Final Project Proposal

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DS 710

1. Is there a difference in public sentiment between Optum and UnitedHealthcare (UHC)?
   * Both companies are fully owned subsidiaries of UnitedHealth Group and traded on the New York Stock Exchange under the ticker ‘UNH’.
   * My hypothesis is the two businesses will have different public sentiment. UHC is focused on insurance, which I suspect the public might more easily associated with the high cost of insurance premiums, thus lead to lower sentiment. Optum focuses on healthcare services and technology, which may not be as easily associated with high insurance premiums.
2. The audience for this research project is UnitedHealth Group public relations and strategy teams. These departments are interested in public perception of Optum and UHC businesses.
   * Differences between these two businesses could help explain differences in growth or other business factors.
   * Public relations teams may want to allocate resources to the public image of the business with the lower sentiment.
   * Follow-on research can investigate the cause of the difference between the two business.
3. Tweet text, username, date, and location will be required for this analysis.
   * If location data is abundant, it will be used as a secondary geo-spatial visual analysis.
4. Twitter’s REST API will be used to collect tweet data. The hashtags #Optum and #uhc and tweets @optum and @myuhc will be collected.
   * The collection plan is to include a 1,000 tweet sample from each of the two hashtags and the two @targets.
5. The Textblob() Python package will be used to conduct sentiment analysis on the text of the tweets. Emoji’s will be used as proxy variables in addition to sentiment analysis (☺ or ☹). A comparison of the total number of positive and negative emoji will be compared for the two businesses.
   * A two sample t-test will be used to compare the mean sentiment of Tweets between Optum and UHC.
   * H0: The mean public sentiment of Optum is equal to UHC
   * H1: The mean public sentiment of Optum is not equal to UHC
   * A substitution of mean positive and negative emoji’s for mean public sentiment in the preceding hypothesis can also be considered.