Advertising Content and Consumer Engagement on Social Media

Return Rates Researchers
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Hypothesis

Define advertisement engagement based on demographics through social media platforms and identify the highest and lowest return rates and economic effect of targeted marketing.

Questions & Why

Question 1: What are the key targets for specific social media platforms? What demographics are engaging the most? I.e Age, gender, location, etc.

Question 2: When are click rates peaking? What time of year/day are they most prevalent? Is there a relation to current events/pop culture?

Question 3: What is average exposure rate per click vs. purchase?

Question 4: What social media platforms are most successful in gaining return on investment via click rates?

What Data Can Answer These Questions?

Question 1: key targets & demographics I.e Age, gender, location, etc.

- **Social-influence-on-shopping.csv** → This data is a survey with 300,000 millennial and Gen Z members describing what percentage of certain social media platforms have influenced their online shopping most based on gender, race, location, schooling, jobs, parents income, etc.
- **KAG_conversion_data** → looks into three Facebook campaign ads and how well the companies performed. Based the demographic of age, interest and gender.
- **Facebook_Ads_2.csv**→ Analyzes the amount of participant engagement of Facebook Ad campaigns based on time spent on site, salary and, clicks.

Question 2: Click rates vs. time of year/day. Relation to current events/pop culture?

- **Twitter API** → Twitter's open, global, real-time and historical communication network provides tools, resources, and data through API keys to integrate and expand Twitter's impact through research. Tweets are pulled in real-time to see what type of ads are being displayed by day/time, #of likes and retweets they get, etc.

Question 3: What is average exposure rate per click vs. purchase?

- **Facebook_Ads_2.csv** → Analyzes the amount of participant engagement of Facebook Ad campaigns based on time spent on site, salary and, clicks.

Question 4: What social media platforms are most successful in gaining return on investment via click rates?

- **Social_Network_Ads(1).csv** → Analyzes the amount of participant engagement of Social Network Ad Campaigns based on gender, age, salary and purchases.

Summary of Analysis

Home

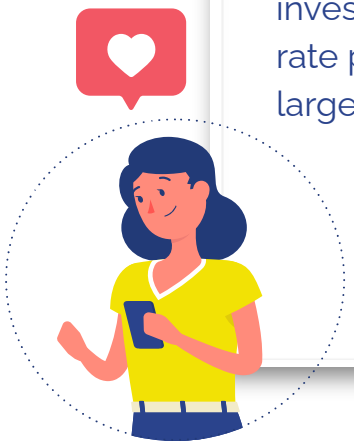
What's happening?

Return Rate Researchers were successful in their efforts to develop conclusions to support their hypothesis and answer the majority of presented research questions. The key targets for Facebook and Twitter are mainly Gen-Z and Millennials and gender does not seem to play a large role in return on investment. Retweets (click rate) peak around 9:37 PM. The average exposure rate per click vs. purchase is 32.92 minutes and Facebook seems to have the largest return on investment based on the data studied.

Everyone can reply

GIF

Tweet



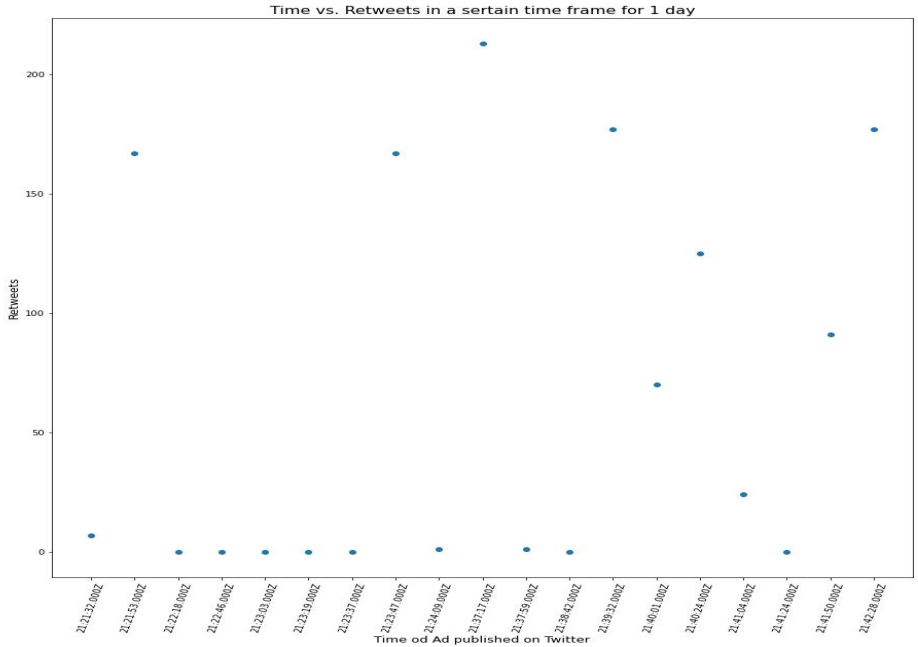
Data Cleanup & Exploration

- **Twitter API** - multiple dictionaries within the json
  - This needed extra time to figure out how to pull the dictionaries into dataframes and merge the data together
  - API could only pull the 100 most recent tweets based on #Ad. Restrictions of 15 minute intervals. To get a lot data, this would need to run every 15 minutes per day.

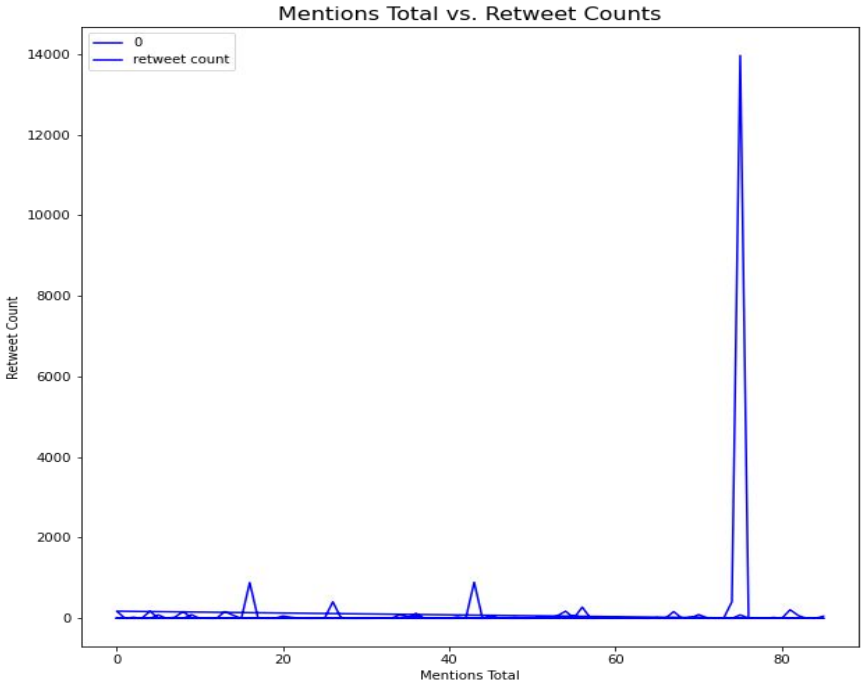
- Some of the datasets (from places like Kaggle.com), were easy to understand and put together. Other datasets had information that was hard to identify when analyzing, including but not limited to:

  - Unknown fields with little to no information on definitions within the datasets
    - Fields called “none”-- but what is none and how is it defined?
  - Getting rid of other datasets we wanted to use due to a pay wall
  - or lack of public information from companies and how successful their ads run on social media platforms

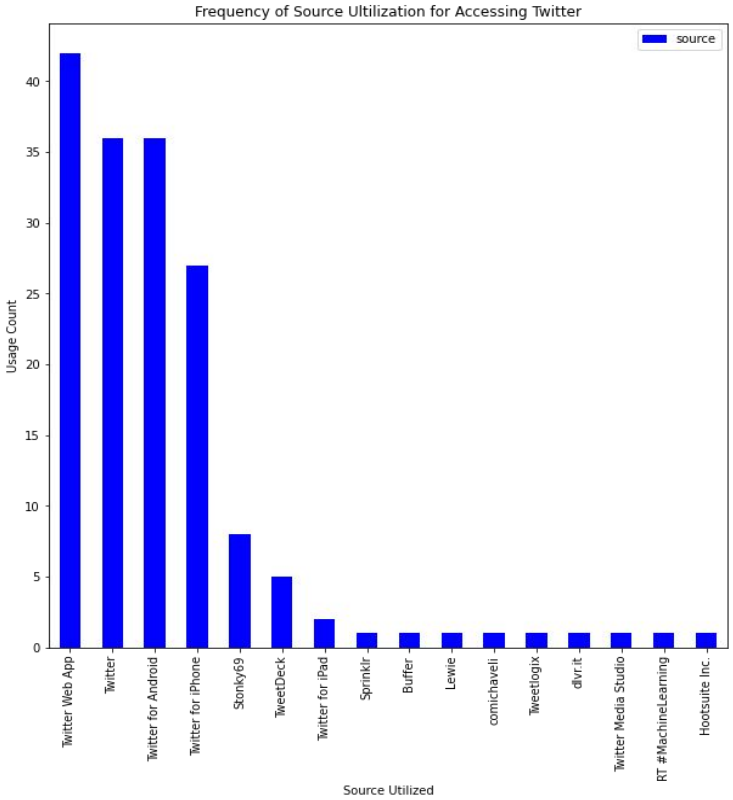
Rebecca's Discovery



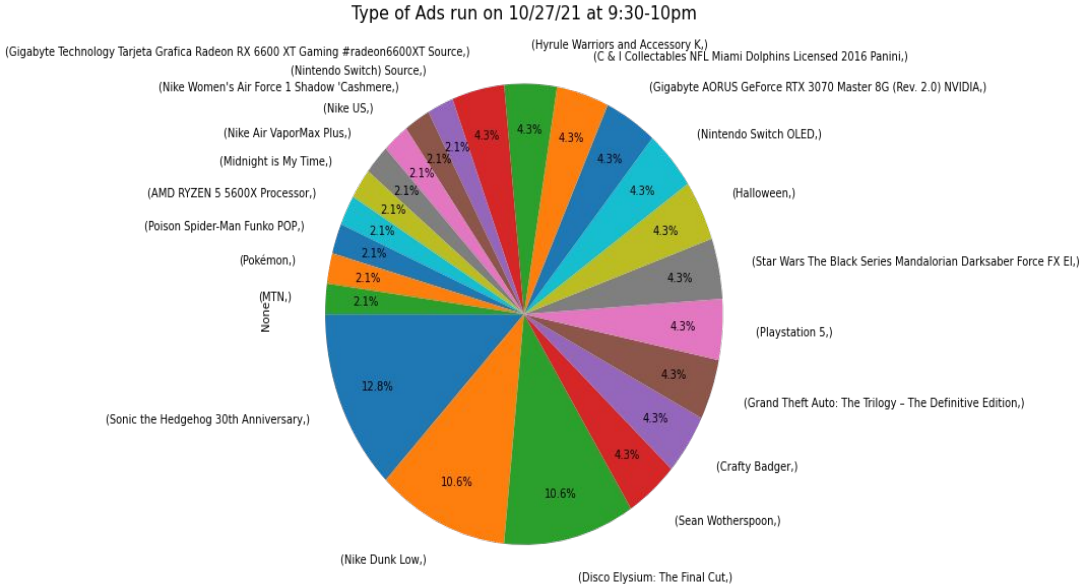
- Some correlation between the amount of retweets as the day progresses. At around 9:40pm, there is a spike in retweets in ads.
- The caveat of this data is that I did not have time to run this API multiple times on multiple days to get a large sample size.



- The more number of mentions of that your ad gets, the more retweets of your original #ad post
- This means that more people will see your ad on Twitter and engage in your post.

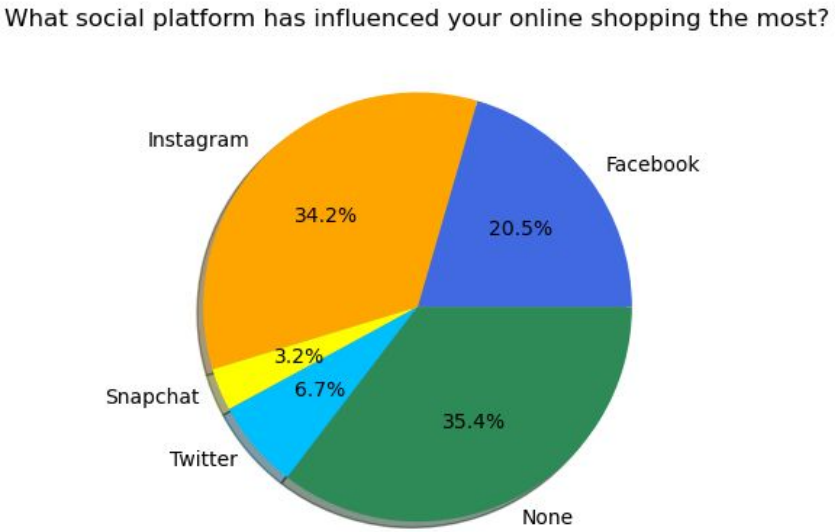


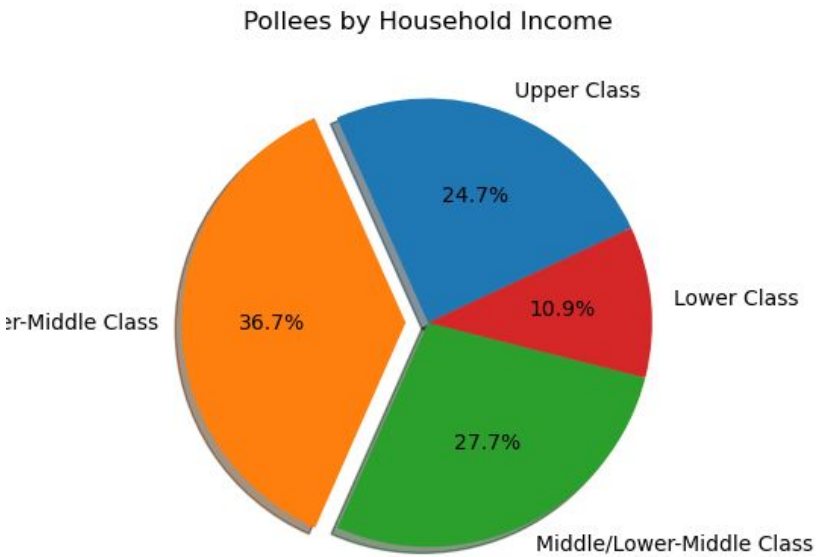
The most frequently utilized source is the Twitter Web App.

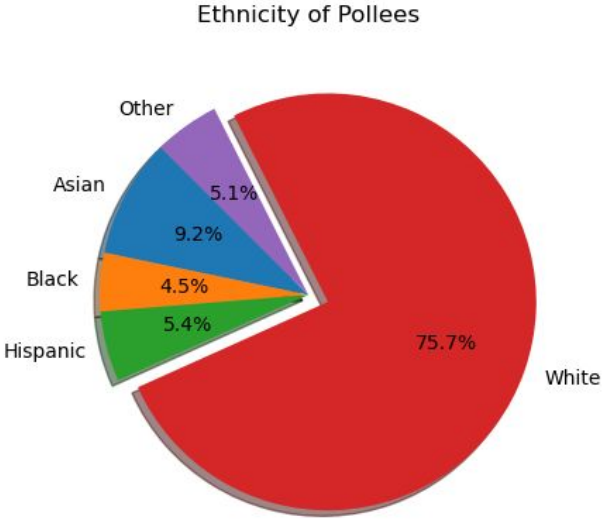


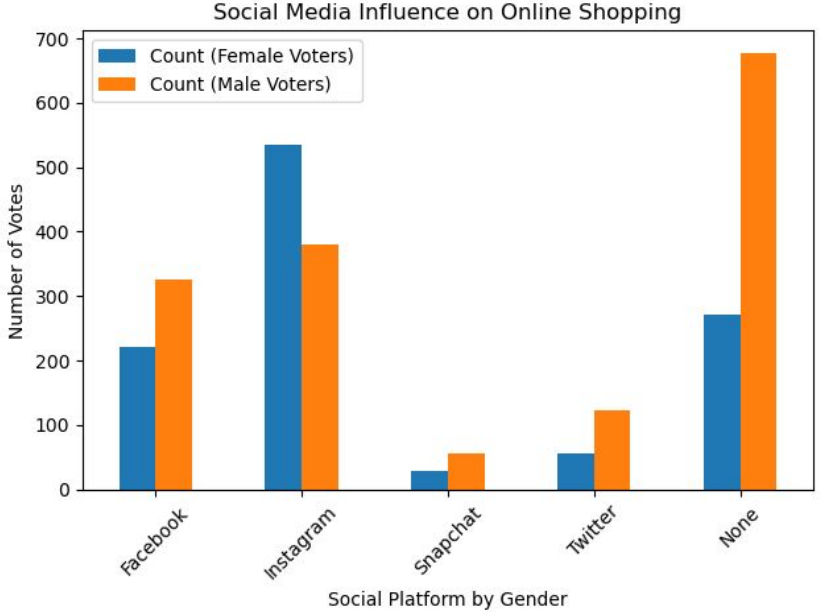
- Sonic the Hedgehog 30th Anniversary (video game) ad was most prevalent at the time with 12.8% (6 counts of ads from that span of time in the data set).
- Nike Dunk Low (type of shoe) and Disco Elysium: The Final Cut (video game) were a close second at 10.6% (5 counts of ads in that span of time in the dataset).
- The rest of the types of ads varied, around 1 to 2 counts of ads.

Tran's Discovery





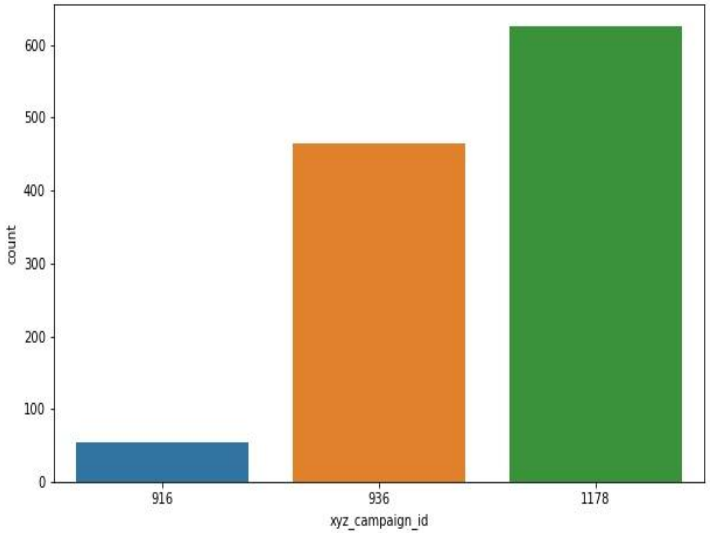




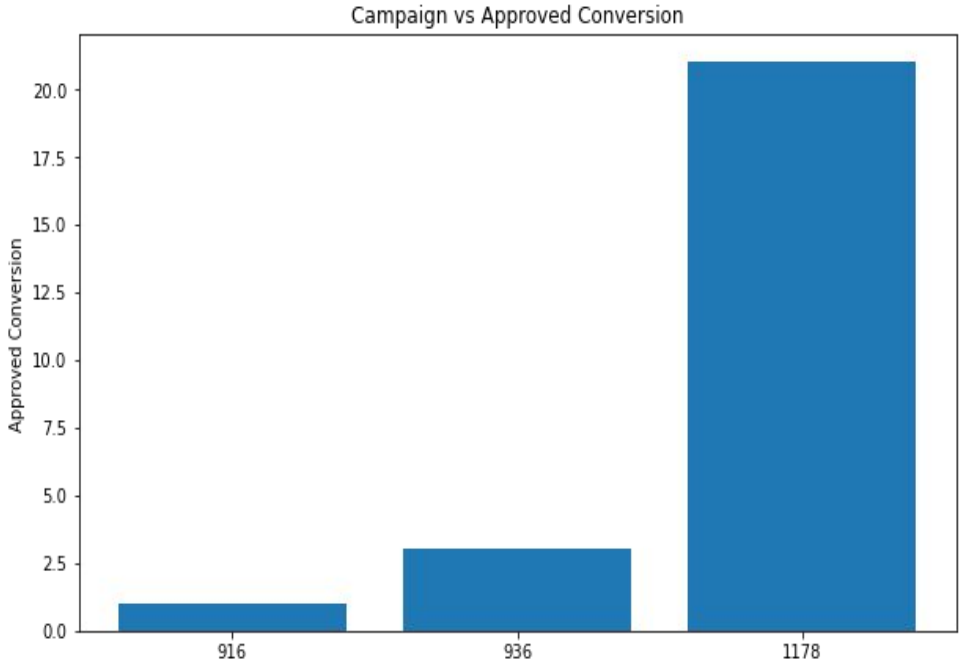
Limitations of this data:

- not an accurate representation of US population

Hinley's Discovery

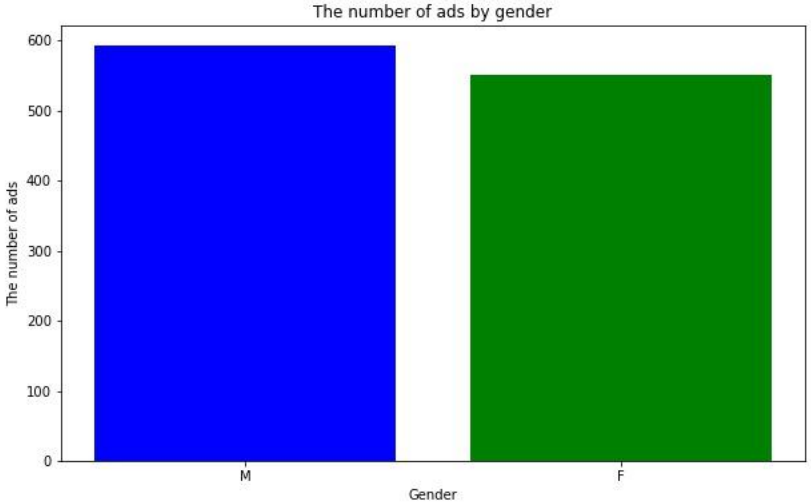


How many ads did each campaigns ran

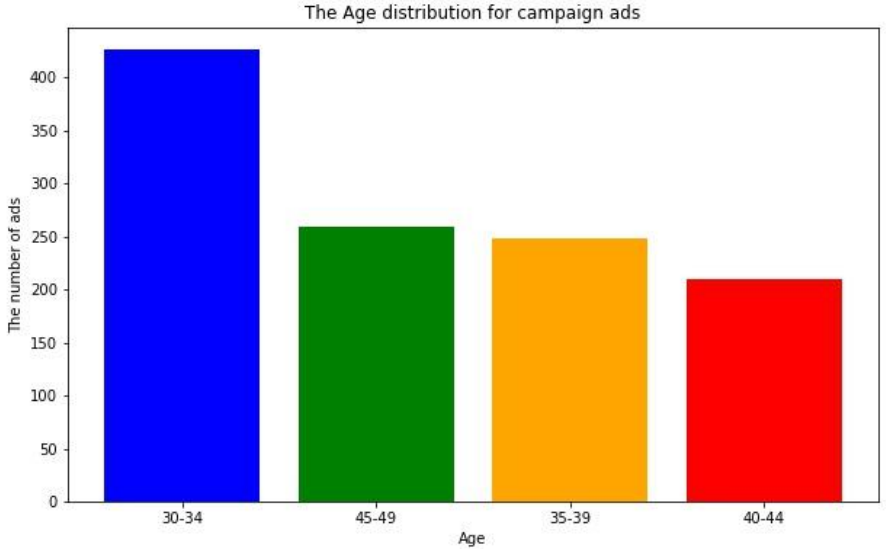


How successful was each campaign on getting users to make purchase

Data on Age and Gender

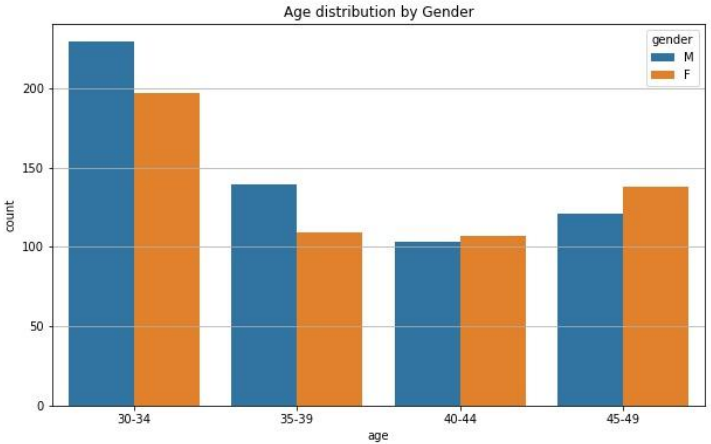


Gender has no influence as both male and females see the ads equally

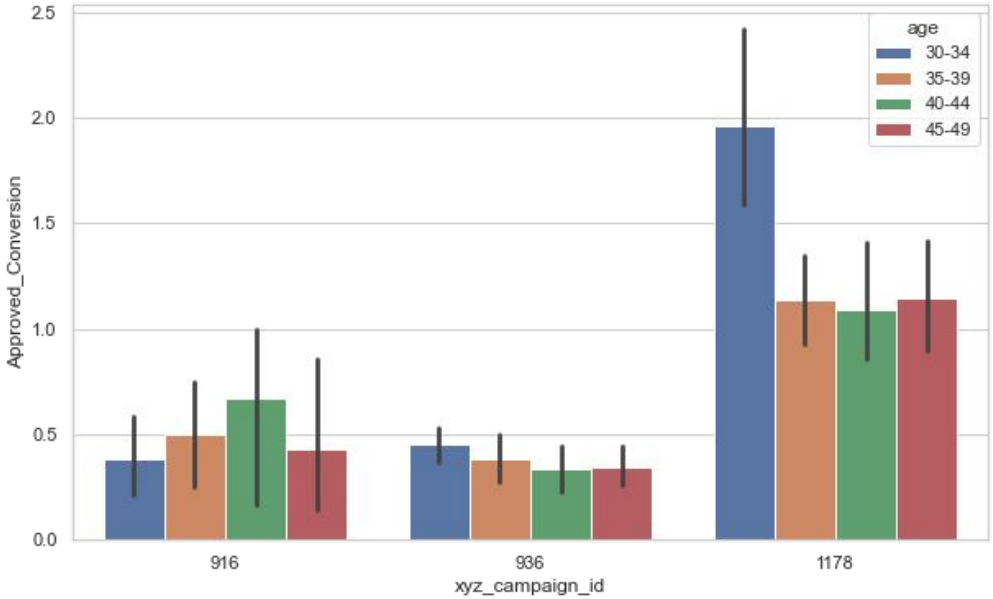


Users in the age range of 30-34 are the most likely influenced by the ads

Data Breakdown by Age

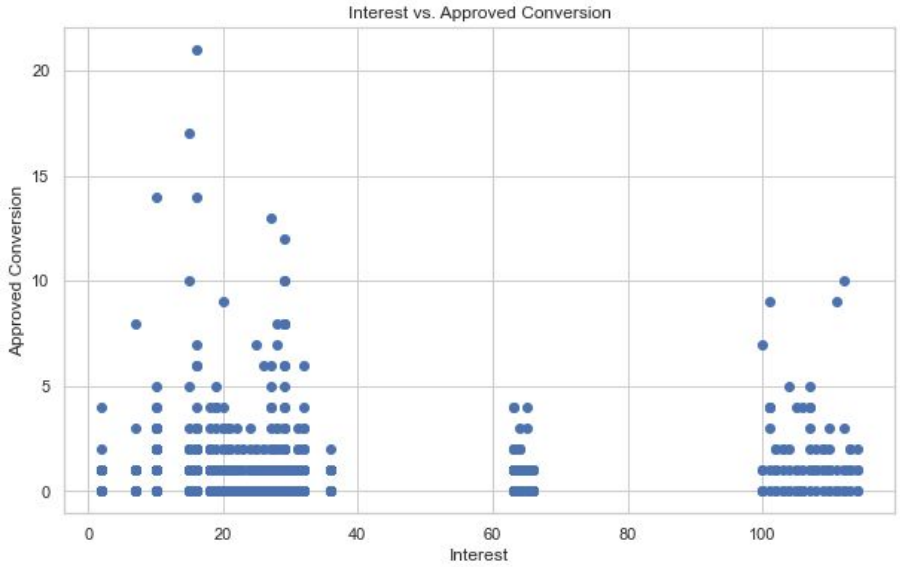


The Demographics of of gender and age range. The target demo are evenly split on gender

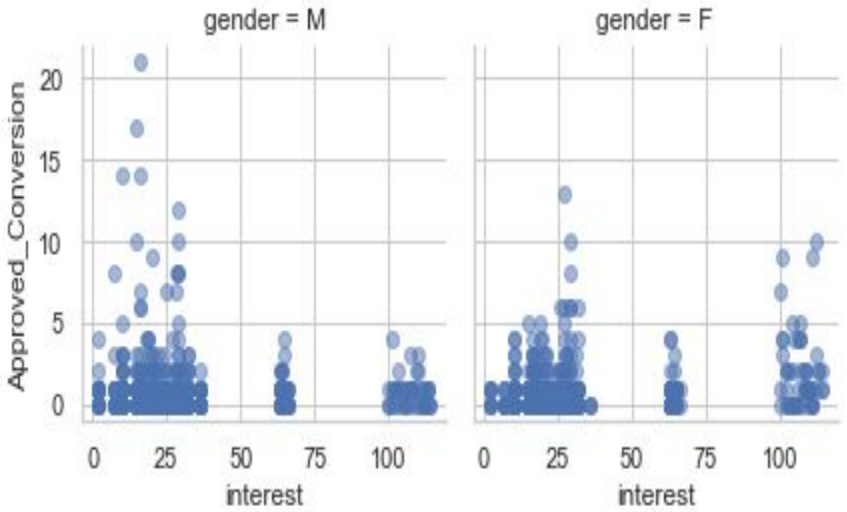


Which campaign had the most successful purchases. 1176 was the best

Interest Breakdown

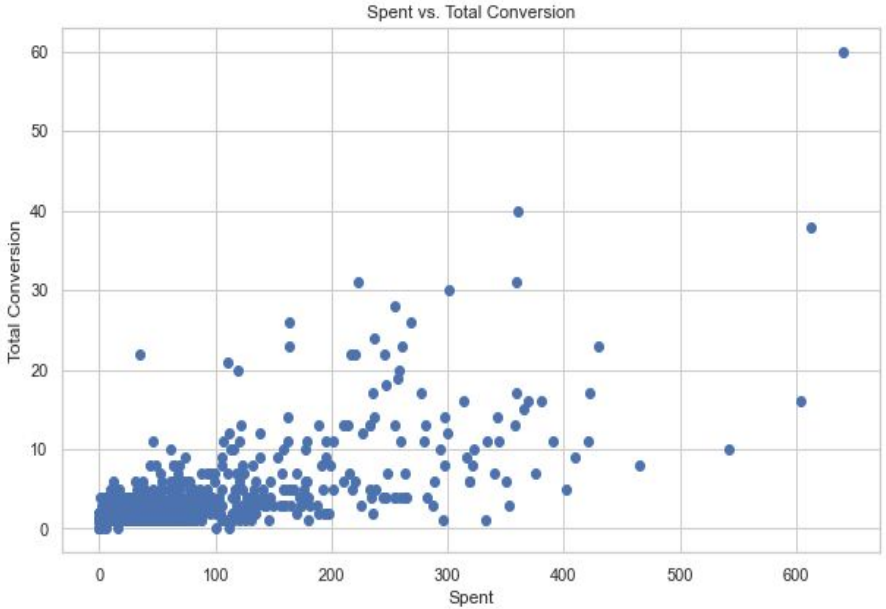


How interested comparison of purchases

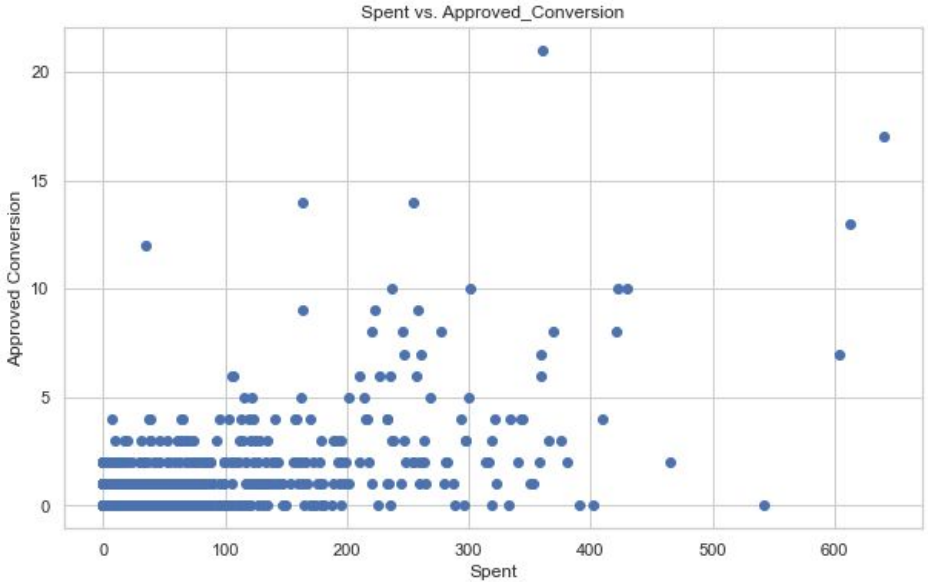


Both gender shows equal interest when purchasing the products

Spent Comparison

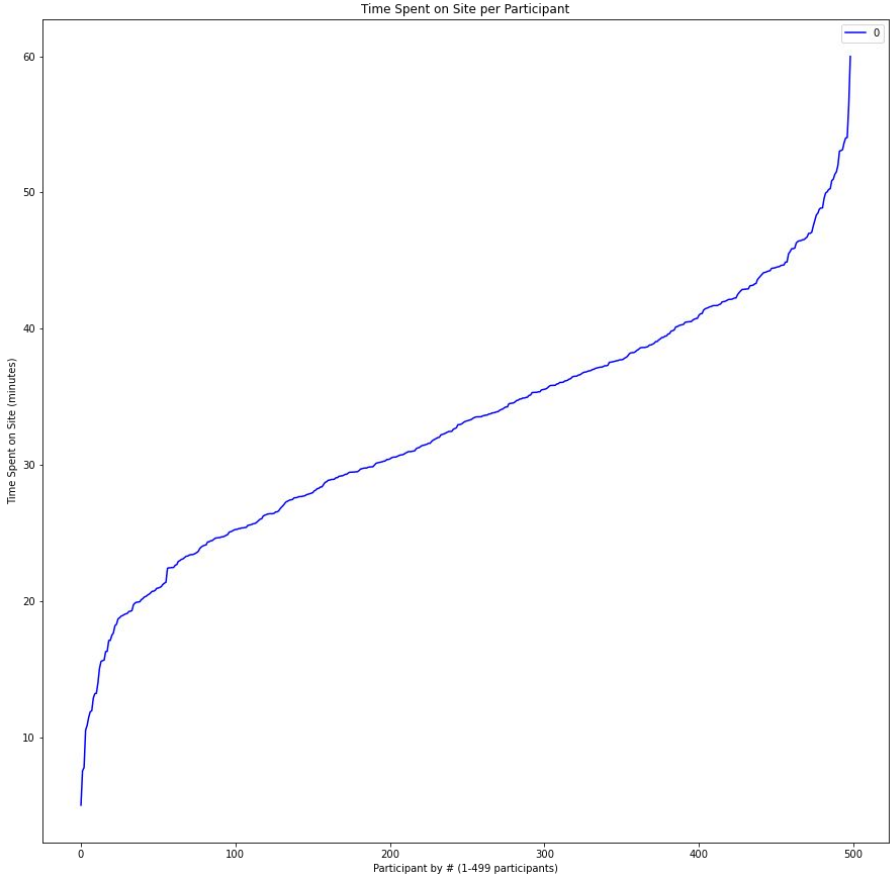


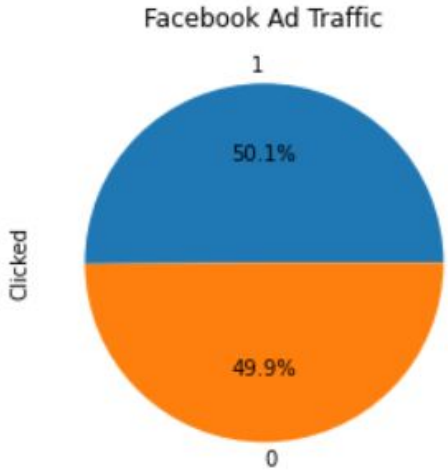
As company spends more on promoting the ad it shows more interest in the ads



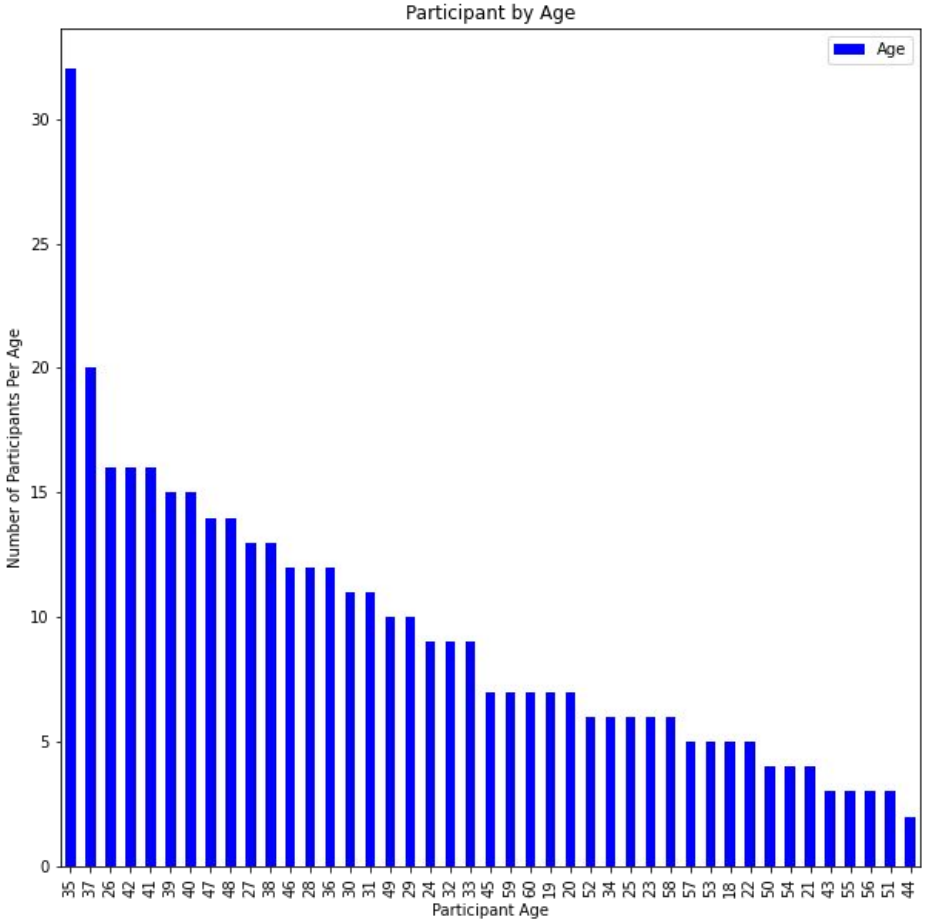
The more a company spends on ads, the higher chances they have of people making purchases

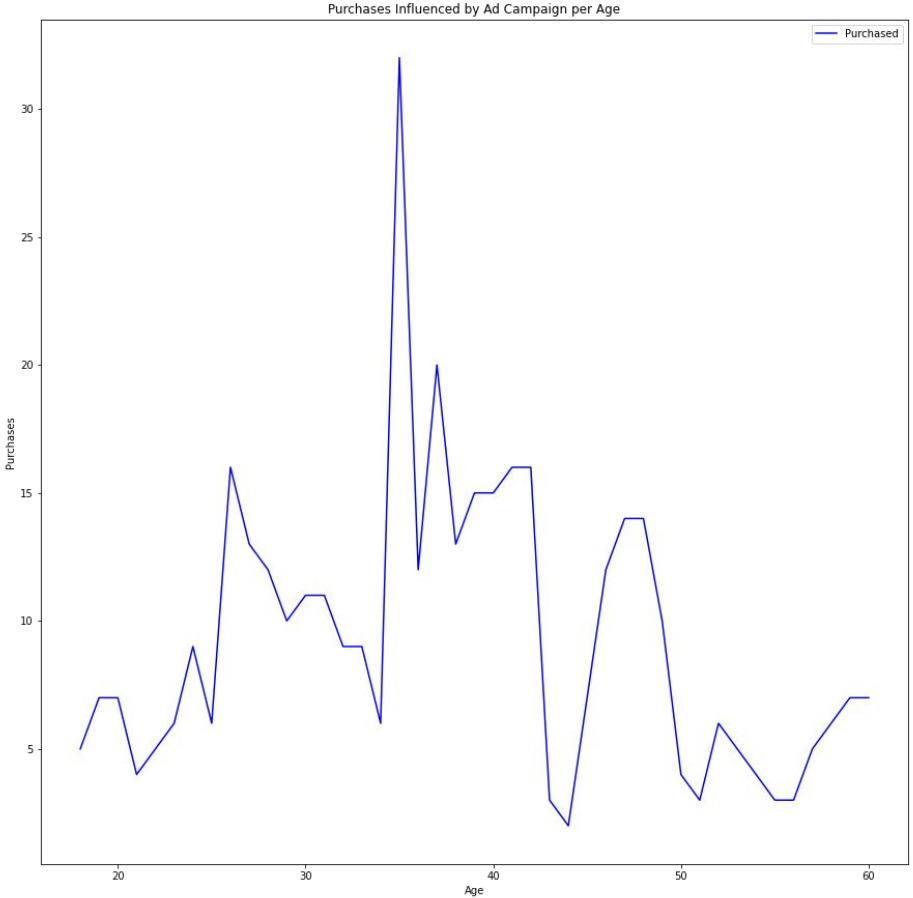
Stephanie’s Discovery



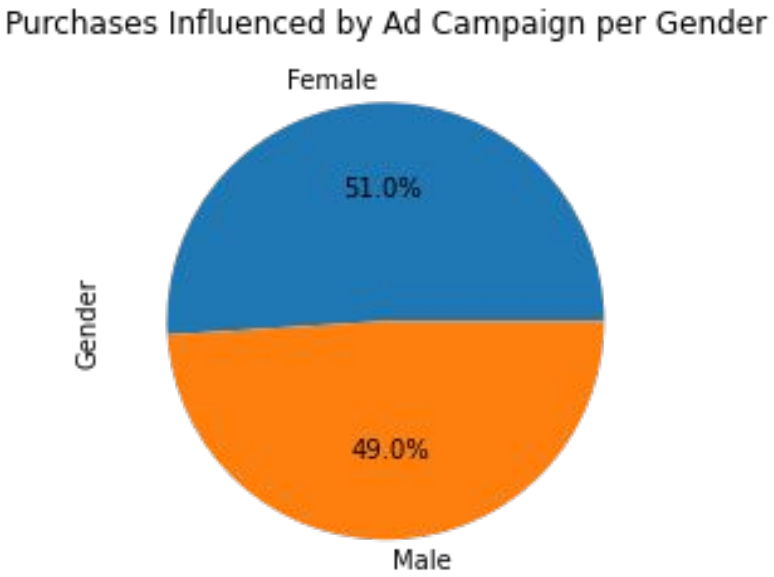


There were 499 participants surveyed and of that about half produced advertisement engagement in the form of ad clicks. The average amount of time spent on Facebook by participants was 32.92 minutes.





The majority of surveyed participants were 35 years old and the highest rate of purchases was between the ages of 35-40 years indicating a correlation between age and purchase rates.



Females show a 2% higher likelihood of purchasing based on social media ad campaigns according to the data produced thru surveyed participants.

Discussion

- Most targeted by social media marketing campaigns are individuals of the Gen-Z and Millennial generations
- Gender plays little to no role in user engagement.
- The more money a company puts into a campaign, the higher rate of return.

- Ads on social media platforms are most effective at certain times of day based on who their target demographics are

Post Mortem

Difficulties:

- Majority of social media data is private to the company and require authorization to receive API of up to two weeks or payment for data utilization.
- The generation of an API for a public site such as Twitter is far more tedious than initially thought as the JSON file was so large with a vast array of dictionaries.
- Time constraints held us from developing an additional API due to an authorization hold.
- Additionally, the Twitter API only allowed for the most recent data to be pulled at once (last 100 instances on specific date/time) and in order to produce larger data quantities the API would have had to have been run for multiple days.

Additional Questions/Time Constraints:

- If we had additional time we would continue with our current project and generate more data from the Twitter API as well as generate and develop analytics from Facebook API once authorization was complete.

Questions?