

```

USE [22WQ_BUAN4210_Lloyd_ExcelsiorMobile]
/*
Project 1: Excelsior Mobile Report
Ty Hak
*/
--1.Report Qestion with Visualization
--A.Show us the first and last names of our customers along with their minute
usage, data usage, text usage and total bill. Order them by their full name.
SELECT FirstName, LastName, Minutes, DataInMB, Texts, Total AS TotalBill
FROM Subscriber AS S, LastMonthUsage AS USAGE, Bill AS B
WHERE S.MIN = USAGE.MIN
      AND USAGE.MIN = B.MIN
ORDER BY FirstName, Lastname;

--B. Show us the average of the minutes, data, texts and total bills by city.
SELECT City, AVG(Minutes) AS 'AVG Minutes', AVG(DataInMB) AS 'AVG Data', AVG(Texts)
AS 'AVG Text', AVG(Total) AS 'AVG Total Bill'
FROM LastMonthUsage AS LMS
      JOIN BILL AS B
            ON LMS.MIN = B.MIN
            JOIN Subscriber AS S
                  ON B.MIN = S.MIN
GROUP BY City;

--C. Show us the sum of the minutes, data, texts and total bills by city.
SELECT City, SUM(Minutes) AS 'Sum Minutes', SUM(DataInMB) AS 'Sum Data', SUM(Texts)
AS 'Sum Text', SUM(Total) AS 'Sum Total Bill'
FROM LastMonthUsage AS LMS
      JOIN BILL AS B
            ON LMS.MIN = B.MIN
            JOIN Subscriber AS S
                  ON B.MIN = S.MIN
GROUP BY City;

--D.Show us the average of the minutes, data, texts and total bills by mobile plan.
SELECT PlanName, AVG(Minutes) AS 'AVG Minutes', AVG(DataInMB) AS 'AVG Data',
AVG(Texts) AS 'AVG Text', AVG(Total) AS 'AVG Total Bill'
FROM LastMonthUsage AS LMS
      JOIN BILL AS B
            ON LMS.MIN = B.MIN
            JOIN Subscriber AS S
                  ON B.MIN = S.MIN
GROUP BY PlanName
ORDER BY 'AVG Total Bill' DESC;

--E.Show us the sum of the minutes, data, texts and total bills by mobile plan.
SELECT PlanName, SUM(Minutes) AS 'Sum Minutes', SUM(DataInMB) AS 'Sum Data',
SUM(Texts) AS 'Sum Text', SUM(Total) AS 'Sum Total Bill'
FROM LastMonthUsage AS LMS
      JOIN BILL AS B
            ON LMS.MIN = B.MIN
            JOIN Subscriber AS S
                  ON B.MIN = S.MIN
GROUP BY PlanName
ORDER BY 'Sum Total Bill' DESC;

---1. Report Question without Visualization
--A.First though, I want to know which two cities we have the most customers in.
SELECT TOP 2 City, COUNT(FirstName) AS 'Numbers Of Customers'

```

```
FROM Subscriber
GROUP BY City
ORDER BY COUNT(FirstName) DESC;
```

--B.Then show me which cities we should increase our marketing in.

```
SELECT City, SUM(Bill.Total) AS 'Total Bill'
FROM Bill, Subscriber
WHERE Bill.MIN = Subscriber.MIN
GROUP BY City
ORDER BY SUM(Bill.Total) ASC;
```

--C.Finally, show us which plan (only one) we should market the most based on the number of people who have them (independent of which city they live in).

```
SELECT TOP 1 PlanName, COUNT(FirstName) AS 'Numbers Of Customers'
FROM Subscriber
GROUP BY PlanName
ORDER BY 'Numbers Of Customers';
```

--2.Next we want some information on the actual devices our customers use.

--A.Show us the count of cell phone types with count among our customers. What type do most of our customers use?

```
SELECT Type, COUNT(MIN) AS 'Device User'
FROM Device AS D, DirNums AS DM, Subscriber AS S
WHERE D.IMEI = DM.IMEI
      AND DM.MDN = S.MDN
GROUP BY Type;
```

--B.Show us which customers (first and last name) use the phone type that is least used by our customers so we can send them a promotion for their friends and family. You can use the answer from 2A in this query.

```
SELECT FirstName, LastName
FROM Device AS D, DirNums AS DM, Subscriber AS S
WHERE D.IMEI = DM.IMEI
      AND DM.MDN = S.MDN
      AND TYPE = 'Apple'
GROUP BY FirstName, LastName, Type;
```

--C.Finally, show us our customers and the year of their phones who have phones released before 2018?

```
SELECT CONCAT(FirstName, ' ', LastName) AS 'Customer Name', YearReleased
FROM Device AS D
      JOIN DirNums AS DM
            ON D.IMEI = DM.IMEI
            JOIN Subscriber AS S
                  ON DM.MDN = S.MDN
WHERE YearReleased < 2018
ORDER BY YearReleased;
```

--3.Now we are trying to figure out if our customers are using our data plans efficiently. We have Unlimited plans that throttle the data at specific limits and then there are plans for caps on data usage. We want to know ultimately if there is a city that uses a lot of data (within the top 3 data using cities) but none of our customers in that city are using the Unlimited Plans. If there is a city like that, which one is it?

--First I am finding the top 3 city that use the most data.

```
SELECT TOP 3 City
FROM Subscriber AS S
      JOIN LastMonthUsage AS LMU
            ON S.[MIN] = LMU.[MIN]
```

```
GROUP BY City
ORDER BY MAX(DataInMB) DESC;
```

--This is another query which city that tell which cities use Unlimited Plan.

```
SELECT DISTINCT City
FROM Subscriber AS S JOIN MPlan AS Coverage
      ON S.Planname = Coverage.Planname
WHERE Coverage.Data = 'Unlimited';
```

--4.Our financial department has requested a few items of information.

--A.They wish to know the first and last name of the customer who has the most expensive bill last month.

```
SELECT TOP 1 FirstName, LastName
FROM Subscriber, Bill
WHERE Subscriber.[MIN] = Bill.[MIN]
ORDER BY Total DESC;
```

--B.They also want to know which mobile plan delivered the highest total bill last month.

```
SELECT TOP 1 MP.PlanName
FROM Bill AS B, Subscriber AS S, MPlan AS MP
WHERE B.[MIN] = S.[MIN]
      AND S.PlanName = MP.PlanName
ORDER BY Total DESC;
```

--5.Finally, we want to get some information on minutes usage.

--A.Please tell us which area code (only the area code) uses the most minutes, return the minutes also.

```
SELECT TOP 1 LEFT(MDN, 3) AS 'Area Code', MAX(Minutes) AS 'Max Minute Usage'
FROM Subscriber, LastMonthUsage
WHERE Subscriber.MIN = LastMonthUsage.MIN
GROUP BY MDN
ORDER BY MAX(Minutes) DESC;
```

--B.Lastly, Which cities do we see the biggest difference in terms of minutes usage? In other words, which cities have the biggest difference between the customers who use smallest amount of minutes to customers that use the largest. Use the difference of customers who use less than 200 and customers who use more than 700 minutes.

```
SELECT DISTINCT City
FROM Subscriber AS S, LastMonthUsage AS LMS
WHERE S.[MIN] = LMS.[MIN]
      AND City IN
      (SELECT City
       FROM Subscriber AS S, LastMonthUsage AS LMS
       WHERE S.[MIN] = LMS.[MIN]
       AND Minutes > 700 )
GROUP BY City, Minutes
HAVING Minutes < 200;
```

