Facebook Data Analysis

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March 15, 2022

Overview

Increasing content posting on Facebook, especially on Saturday and Sunday will continue to increase quality traffic into the marketing site funnel.

Understanding the problem

Item 1	Item 2	Item 3
What is the best content to post on Facebook?	What is the optimal time and day to post the best content?	What factors can we influence to increase click through to the marketing site?

The dataset

- Every Facebook post since 01/01/2021
- Each post was categorized via an NLP model use the post's copy and link title.
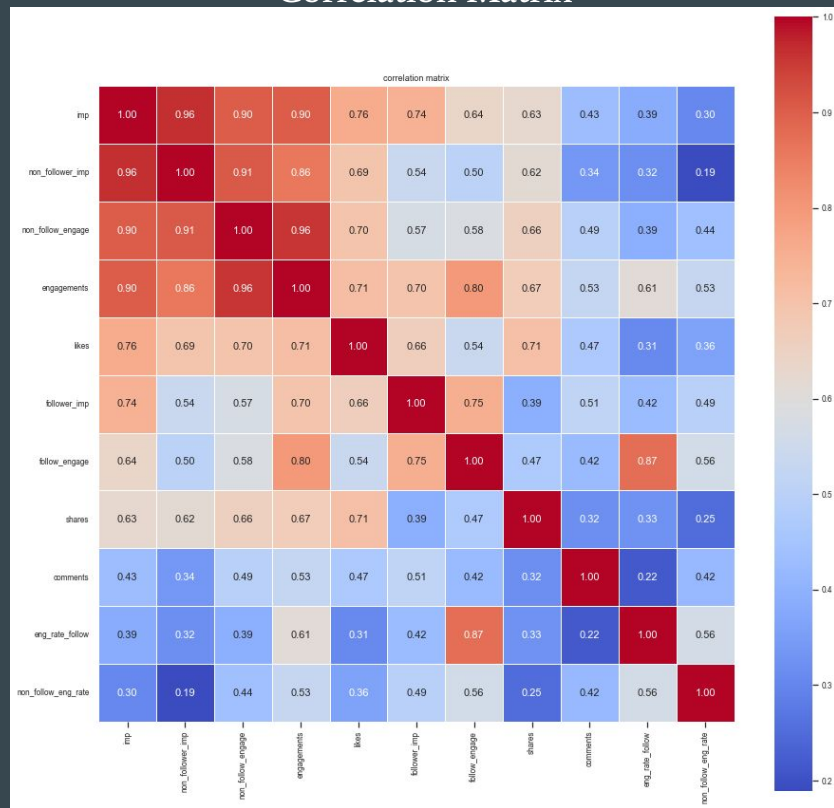- There are eight topic categories.

Statistical Analysis

Trends

Post likes and shares are strongly correlated, which increase non-follower engagement, leading to increased site traffic.

Implications:

- Optimize post content to generate likes and shares, over soliciting comments.

Correlation Matrix

Seasonality Analysis

Findings

There are several months were there were no posts on the weekend, however, Saturday mornings drive the most engagements.

Implications:

- Post the highest engaging topics on Saturday Mornings.
- Wednesday at 11am (eastern) is another opportunity.

Engagements
by Weekday by Hour

Engagements
by Month by Weekday

Topic Analysis

Findings

Strength training content during third quarter is a driver of engagements. FTP content performs best on the weekends. Engagements are influenced by topic and seasonality.

Implications:

- Plan a seasonal content campaign to include high driving topics.

Engagements by Topic by Month

month	1	2	3	4	5	6	7	8	Avg
1.0	20196	10791	21773	8082	8672	10561	14452	12125	12377
2.0	19047	11536	15737	7838	5931	11308	8771	11717	11768
3.0	10111	10236	27828	14091	11445	8965	8972	14628	13412
4.0	0	6466	0	8193	5600	7256	0	6864	6652
5.0	0	8187	0	6282	5634	8812	0	7353	7360
6.0	15639	17904	0	7450	13036	11217	28079	11650	14608
7.0	0	0	14292	0	11316	10549	0	12612	12482
8.0	12809	12584	24961	0	8343	0	22454	25904	20391
9.0	12577	11059	22278	22678	11369	8834	33118	13861	15263
10.0	12715	13234	21765	7344	0	9874	29878	11348	13736
11.0	7482	11649	23679	17246	10361	11129	55265	18486	17969
12.0	7620	13367	23978	12440	12932	16741	29782	12288	13646
Avg	13968	11402	21629	10713	9404	10432	23431	13483	13384

Topic Association

ANOVA

```
aov = pg.anova(dv='engagements', between='Topic', data=df, detailed=True)
aov
```
✓ 0.3s

	Source	SS	DF	MS	F	p-unc	np2
0	Topic	2.136996e+07	7	3.052852e+06	13.229905	2.214301e-15	0.186483
1	Within	9.322456e+07	404	2.307539e+05	NaN	NaN	NaN

Used to determine if there is a difference between the the topic categories and their effect on engagement. Followed with post-hoc Tukey test.

Findings:
- The highest engaging topics are FTP and strength training, followed by general training and nutrition, then equipment and event content.

Tukey

```
                Open in Notebook Editor
 1          Multiple Comparison of Means - Tukey HSD, FWER=0.05
 2   =======================================================================
 3    group1    group2    meandiff  p-adj    lower       upper    reject
 4   -----------------------------------------------------------------------
 5       FTP equipment  -462.0308   0.015  -872.0078  -52.0537    True
 6       FTP     event  -590.8108     0.0  -944.6991 -236.9224    True
 7       FTP nutrition  -553.8974  0.0004   -937.705 -170.0899    True
 8       FTP   podcast  -763.9367     0.0 -1145.2488 -382.6245    True
 9       FTP   product  -600.8778  0.0001    -982.19 -219.5657    True
10       FTP  strength   324.0045  0.3769  -132.5096  780.5187   False
11       FTP  training  -524.6401     0.0  -830.4052  -218.875    True
12 equipment     event    -128.78  0.9578  -487.2946  229.7346   False
13 equipment nutrition   -91.8667  0.9963  -479.9439  296.2106   False
14 equipment   podcast  -301.9059  0.2513  -687.5154   83.7036   False
15 equipment   product  -138.8471  0.9572  -524.4565  246.7624   False
16 equipment  strength   786.0353     0.0   325.9256  1246.145    True
17 equipment  training   -62.6093  0.9987   -373.717  248.4984   False
18     event nutrition    36.9133     1.0  -291.3544  365.1811   False
19     event   podcast  -173.1259  0.7372  -498.4725  152.2208   False
20     event   product   -10.0671     1.0  -335.4137  315.2796   False
21     event  strength   914.8153     0.0   503.8936  1325.737    True
22     event  training    66.1707  0.9887  -166.0873  298.4287   False
23  nutrition   podcast  -210.0392  0.6277  -567.7007  147.6222   False
24  nutrition   product   -46.9804  0.9999  -404.6418  310.6811   False
25  nutrition  strength    877.902     0.0   440.9489  1314.855    True
26  nutrition  training    29.2573     1.0  -246.4509  304.9656   False
27    podcast   product   163.0588  0.8572  -191.9235  518.0411   False
28    podcast  strength  1087.9412     0.0   653.1784 1522.7039    True
29    podcast  training   239.2966  0.1323   -32.9272  511.5203   False
30    product  strength   924.8824     0.0   490.1196 1359.6451    True
31    product  training    76.2377  0.9898   -195.986  348.4615   False
32   strength  training  -848.6446     0.0  -1218.931 -478.3583    True
33
```

Answering the Questions

Item 1

What is the best content to post on Facebook?

FTP and Strength Training Content

Item 2

What is the optimal time and day to post the best content?

Saturday and Sunday mornings, Wednesday late morning.

Item 3

What factors can we influence to increase click through to the marketing site?

Posting day and time, content topic, seasonal planning.

Recommendations

Recommendation 1	• Continue posting two times daily • Update times: Wednesday 11am Saturday 9am
Recommendation 2	• Post FTP and Strength Training content on Saturday Mornings.
Recommendation 3	• Create a seasonal campaign to run from August through November focusing on "Pre-Season" topics.
Recommendation 4	• Adjust March-May social content strategy to include more event and equipment content.