# **Sentiment Lexicon Analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Guiding Principles, Learning Objectives and Learning Outcomes | Discussion(s) | Assignment(s) and Assessment | Learning Resources + Media | Prerequisites and Expectations for Students |
| Course Objective: This lesson will introduce students to the application of sentiment analysis to customer perceptions or reviews.  Learning Outcomes: After this lesson, students will be able to:   * Describe the field of data science. * Understand the use of Lexicon-based Sentiment Analysis to analyzing a structured dataset * Apply Lexicon-based Sentiment Analysis to a user review dataset * Identify relationships between Lexicon-based Sentiment Analysis and the broader fields of AI   / ML   * Write and execute code in R to create visualizations with sentiment data * Understand the process of cleaning text data * Write and execute code in R to clean text data * Modify and run sentiment analysis code in R and understand outputs | What is data science?  What techniques do data scientists use to analyze data?  How can Lexicon**-based** Sentiment Analysis be used to analyze customer perceptions?  How do customers feel about airlines as they respond to COVID-19?  Which airlines are customers more positively to, and which are they responding more  negatively to?  Have customer feelings about airlines been relatively consistent since covid began, or have  their feelings shifted since March? If so, how?  What might we do with the answers to these questions? How could we use these answers?  What is sentiment analysis?  When might you use sentiment analysis?  Where does sentiment analysis fit into the data science pipeline? (modeling) | **Course Overview:** Many customers have differing perceptions of flying during the COVID 19 pandemic. The  question is how to collect data regarding customer response to COVID 19 as well as what to do  with data once it is collected. Sentiment/Lexicon Analysis is a method that applies a number  value to words/phrases (lexicons) based on the positive or negative nature of the response. You  will be guiding your students to understand and evaluate the use of Sentiment/Lexicon Analysis  to analyze customer response data.  **To prepare for this assignment:** Review the articles a. and b.  **In Class Assignment:**  Students will walk through data from 6 different airlines since COVID began. Students will understand how data preparation and sentiment analysis were used to determine how customers feel about airlines during COVID-19 and answer questions (Q&A.docx) interactively throughout a presentation (sentiment\_analysis.pptx).  **Code Assignment:**  Students will be guided (with *Getting Started in RStudio Cloud.docx*) to choose an airline to assess and use a guided R markdown file to modify sentiment analysis code and obtain results for their airline of choice. Students will also generate their own code and output and answer questions about their output to turn in or review with the class (Create\_Questions.docx).  **Survey:** Survey will primarily assess students’ understanding of the material presented in the context of mass communications. Additionally, we will determine how knowledge has increased around the technique of Sentiment Analysis (using Lexicons) and how this knowledge can be applied in future classes or careers. | **Data : no downloads necessary**  Articles:   1. What is Sentiment Analysis and how is it used?   <https://towardsdatascience.com/what-is-sentiment-analysis-and-how-is-it-used-217074887277>   1. Text Mining with R: Gathering and Cleaning Data   <https://towardsdatascience.com/text-mining-with-r-gathering-and-cleaning-data-8f8b0d65e67c>  Consider suggestions using *gsub()* and how *stopwords* are used   1. Line chart with R and ggplot2   <https://www.r-graph-gallery.com/line-chart-ggplot2.html>   1. Data visualization sections 3.1-3.2.2   <https://r4ds.had.co.nz/data-visualisation.html> | Knowledge of:   * twitter / what a tweet is   Experience with:   * R * \*experience with Rmd files and RStudio Cloud would be helpful but is not necessary   Platforms required:   * Web Browser |