



DATCB/565 Competency 3 Assessment Rubric

Course title: Data Analysis and Business Analytics
Assessment title: Competency 3 Assessment
Points: 100

Assignment Directions

Scenario

A city's administration isn't driven by the goal of maximizing revenues or profits but instead looks at improving the quality of life of its residents. Many American cities are confronted with high traffic and congestion. Finding parking spaces, whether in the street or a parking lot, can be time-consuming and contribute to congestion. Some cities have rolled out data-driven parking space management in an effort to reduce congestion and make traffic more fluid.

You're a data analyst working for a mid-size city that has anticipated significant increments in population and car traffic. The city is evaluating whether or not it makes sense to invest in infrastructure to count and report the number of parking spaces available at the different parking lots downtown. This data would be collected and processed in real-time, feeding an app motorists can access to find parking space availability in different parking lots throughout the city.

Part 1: Data Manipulation

Download the [Parking Lot Use data set](#). The data set has the following columns:

- *LotCode*: a unique code that identifies the parking lot
- *LotCapacity*: a number with the respective parking lot capacity
- *LotOccupancy*: a number with the current number of cars in the parking lot
- *TimeStamp*: a day/time combination indicating the moment when occupancy was measured
- *Day*: the day of the week corresponding to the *TimeStamp*

Insert a new column, *OccupancyRate*, recording occupancy rate as a percentage with 1 decimal. For instance, if the current *LotOccupancy* is 61 and *LotCapacity* is 577, then the *OccupancyRate* would be reported as 10.6 (or 10.6%).

Using the *OccupancyRate* and *Day* columns, **construct** box plots for each day of the week. You can use Insert > Insert Statistic Chart >Box and Whisker for this purpose. Is the median occupancy rate approximately the same throughout the week? If not, which days have lower median occupancy rates? Which days have higher median occupancy rates? Is this what you expected?

Using the *OccupancyRate* and *LotCode* columns, **construct** box plots for each parking lot. You can use Insert > Insert Statistic Chart >Box and Whisker for this purpose. Do all parking lots experience approximately equal occupancy rates? Are some parking lots more frequented than others? Is this what you expected?

Select any 2 parking lots. For each of them, **prepare** a scatter plot showing occupancy rate against *TimeStamp* for the week 11/20/2016 – 11/26/2016. Are occupancy rates time dependent? If so, which times seem to experience the highest occupancy rates? Is this what you expected?

Part 2: Presentation

Prepare a 12- to 16-slide presentation with detailed speaker notes and audio, graphs, and tables.

Your audience is the city council, which is responsible for deciding whether the city invests resources to set in motion the smart parking space app.

Complete the following in your presentation:

- Outline the rationale and goals of the project
- Utilize box plots showing the occupancy rates for each day of the week. Include your interpretation of results.
- Utilize box plots showing the occupancy rates for each parking lot. Include your interpretation of results
- Provide scatter plots showing occupancy rate against the time of day of your selected 2 parking lots. Include your interpretation of results
- Make a recommendation about continuing with the implementation of this project.

Include speaker notes that convey the details you would give if you were presenting. You will record your speaker notes.

Ensure that the slides contain only essential information and as little text as possible.

Competency Assessment Rubric

Assignment/Performance Criteria	<i>Mastery</i> 100%	<i>Meets Expectations</i> 85%	<i>Not Met</i> 0%
1. Rationale and goals (weight 20%)	Thoroughly outlined the rationale and goals of the project	Partially outlined the rationale and goals of the project	Narrowly outlined the rationale and goals of the project or did not submit a rationale and goals of the project
2. Box plots: occupancy rate/day of week (weight 20%)	Accurately utilized and interpreted box plots showing the occupancy rates for each day of the week	For the most part, accurately used and interpreted box plots showing the occupancy rates for each day of the week	Utilized box plots showing the occupancy rates for each day of the week but with errors that can impact analysis or did not submit box plots showing the occupancy rates for each day of the week; narrowly or did not interpret box plots
3. Box plots: parking lot occupancy rates (weight 20%)	Accurately utilized and interpreted box plots showing the occupancy rates for each lot	For the most part, accurately utilized and interpreted box plots showing the occupancy rates for each lot	Utilized box plots showing the occupancy rates for each lot but with errors that can impact analysis or did not submit box plots showing the occupancy rates for each lot; narrowly or did not interpret box plots
4. Scatter plots with interpretation (weight 20%)	Thoroughly interpreted scatter plots showing occupancy rate against time of day of selected four parking lots	Partially interpreted scatter plots showing occupancy rate against time of day of selected four parking lots	Narrowly interpreted scatter plots showing occupancy rate against time of day of selected four parking lots did not submit an interpretation of scatter plots showing occupancy rate against time of day of selected four parking lots
5. Recommendation (weight 20%)	Made a thorough recommendation about continuing with the implementation of this project	Made a partial recommendation about continuing with the implementation of this project	Made a narrow recommendation about continuing with the implementation of this project or did not submit a recommendation about continuing with the implementation of this project