2/5/2016',1,5),
('2/5/2016',1,4),
('2/5/2016',1,3)
GO
```

Figure 7

DrinkTypeID	DrinkName	DrinkPrice	DrinkID
1	Local IPA	5.00	1
1	Foreign Porter	6.00	2
2	Cabernet	8.00	3
2	Merlot	9.00	4
2	Chardonnay	7.00	5

Figure 8

OrderDate	OrderID	DrinkID
2/5/2016	1	2
2/5/2016	1	5
2/5/2016	1	4
2/5/2016	1	3

Figure 9

OrderDate	OrderID	DrinkID	DrinkTypeID	DrinkName	DrinkPrice	DrinkID
2/5/2016	1	2	1	Foreign Porter	6.00	2
2/5/2016	1	3	2	Cabernet	8.00	3
2/5/2016	1	4	2	Merlot	9.00	4
2/5/2016	1	5	2	Chardonnay	7.00	5

Figure 10

OrderDate	OrderID	DrinkID	DrinkName	DrinkPrice
2/5/2016	1	2	Foreign Porter	6.00
2/5/2016	1	3	Cabernet	8.00
2/5/2016	1	4	Merlot	9.00
2/5/2016	1	5	Chardonnay	7.00

Figure 11

```

USE SQL_Smile
GO

INSERT INTO DrinkOrders
VALUES ('2/5/2016',1,6);
    
```

Figure 12

OrderDate	OrderID	DrinkID	DrinkName	DrinkPrice
2/5/2016	1	2	Foreign Porter	6.00
2/5/2016	1	3	Cabernet	8.00
2/5/2016	1	4	Merlot	9.00
2/5/2016	1	5	Chardonnay	7.00

Figure 13  
INNER JOIN:

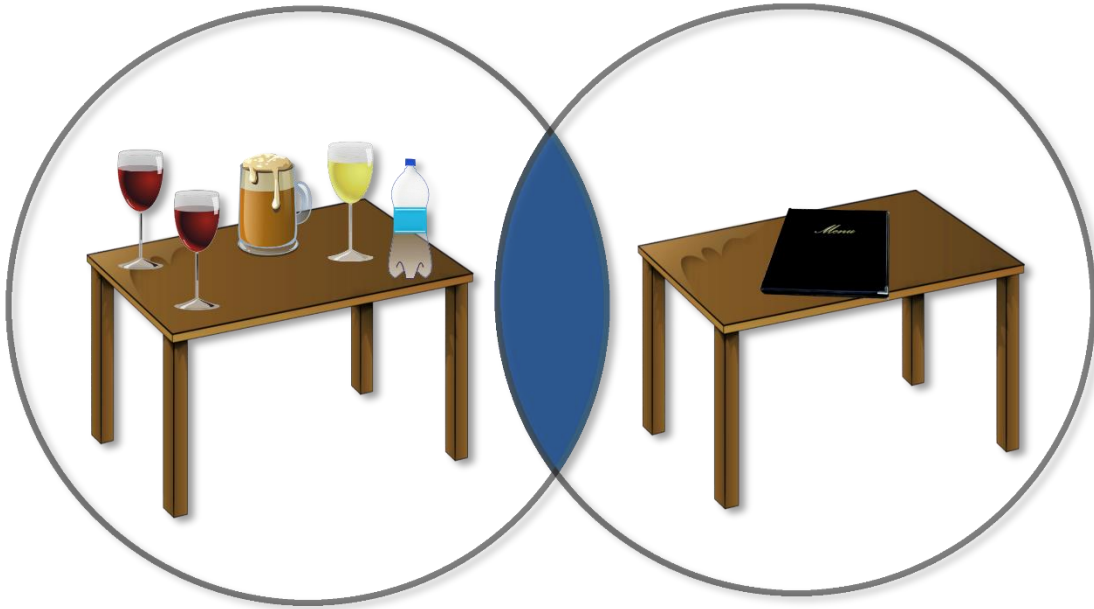


Figure 14  
LEFT OUTER JOIN:

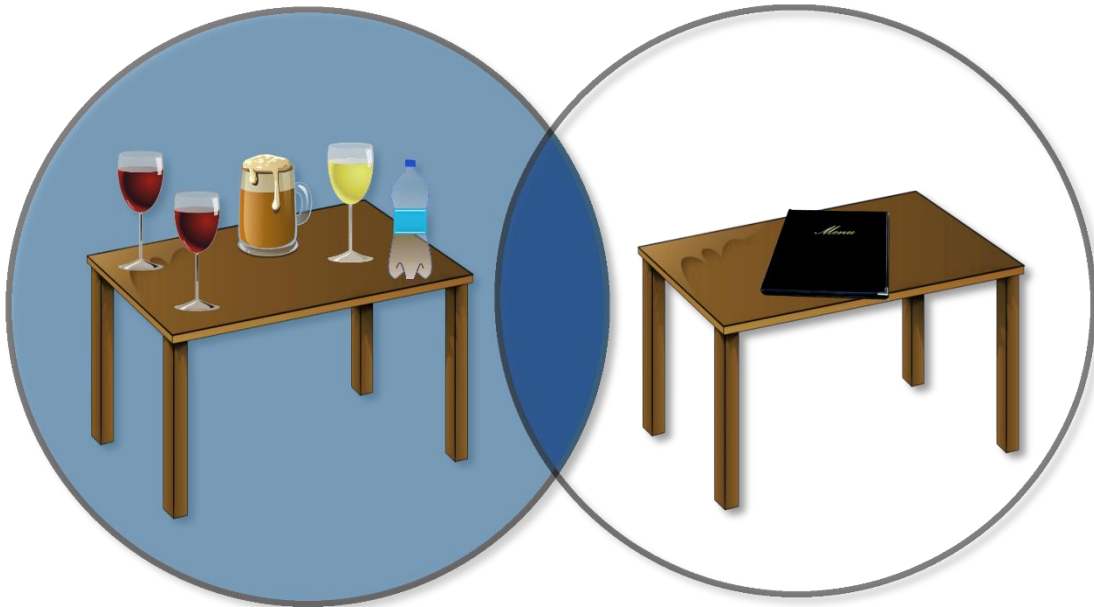


Figure 15

RIGHT OUTER JOIN:

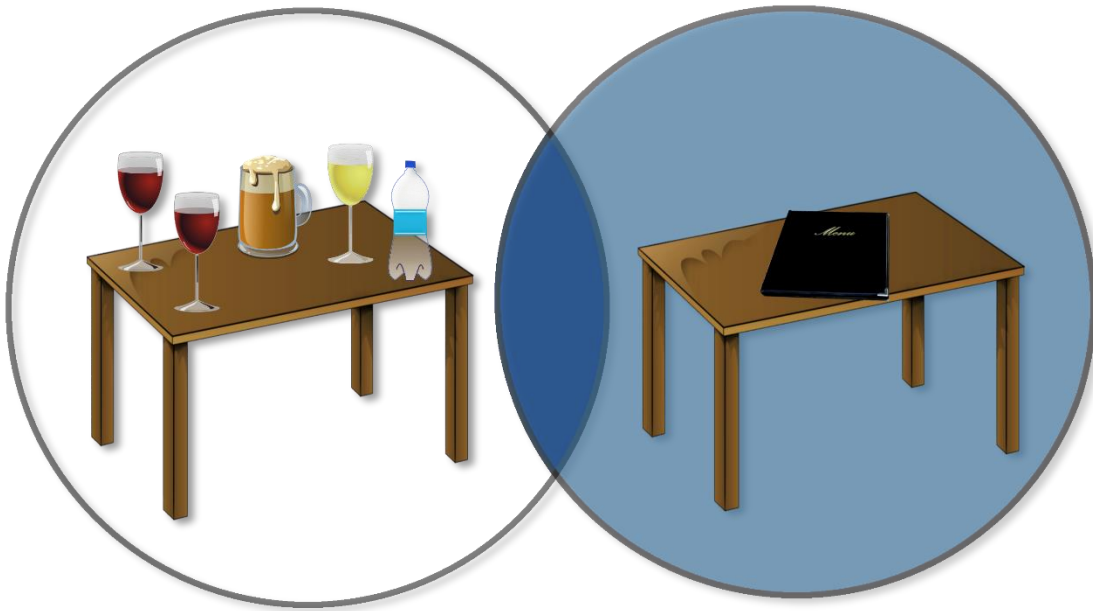


Figure 16

OrderDate	OrderID	DrinkID	DrinkName	DrinkPrice
2/5/2016	1	2	Foreign Porter	6.00
2/5/2016	1	5	Chardonnay	7.00
2/5/2016	1	4	Merlot	9.00
2/5/2016	1	3	Cabernet	8.00
2/5/2016	1	6	NULL	NULL

Figure 17  
FULL OUTER JOIN:

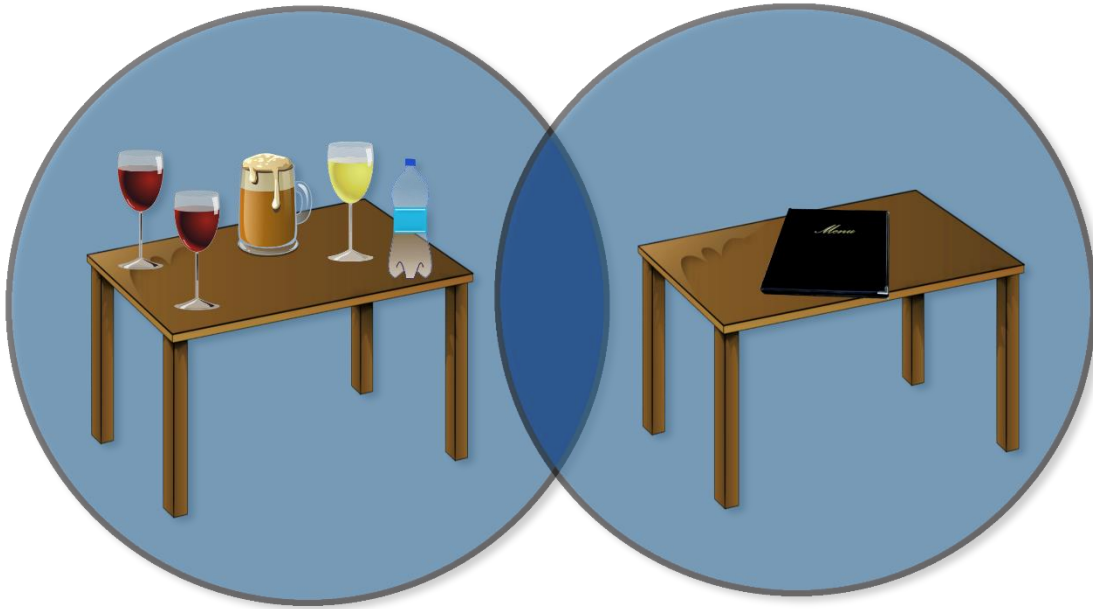
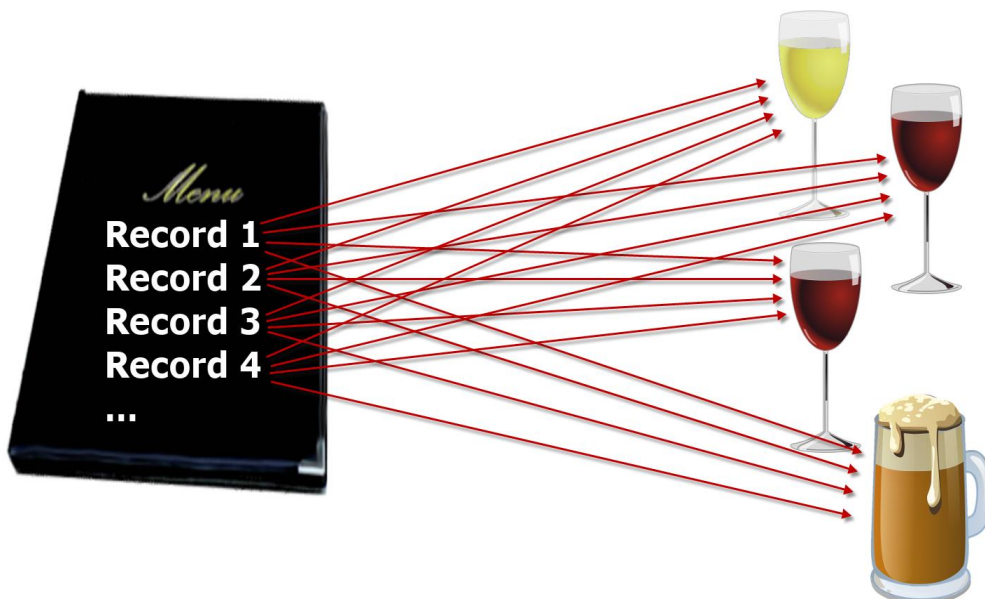


Figure 18

OrderDate	OrderID	DrinkID	DrinkName	DrinkPrice
NULL	NULL	NULL	Local IPA	5.00
2/5/2016	1	2	Foreign Porter	6.00
2/5/2016	1	3	Cabernet	8.00
2/5/2016	1	4	Merlot	9.00
2/5/2016	1	5	Chardonnay	7.00
2/5/2016	1	6	NULL	NULL

Figure 19  
CROSS JOIN:



## Chapter 3

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Figure 20

OrderID	TotalPriceSold
1	30.00

Figure 21

MenuRowCount
5

Figure 22

Number_Of_Drinks_Offered
5

Figure 23

Order_Count
5

Figure 24

OrderDate	OrderID	DrinkID
2/5/2016	1	2
2/5/2016	1	5
2/5/2016	1	4
2/5/2016	1	3
2/5/2016	1	6

Figure 25

Order_Count
1

Figure 26

Cheapest_Drink_Price
5.00

Figure 27

Most_Expensive_Drink_Price
9.00

Figure 28

Average_Drink_Price
7.00

Figure 29

OrderID	PriceIncreaseTotalSold
1	34.00



## Chapter 4

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Figure 30

MinDrinkPrice	DrinkName	DrinkID
5.00	Local IPA	1
6.00	Foreign Porter	2
8.00	Cabernet	3
9.00	Merlot	4
7.00	Chardonnay	5

Figure 31

DrinkName	DrinkID	Cheapest_Drink_Price
Local IPA	1	5.00

Figure 32

DrinkName	DrinkID	Cheapest_Drink_Price
Local IPA	1	5.00
Foreign Porter	2	6.00
Chardonnay	5	7.00
Cabernet	3	8.00
Merlot	4	9.00

Figure 33

DrinkName	DrinkID	Most_Expensive_Drink_Price
Merlot	4	9.00

Figure 34

DrinkName	DrinkID	DrinkPrice
Merlot	4	9.00
Cabernet	3	8.00
Chardonnay	5	7.00

Figure 35

OrderDate	OrderID	DrinkID
2/5/2016	1	2
2/5/2016	1	5
2/5/2016	1	4
2/5/2016	1	3

Figure 36

```
SELECT *
FROM
(
  SELECT DrinkName, DrinkID, DrinkPrice
  FROM Menu
  ORDER BY DrinkPrice ASC
)
WHERE Rownum <=3
ORDER BY Rownum;
```

## Chapter 5

---

Figure 37

```
USE SQL_Smile
GO

CREATE TABLE DrinkType
(
  DrinkTypeID INT
  ,DrinkTypeName VARCHAR(50)
)
GO

INSERT INTO DrinkType (DrinkTypeID, DrinkTypeName)
VALUES (1,'Beer'),
(2,'Wine')
GO

INSERT INTO DrinkOrders (OrderDate, OrderID, DrinkID)
VALUES ('2016-02-05', 2, 1),
('2016-02-05', 2, 2),
('2016-02-05', 2, 2),
('2016-02-05', 2, 2),
('2016-02-05', 2, 3),
('2016-02-05', 2, 4),
('2016-02-05', 2, 5),
('2016-02-05', 2, 5),
('2016-02-05', 2, 4),
('2016-02-05', 2, 2),
('2016-02-05', 2, 5),
('2016-02-05', 2, 4);
```

Figure 38

DrinkID	DrinkName
3	Cabernet
4	Merlot
5	Chardonnay

Figure 39

NumDrinksSold	DrinkName
2	Cabernet
4	Chardonnay
4	Merlot

Figure 40

```
SELECT COUNT(DrinkOrders.DrinkID) AS NumDrinksSold, Menu.DrinkName
FROM DrinkOrders
JOIN Menu
ON DrinkOrders.DrinkID = Menu.DrinkID
WHERE DrinkOrders.DrinkID IN
  (SELECT Menu.DrinkID
   FROM Menu
   JOIN DrinkType
   ON Menu.DrinkTypeID = DrinkType.DrinkTypeID
   WHERE DrinkType.DrinkTypeName = 'Wine')
GROUP BY Menu.DrinkName
```

Results:

NumDrinksSold	DrinkName
2	Cabernet
4	Chardonnay
4	Merlot

Figure 41

```
SELECT COUNT(DrinkOrders.DrinkID) AS NumDrinksSold, Menu.DrinkName
FROM DrinkOrders
JOIN Menu ON DrinkOrders.DrinkID = Menu.DrinkID
JOIN DrinkType ON Menu.DrinkTypeID = DrinkType.DrinkTypeID
WHERE DrinkType.DrinkTypeName = 'Wine'
GROUP BY Menu.DrinkName
```

Results:

NumDrinksSold	DrinkName
2	Cabernet
4	Chardonnay
4	Merlot

Figure 42

```
SELECT COUNT(DrinkOrders.DrinkID) AS ExpensiveDrinksSold, Menu.DrinkName
FROM DrinkOrders
JOIN Menu ON DrinkOrders.DrinkID = Menu.DrinkID
WHERE Menu.DrinkID =
    (SELECT TOP 1 DrinkID AS Most_Expensive_Drink
    FROM Menu
    ORDER BY DrinkPrice DESC)
GROUP BY Menu.DrinkName
```

Results:

ExpensiveDrinksSold	DrinkName
4	Merlot

## Chapter 6

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Figure 43

```
SELECT DD.CalendarYear,DD.DateID,SUM(FACT.MetricValue) AS
MetricValue,DM.MetricName,TR.Threshold1,TR.Threshold2 FROM FactTable FACT INNER
JOIN DimMetric DM ON DM.MetricID = FACT.MetricID INNER JOIN dbo.DimDate DD ON
DD.DateID = FACT.DateID INNER JOIN (SELECT DISTINCT
DD.DateID,TARG.MetricID,TARG.Threshold1,TARG.Threshold2 FROM dbo.FactTarget TARG
LEFT OUTER JOIN DimDate DD ON DD.WeekOfYear = TARG.WeekOfYear AND DD.DayOfWeek
= TARG.DayOfWeek) TR ON TR.DateID = DD.DateID AND TR.MetricID = FACT.MetricID
WHERE DD.CalendarYear = 2016 GROUP BY
DD.CalendarYear,DD.DateID,DM.MetricName,TR.Threshold1,TR.Threshold2 ORDER BY
DateID ASC
```

Figure 44

```
SELECT DD.CalendarYear,DD.DateID,SUM(FACT.MetricValue) AS
MetricValue,DM.MetricName,TR.Threshold1,TR.Threshold2
FROM FactTable FACT
INNER JOIN DimMetric DM
ON DM.MetricID = FACT.MetricID
INNER JOIN dbo.DimDate DD ON DD.DateID = FACT.DateID
INNER JOIN (
SELECT DISTINCT DD.DateID,TARG.MetricID,TARG.Threshold1,TARG.Threshold2
FROM dbo.FactTarget TARG
LEFT OUTER JOIN DimDate DD ON DD.WeekOfYear = TARG.WeekOfYear
AND DD.DayOfWeek = TARG.DayOfWeek) TR ON TR.DateID = DD.DateID
AND TR.MetricID = FACT.MetricID
WHERE DD.CalendarYear = 2016
GROUP BY
DD.CalendarYear,DD.DateID,DM.MetricName,TR.Threshold1,TR.Threshold2
ORDER BY DateID ASC
```

Figure 45

```
SELECT DD.CalendarYear
,DD.DateID
,SUM(FACT.MetricValue) AS MetricValue
,DM.MetricName
,TR.Threshold1
,TR.Threshold2

FROM FactTable FACT
INNER JOIN DimMetric DM ON DM.MetricID = FACT.MetricID
INNER JOIN dbo.DimDate DD ON DD.DateID = FACT.DateID
INNER JOIN (
SELECT DISTINCT DD.DateID
,TARG.MetricID
,TARG.Threshold1
,TARG.Threshold2
FROM dbo.FactTarget TARG
LEFT OUTER JOIN DimDate DD ON DD.WeekOfYear = TARG.WeekOfYear
AND DD.DayOfWeek = TARG.DayOfWeek
) TR ON TR.DateID = DD.DateID
AND TR.MetricID = FACT.MetricID

WHERE DD.CalendarYear = 2016

GROUP BY DD.CalendarYear
,DD.DateID
,DM.MetricName
,TR.Threshold1
,TR.Threshold2

ORDER BY DateID ASC
```

Figure 46

```
SELECT DD.CalendarYear
,DD.DateID
,SUM(FACT.MetricValue) AS MetricValue
,DM.MetricName
,TR.Threshold1
,TR.Threshold2

FROM FactTable FACT
INNER JOIN DimMetric DM
ON DM.MetricID = FACT.MetricID
INNER JOIN dbo.DimDate DD
ON DD.DateID = FACT.DateID
INNER JOIN
    (
        SELECT DISTINCT DD.DateID
        ,TARG.MetricID
        ,TARG.Threshold1
        ,TARG.Threshold2
        FROM dbo.FactTarget TARG
        LEFT OUTER JOIN DimDate DD
        ON DD.WeekOfYear = TARG.WeekOfYear
        AND DD.DayOfWeek = TARG.DayOfWeek
    ) TR ON TR.DateID = DD.DateID
    AND TR.MetricID = FACT.MetricID

WHERE DD.CalendarYear = 2016

GROUP BY DD.CalendarYear
,DD.DateID
,DM.MetricName
,TR.Threshold1
,TR.Threshold2

ORDER BY DateID ASC
```

Figure 47

```
INNER JOIN
    (
        SELECT DISTINCT DD.DateID
        ,TARG.MetricID
        ,TARG.Threshold1
        ,TARG.Threshold2
        FROM dbo.FactTarget TARG
        LEFT OUTER JOIN DimDate DD
        ON DD.WeekOfYear = TARG.WeekOfYear
        AND DD.DayOfWeek = TARG.DayOfWeek
    ) TR ON TR.DateID = DD.DateID
AND TR.MetricID = FACT.MetricID
```

Figure 48

```
FROM FactTable FACT
INNER JOIN DimMetric DM
ON DM.MetricID = FACT.MetricID
INNER JOIN dbo.DimDate DD
ON DD.DateID = FACT.DateID
INNER JOIN
    (
        SELECT DISTINCT DD.DateID
        ,TARG.MetricID
        ,TARG.Threshold1
        ,TARG.Threshold2
        FROM dbo.FactTarget TARG
        LEFT OUTER JOIN DimDate DD
        ON DD.WeekOfYear = TARG.WeekOfYear
        AND DD.DayOfWeek = TARG.DayOfWeek
    ) TR ON TR.DateID = DD.DateID
AND TR.MetricID = FACT.MetricID
```

Figure 49

```
--Like this
```

Figure 50

```
/*Like
This.*/
```

Figure 51

```
/*
Used for: Executive Metric Dashboard
Created by: Joe Green, 1/1/2016
Modified by: Julie Smith, 1/15/2016
*/
SELECT DD.CalendarYear
,DD.DateID
,SUM(FACT.MetricValue) AS MetricValue
,DM.MetricName
,TR.Threshold1
,TR.Threshold2
FROM FactTable FACT
INNER JOIN DimMetric DM
ON DM.MetricID = FACT.MetricID
INNER JOIN dbo.DimDate DD
ON DD.DateID = FACT.DateID
INNER JOIN
    --Subquery to obtain threshold targets
    (
        SELECT DISTINCT DD.DateID
        ,TARG.MetricID
        ,TARG.Threshold1
        ,TARG.Threshold2
        FROM dbo.FactTarget TARG
        LEFT OUTER JOIN DimDate DD
        ON DD.WeekOfYear = TARG.WeekOfYear
        AND DD.DayOfWeek = TARG.DayOfWeek
    ) TR ON TR.DateID = DD.DateID
    AND TR.MetricID = FACT.MetricID
--2016 Only
WHERE DD.CalendarYear = 2016

GROUP BY DD.CalendarYear
,DD.DateID
,DM.MetricName
,TR.Threshold1
,TR.Threshold2

--Sorting by date for the report
ORDER BY DateID ASC
```

Figure 52

```
SELECT DD.CalendarYear
,DD.DateID
,SUM(FACT.MetricValue) AS MetricValue
,DM.MetricName
,TR.Threshold1
,TR.Threshold2
```