

Facebook Data Analysis



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

What is the best content to post on Facebook?

Item 2

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

Item 3

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.
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Statistical Analysis

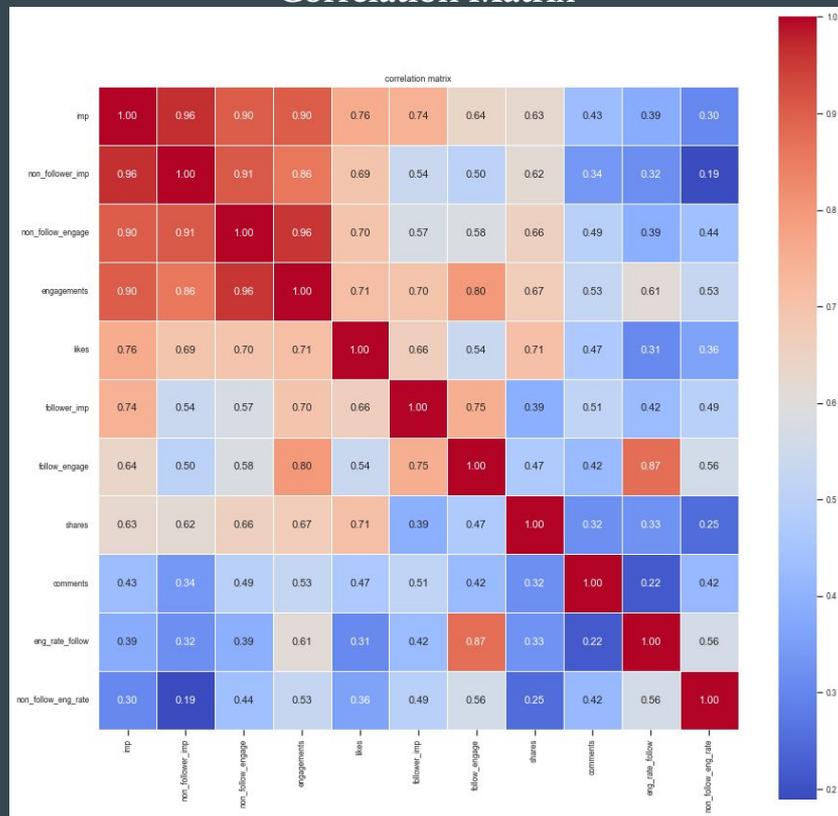
Trends

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 where 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

hour	1_Mon	2_Tue	3_Wed	4_Thu	5_Fri	6_Sat	7_Sun	Avg
5.0	0	0	0	14185	6121	0	0	10153
6.0	16358	0	14430	17608	10995	0	32254	16396
7.0	22737	15119	9757	10978	7770	10105	0	12168
8.0	16612	12306	14873	14379	18612	0	5765	15537
9.0	14504	10236	9670	7953	9950	32058	24082	12827
10.0	7608	10854	12742	11198	7369	19461	16991	15019
11.0	9671	12438	20426	6874	10536	0	9906	12869
12.0	7396	8506	12827	8363	8927	0	21234	9872
13.0	6138	9746	13929	9260	7471	5675	0	9270
14.0	9162	11213	9676	11462	8181	15061	11623	11606
15.0	11592	15626	15176	11365	20481	0	6243	13147
16.0	0	0	0	7306	9494	0	0	8181
17.0	6159	8100	6218	7583	0	0	0	7332
18.0	0	0	0	0	0	0	6248	6248
Avg	13404	11852	13943	11254	13849	17107	14631	13384

Engagements by Month by Weekday

month	1_Mon	2_Tue	3_Wed	4_Thu	5_Fri	6_Sat	7_Sun	Avg
1.0	13957	8080	9397	10552	17625	13196	11049	12377
2.0	10859	10495	12122	10106	11324	14975	14809	11768
3.0	10752	14428	9745	11966	15746	29406	14246	13412
4.0	4842	7419	7684	5886	6833	8236	6568	6652
5.0	6173	8932	7473	6832	7435	0	6531	7360
6.0	12484	20373	16780	14274	11916	0	0	14608
7.0	10549	20459	14814	16636	8184	0	0	12482
8.0	19064	23980	34017	14984	16729	0	0	20391
9.0	13805	7950	22459	15151	16474	12577	14514	15263
10.0	18339	8389	11995	11581	13325	12816	19580	13736
11.0	16614	13530	22245	11644	18291	26407	14470	17969
12.0	13695	13160	15839	10604	11390	16626	19448	13646
Avg	13404	11852	13943	11254	13849	17107	14631	13384

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

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
	1	2	3	4	5	6	7	8	Avg
					topic				

Topic Association

ANOVA

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.

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

Tukey

```
Open in Notebook Editor
Multiple Comparison of Means - Tukey HSD, FWER=0.05
```

	group1	group2	meandiff	p-adj	lower	upper	reject
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

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.