# Mobile Manufacturer Data Queries with Results

1. List all the states in which we have customers who have bought cellphones from 2005 till today.

```
SELECT LC.State
FROM FACT_TRANSACTIONS TR
LEFT JOIN DIM_DATE  DT ON TR.Date= DT.DATE
LEFT JOIN DIM_LOCATION  LC ON TR.IDLocation= LC.IDLocation
WHERE DT.YEAR >2005
GROUP BY LC.State
```

Results | Messages

| | State |
|---|---|
| 1 | Arizona |
| 2 | California |
| 3 | Delhi |
| 4 | Haryana |
| 5 | Karnataka |
| 6 | Maharashtra |
| 7 | Maryland |

2. Which state in the US is buying the most 'Samsung' cell phones?

```
SELECT TOP 1 T1.State, SUM(T2.IDModel) AS TOTAL_SALE FROM
(SELECT TR.IDModel, lc.State
FROM FACT_TRANSACTIONS TR
LEFT JOIN DIM_LOCATION  LC ON TR.IDLocation= LC.IDLocation
WHERE lc.Country = 'US'
) T1
JOIN (
SELECT ML.IDModel, MF.Manufacturer_Name FROM DIM_MODEL ML
LEFT JOIN DIM_MANUFACTURER MF ON ML.IDManufacturer = MF.IDManufacturer
WHERE MF.Manufacturer_Name = 'Samsung'
) T2 ON
T1.IDModel = T2.IDModel
GROUP BY T1.State
ORDER BY TOTAL_SALE DESC
```

Results | Messages

| | State | TOTAL_SALE |
|---|---|---|
| 1 | Arizona | 2176 |

3. Show the number of transactions for each model per zip code per state.

```
SELECT LC.State, LC.ZipCode, ML.Model_Name, COUNT(FT.IDCustomer) AS TOTAL_TRANS
FROM FACT_TRANSACTIONS FT
LEFT JOIN DIM_LOCATION LC ON FT.IDLocation = LC.IDLocation
LEFT JOIN DIM_MODEL ML ON FT.IDModel = ML.IDModel
GROUP BY LC.State, LC.ZipCode, ML.Model_Name
```

Results | Messages

| | State | ZipCode | Model_Name | TOTAL_TRANS |
|---|---|---|---|---|
| 1 | California | 92703 | Thunderbolt | 5 |
| 2 | Maryland | 21648 | iPhone 6 | 5 |
| 3 | Maryland | 21648 | iPhone 4 | 4 |
| 4 | Delhi | 110004 | iPhone 4 | 4 |
| 5 | Delhi | 110004 | OnePlus X | 4 |
| 6 | Maharashtra | 400006 | E1100 | 4 |
| 7 | Karnataka | 530068 | Thunderbolt | 3 |
| 8 | Karnataka | 530068 | iPhone 4S | 3 |
| 9 | Haryana | 122002 | iPhone 4 | 3 |
| 10 | Karnataka | 530068 | 5230 | 3 |
| 11 | Delhi | 110004 | iPhone 6 | 3 |
| 12 | California | 94005 | Motorola Z | 3 |
| 13 | California | 94005 | OnePlus 5 | 3 |
| 14 | Delhi | 110004 | Galaxy S5 | 3 |
| 15 | California | 92703 | 6600 | 3 |
| 16 | California | 92703 | iPhone 4 | 3 |
| 17 | Arizona | 85086 | C200 | 3 |
| 18 | Arizona | 85117 | 3310 (3330) | 3 |
| 19 | Arizona | 85117 | Galaxy S4 | 3 |
| 20 | Maryland | 21648 | iPhone 5 | 3 |
| 21 | Maryland | 21648 | Galaxy S5 | 3 |
| 22 | Maharashtra | 400006 | OnePlus 6T | 3 |
| 23 | Maryland | 21163 | 5230 | 3 |
| 24 | Maharashtra | 400006 | Galaxy S7 | 2 |

4. Show the cheapest cellphone along with its price.

```
SELECT TOP 1 DM.Model_Name, FT.TotalPrice
FROM FACT_TRANSACTIONS FT
JOIN DIM_MODEL DM ON FT.IDModel = DM.IDModel
ORDER BY FT.TotalPrice;
```

Results | Messages

| | Manufacturer_Name | Model_Name | TotalPrice |
|---|---|---|---|
| 1 | Nokia | 3210 | 15.00 |

5. Find out the average price for each model in the top 5 manufacturers in terms of sales quantity and order by average price.

```
WITH Top5Manufacturers AS (
  SELECT TOP 5 DMF.IDManufacturer, SUM(FT.Quantity) as Sales
  FROM Fact_Transactions FT
  JOIN Dim_Model DM ON FT.IDModel = DM.IDModel
  JOIN Dim_Manufacturer DMF ON DM.IDManufacturer = DMF.IDManufacturer
  GROUP BY DMF.IDManufacturer
  ORDER BY Sales DESC
)

SELECT Dim_Model.Model_Name, AVG(Fact_Transactions.TotalPrice) as Average_Price
FROM Fact_Transactions
JOIN Dim_Model ON FACT_TRANSACTIONS.IDModel = Dim_Model.IDModel
WHERE Dim_Model.IDManufacturer IN (SELECT IDManufacturer FROM Top5Manufacturers)
GROUP BY Dim_Model.Model_Name
ORDER BY Average_Price ASC;
```

Results | Messages

| | Model_Name | Average_Price |
|---|---|---|
| 1 | 3210 | 18.50 |
| 2 | 3310 (3330) | 31.4545 |
| 3 | 5230 | 34.0909 |
| 4 | 6230 (6233) | 55.75 |
| 5 | 6010 (6020/6030) | 58.50 |
| 6 | 6600 | 60.00 |
| 7 | RAZR V3 | 91.3636 |
| 8 | C200 | 151.0833 |
| 9 | E250 | 170.6666 |
| 10 | Droid Bionic | 175.4444 |
| 11 | E1100 | 178.1818 |
| 12 | OnePlus X | 184.2307 |
| 13 | C139 | 185.10 |
| 14 | OnePlus 2 | 192.6666 |
| 15 | Galaxy S | 198.2222 |
| 16 | Galaxy Note II | 219.20 |
| 17 | Motorola Z | 285.909 |
| 18 | OnePlus 5 | 320.00 |
| 19 | Galaxy S4 | 343.60 |
| 20 | Galaxy S5 | 394.00 |
| 21 | OnePlus 5T | 407.1818 |
| 22 | Galaxy S7 | 478.00 |
| 23 | iPhone 6 | 503.5882 |
| 24 | iPhone 5 | 524.7142 |

6. List the names of the customers and the average amount spent in 2009, where the average is higher than 500.

```
SELECT T2.Customer_Name, AVG(T1.TotalPrice) AS AVERAGE_PRICE
FROM FACT_TRANSACTIONS T1
LEFT JOIN DIM_CUSTOMER T2 ON T1.IDCustomer= T2.IDCustomer
LEFT JOIN DIM_DATE T3 ON T1.Date = T3.DATE
WHERE T3.YEAR = 2009
GROUP BY T2.Customer_Name
HAVING AVG(T1.TotalPrice) >500;
```

Results | Messages

| | Customer_Name | AVERAGE_PRICE |
|---|---|---|
| 1 | Celeste Korando | 613.00 |
| 2 | Danica Bruschke | 760.00 |
| 3 | Laurel Reitler | 1528.00 |
| 4 | Lettie Isenhower | 870.00 |
| 5 | Moon Parlato | 823.50 |
| 6 | Shawna Palaspas | 569.00 |

7. List if there is any model that was in the top 5 in terms of quantity, simultaneously in 2008, 2009 and 2010.

```
WITH Top5Models2008 AS (
  SELECT TOP 5 Dim_Model.Model_Name, SUM(Fact_Transactions.Quantity) as Sales
  FROM Fact_Transactions
  JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
  WHERE Fact_Transactions.Date >= '2008-01-01' AND Fact_Transactions.Date < '2009-01-
01'
  GROUP BY Dim_Model.Model_Name
  ORDER BY Sales DESC
),
Top5Models2009 AS (
  SELECT TOP 5 Dim_Model.Model_Name, SUM(Fact_Transactions.Quantity) as Sales
  FROM Fact_Transactions
  JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
```

```
  WHERE Fact_Transactions.Date >= '2009-01-01' AND Fact_Transactions.Date < '2010-01-
01'
  GROUP BY Dim_Model.Model_Name
  ORDER BY Sales DESC
),
Top5Models2010 AS (
  SELECT TOP 5 Dim_Model.Model_Name, SUM(Fact_Transactions.Quantity) as Sales
  FROM Fact_Transactions
  JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
  WHERE Fact_Transactions.Date >= '2010-01-01' AND Fact_Transactions.Date < '2011-01-
01'
  GROUP BY Dim_Model.Model_Name
  ORDER BY Sales DESC
)
SELECT Model_Name FROM Top5Models2008
INTERSECT
SELECT  Model_Name FROM Top5Models2009
INTERSECT
SELECT Model_Name FROM Top5Models2010;
```

Results | Messages

| | Model_Name |
|---|---|
| 1 | Droid Bionic |

8. Show the manufacturer with the 2nd top sales in the year of 2009 and the manufacturer with the 2nd top sales in the year of 2010.

```
WITH Sales2009 AS (
  SELECT Dim_Manufacturer.Manufacturer_Name, SUM(Fact_Transactions.Quantity) as
Total_Sales
  FROM Fact_Transactions
  JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
  JOIN Dim_Manufacturer ON Dim_Model.IDManufacturer = Dim_Manufacturer.IDManufacturer
  WHERE Fact_Transactions.Date >= '2009-01-01' AND Fact_Transactions.Date < '2010-01-
01'
  GROUP BY Dim_Manufacturer.Manufacturer_Name
),
Sales2010 AS (
  SELECT DIM_MANUFACTURER.Manufacturer_Name, SUM(Fact_Transactions.Quantity) as
Total_Sales
  FROM Fact_Transactions
  JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
  JOIN Dim_Manufacturer ON Dim_Model.IDManufacturer = Dim_Manufacturer.IDManufacturer
  WHERE Fact_Transactions.Date >= '2010-01-01' AND Fact_Transactions.Date < '2011-01-
01'
  GROUP BY Dim_Manufacturer.Manufacturer_Name
)
SELECT Manufacturer_Name, '2009' AS Year FROM (
  SELECT Manufacturer_Name, Total_Sales,
    ROW_NUMBER() OVER (ORDER BY Total_Sales DESC) as RowNum
  FROM Sales2009) AS SubQuery
WHERE RowNum = 2
UNION ALL
SELECT Manufacturer_Name, '2010' AS Year FROM (
  SELECT Manufacturer_Name, Total_Sales,
    ROW_NUMBER() OVER (ORDER BY Total_Sales DESC) as RowNum
  FROM Sales2010) AS SubQuery
WHERE RowNum = 2;
```

Results | Messages

| | Manufacturer_Name | Year |
|---|---|---|
| 1 | Motorola | 2009 |
| 2 | Motorola | 2010 |

9. Show the manufacturers that sold cellphones in 2010 but did not in 2009.

```
SELECT Dim_Manufacturer.Manufacturer_Name
FROM Dim_Manufacturer
WHERE Dim_Manufacturer.IDManufacturer IN (
    SELECT Dim_Model.IDManufacturer
    FROM Fact_Transactions
    JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
    WHERE Fact_Transactions.Date >= '2010-01-01' AND Fact_Transactions.Date < '2011-
01-01'
  )
  AND Dim_Manufacturer.IDManufacturer NOT IN (
    SELECT Dim_Model.IDManufacturer
    FROM Fact_Transactions
    JOIN Dim_Model ON Fact_Transactions.IDModel = Dim_Model.IDModel
    WHERE Fact_Transactions.Date >= '2009-01-01' AND Fact_Transactions.Date < '2010-
01-01'
  );
```

Results Messages

| | Manufacturer_Name |
|---|---|
| 1 | HTC |

10. Find the top 20 customers and their average spend, and average quantity by each year. Also, find the percentage of change in their spends.

```
WITH Customer_Spend AS (
  SELECT Dim_Customer.IDCustomer, Dim_Customer.Customer_Name,
    YEAR(Fact_Transactions.Date) AS Years,
       AVG(Fact_Transactions.TotalPrice) AS Avg_Spend,
    AVG(Fact_Transactions.Quantity) AS Avg_Quantity
  FROM Fact_Transactions
  JOIN Dim_Customer ON Fact_Transactions.IDCustomer = Dim_Customer.IDCustomer
  GROUP BY Dim_Customer.IDCustomer, Dim_Customer.Customer_Name,
YEAR(Fact_Transactions.Date)
)
SELECT TOP 20 IDCustomer, Customer_Name, Years, Avg_Spend, Avg_Quantity,
  LAG(Avg_Spend, 1, 0) OVER (PARTITION BY IDCustomer ORDER BY Years) AS
Prev_Year_Spend,
  CASE WHEN LAG(Avg_Spend, 1, 0) OVER (PARTITION BY IDCustomer ORDER BY Years) = 0
THEN 0
          ELSE (Avg_Spend - LAG(Avg_Spend, 1, 0) OVER (PARTITION BY IDCustomer ORDER
BY Years)) /
  LAG(Avg_Spend, 1, 0) OVER (PARTITION BY IDCustomer ORDER BY Years) * 100
  END AS Spend_Change_Percentage
FROM Customer_Spend
ORDER BY Avg_Spend DESC;
```

Results Messages

| | IDCustomer | Customer_Name | Years | Avg_Spend | Avg_Quantity | Prev_Year_Spend | Spend_Change_Percentage |
|---|---|---|---|---|---|---|---|
| 1 | 10007 | Laurel Reitler | 2009 | 1528.00 | 4 | 557.00 | 174.32 |
| 2 | 10003 | Bobbye Rhym | 2007 | 1106.00 | 2 | 474.00 | 133.33 |
| 3 | 10014 | Dominque Dickerson | 2007 | 920.00 | 2 | 406.00 | 126.60 |
| 4 | 10015 | Lettie Isenhower | 2009 | 870.00 | 2 | 150.00 | 480.00 |
| 5 | 10025 | Elvera Benimadho | 2003 | 858.00 | 3 | 0.00 | 0.00 |
| 6 | 10020 | Tyra Shields | 2010 | 832.00 | 2 | 335.50 | 147.98 |
| 7 | 10009 | Viva Toelkes | 2005 | 830.00 | 2 | 151.00 | 449.66 |
| 8 | 10006 | Moon Parlato | 2009 | 823.50 | 2 | 256.50 | 221.05 |
| 9 | 10023 | Danica Bruschke | 2009 | 760.00 | 2 | 392.50 | 93.63 |
| 10 | 10018 | Lai Gato | 2005 | 689.50 | 1 | 169.00 | 307.98 |
| 11 | 10006 | Moon Parlato | 2003 | 667.00 | 1 | 0.00 | 0.00 |
| 12 | 10009 | Viva Toelkes | 2010 | 665.00 | 1 | 67.00 | 892.53 |
| 13 | 10030 | Arlene Klusman | 2004 | 665.00 | 1 | 0.00 | 0.00 |
| 14 | 10036 | Celeste Korando | 2009 | 613.00 | 1 | 401.6666 | 52.61 |
| 15 | 10001 | Kallie Blackwood | 2006 | 583.00 | 1 | 84.00 | 594.04 |
| 16 | 10047 | Shawna Palaspas | 2009 | 569.00 | 1 | 381.00 | 49.34 |
| 17 | 10007 | Laurel Reitler | 2008 | 557.00 | 1 | 288.00 | 93.40 |
| 18 | 10037 | Twana Felger | 2004 | 557.00 | 1 | 374.00 | 48.93 |
| 19 | 10012 | Timothy Mulqueen | 2006 | 556.00 | 1 | 0.00 | 0.00 |
| 20 | 10026 | Cama Vanheusen | 2008 | 556.00 | 1 | 285.00 | 95.08 |