Mode Analytics Case Study 1: User Engagement

Problem Statement

Examine the cause of the drop in user engagement for Yammer customer base

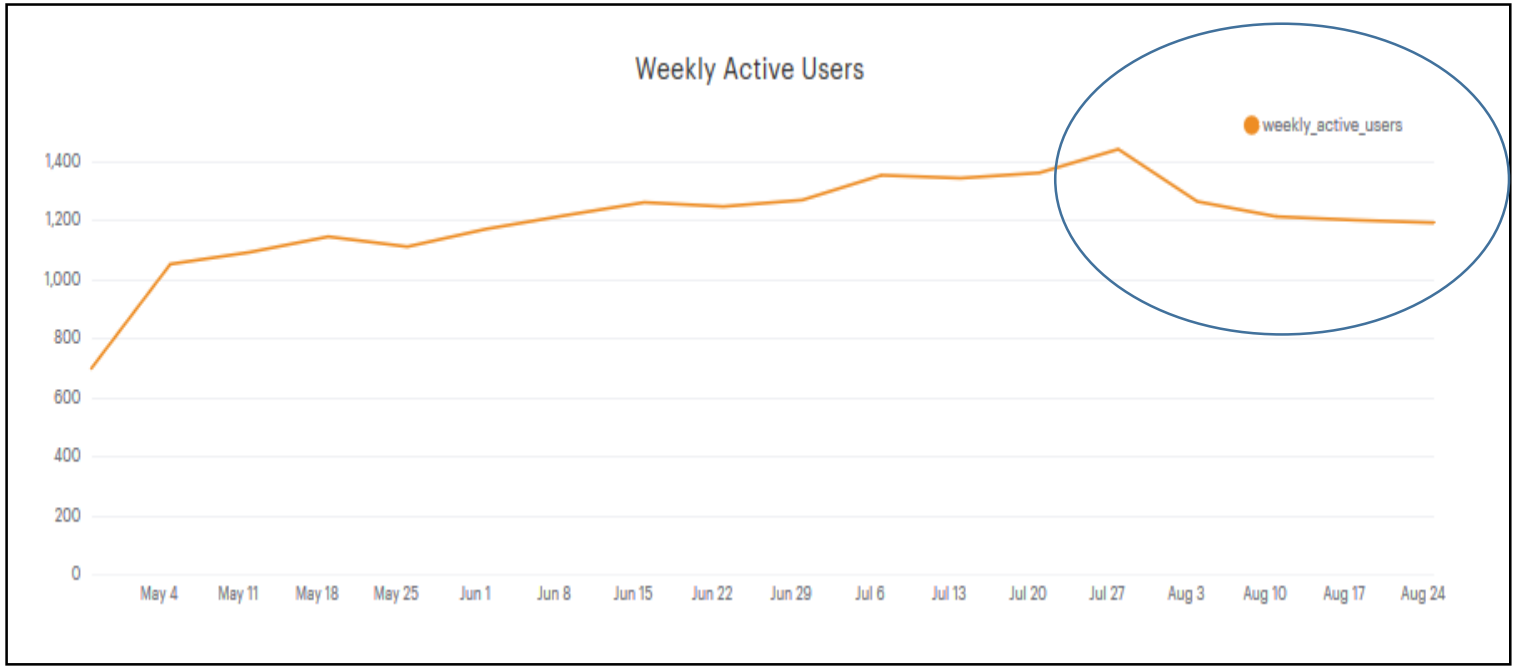
Solution Steps:

Step 1: Examining User Engagement

SQL Query:

```
--SQL code to identify active users over a period of time
 SELECT DATE_TRUNC('week', e.occurred_at),
      COUNT(DISTINCT e.user_id) AS weekly_active_users
  FROM tutorial.yammer_events e
 WHERE e.event_type = 'engagement'
GROUP BY 1
 ORDER BY 1
```

Drop in Engagement



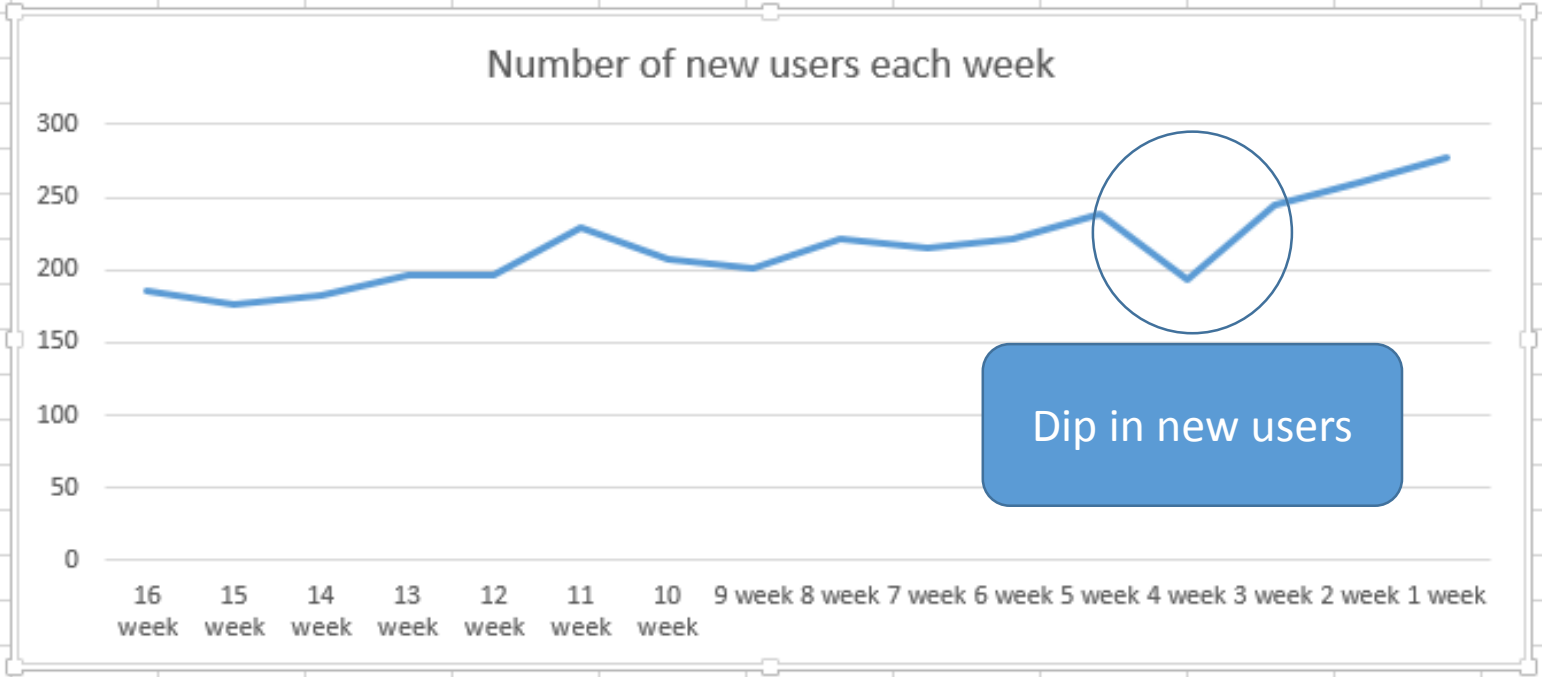
Step 2: Customers are of two types: Existing and New

Identifying pattern of acquiring new customers over time

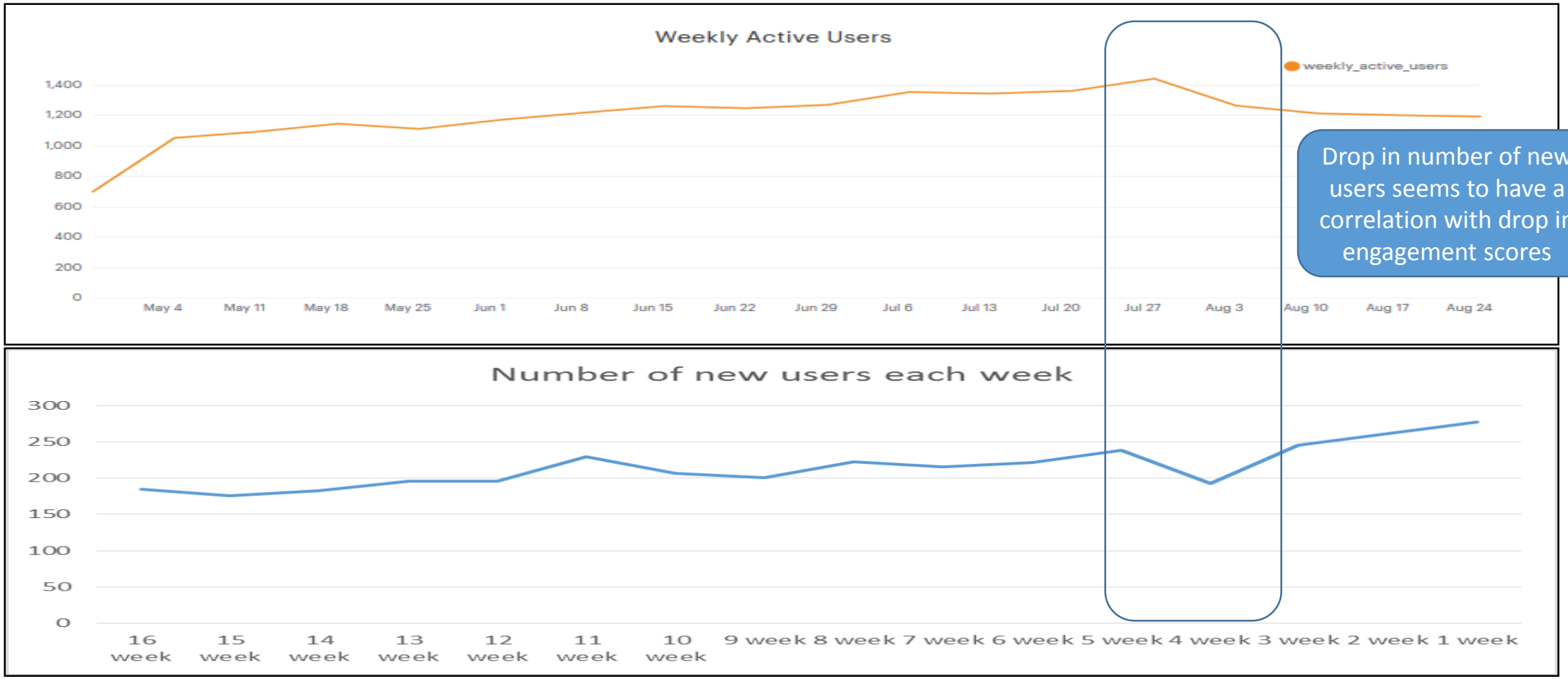
```
--SQL code to identify number of new customers acquired by Yammer each week

select sub.customerage, count(sub.customerage)
from(
                select *,
                  case when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 7 then '1 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 7 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 14 then '2 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 14 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 21 then '3 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 21 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 28 then '4 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 28 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 35 then '5 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 35 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 42 then '6 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 42 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 49 then '7 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 49 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 56 then '8 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 56 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 63 then '9 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 63 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 70 then '10 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 70 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 77 then '11 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 77 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 84 then '12 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 84 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 91 then '13 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 91 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 98 then '14 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 98 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 105 then '15 week'
                                when extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) > 105 and  extract('day' from '2014-09-01' ::TIMESTAMP - activated_at) <= 112 then '16 week'
                                else 'longterm'
                  end as "customerage"
                from tutorial.yammer_users
                where activated_at is not null
) sub
where sub.customerage <> 'longterm'
group by 1
order by 1
```

Step 2: Output

customer	count
16 week	185
15 week	176
14 week	183
13 week	196
12 week	196
11 week	229
10 week	207
9 week	201
8 week	222
7 week	215
6 week	221
5 week	238
4 week	193
3 week	245
2 week	261
1 week	277



Step 3: Validating impact of new user dip on engagement



Step 4: Evaluating engagement of customers over their lifetime by dividing them into cohorts

C:\Users\
ıu\Desktop\Springl

Link to query

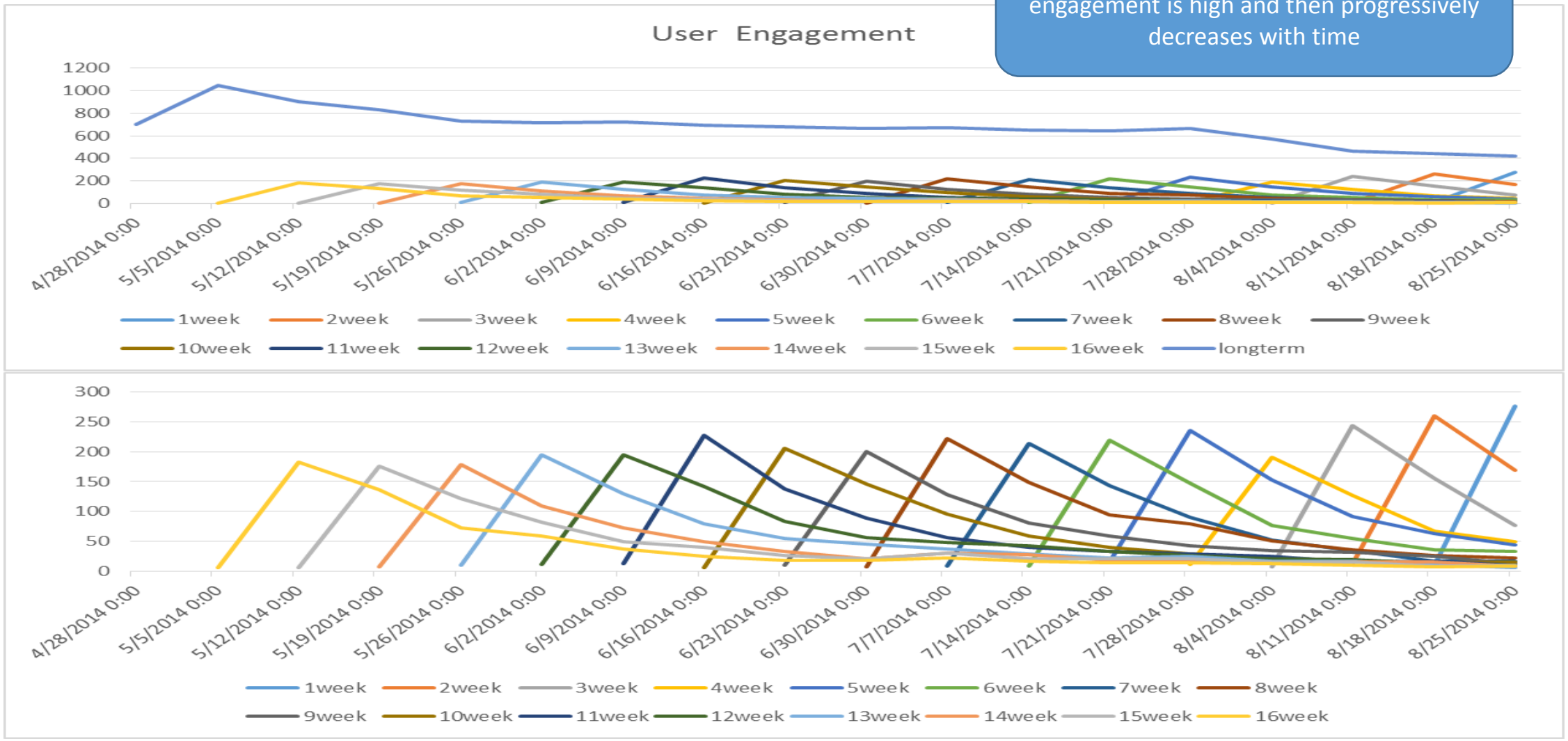
Entire query also pasted in notes below

Step 4: Output (1/2)

	week	1week	2week	3week	4week	5week	6week	7week	8week	9week	10week	11week	12week	13week	14week	15week	16week	longterm
1	2014-04-28 00:00:00																	701
2	2014-05-05 00:00:00																6	1048
3	2014-05-12 00:00:00															7	183	904
4	2014-05-19 00:00:00														8	176	137	826
5	2014-05-26 00:00:00													11	179	121	73	729
6	2014-06-02 00:00:00												12	194	110	82	59	716
7	2014-06-09 00:00:00											14	194	130	73	50	38	720
8	2014-06-16 00:00:00										7	227	142	79	50	40	25	692
9	2014-06-23 00:00:00									10	205	138	84	55	34	27	19	677
10	2014-06-30 00:00:00								8	200	146	89	57	46	22	21	19	663
11	2014-07-07 00:00:00							9	222	129	96	56	49	38	31	31	23	671
12	2014-07-14 00:00:00						9	214	149	81	60	40	43	29	28	22	18	652
13	2014-07-21 00:00:00					16	219	143	94	59	41	33	34	23	19	21	15	646
14	2014-07-28 00:00:00				12	235	147	91	80	43	29	30	27	25	19	21	15	668
15	2014-08-04 00:00:00			8	191	152	77	52	51	35	22	25	21	18	14	16	13	571
16	2014-08-11 00:00:00		13	243	127	92	55	35	37	32	19	16	20	17	16	16	11	466
17	2014-08-18 00:00:00	11	260	156	68	64	37	18	27	25	15	17	14	12	16	9	8	446
18	2014-08-25 00:00:00	276	169	77	50	44	33	18	23	14	16	11	11	6	9	10	9	418

Step 4: Output (2/2)

When a user starts using Yammer their engagement is high and then progressively decreases with time



Insights and Recommendation:

- Yammer as a product seems to have a problem of keeping user engaged over a period of time
- New users tend to use it frequently but their use of the application decreases as time goes on
- The current dip in engagement is attributed to two causes:
  - Over all downward trend of engagement of existing users
  - A dip in acquisition of new users (that tend to boost engagement at aggregate level)

- Recommendation:
- Incentivise use of Yammer application for existing users to arrest long term engagement decline
- For the short term, push hard for customer acquisition as the new users drive engagement