

Customer Engagement Analysis of Facebook Live Sellers in Thailand

Straight-A Students:

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Agenda

- Background
- Goal
- Data Preprocessing
- Data Visualization
- Conclusion
- Q&A



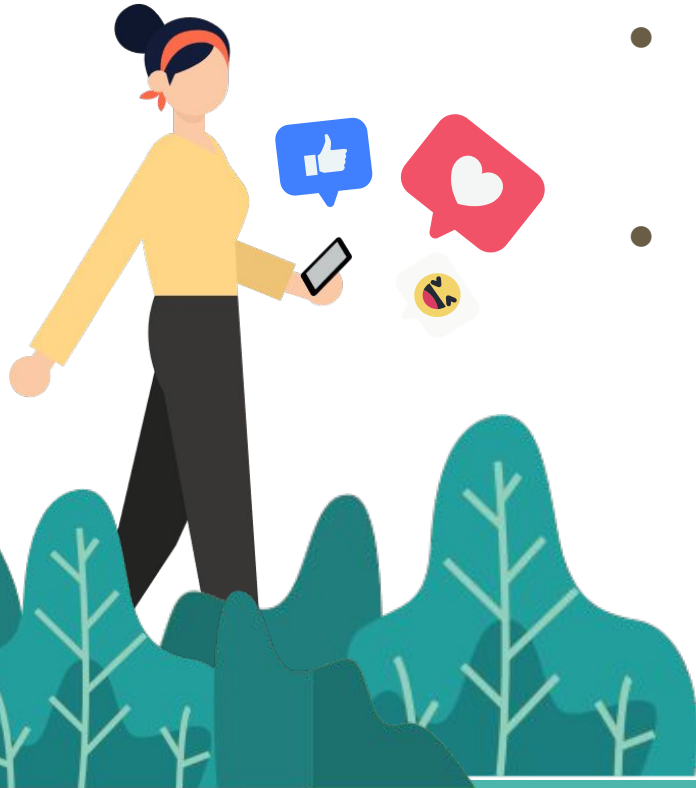
Background

Facebook Live Video was a new feature introduced in March 2016 that allows sellers to live-stream directly on Facebook's social networking platform. Since its launch, new reactions have been added to the platform, including 'love', 'wow', 'haha', 'sad', 'angry'. In this project, we will use the data from the Facebook pages of 10 Thai fashion and cosmetics retail sellers from March 2012 to June 2018. We were curious about customer behavior after the launch of this new feature and whether it changed the distribution of engagement across all types of posts.

Data Source: [UCI Machine Learning Repository: Facebook Live Sellers in Thailand Data Set](#)

Reference: <https://www.sciencedirect.com/science/article/pii/S2352340920305552>

Goal



- Compare the changes of customer engagement induced by Facebook Live.
- Visualize the effect of posts in different natures (video, photos, statuses, and links) on customer engagement.

Data Description & Preprocessing

The dataset is from UCI Machine learning and collected through Facebook API, containing 12 attributes and 7051 instances. Engagement metrics consist of number of reactions, which includes angrys, wows, loves, sads, hahas; traditional comments, shares, likes.

- **Remove empty columns**
- **Check data type and Summary statistic**
- **Check missing values & Deal with Datetime**
- **Group by data by status, year, and month**
- **Aggregate data metric per post**



Data Wrangling & Transformation

status_id	status_type	status_published
Min. : 1	Length:7050	Length:7050
1st Qu.:1763	Class :character	Class :character
Median :3526	Mode :character	Mode :character
Mean :3526		
3rd Qu.:5288		
Max. :7050		

num_reactions	num_comments	num_shares
Min. : 0.0	Min. : 0.0	Min. : 0.00
1st Qu.: 17.0	1st Qu.: 0.0	1st Qu.: 0.00
Median : 59.5	Median : 4.0	Median : 0.00
Mean : 230.1	Mean : 224.4	Mean : 40.02
3rd Qu.: 219.0	3rd Qu.: 23.0	3rd Qu.: 4.00
Max. :4710.0	Max. :20990.0	Max. :3424.00

num_likes	num_loves	num_wows
Min. : 0.0	Min. : 0.00	Min. : 0.000
1st Qu.: 17.0	1st Qu.: 0.00	1st Qu.: 0.000
Median : 58.0	Median : 0.00	Median : 0.000
Mean : 215.0	Mean : 12.73	Mean : 1.289
3rd Qu.: 184.8	3rd Qu.: 3.00	3rd Qu.: 0.000
Max. :4710.0	Max. :657.00	Max. :278.000

num_hahas	num_sads	num_angrys
Min. : 0.0000	Min. : 0.0000	Min. : 0.0000
1st Qu.: 0.0000	1st Qu.: 0.0000	1st Qu.: 0.0000
Median : 0.0000	Median : 0.0000	Median : 0.0000
Mean : 0.6965	Mean : 0.2437	Mean : 0.1132
3rd Qu.: 0.0000	3rd Qu.: 0.0000	3rd Qu.: 0.0000
Max. :157.0000	Max. :51.0000	Max. :31.0000

Check Missing Values

```
# check missing value
```{r}
sum(is.na(df))
```
```

```
[1] 0
```

Before

| status_id
<int> | status_type
<chr> | status_published
<chr> | num_reactions
<int> | num_comments
<int> |
|--------------------|----------------------|---------------------------|------------------------|-----------------------|
| 1 | video | 4/22/2018 6:00 | 529 | 512 |
| 2 | photo | 4/21/2018 22:45 | 150 | 0 |
| 3 | video | 4/21/2018 6:17 | 227 | 236 |
| 4 | photo | 4/21/2018 2:29 | 111 | 0 |



Group By

AFTER

| status_type
<chr> | status_published_year
<chr> | status_published_month
<chr> |
|----------------------|--------------------------------|---------------------------------|
| link | 2014 | 03 |
| link | 2015 | 01 |
| link | 2015 | 02 |
| link | 2015 | 03 |

- Summarise reactions, comments, shares, likes, ... by calculating their number per post.

Year Selected Function

Function Code

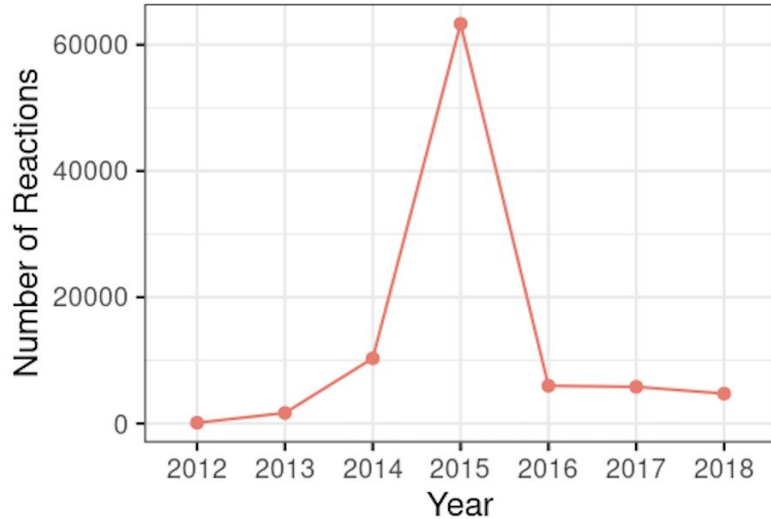
```
Yrstatus<-function(df, endYear, Status){  
  data <-df %>% filter(status_published_year == endYear)%>%  
    dplyr::filter(status_type%in%Status)  
  return(data)  
}
```

Implement

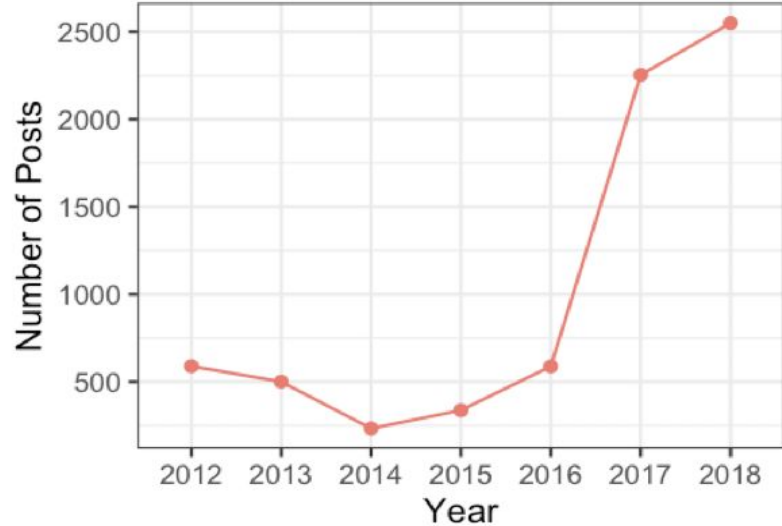
```
before_data <- Yrstatus(facebook_data, input$before_year, input$status) %>%
```


Data Visualization

Number of User Reactions(2012-2018)



Number of Posts (2012-2018)



Data Visualization-Reactions

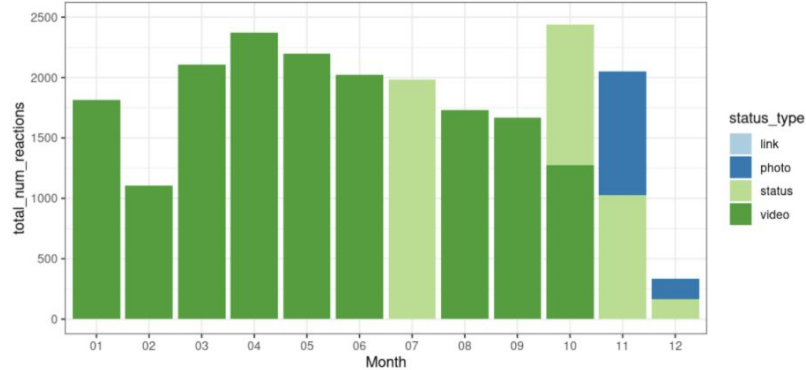
2015

New
Feature

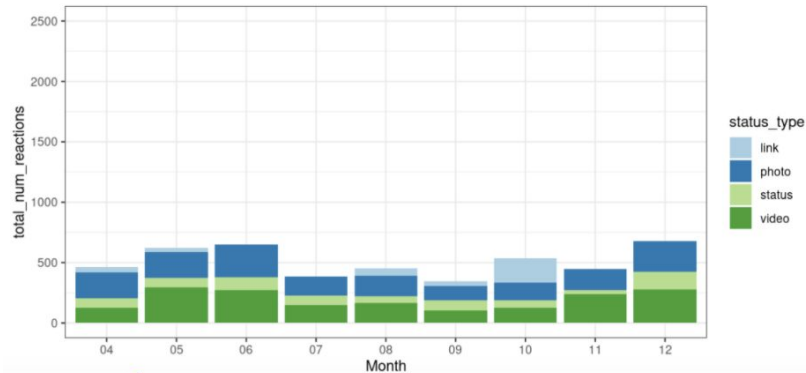


2016

Num of Reactions Before Launch New Feature

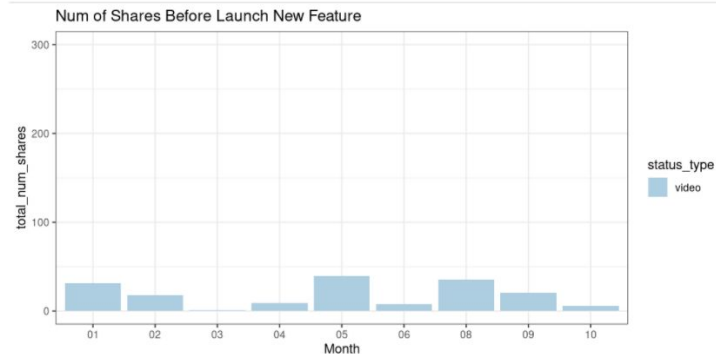
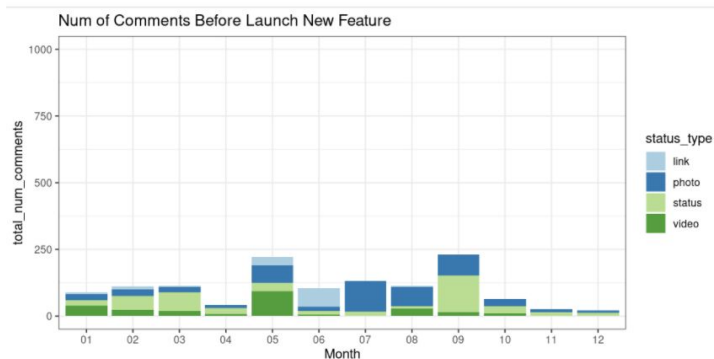


Num of Reactions After Launch New Feature

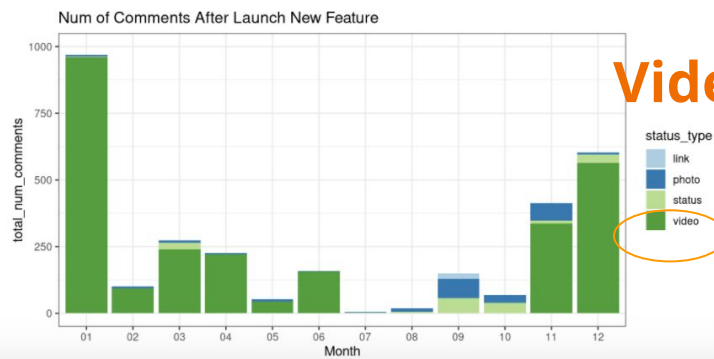


Data Visualization-Comments & Shares

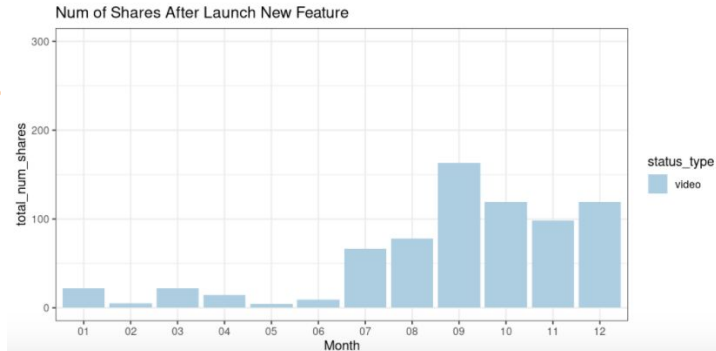
2015



2017

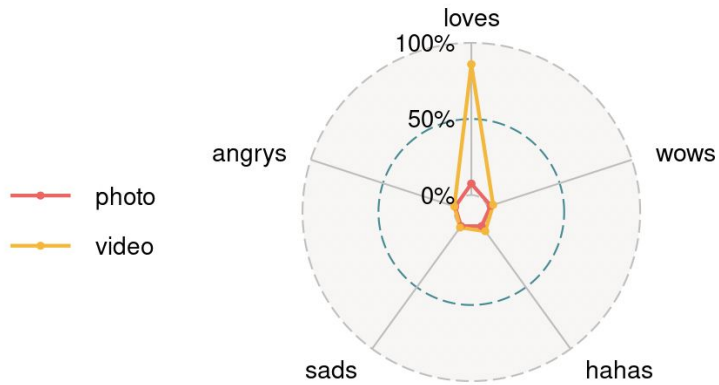


Videos

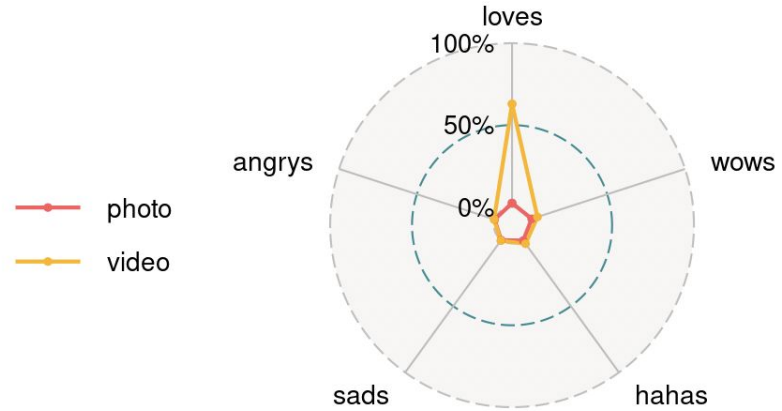


Data Visualization-Reactions Type

2017



2018



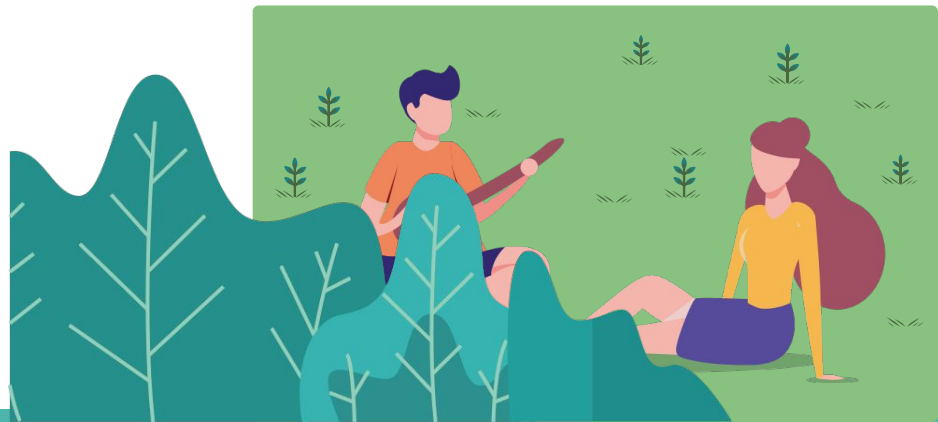


Let's go to our shiny app!

Conclusion & Discussion I

Our Discovery

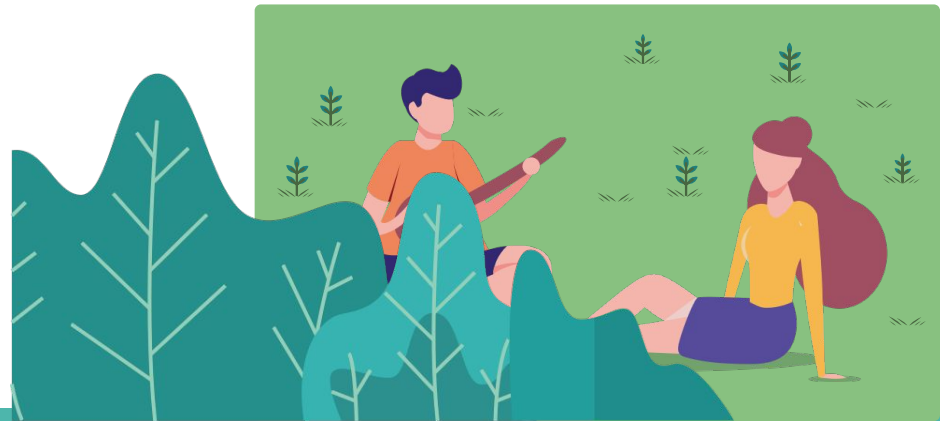
- The video status has a higher volume of Interactions
- More comments & shares under the video after launching the new feature
- # of Reactions reached the peak in 2015 and then decline



Conclusion & Discussion II

Suggestions For fashion and retail sellers

- Focus More on Videos
- Focus on improving the quality of the product itself
- Check the user activity on other social platform





Thank You!
Q & A