STAT 133 Initial Plan

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- Group Name:
  - Big Apple
- Topic:
  - Analysis of Apple's Stock Reactions to Product Releases, Important Events, and Competition
- Question(s) we will address:
  - How does Apple's stock price perform when compared against product releases and important events in its history?
- Where we will get the data:
  - Yahoo Finance: http://finance.yahoo.com/q/hp?s=AAPL
- What is involved in obtaining the data:
  - Download full csv file from
    - http://finance.yahoo.com/q/hp?s=AAPL
  - Data Scrape from
    - https://en.wikipedia.org/wiki/Timeline_of_Apple_Inc._products
  - Other Apple data:
    - General: http://www.statista.com/topics/847/apple/
    - History: http://www.nydailynews.com/news/national/apple-turns-40-timeline-tech-giant-evolution-article-1.2581048
  - Microsoft full csv file
    - http://finance.yahoo.com/q/hp?s=MSFT+Historical+Prices
  - Apple's performance in different regions of the world throughout the years
    - http://www.statista.com/statistics/382175/quarterly-revenue-of-apple-by-geograhical-region/
  - Gross Domestic Product
    - https://research.stlouisfed.org/fred2/series/GDP/downloaddata
  - Inflation rate
    - http://zh.tradingeconomics.com/united-states/inflation-cpi
- Variables we will use
  - Stock Data:
    - Date, Closing Stock Price, Volume, Adjusted Stock Price
  - Product Data:
    - Date, Product Released
- Is there any initial data processing must be done to put the data in a form that is suitable for visualization or analysis?
  - Yes, we need to do data scraping on Wikipedia data tables, parse the HTML, and clean them to be usable.
  - We will need to load the csv into R and clean the data to get rid of unnecessary labels etc.
  - Dates need to be properly formatted with the lubridate package so they can be compared and joined as needed
  - We will do the proper data wrangling commands to make data glyph ready when we present them as tables.

- Plots we will make of the data:
    - Stock prices vs. time with glyphs indicating product releases (depending on whether there's an impact, we can also label big events such as Great Depression and recessions, etc.)
    - Also parallel Microsoft's stock prices and see if they are interdependent.
- Analyses we will perform:
    - How do stock changes correspond to each release of an Apple product?
    - How do stock changes correspond to big events in Apple's history (Steve Jobs' firing, etc.)?
        - Compare to volume, close price
        - Compare to adjusted close (to account for historical events)
    - Effect of release of Microsoft Product
    - Effect of Apple services on stock performance?
        - http://www.statista.com/statistics/250918/apples-revenue-from-itunes-software-and-services/
        - https://en.wikipedia.org/wiki/Category:Apple_Inc._services
- Responsibilities of each person in the group:
    - Possible: Data scraping, Data Wrangling/Plots, Parts of Written Assignment (10-15 pgs), Powerpoint Slides, Presentation Outline, etc.
    - Felix: Data scraping, data wrangling/plots
    - Bolun: data scraping, data wrangling/plots, part of the written report
    - Peter: Data wrangling, Powerpoint slides, Introduction/conclusion of the Report
    - William**:**Data wrangling, Powerpoint slides, Introduction/conclusion of the Report
    - Steven:Data wrangling, Powerpoint slides,part of the written report
- What we think will be the most difficult part of doing this project:
    - Interpreting the data and forming a concrete analysis while considering all possible external effects on stock price
    - We aren't sure whether there will actually be a correlation between releases of products of different companies and their stock prices.
    - We will have to do extensive research on important technological advancements throughout the years that might affect Apple's products.