Operation Analytics and Investigating Metric Spike

Project Description: This project is about Operation Analytics and Investigating Metric Spike. I was asked to perform user analysis for a company like Microsoft designated as Data Analyst Lead and derive certain insights out of it and answer the questions asked by different departments. First it was required to create the database using dataset provided. Then it was required to perform analysis using SQL to answer the below questions:

A) Case Study 1 (Job Data):

1. Number of jobs reviewed: Amount of jobs reviewed over time.
2. Throughput: It is the no. of events happening per second.
3. Percentage share of each language: Share of each language for different contents.
4. Duplicate rows: Rows that have the same value present in them.

B) Case Study 2 (Investigating metric spike):

1. User Engagement: To measure the activeness of a user. Measuring if the user finds quality in a product/service.
2. User Growth: Amount of users growing over time for a product.
3. Weekly Retention: Users getting retained weekly after signing-up for a product.
4. Weekly Engagement: To measure the activeness of a user. Measuring if the user finds quality in a product/service weekly.
5. Email Engagement: Users engaging with the email service.

Approach: First I gone through all the datasets provided. After that, I created databases and tables according to the dataset provided. Below are the links of table creation:

Job Data

Investigating metric spike users

Investigating metric spike events

Investigating metric spike email-events

Then I saw all the questions and thought of which tables could be used in each question. Then I wrote the sql queries for each question.

Tech-Stack Used: The software used for the project are MySQL workbench 8.0 CE and MS Excel 365. MySQL workbench 8.0 CE is used to run the sql queries and get answers of each question. MS Excel 365 is used to get output table and format date.

Insights:

A) Case Study 1 (Job Data):

1. Number of jobs reviewed:
   In this, I was required to Calculate the number of jobs reviewed per hour per day for November 2020.

   Sql query:

```
SELECT
   ds,
   ROUND((COUNT(job_id) * 3600) / SUM(time_spent)) AS `number of jobs reviewed per hour per day`
FROM
   job_data
WHERE
   ds BETWEEN '2020-11-01' AND '2020-11-30'
GROUP BY ds;
```

Output:

	ds	number of jobs reviewed per hour per day
▶	2020-11-30	180
	2020-11-29	180
	2020-11-28	218
	2020-11-27	35
	2020-11-26	64
	2020-11-25	80

2. Throughput:
   In this, I was required to calculate 7 day rolling average of throughput.

   Sql query:

```
SELECT
   COUNT(job_id) / SUM(time_spent) AS `7 day rolling average of throughput`
FROM
   job_data;

SELECT
        ds,
   COUNT(job_id) / SUM(time_spent) AS `Daily rolling average of throughput`
FROM
   job_data
GROUP BY
        ds;
```

   Output:

	7 day rolling average of throughput
▶	0.0268

	ds	Daily rolling average of throughput
▶	2020-11-30	0.0500
	2020-11-29	0.0500
	2020-11-28	0.0606
	2020-11-27	0.0096
	2020-11-26	0.0179
	2020-11-25	0.0222

3. Percentage share of each language:
   In this, I was required to calculate the percentage share of each language in the last 30 days.

   Sql query:

```
SELECT
   language,
   COUNT(language)/total*100 as `percentage share of language`
FROM
   (SELECT
      job_id, actor_id, language, COUNT(language) over() AS total
   FROM
      job_data) AS a
GROUP BY language;
```

   Output:

	language	percentage share of language
▶	English	12.5000
	Arabic	12.5000
	Persian	37.5000
	Hindi	12.5000
	French	12.5000
	Italian	12.5000

4. Duplicate rows:
   In this I was required to display duplicates from the table.

   Sql query:

```
SELECT
   job_id, COUNT(job_id) AS duplicates
FROM
   job_data
GROUP BY job_id
HAVING COUNT(job_id) > 1;
```

   Output:

	job_id	duplicates
▶	23	3

B) Case Study 2 (Investigating metric spike):

1. User Engagement: Calculate the weekly user engagement

   Sql query:

```
SELECT
   EXTRACT(WEEK FROM occurred_at) AS week_no,
   COUNT(DISTINCT user_id) AS `weekly user engagement`
FROM
   events
WHERE
   event_type = 'engagement'
GROUP BY 1;
```

Output:

week_no	weekly user engagement
17	663
18	1068
19	1113
20	1154
21	1121
22	1186
23	1232
24	1275
25	1264
26	1302
27	1372
28	1365
29	1376
30	1467
31	1299
32	1225
33	1225
34	1204
35	104

2. User Growth: Calculate the user growth for product

Sql query:

```
SELECT
   month_no,
   users_registered,
   users_registered - LAG(users_registered) over() AS `growth in terms of
users`
FROM
   (SELECT
      EXTRACT(MONTH FROM activated_at) AS month_no,
         COUNT(activated_at) AS users_registered
   FROM
```

```
    users
  WHERE
    activated_at <> ''
  GROUP BY 1) AS a;
```

Output:

	month_no	users_registered	growth in terms of users
▶	1	712	NULL
	2	685	-27
	3	765	80
	4	907	142
	5	993	86
	6	1086	93
	7	1281	195
	8	1347	66
	9	330	-1017
	10	390	60
	11	399	9
	12	486	87

3. Weekly Retention:
   Calculate the weekly retention of users-sign up cohort?

   Sql Query:

```
SELECT
  b.login_week,
  a.post_week - b.login_week AS post_week_after_login,
  COUNT(*) AS `weekly retention of users-sign up cohort`
FROM
  (SELECT
    user_id, EXTRACT(WEEK FROM occurred_at) AS post_week
  FROM
    events
  GROUP BY 1, 2) a,
```

```
    (SELECT
       user_id, MIN(EXTRACT(WEEK FROM occurred_at)) AS login_week
    FROM
       events
    GROUP BY 1) b
WHERE
    a.user_id = b.user_id
GROUP BY 1 , 2
ORDER BY 1;
```

Output:

login_week	post_week_after_login	weekly retention of users-sign up cohort
17	0	740
17	1	472
17	2	324
17	3	251
17	4	205
17	5	187
17	6	167
17	7	146
17	8	145
17	9	145
17	10	136
17	11	131
17	12	132
17	13	143
17	14	116
17	15	91
17	16	82
17	17	77
17	18	5
18	0	788
18	1	362
18	2	261
18	3	203
18	4	168
18	5	147
18	6	144
18	7	127
18	8	113
18	9	122
18	10	106

18	11	118
18	12	127
18	13	110
18	14	97
18	15	85
18	16	67
18	17	4
19	0	601
19	1	284
19	2	173
19	3	153
19	4	114
19	5	95
19	6	91
19	7	81
19	8	95
19	9	82
19	10	68
19	11	65
19	12	63
19	13	42
19	14	51
19	15	49
19	16	2
20	0	555
20	1	223
20	2	165
20	3	121
20	4	91
20	5	72
20	6	63
20	7	67
20	8	63
20	9	65
20	10	67
20	11	41
20	12	40
20	13	33
20	14	40
21	0	495
21	1	187
21	2	131
21	3	91
21	4	74
21	5	63
21	6	75

21	7	72
21	8	58
21	9	48
21	10	45
21	11	39
21	12	35
21	13	28
21	14	2
22	0	521
22	1	224
22	2	150
22	3	107
22	4	87
22	5	73
22	6	63
22	7	60
22	8	55
22	9	48
22	10	41
22	11	39
22	12	31
22	13	1
23	0	542
23	1	219
23	2	138
23	3	101
23	4	90
23	5	79
23	6	69
23	7	61
23	8	54
23	9	47
23	10	35
23	11	30
24	0	535
24	1	205
24	2	143
24	3	102
24	4	81
24	5	63
24	6	65
24	7	61
24	8	38
24	9	39
24	10	29
25	0	500

25	1	218
25	2	139
25	3	101
25	4	75
25	5	63
25	6	50
25	7	46
25	8	38
25	9	35
25	10	2
26	0	495
26	1	181
26	2	114
26	3	83
26	4	73
26	5	55
26	6	47
26	7	43
26	8	29
27	0	493
27	1	199
27	2	121
27	3	106
27	4	68
27	5	53
27	6	40
27	7	36
27	8	1
28	0	486
28	1	194
28	2	114
28	3	69
28	4	46
28	5	30
28	6	28
28	7	3
29	0	501
29	1	186
29	2	102
29	3	65
29	4	47
29	5	40
29	6	1
30	0	533
30	1	202
30	2	121

30	3	78
30	4	53
30	5	3
31	0	430
31	1	145
31	2	76
31	3	57
31	4	1
32	0	496
32	1	188
32	2	94
32	3	8
33	0	499
33	1	202
33	2	9
34	0	518
34	1	44
35	0	32

4. Weekly Engagement:
   Calculate the weekly engagement per device?

   Sql Query:

```
SELECT
   EXTRACT(WEEK FROM occurred_at) AS week_no,
   device,
   COUNT(*) AS `weekly engagement per device`
FROM
   events
WHERE
   event_type = 'engagement'
GROUP BY 1 , 2
ORDER BY 1;
```

Output:

week_no	device	weekly engagement per device
17	acer aspire desktop	67
17	acer aspire notebook	206
17	amazon fire phone	83
17	asus chromebook	251
17	dell inspiron desktop	187
17	dell inspiron notebook	503
17	hp pavilion desktop	132
17	htc one	190
17	ipad air	330
17	ipad mini	205
17	iphone 4s	217
17	iphone 5	706
17	iphone 5s	473
17	kindle fire	57
17	lenovo thinkpad	793
17	mac mini	59
17	macbook air	490
17	macbook pro	1516
17	nexus 10	145
17	nexus 5	382
17	nexus 7	177
17	nokia lumia 635	128
17	samsumg galaxy tablet	70
17	samsung galaxy note	116
17	samsung galaxy s4	449
17	windows surface	87
18	acer aspire desktop	295
18	acer aspire notebook	363
18	amazon fire phone	177
18	asus chromebook	523
18	dell inspiron desktop	683
18	dell inspiron notebook	953
18	hp pavilion desktop	373
18	htc one	174
18	ipad air	520
18	ipad mini	309
18	iphone 4s	448
18	iphone 5	1328
18	iphone 5s	778
18	kindle fire	265
18	lenovo thinkpad	1732
18	mac mini	159

18	macbook air	1604
18	macbook pro	3301
18	nexus 10	370
18	nexus 5	938
18	nexus 7	252
18	nokia lumia 635	341
18	samsumg galaxy tablet	79
18	samsung galaxy note	139
18	samsung galaxy s4	1130
18	windows surface	107
19	acer aspire desktop	242
19	acer aspire notebook	406
19	amazon fire phone	141
19	asus chromebook	268
19	dell inspiron desktop	444
19	dell inspiron notebook	1193
19	hp pavilion desktop	376
19	htc one	270
19	ipad air	595
19	ipad mini	381
19	iphone 4s	546
19	iphone 5	1190
19	iphone 5s	964
19	kindle fire	225
19	lenovo thinkpad	2143
19	mac mini	255
19	macbook air	1331
19	macbook pro	3159
19	nexus 10	232
19	nexus 5	944
19	nexus 7	334
19	nokia lumia 635	215
19	samsumg galaxy tablet	66
19	samsung galaxy note	117
19	samsung galaxy s4	1024
19	windows surface	163
20	acer aspire desktop	226
20	acer aspire notebook	483
20	amazon fire phone	104
20	asus chromebook	461
20	dell inspiron desktop	504
20	dell inspiron notebook	975
20	hp pavilion desktop	276
20	htc one	365
20	ipad air	611
20	ipad mini	264

20	iphone 4s	608
20	iphone 5	1302
20	iphone 5s	1024
20	kindle fire	242
20	lenovo thinkpad	2203
20	mac mini	272
20	macbook air	1443
20	macbook pro	3097
20	nexus 10	217
20	nexus 5	1278
20	nexus 7	372
20	nokia lumia 635	151
20	samsumg galaxy tablet	78
20	samsung galaxy note	160
20	samsung galaxy s4	1001
20	windows surface	194
21	acer aspire desktop	328
21	acer aspire notebook	462
21	amazon fire phone	29
21	asus chromebook	550
21	dell inspiron desktop	568
21	dell inspiron notebook	955
21	hp pavilion desktop	475
21	htc one	260
21	ipad air	428
21	ipad mini	280
21	iphone 4s	522
21	iphone 5	1567
21	iphone 5s	804
21	kindle fire	355
21	lenovo thinkpad	1893
21	mac mini	281
21	macbook air	1269
21	macbook pro	3044
21	nexus 10	258
21	nexus 5	1020
21	nexus 7	211
21	nokia lumia 635	190
21	samsumg galaxy tablet	63
21	samsung galaxy note	196
21	samsung galaxy s4	960
21	windows surface	183
22	acer aspire desktop	255
22	acer aspire notebook	431
22	amazon fire phone	46
22	asus chromebook	631

22	dell inspiron desktop	737
22	dell inspiron notebook	1011
22	hp pavilion desktop	371
22	htc one	323
22	ipad air	591
22	ipad mini	342
22	iphone 4s	477
22	iphone 5	1394
22	iphone 5s	920
22	kindle fire	231
22	lenovo thinkpad	1803
22	mac mini	276
22	macbook air	1714
22	macbook pro	3046
22	nexus 10	311
22	nexus 5	1231
22	nexus 7	433
22	nokia lumia 635	308
22	samsumg galaxy tablet	70
22	samsung galaxy note	252
22	samsung galaxy s4	1020
22	windows surface	189
23	acer aspire desktop	240
23	acer aspire notebook	449
23	amazon fire phone	181
23	asus chromebook	671
23	dell inspiron desktop	494
23	dell inspiron notebook	1034
23	hp pavilion desktop	655
23	htc one	234
23	ipad air	404
23	ipad mini	258
23	iphone 4s	459
23	iphone 5	1748
23	iphone 5s	859
23	kindle fire	352
23	lenovo thinkpad	1882
23	mac mini	170
23	macbook air	1431
23	macbook pro	3123
23	nexus 10	533
23	nexus 5	997
23	nexus 7	303
23	nokia lumia 635	273
23	samsumg galaxy tablet	98
23	samsung galaxy note	183

23	samsung galaxy s4	1094
23	windows surface	155
24	acer aspire desktop	289
24	acer aspire notebook	509
24	amazon fire phone	147
24	asus chromebook	471
24	dell inspiron desktop	713
24	dell inspiron notebook	1082
24	hp pavilion desktop	721
24	htc one	136
24	ipad air	619
24	ipad mini	313
24	iphone 4s	609
24	iphone 5	1475
24	iphone 5s	959
24	kindle fire	239
24	lenovo thinkpad	1806
24	mac mini	298
24	macbook air	1716
24	macbook pro	3028
24	nexus 10	369
24	nexus 5	1151
24	nexus 7	418
24	nokia lumia 635	489
24	samsumg galaxy tablet	101
24	samsung galaxy note	245
24	samsung galaxy s4	940
24	windows surface	209
25	acer aspire desktop	263
25	acer aspire notebook	605
25	amazon fire phone	131
25	asus chromebook	432
25	dell inspiron desktop	644
25	dell inspiron notebook	1209
25	hp pavilion desktop	588
25	htc one	285
25	ipad air	640
25	ipad mini	234
25	iphone 4s	442
25	iphone 5	1645
25	iphone 5s	963
25	kindle fire	209
25	lenovo thinkpad	2096
25	mac mini	230
25	macbook air	1269
25	macbook pro	2932

25	nexus 10	258
25	nexus 5	935
25	nexus 7	557
25	nokia lumia 635	446
25	samsumg galaxy tablet	159
25	samsung galaxy note	134
25	samsung galaxy s4	1102
25	windows surface	234
26	acer aspire desktop	313
26	acer aspire notebook	328
26	amazon fire phone	137
26	asus chromebook	632
26	dell inspiron desktop	672
26	dell inspiron notebook	1077
26	hp pavilion desktop	512
26	htc one	225
26	ipad air	580
26	ipad mini	464
26	iphone 4s	503
26	iphone 5	1602
26	iphone 5s	1026
26	kindle fire	254
26	lenovo thinkpad	2214
26	mac mini	140
26	macbook air	1489
26	macbook pro	3309
26	nexus 10	261
26	nexus 5	912
26	nexus 7	428
26	nokia lumia 635	456
26	samsumg galaxy tablet	139
26	samsung galaxy note	97
26	samsung galaxy s4	1114
26	windows surface	177
27	acer aspire desktop	296
27	acer aspire notebook	582
27	amazon fire phone	109
27	asus chromebook	510
27	dell inspiron desktop	541
27	dell inspiron notebook	992
27	hp pavilion desktop	589
27	htc one	225
27	ipad air	482
27	ipad mini	344
27	iphone 4s	720
27	iphone 5	1867

27	iphone 5s	952
27	kindle fire	268
27	lenovo thinkpad	2233
27	mac mini	169
27	macbook air	1652
27	macbook pro	3548
27	nexus 10	320
27	nexus 5	1015
27	nexus 7	366
27	nokia lumia 635	325
27	samsumg galaxy tablet	146
27	samsung galaxy note	131
27	samsung galaxy s4	1154
27	windows surface	345
28	acer aspire desktop	303
28	acer aspire notebook	541
28	amazon fire phone	51
28	asus chromebook	511
28	dell inspiron desktop	744
28	dell inspiron notebook	1183
28	hp pavilion desktop	622
28	htc one	318
28	ipad air	547
28	ipad mini	364
28	iphone 4s	783
28	iphone 5	1654
28	iphone 5s	1039
28	kindle fire	342
28	lenovo thinkpad	2564
28	mac mini	340
28	macbook air	1671
28	macbook pro	3461
28	nexus 10	261
28	nexus 5	946
28	nexus 7	342
28	nokia lumia 635	405
28	samsumg galaxy tablet	102
28	samsung galaxy note	118
28	samsung galaxy s4	1260
28	windows surface	304
29	acer aspire desktop	212
29	acer aspire notebook	592
29	amazon fire phone	92
29	asus chromebook	529
29	dell inspiron desktop	560
29	dell inspiron notebook	1179

29	hp pavilion desktop	742
29	htc one	227
29	ipad air	620
29	ipad mini	364
29	iphone 4s	605
29	iphone 5	1593
29	iphone 5s	932
29	kindle fire	293
29	lenovo thinkpad	2438
29	mac mini	342
29	macbook air	1691
29	macbook pro	3155
29	nexus 10	272
29	nexus 5	793
29	nexus 7	392
29	nokia lumia 635	461
29	samsumg galaxy tablet	120
29	samsung galaxy note	141
29	samsung galaxy s4	1462
29	windows surface	260
30	acer aspire desktop	403
30	acer aspire notebook	646
30	amazon fire phone	170
30	asus chromebook	565
30	dell inspiron desktop	685
30	dell inspiron notebook	1488
30	hp pavilion desktop	466
30	htc one	306
30	ipad air	656
30	ipad mini	373
30	iphone 4s	740
30	iphone 5	1535
30	iphone 5s	1164
30	kindle fire	234
30	lenovo thinkpad	2584
30	mac mini	316
30	macbook air	1731
30	macbook pro	3578
30	nexus 10	282
30	nexus 5	983
30	nexus 7	629
30	nokia lumia 635	333
30	samsumg galaxy tablet	137
30	samsung galaxy note	156
30	samsung galaxy s4	1203
30	windows surface	170

31	acer aspire desktop	383
31	acer aspire notebook	554
31	amazon fire phone	157
31	asus chromebook	636
31	dell inspiron desktop	465
31	dell inspiron notebook	1242
31	hp pavilion desktop	601
31	htc one	117
31	ipad air	573
31	ipad mini	240
31	iphone 4s	631
31	iphone 5	1491
31	iphone 5s	663
31	kindle fire	136
31	lenovo thinkpad	2114
31	mac mini	232
31	macbook air	1574
31	macbook pro	3608
31	nexus 10	274
31	nexus 5	684
31	nexus 7	407
31	nokia lumia 635	298
31	samsumg galaxy tablet	80
31	samsung galaxy note	112
31	samsung galaxy s4	1068
31	windows surface	216
32	acer aspire desktop	354
32	acer aspire notebook	580
32	amazon fire phone	161
32	asus chromebook	611
32	dell inspiron desktop	519
32	dell inspiron notebook	1229
32	hp pavilion desktop	549
32	htc one	146
32	ipad air	463
32	ipad mini	257
32	iphone 4s	318
32	iphone 5	1301
32	iphone 5s	775
32	kindle fire	67
32	lenovo thinkpad	1898
32	mac mini	120
32	macbook air	1265
32	macbook pro	3320
32	nexus 10	318
32	nexus 5	678

32	nexus 7	235
32	nokia lumia 635	357
32	samsumg galaxy tablet	77
32	samsung galaxy note	116
32	samsung galaxy s4	812
32	windows surface	86
33	acer aspire desktop	363
33	acer aspire notebook	498
33	amazon fire phone	114
33	asus chromebook	581
33	dell inspiron desktop	408
33	dell inspiron notebook	1011
33	hp pavilion desktop	379
33	htc one	138
33	ipad air	376
33	ipad mini	260
33	iphone 4s	349
33	iphone 5	1203
33	iphone 5s	712
33	kindle fire	120
33	lenovo thinkpad	2156
33	mac mini	331
33	macbook air	1622
33	macbook pro	3182
33	nexus 10	163
33	nexus 5	641
33	nexus 7	255
33	nokia lumia 635	215
33	samsumg galaxy tablet	82
33	samsung galaxy note	127
33	samsung galaxy s4	729
33	windows surface	130
34	acer aspire desktop	281
34	acer aspire notebook	561
34	amazon fire phone	106
34	asus chromebook	557
34	dell inspiron desktop	465
34	dell inspiron notebook	1088
34	hp pavilion desktop	351
34	htc one	271
34	ipad air	306
34	ipad mini	252
34	iphone 4s	472
34	iphone 5	966
34	iphone 5s	715
34	kindle fire	119

34	lenovo thinkpad	1908
34	mac mini	395
34	macbook air	1456
34	macbook pro	3141
34	nexus 10	208
34	nexus 5	770
34	nexus 7	328
34	nokia lumia 635	151
34	samsumg galaxy tablet	119
34	samsung galaxy note	96
34	samsung galaxy s4	885
34	windows surface	160
35	acer aspire desktop	7
35	acer aspire notebook	28
35	asus chromebook	38
35	dell inspiron desktop	4
35	dell inspiron notebook	66
35	hp pavilion desktop	10
35	htc one	18
35	ipad mini	21
35	iphone 4s	57
35	iphone 5	9
35	iphone 5s	22
35	kindle fire	32
35	lenovo thinkpad	123
35	mac mini	25
35	macbook air	64
35	macbook pro	122
35	nexus 10	15
35	nexus 5	34
35	nexus 7	17
35	nokia lumia 635	7
35	samsung galaxy note	6
35	samsung galaxy s4	29
35	windows surface	30

5. Email Engagement:
   Calculate the email engagement metrics?

Sql Query:

```
SELECT
   week_no,
   action,
   occurence,
   ROUND(occurence * 100 / SUM(occurence) over(partition by
week_no), 2) as `Weekly Percentage Share`
FROM
   (SELECT
      EXTRACT(WEEK FROM occurred_at) AS week_no,
         action,
         COUNT(user_id) AS occurence
   FROM
      email_events
   GROUP BY 1 , 2
   ORDER BY 1) AS a;
```

Output:

week_no	action	occurence	Weekly Percentage Share
17	email_clickthrough	166	11.39
17	email_open	310	21.28
17	sent_reengagement_email	73	5.01
17	sent_weekly_digest	908	62.32
18	email_clickthrough	430	10.49
18	email_open	912	22.24
18	sent_reengagement_email	157	3.83
18	sent_weekly_digest	2602	63.45
19	email_clickthrough	477	11.13
19	email_open	972	22.67
19	sent_reengagement_email	173	4.04
19	sent_weekly_digest	2665	62.16
20	email_clickthrough	507	11.43
20	email_open	1004	22.64
20	sent_reengagement_email	191	4.31
20	sent_weekly_digest	2733	61.62
21	email_clickthrough	443	9.97
21	email_open	1014	22.82
21	sent_reengagement_email	164	3.69
21	sent_weekly_digest	2822	63.52

22	email_clickthrough	488	10.66
22	email_open	987	21.56
22	sent_reengagement_email	192	4.19
22	sent_weekly_digest	2911	63.59
23	email_clickthrough	538	11.18
23	email_open	1075	22.34
23	sent_reengagement_email	197	4.09
23	sent_weekly_digest	3003	62.39
24	email_clickthrough	554	10.99
24	email_open	1155	22.92
24	sent_reengagement_email	226	4.48
24	sent_weekly_digest	3105	61.61
25	email_clickthrough	530	10.54
25	email_open	1096	21.79
25	sent_reengagement_email	196	3.9
25	sent_weekly_digest	3207	63.77
26	email_clickthrough	556	10.61
26	email_open	1165	22.22
26	sent_reengagement_email	219	4.18
26	sent_weekly_digest	3302	62.99
27	email_clickthrough	621	11.37
27	email_open	1228	22.49
27	sent_reengagement_email	213	3.9
27	sent_weekly_digest	3399	62.24
28	email_clickthrough	599	10.77
28	email_open	1250	22.48
28	sent_reengagement_email	213	3.83
28	sent_weekly_digest	3499	62.92
29	email_clickthrough	590	10.51
29	email_open	1219	21.71
29	sent_reengagement_email	213	3.79
29	sent_weekly_digest	3592	63.98
30	email_clickthrough	630	10.59
30	email_open	1383	23.24
30	sent_reengagement_email	231	3.88
30	sent_weekly_digest	3706	62.29
31	email_clickthrough	445	7.66
31	email_open	1351	23.25
31	sent_reengagement_email	222	3.82
31	sent_weekly_digest	3793	65.27
32	email_clickthrough	418	7.14
32	email_open	1337	22.85
32	sent_reengagement_email	200	3.42
32	sent_weekly_digest	3897	66.59
33	email_clickthrough	490	7.91
33	email_open	1432	23.1

33	sent_reengagement_email	264	4.26
33	sent_weekly_digest	4012	64.73
34	email_clickthrough	490	7.67
34	email_open	1528	23.91
34	sent_reengagement_email	261	4.08
34	sent_weekly_digest	4111	64.33
35	email_clickthrough	38	29.92
35	email_open	41	32.28
35	sent_reengagement_email	48	37.8

Results:

Through this project I learned how Operation Analytics and Investigating Metric Spike help company to predict the future of the process.