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21WQ Winter Quarter 2021

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Project 1: Excelsior Mobile

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Due Sunday by 11:59pm **Points** 100 **Submitting** a file upload
Available Jan 5 at 12am - Feb 9 at 11:59pm about 1 month

Project 1: Excelsior Mobile Report

Summary

You are recently hired by Excelsior Mobile to be their new business analyst. Excelsior Mobile is a very small mobile company and is looking to expand so they want you to run some analysis on their customer database and figure out where they should put their marketing efforts and some other important analytical questions.

Deliverables

The way you will do this is by following the instructions below. Your deliverables will be a combination of answered questions and copied tables in Excel and a .sql file with the queries you wrote to find the answer, divided up by the question numbers.

** You will not get credit for questions answered in Excel without corresponding SQL queries **

** The SQL queries should deliver ONLY the data requested (unless noted)**

Remember: Deliverables are two files: Excel and SQL File.

Excel: You copy the table from here and then create visualization(s) and provide an answer to the question.

SQL File: There are 16 queries necessary at minimum. You can use multiple queries for #3.

Organizational Guidelines

Please organize your script as follows:

- Introductory comment section
- Comments indicating the start of each question
- Comment where you think its appropriate to explain your code.

```
/*
Project 1: Excelsior Mobile Report
Eric Lloyd
*/

-- 1 --
-- A

(query)

-- B

...

-- 2 --
```

Read the instructions carefully.

Database Information

There are some terms you need to understand in order to use this DB:

- MIN: Mobile Identification Number: unique number assigned by the wireless service provider. (account #)
- MDN: The phone number
- IMEI: International Mobile Equipment Identity: unique number for identifying a device on a mobile network. (like your vehicles VIN)

There are 6 tables in the sample of Excelsior Mobile's DB.

- Subscriber: Subscriber information including address, MDN and MIN.
- Device: information about the devices used at Excelsior Mobile and has IMEI
- DirNums: identifies the city and state of each MDN and connects it with an IMEI
- MPlan: table of the plans used at Excelsior Mobile. Has data, throttle and cost
- Bill: table of the current bills for each MIN, includes bill costs
- LastMonthUsage: table of the last month of usage for each MIN, includes minutes, data in MB and texts

Visualizations in Excel

When creating visualizations for these summary tables, please be sure they make sense. You may find that creating one visualization for each table doesn't make sense because some of it may be unreadable. It is your job to determine if the visualization makes sense and if not, split it into multiple visualizations. Include a few comments

about the visualization such as "City A has the highest average texts" or something of that nature. This is the creative part of the assignment where you are expected to spend a little time creating a professional and creative solution.

The Report Questions (with Visualizations)

Each question number will have their tables pasted to a different Excel sheet. Be sure all copied tables are OFFICIAL Excel tables and have headings.

1. Our first goal is to get an idea of some summary data. Please get us the following summary tables and show a visualization for each:
 - (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.
 - (B) Show us the average of the minutes, data, texts and total bills by city.
 - (C) Show us the sum of the minutes, data, texts and total bills by city.
 - (D) Show us the average of the minutes, data, texts and total bills by mobile plan.
 - (E) Show us the sum of the minutes, data, texts and total bills by mobile plan.

The Report Questions (without Visualizations)

For the following questions, you do not need to create visualizations but rather it will be about answering questions based on the query results. Please copy the table into the sheet for the question section (so 1 is one sheet. 2 is another sheet with A, B and C on it). To the right of the table, do analysis on the table and answer the question posed by the question. The answer may be obvious and you are encouraged to analyze it anyway, providing recommendations on how to use the data. Be creative! You still need to have these SQL queries in the SQL file. **This must be done in Excel.**

1. Marketing asked where we should be focusing our new marketing at. We have decided that we want to put our efforts increasing our customer base in cities we currently have customers in instead of marketing in cities we have no customers in. Let's figure out which three cities we should point our markets to. (Hint: we should be marketing to cities we have the least number of customers in. Be careful and keep this in mind when answering the three queries below.)
 - (A) First though, I want to know which two cities we have the most customers in.
 - (B) Then show me which cities we should increase our marketing in.
 - (C) Finally, show us which plans we should market the most based on the number of people who have them (independent of which city they live in).

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

2. Next we want some information on the actual devices our customers use.
- (A) Show us the count of cell phone types among our customers. What type do most of our customers use?
- (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.
- (C) Finally, show us our customers and the year of their phones who have phones released before 2018?
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?
- (How you do this is up to you. I was able to do it using two queries and then compared the two visually. That is fine. Someone may be brilliant enough to do it in one query and that is awesome. Please indicate each query you use with a letter, such as the first will be A and so on. The answer should be included both in the Excel file and here in the SQL file. If you just give me the answer without queries of how you got there, you will get zero points.)
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 every month.
- (B) They also want to know which mobile plan brings us in the most revenue each month.
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.
- (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.

Excelsior Project						
Criteria	Ratings					Pts
Accuracy and Organization of Query Output	30 to >27.0 pts Superior All query results return what is asked for. All query results return with descriptive, well-formed aliases used in all logical situations. Unusual excellence shown.	27 to >24.0 pts Good All query results return what is asked for. All query results return with descriptive or well-formed aliases used in all logical situations.	24 to >21.0 pts Adequate Most query results return what is asked for. All query results return with aliases used in all logical situations.	21 to >18.0 pts Poor Some of query results return what is asked for. Some query results return with aliases used in all logical situations.	18 to >0 pts Failing Little to none of query results return what is asked for. Little to no query results return with aliases used in all logical situations.	30 pts
Excel Output	15 to >13.0 pts Superior All Excel output exists as expected from instructions. (Tables, Visualization (if requested), Answers). Unusual	13 to >10.0 pts Good At least 90% of Excel output exists as expected from instructions. (Tables, Visualization (if requested), Answers)	10 to >6.0 pts Adequate At least 80% Excel output exists as expected from instructions. (Tables, Visualization (if requested),	6 to >4.0 pts Poor At least 70% Excel output exists as expected from instructions. (Tables, Visualization (if requested),	4 to >0 pts Failing Less than 70% Excel output exists as expected from instructions. (Tables, Visualization (if requested),	15 pts

	excellence shown.		Answers)	Answers)	Answers)	
Accuracy and Organization of Excel Output	30 to >27.0 pts Superior All Excel output is accurate and represented as tables and formatted to look professional and creative. Excel visualizations convey information and are professional and creative. All answers exist with expansions on the meaning behind the result and suggestions on business actions. All answers appear. Questions are divided into different sheets as instructed.	27 to >24.0 pts Good All Excel output is accurate and represented as tables and formatted to look professional. Excel visualizations convey information and are professional. All answers appear with expansions on the meaning behind the result. Questions are divided into different sheets as instructed.	24 to >21.0 pts Adequate All Excel output is accurate and represented as tables. Excel visualizations convey information. All answers exist. Questions are divided into different sheets as instructed.	21 to >18.0 pts Poor Most Excel output is accurate and represented as tables. Excel visualizations convey some information. All answers exist. Some questions are divided into different sheets as instructed.	18 to >0 pts Failing Little to no Excel output is accurate and represented as tables. Excel visualizations convey little to no information. All answers exist. All questions are put on one sheet.	30 pts
Organization of Script	15 to >14.0 pts Superior Script follows all organization guidelines. All of the queries are professional written (capitalization rules, spacing, newlines)	14 to >12.0 pts Good Script follows all organization guidelines. Most of the queries are professional written (capitalization rules, spacing, newlines)	12 to >11.0 pts Adequate Script follows all organization guidelines.	11 to >9.0 pts Poor Some of the script follows organization guidelines.	9 to >0 pts Failing Little to none of the script follows organization guidelines.	15 pts
Analysis Quality This grading category measures the quality of analysis of your visualizations and the answering of the questions.	10 pts Professional Analysis Analysis is thoughtful and thorough. Evidence of time spent researching best analytical methods present. Creativity used in explaining analysis and possible next steps outlined for simulated situation.	5 pts Somewhat Professional Analysis Analysis is done pretty well. Evidence of critical thinking and some creativity may be present.	3 pts Poor Analysis Analysis is done poorly. It is either too short or not using critical thinking. Producing ONLY a restating of what is evident in the visualization will usually net this score.	0 pts No Analysis No Analysis is present		10 pts
Total Points: 100						

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