**Public Sentiment Analysis of Intel vs. AMD**

**I. Introduction**

For his project, I harnessed text analytics to examine differences and similarities in public sentiment towards two competing companies, Intel and Advance Micro Devices (AMD). These two companies both manufacture microprocessors for consumer and industrial grade computers. Over the years, Intel has been known for higher price, but also higher speed consumer grade central processing units (CPUs), whereas AMD has been known for more cost effective, but slower consumer grade CPUs. This analysis seeks to examine if these stereotypes are still accurate with public sentiment today. Based on my findings, I will offer marketing insights for both companies.

**II. Methodology**

The code for this project was done using the R programming language. Using a package called redditextractoR, I gathered roughly 200,000 reddit comments that included my search terms, “AMD” and “Intel”. I then used the tidyverse package to tokenize the data from reddit comments and used to two different text analytics frameworks, NRC and Bing, to examine this data and gather marketing insight for each company. I also performed an analysis of n-grams for both companies using network graphs. Lastly, I used a correlogram to check for similarities and differences between the tokenized data for AMD and Intel.

**III. Findings**

First, I will discuss my findings from NRC framework analysis. In order to get a general feel of public opinion for each company, I plotted distributions of sentiment across all ten NRC categories for each company. At a glance, these distributions look very similar. However, a close examination of the differences offers valuable insight. AMD has a slightly lower ratio than Intel has for positive to negative words. This means that in general, AMD has a slightly weaker public sentiment. However, these ratios are still very close, which is representative of the very tight competition between these two companies, with neither company seemingly pulling away from the other in the market. AMD also has slightly higher anticipation sentiment, which is an indication that they are currently beating Intel in the marketing of upcoming products, for example the fabled AMD Threadripper 3990x.

Secondly, I will discuss my findings from Bing framework analysis. I used this framework to find common positive and negative sentiments for each company. One interesting finding from this analysis, is that redditors who commented about Intel were more likely to recommend products from this company than those who spoke about AMD. Another interesting finding is that those who spoke about AMD were more likely to report issues with their products.

Thirdly, I performed an analysis of bigrams. I plotted these bigrams in a network graph to gain potential marketing insights for each company. Even when bigrams are not directly related to these companies, it would be wise of the companies to target the users of those bigrams as those users are likely to purchase their products. For example, Intel does not manufacture graphics cards, however, many graphics card models appear frequently on the network graph for Intel. Based on this, I believe it would be wise of Intel to advertise to potential customers in the graphics card market, as Intel’s CPUs are a complimentary product. In economics, complimentary products are products that are frequently bought together with another product, such as hot dogs and hot dog buns. Other complimentary products appear on both networks graphs such as CPU coolers, storage, tower cases, hard drives, and video games. Both companies already do and should continue to target the markets for these products with advertisements. Another notable bigram that appears on both network graphs is “future proof”. PC builders are interested in parts that they won’t have to upgrade too often. These parts would be called future proof. In future marketing campaigns, both companies should emphasize that their products are future proof as this is clearly a feature that is important to their consumers. I also did a frequency distribution of common bigrams for each company.

Fourthly, I created a correlogram to compare tokens between AMD and Intel. Based on a quick glance at this correlogram, I could tell that the tokens for both AMD and Intel had a lot of overlap with each other. This should be no surprise as both companies are competitors in the same industry. To further investigate this correlation, I ran a correlation test between both token dataframes. This returned a 99% correlation between the two.

**IV. Conclusion**

In conclusion, public sentiments for Intel and AMD are very closely correlated with each other. Intel should try harder to gain community excitement around their announcements of new products. AMD should try harder to address negative public sentiment regarding issues with their products. Both companies should target the markets for complimentary products with future advertisements and should emphasize the future proof qualities of the CPUs.