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PLS 397

<div align="center">Starbucks vs. Dunkin' Donuts Memo</div>

The two largest coffee chains in the USA are Starbucks and Dunkin' Donuts, this would indicate that they're also each other's biggest competition. My project goal was to analyze each chain's business model (on the surface level), in a few different ways. I analyzed the strategic placement of each chain's locations on the state and region level, I analyzed the public stock market price for each coffee chain from August 2011 to April 2020, as well as google search trends for each chain in that same time range. I was interested in how they share the market, and how that market has changed (and effected each company) over time.

For the mapping analysis, I used longitude and latitude location data for every Starbucks (updated 2017) and every Dunkin' (updated 2020). I got both of these datasets from Kaggle, but the Dunkin' dataset needed to be properly converted from a json file to a csv file in a table format to be properly used. Once the datasets were cleaned, and I made some additions to them, I was able to make the map. Using Plotly, I was able to make the map interactive where the user can zoom in and out of the map. I also plotted the map over a street-map of the USA to allow the user to see the coffee chain locations in relation to cities, highways, major roads, etc. This was very interesting and fairly easy to make with Plotly. This map is found on the 'USA – Map' tab on the shiny app. In the sidebar alongside this plotly visualization is a table with the number of locations in each state as well as a USA total for each brand. Using the drop down the user can select which state they're interested in and see the totals for that state (and
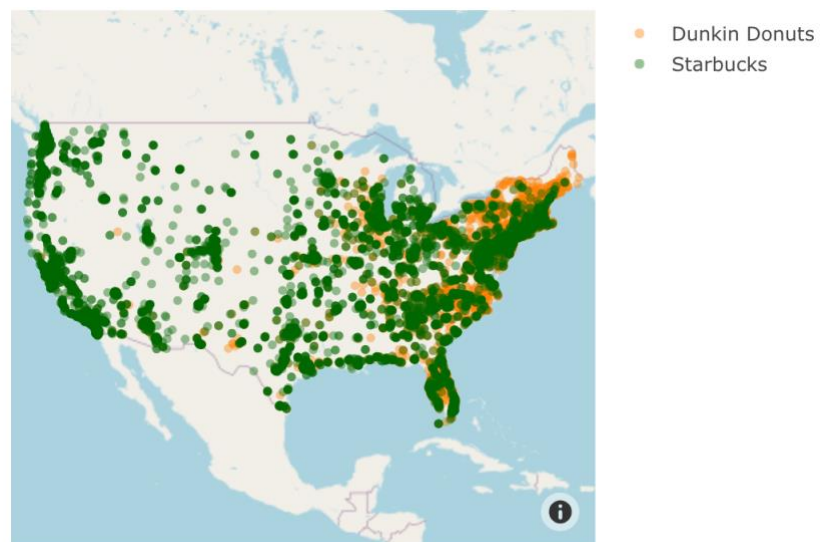
compare them to the USA totals). This map also includes a hovertext feature, which gives the exact longitude and latitude for the location he user if hovering over with their mouse as well as the city and state the location is in.

By using this plot, you can clearly see the differing location strategy of the two brands. Dunkin' has opted to stay close to their original locations on the East Coast of the country, while Starbucks has attempted to make itself available in as many states and regions as possible. This differing in location strategy can also be seen when you look at the city-level. Dunkin' tends to spread their stores out more and place stores in locations where there isn't already a Starbucks or Dunkin' nearby, while Starbucks seems to have a very large number of their locations in and around large city and metro areas. This is interesting, as the two brands generally keep their locations away from each other (with the exception of the north east region of the country); Dunkin' also seems to be avoiding spreading their brand to the west coast extensively, considering that Starbucks has over 2,500 more locations in California than Dunkin'. This is most likely strategic by Dunkin' considering how expensive it would be to seriously challenge Starbucks on the west coast where they originally grew. However, Starbucks has challenged Dunkin' in its original region which very well could be due to overall success. Starbucks seems to have been growing at a greater pace than Dunkin', but maybe Dunkin' doesn't need to expand so vastly in terms of physical locations.

Choose a State

CA ▼

State	Dunkin Donuts	Starbucks
CA	116	2,782
Total	9,698	13,311

With this in mind, I wanted to look at the stock prices of each company since they've both been publicly traded. While Dunkin' was trading at about $8 higher per share in 2011, by 2012 the were almost at the same price point. Over the next couple years, they grew at nearly the same pace, until 2015 when Starbucks eclipsed Dunkin' before them growing around the same pace again and Dunkin' passing Starbucks in 2017. Now, in 2020 Starbucks has passed Dunkin' again but they're still trading at a very close level, in fact they have both seen a very large increase in share price since 2011. That being said, while stock price isn't the only (and sometimes isn't at all) indicator of company success, this can be attributed to a change in consumer demand.

SBUX vs DNKN Stock Price Analysis
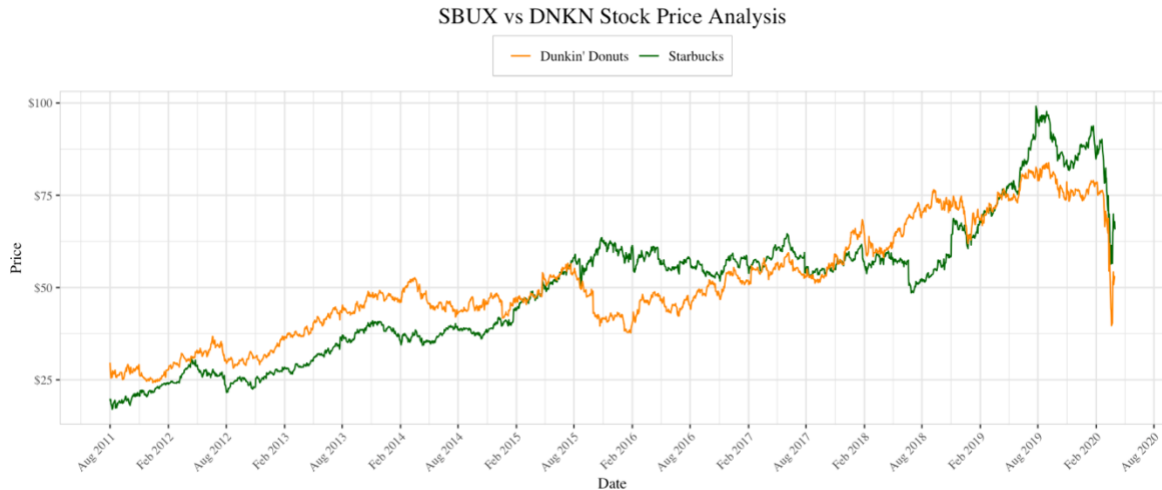
Over time, especially during the 2010s Americans have shown a greater demand in services that are fast and good enough quality. While neither Dunkin' or Starbucks ss going to have coffee as good as the local coffee shop that roasts their own fresh beans, they can provide a fast, and satisfying service. This is important as a growing number of Americans have shifted their coffee tastes from home brewed coffee where you can add cream, sugar, milk, etc. to drinking lattes and other coffee drinks because of these large chains. Starbucks and Dunkin provide quick coffee drinks for Americans who are always on the go. While they both provide this service however, after performing some google search data analysis, I think there is a case to be made as to why these chains have both been able to grow at such a pace.

By using google trends, I was able to find data regarding the number of hits over time for specific search terms. Those included terms like: "starbucks latte", "dunkin breakfast", and many more. In the shiny app, the user can choose drink and food items to look at google search trends for. I choose some more generic search terms as well such as "… coffee" and "… drinks" to provide a sense of search popularity for non-specific items. I choose to do this rather than the typical company sales numbers, because I wanted to use google trends and present a new way of measuring popularity based on google search data. When analyzing the number of searches a coffee brand item gets you can gauge the popularity level of that product. While this doesn't necessarily correlate to sales, it's something that could be used alongside sales analysis. If a

company comes out with a new item or starts running ads targeting a certain item they can look and see how google searches for that have changed and compare that to their google sales data. I think this can be useful specifically for gauging popularity after running new adds. I say this because I've experienced an ad influencing my purchase like many others have. A good example of this with Starbucks is when they came out with a new commercial for their nitro cold brew coffee, prior to this commercial I hadn't really considered trying that drink but after it I decided to buy one, and I ended up liking it a lot. The reason I bought one was I looked up reviews on google to see if it was good and what exactly the drink tasted like. While google trends can't necessarily project sales, it can allow the user to view something that can help project the popularity or interest level of an item.

The various google trends plots can be found in the shiny app, but one of the main things I found interesting when comparing Starbucks and Dunkin' is that they don't seem to be competing for the same (exact same) customers. While they're trends are similar for popular items like iced coffee and breakfast, they both seemed to be focused more on certain items, assuming the google trends shows somewhat their business plans. Starbucks had more hits with items like lattes, americanos, and espresso; while Dunkin' had more hits for items like bagels, dark/medium roast, and muffins. Starbucks seems to cater towards customers wanting specialty drinks, while Dunkin' caters more towards customers wanting standard coffees with some sort of breakfast food with it. This is interesting, and I think it makes sense considering they've both been able to grow so much without necessarily hindering one another. The very reason for that could be because they're serving some different areas and customers with different tastes.