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**DAD-220**

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**Module 5 Activity**

1. **Analyze the data** you’ve been provided with to **identify themes**:
   1. Which parts are being replaced most?
      1. “Fule tank” [sic]  
         A picture containing text, plaque, screenshot

         Description automatically generated
   2. Is there a region of the country that experiences more part failures and replacements than others?
      1. Identify region (see **Appendix A** on custom Regions Table):  
         Text

         Description automatically generated  
           
         Midwest has the greatest frequency
      2. How might the fleet maintenance team use the information to update its maintenance schedule?
         1. In the Midwest region the crews might add staff or improve the inspection of fuel tanks. Moreover, staff from the Southwest region might be transferred.  
              
            Text

            Description automatically generated
   3. Which parts are being replaced most due to corrosion or rust?Text

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      Wheel arches due to rust and brake lines due to corrosion
   4. Which parts are being replaced most because of mechanical failure or accident, like a flat tire or rock through the windshield?

Text

Description automatically generated  
  
Tires are more often repairable than not due to a flat and windshields are often cracked

1. **Write a brief summary of your analysis** using nontechnical language.
   1. For the analysis I formulated questions or queries that I thought represented the form the answer should appear in. For example, I created a new table that contained the State’s region and then merged that with the Maintenance records just so the repair versus Region could be viewable.  
        
      The issue are the fuzzy searches. That is, I have no idea how someone might have written up the reason for an “Accident”. Without the data being mastered there is a big chance to miss some data or understanding due to a difference in spelling or entry, e.g., *accident* vs *deer strike* vs *fender-bender*.
2. **Outline the approach** that you took to conduct the analysis.
   1. What queries did you use to identify trends or themes in the data?  
        
      To identify themes I crafted the queries using GROUP by statements. This allows the data to be collated into meaningful *partitions* that better aide understanding, e.g., I created a new table that contained the State’s region and then merged that with the Maintenance records just so the repair versus Region could be viewable.
   2. What are the benefits of using these queries to retrieve the information in a way that allows you to provide valuable information to your stakeholders?  
        
      If I had queried the data by State without Region it is not visually impactful and meaning might be missed.

Lastly, **identify how the functions in the analysis tool** allowed you to organize the data and retrieve records quickly so that they demonstrated what you wanted.  
  
The only function needed in this was *Count()* but the query used for *rust* or *corrosion* events could have also used the arithmetic operation of ‘+’ to add them together to present them as a collection instead of treating them separately.   
  
But, by using *Count()* and then ordering the resultant tables by that count quickly shows the occurrence/frequency of that event which is more impactful than an unsorted list.

**Appendix A:  
Custom Regions Table**  
  
*create table Regions (*

*State VARCHAR(2),*

*Region VARCHAR(20)*

*);*

*Insert into Regions*

*Values('AR', 'Southeast'), ('LA', 'Southeast'), ('MS', 'Southeast'), ('AL','Southeast'), ('GA','Southeast'), ('FL', 'Southeast'),*

*('KY', 'Southeast'), ('TN', 'Southeast'), ('SC', 'Southeast'), ('NC', 'Southeast'), ('VA', 'Southeast'), ('WV', 'Southeast'),*

*('DE', 'Southeast'), ('MD','Southeast');*

*Insert into Regions*

*Values('PA', 'Northeast'),('NJ', 'Northeast'),('NY', 'Northeast'),('CT', 'Northeast'),*

*('RI', 'Northeast'),('MA', 'Northeast'),('VT', 'Northeast'),('NH','Northeast'),('ME','Northeast');*

*Insert into Regions*

*Values ('ND','Midwest'),('SD','Midwest'),('KS','Midwest'),('NE','Midwest'),('MN','Midwest'),('WI','Midwest'),('IA','Midwest'),('MO','Midwest'),*

*('MI','Midwest'),('IN','Midwest'),('IL','Midwest'),('OH','Midwest');*

*Insert into Regions*

*Values ('WA','West'),('ID','West'),('MT','West'),('OR','West'),('WY','West'),*

*('CO','West'),('UT','West'),('NV','West'),('CA','West');*