Hello,

Thank you for giving me the opportunity to complete the intern assessment. Here are the results of my assessment. I am looking forward to discussing it further with you!

Thank you for your time, and have a nice day!

Zoe Chen

1.

- Typical engagement rate: 40.49%

- The likelihood to achieve a 15% engagement rate: 8.26%

```python
import os
import pandas as pd
import statsmodels.api as sm
new_directory = "/Users/zoechan/Downloads"
os.chdir(new_directory)
df=pd.read_excel('social_data.xlsx')
# remove rows without impressions
df=df[df['Total Impressions'] != 0]
df['Engagement Rate'] = df['Total Engagements'] / df['Total Impressions']*100
print("Typical engagement rate: {:.4f}%".format(df['Engagement Rate'].mean()))
print("15% engagement rate: {:.4f}%".format(len(df[df['Engagement Rate'] >= 15]) / len(df)*100))
```

```
Typical engagement rate: 40.4926%
15% engagement rate: 8.2633%
```

2.

- Based on the average 'Engagement Rate' corresponding to different days of the week and hours, it appears that both the day of the week and the time of posting do affect engagement rates.

- Specifically, higher engagement rates are observed when posting on **Saturday and Monday** compared to other days of the week. Additionally, posting at **5am** results in a significantly higher 'Engagement Rate' compared to other time periods.

```
# substract 'Day of Week' and 'time of posting(Hour)'
df['Published Date'] = pd.to_datetime(df['Published Date'])
df['Day of Week'] = df['Published Date'].dt.dayofweek
df['Hour'] = df['Published Date'].dt.hour

#'Engagement Rate' corresponding to different days of the week
df_day = df.groupby('Day of Week').mean()
df_day['Engagement Rate'] = df_day['Total Engagements'] / df_day['Total Impressions']*100
print(df_day.sort_values('Engagement Rate', ascending=False))

#'Engagement Rate' corresponding to different Hours
df_hour = df.groupby('Hour').mean()
df_hour['Engagement Rate'] = df_hour['Total Engagements'] / df_hour['Total Impressions']*100
print(df_hour.sort_values('Engagement Rate', ascending=False))
```

```
            Total Impressions  Total Engagements  Engagement Rate       Hour
Day of Week
6                13618.054745        1443.357664        10.598853  13.120438
1                16583.009217        1685.453917        10.163740  12.281106
3                14978.390158        1344.323374         8.975086  12.789104
4                12810.125000        1100.335616         8.589578  12.820205
2                13371.687646        1045.491841         7.818698  11.734266
0                13311.983871         893.973118         6.715551  12.548387
5                11693.023166         566.386100         4.843795  11.907336
        Total Impressions  Total Engagements  Engagement Rate  Day of Week
Hour
5            13157.500000        3458.230769        26.283342     3.038462
7            10488.930693        1504.247525        14.341286     3.326733
20           11551.578947        1546.368421        13.386641     3.842105
17           12791.796296        1447.283951        11.314157     3.117284
8            14973.952756        1561.755906        10.429817     2.866142
18           11236.215054        1138.698925        10.134186     3.408602
14           14871.938983        1465.477966         9.853980     2.935593
16           13379.675889        1249.893281         9.341731     3.415020
4             5783.750000         516.875000         8.936676     3.750000
9            17410.865132        1537.444079         8.830372     2.973684
13           12810.387931        1053.849138         8.226520     2.775862
6            10656.808824         860.602941         8.075616     3.382353
```

3

- In terms of overall social performance, the game titles maintain an Engagement Rate within the range of 3% to 10%. Among them, **the game title 'General' stands out with the highest social performance**, indicated by the highest Engagement Rate and the highest Total Impressions provided by the company.

- Due to 'CSGO' being a key game for the company, it is suggested to focus on **improving conversion rate from Impressions to Engagement rather than decreasing impressions for 'CSGO'**.
  - 'CSGO' ranks second in Total Impressions, significantly higher than other games. However, its Engagement Rate is remarkably low, less than 45% of the Engagement Rate of the 'General' game and lower than games with lower Total Impressions. This indicates the need to address the conversion issue from Impressions to Engagement for 'CSGO'.

- Additionally, efforts should be made to **increase the impression for 'DOTA2'**.
  - 'DOTA2' has a relatively high Engagement Rate among these games. However, its Total Impressions are much lower compared to 'General' and 'CSGO'. Therefore, efforts should be made to increase the impression for 'DOTA2'.

```python
df['Account'].replace('General ', 'General', inplace=True)
df1 = df.drop(columns=['Day of Week', 'Hour'])

#group data by game title and calculaye engagement rate for each game title
df2 = df1.groupby('Account').mean()
df2['Engagement Rate'] = df2['Total Engagements'] / df2['Total Impressions']*100

# Show the data order by 'Engagement Rate' and 'Total Impressions'
print(df2.sort_values('Engagement Rate', ascending=False))
print(df2.sort_values('Total Impressions', ascending=False))
```

	Total Impressions	Total Engagements	Engagement Rate
Account			
General	19170.484181	1738.603390	9.069168
DOTA2	2663.790831	177.636103	6.668545
Valorant	675.852941	27.382353	4.051525
CSGO	11686.454545	466.343434	3.990461
Content Creators	1291.028571	39.628571	3.069535

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4.

- **'Photo' performs the best.**

- 'Photo' ranks second in terms of Total Impressions and Engagement Rate(9.07%). Although 'Album' has the highest Engagement Rate of 40%, its Total Impressions are too low, if a large number of impressions are generated for 'Album', the corresponding engagement rate for it would be unknown. Therefore, it is considered that 'Photo' performs the best.

```python
df3 = df1.groupby('Media Type').mean()
df3['Engagement Rate'] = df3['Total Engagements'] / df3['Total Impressions']*100
print(df3.sort_values('Engagement Rate', ascending=False))
print(df3.sort_values('Total Impressions', ascending=False))
```

	Total Impressions	Total Engagements	Engagement Rate
Media Type			
Album	20.000000	8.000000	40.000000
Photo	19191.961446	1741.155823	9.072318
Video	11958.028217	970.034989	8.111998
Text	5668.253650	449.474453	7.929681
Mixed	36996.800000	2732.800000	7.386585
Carousel	17854.333333	726.777778	4.070596
Link	5669.878049	55.048780	0.970899

	Total Impressions	Total Engagements	Engagement Rate
Media Type			
Mixed	36996.800000	2732.800000	7.386585
Photo	19191.961446	1741.155823	9.072318
Carousel	17854.333333	726.777778	4.070596
Video	11958.028217	970.034989	8.111998
Link	5669.878049	55.048780	0.970899
Text	5668.253650	449.474453	7.929681
Album	20.000000	8.000000	40.000000

5

- In the case of the highest Total Impressions, the campaign '**Community Engagement' performs the best** with an engagement rate of 8.59%. This engagement rate is significantly higher compared to other campaigns.

```
df4 = df1.groupby('Campaign Name').mean()
# remove data without Campaign Name
df4 = df4[df4.index!='N/A ']
df4['Engagement Rate'] = df4['Total Engagements'] / df4['Total Impressions']*100
print(df4.sort_values('Engagement Rate', ascending=False))
print(df4.sort_values('Total Impressions', ascending=False))
```

```
                      Total Impressions  Total Engagements  Engagement Rate
Campaign Name
Community Engagement        17261.606962        1482.789703         8.590102
Evergreen                    8252.975155         267.869565         3.245733
Evil Exhibited              14612.201018         471.513995         3.226851
                      Total Impressions  Total Engagements  Engagement Rate
Campaign Name
Community Engagement        17261.606962        1482.789703         8.590102
Evil Exhibited              14612.201018         471.513995         3.226851
Evergreen                    8252.975155         267.869565         3.245733
```

6.

Defining posting strategies with following aspects:

- **Posting Time**
  - Allocate the highest volume of posts to Monday and Saturday, with a focus on posting the most during the 5AM time slot.

- **Game Titles**
  - Increase the impression posts for 'DOTA2' to enhance its exposure and reach.
  - As 'CSGO' has a high total impression count, indicating its importance, analyze the conversion from impressions to engagement specifically for 'CSGO'.
    - For example, assess the performance of 'CSGO' posts across different media types and allocate more impressions to the media types that yield better conversion results.

- **Media Types**
  - Currently, 'Text' has low impressions but a high conversion rate, so consider increasing impressions for this type.
  - Carousel, on the other hand, has high impressions but a low conversion rate, so it may be beneficial to reduce impressions for this type.
  - Maintain the current posting strategy for Mixed, Photo, and Video channels, as they have shown favorable performance.

- **Campaign Name**
  - Increase the number of impression posts for the 'Community Engagement' campaign. This campaign has demonstrated positive engagement rates, making it worth investing more impressions in.

7.

When considering expanding from YouTube to TikTok, it is important to evaluate the following aspects:

- **Consistency of target audience**

- Assess whether the target audience on TikTok aligns with the current audience on YouTube. TikTok primarily caters to a younger demographic with a preference for short-form videos. Determine if TikTok can attract the desired target audience.

- **Competitors' performance on TikTok**

  - Research the performance of competitors on various social media platforms, with a specific focus on those whose performance on TikTok aligns with your company's CSGO YouTube channel. Pay attention to their performance, advertising strategies, and conversion rates. Learn from their experiences and understand market competitiveness.

- **Evaluation of operational capabilities**

  - Assess your team's ability to effectively operate on TikTok. TikTok has its own unique approach, including short-form videos and traffic pools. Ensure that your team has the skills to produce high-quality short videos and manage TikTok campaigns effectively. Alternatively, consider partnering with external MCN agencies to enhance your TikTok operations.

- **Identify unique selling points on TikTok**

  - Determine how your company can stand out on TikTok by highlighting unique, attractive, and creative elements that resonate with the platform's audience and your company's target audience.

- **Familiarize with TikTok's advertising data analytics tools**

  - TikTok offers robust advertising analytics tools. Learn how to use these tools effectively to monitor performance and make timely adjustments to your advertising strategy.

- **Consider posting costs**

  - Understand the cost of advertising on TikTok and develop a budget based on competitors' performance and market conditions. This will help ensure that your advertising investments are reasonable and aligned with your objectives.