Evil Genius Data Analyst

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```
social<-read_excel("social_data.xlsx")
```

1. What is the typical engagement rate we can expect? What's the likelihood that we can achieve a 15% engagement rate?

```
engagement<- social %>%
  group_by(`Media Type`) %>%
  summarize(engagement = mean(`Total Engagements`/`Total Impressions`, na.rm = TRUE) * 100)
```

Looking into each Media Type's Engagement, we can see that there is a strange value given for the Media Type "Photo". A cursory look through the data didn't indicate an 80% engagement rate.

```
picture_df <- subset(social, `Media Type` == "Photo")
picture_engagement <- picture_df %>%
  summarize(engagement = mean(`Total Engagements`/`Total Impressions`, na.rm = TRUE) * 100)
```

I sorted the data and found that there were some entries where Total Engagements > Total Impressions; which should not be possible. We would check with the marketing team whether these entries were recorded wrong or not.

For now we omit these entries.

```
social <- social[!(social$`Total Impressions` < social$`Total Engagements`), ]
engagement<- social %>%
  group_by(`Media Type`) %>%
  summarize(engagement = mean(`Total Engagements`/`Total Impressions`, na.rm = TRUE) * 100)
```

Here we get a table for engagement rate.

2. Does day of the week and time of posting affect engagement rates?

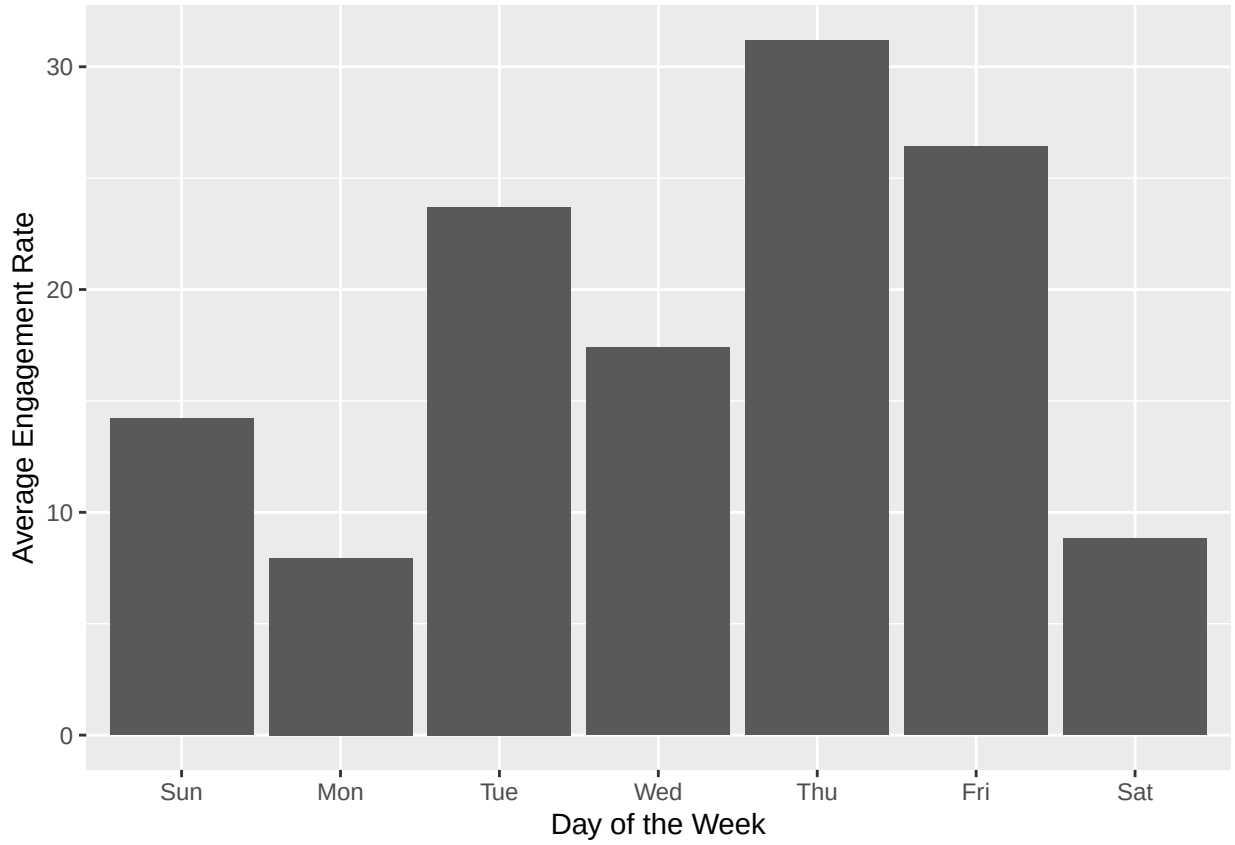
```
social$`Published Date` <- ymd_hms(social$`Published Date`)
social$DOTW <- wday(social$`Published Date` , label = TRUE)  # Extract day of the week
social$TOTD <- format(social$`Published Date`, format = "%H:%M:%S")

social$Engagement <- social$`Total Engagements` / social$`Total Impressions`
```

```r
engagement_by_day_time <- social %>%
  group_by(DOTW, TOTD) %>%
  summarize(avg_engagement_rate = mean(Engagement))
```

```
## `summarise()` has grouped output by 'DOTW'. You can override using the
## `.groups` argument.
```

```r
ggplot(engagement_by_day_time, aes(x = DOTW, y = avg_engagement_rate)) +
  geom_bar(stat = "identity") +
  labs(x = "Day of the Week", y = "Average Engagement Rate")
```

```
## Warning: Removed 629 rows containing missing values (position_stack).
```

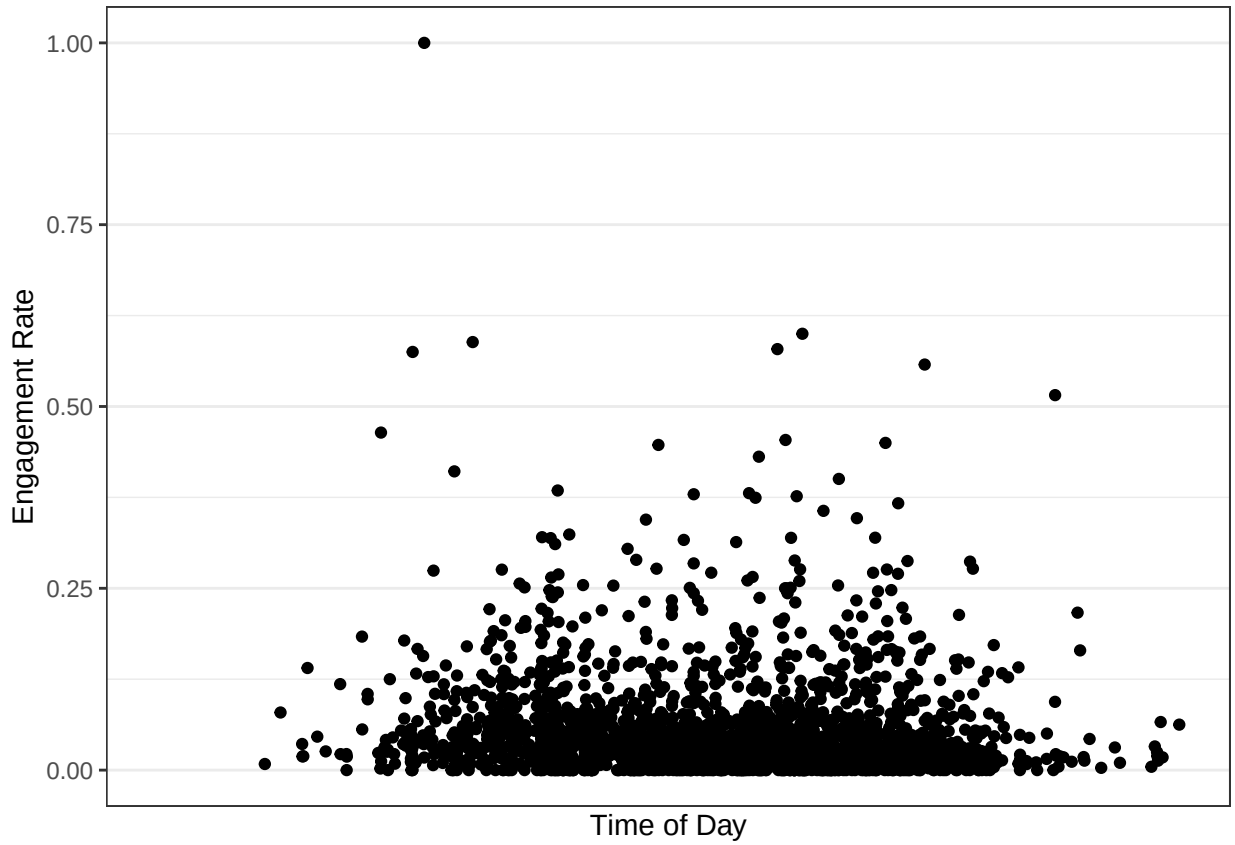



```r
engagement_by_day_time$TOTD <- as.POSIXct(engagement_by_day_time$TOTD, format = "%H:%M:%S")

ggplot(engagement_by_day_time, aes(x = TOTD, y = avg_engagement_rate)) +
  geom_point() +
  scale_x_time(labels = date_format("%H:%M:%S"), breaks = "1 hour") +
  labs(x = "Time of Day", y = "Engagement Rate") +
  theme_bw()+
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5))
```

```
## Warning in structure(as.numeric(x), names = names(x)): NAs introduced by
## coercion
```

```
## Warning in structure(as.numeric(x), names = names(x)): NAs introduced by
## coercion
```

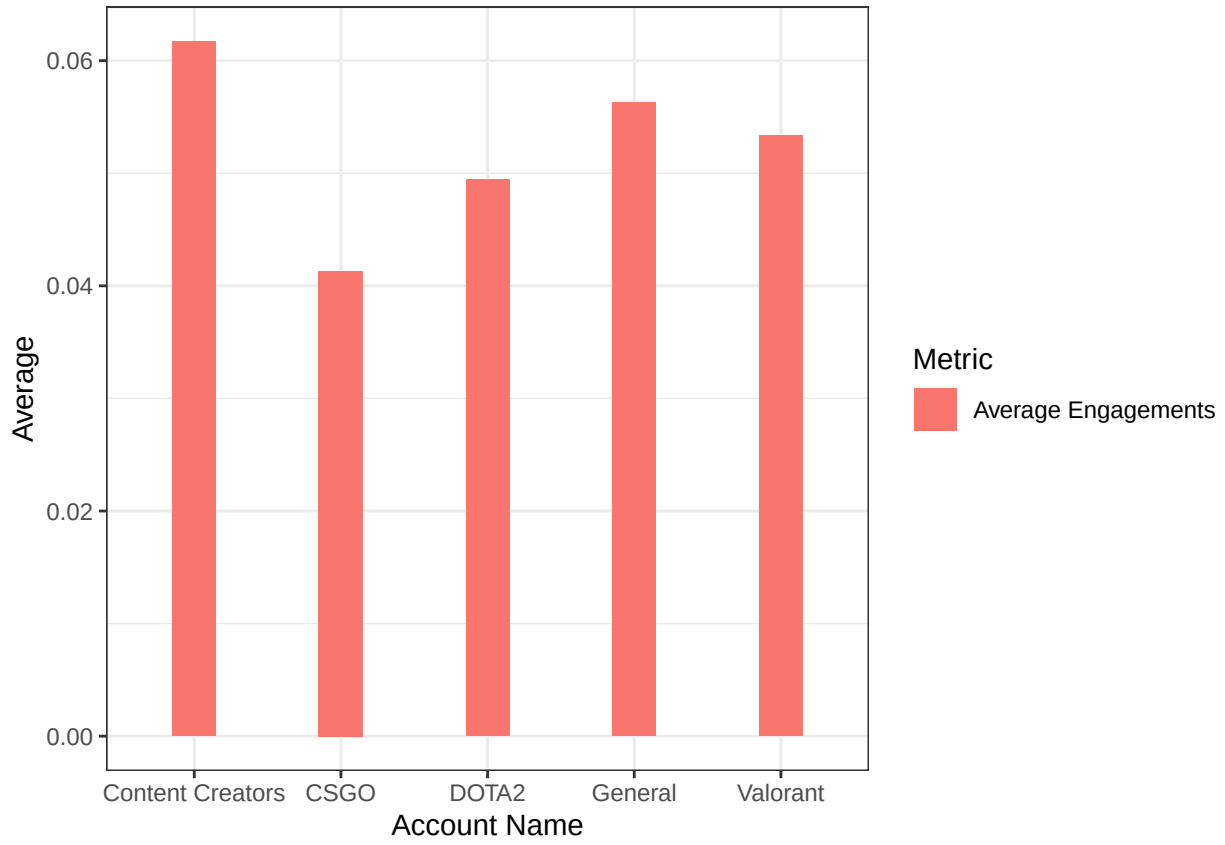
```
## Warning: Removed 629 rows containing missing values (geom_point).
```



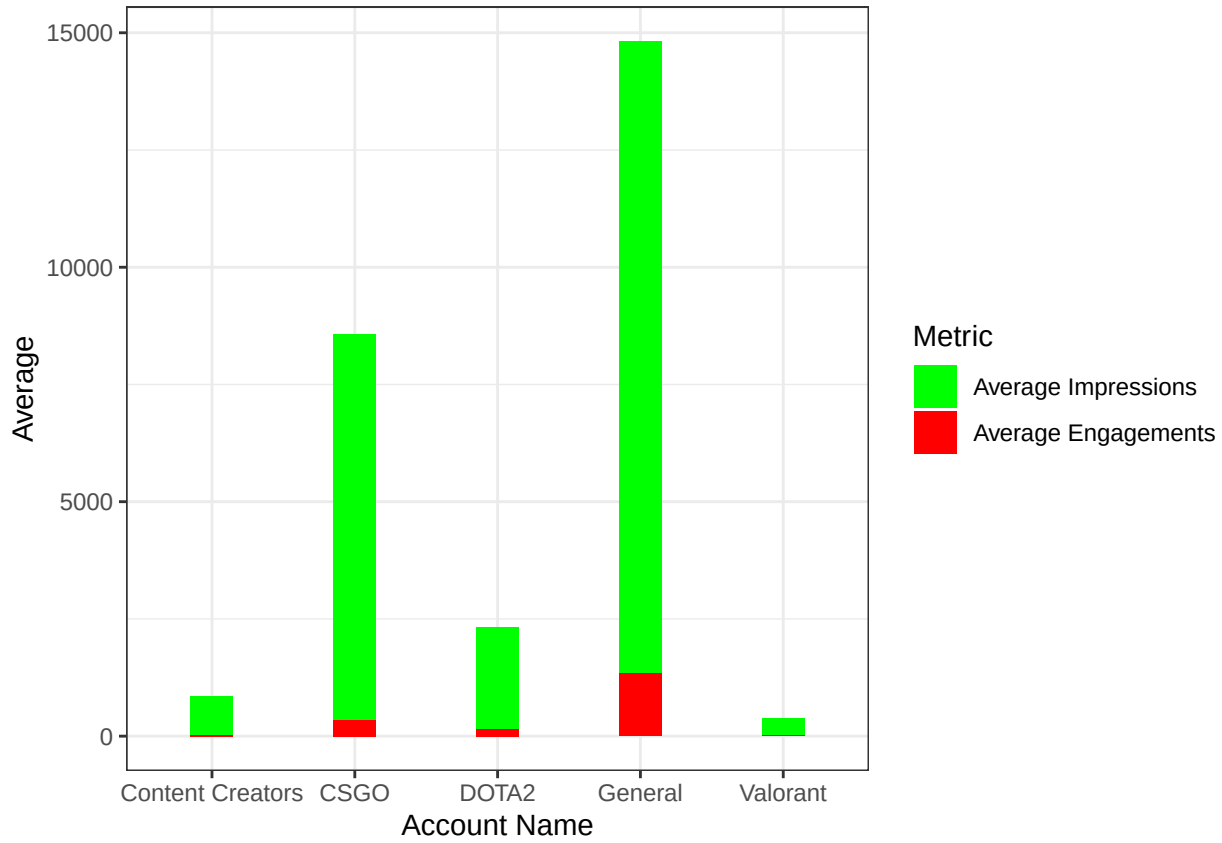
The graph shows that the best days in the week to post are Tuesday, Thursdays, and Fridays. The scatter plot for the time of the day however, offers no insight on the time of the day that is best.

3. How are our game titles doing in terms of social performance? Is there a specific game we should focus more on or less?

```
averages <- social %>%
  group_by(Account) %>%
  summarize(Average_ER = mean(`Engagement`,na.rm=TRUE),
            Average_Impressions = mean(`Total Impressions`),
            Average_Engagements = mean(`Total Engagements`))

ggplot(averages, aes(x = Account)) +
  geom_col(aes(y = Average_ER, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Account Name", y = "Average", fill = "Metric") +
  theme_bw()
```



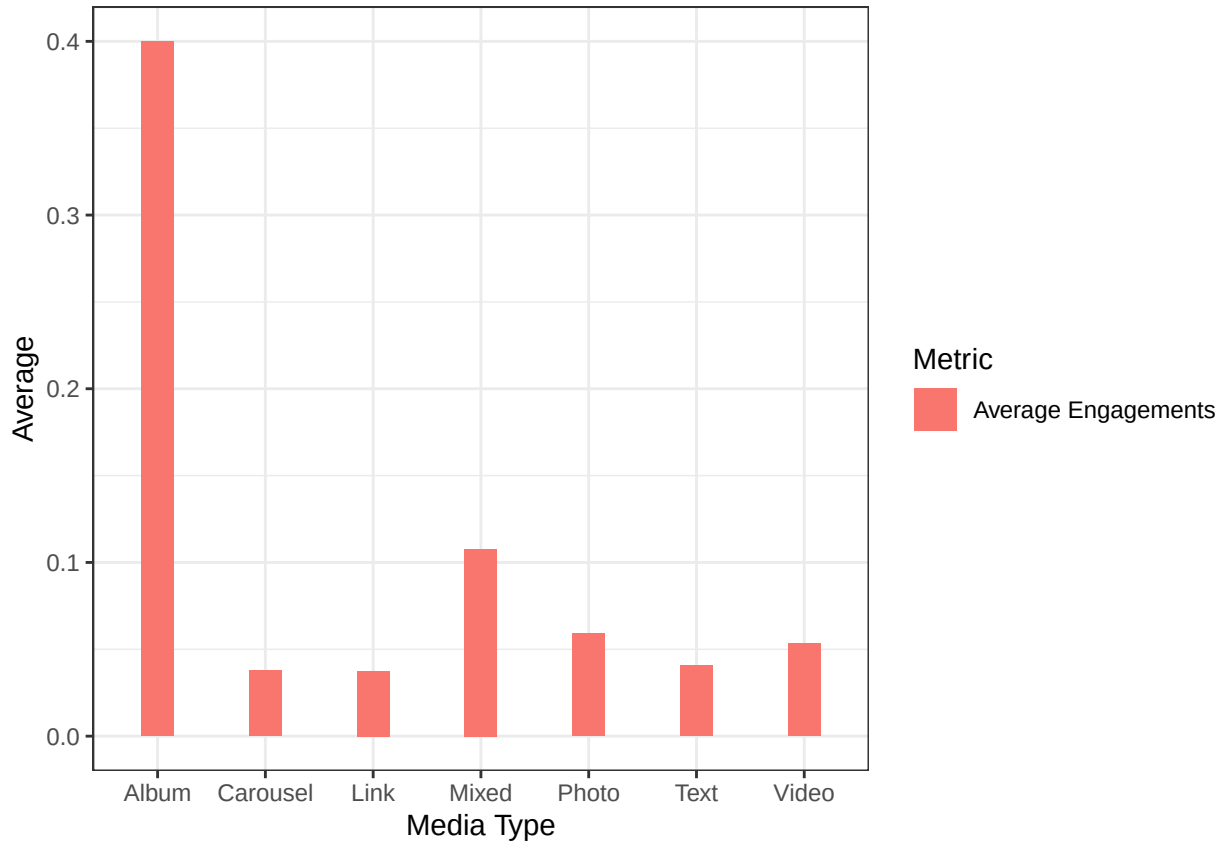

```
# Create the chart
ggplot(averages, aes(x = Account)) +
  geom_col(aes(y = Average_Impressions, fill = "Average Impressions"), width = 0.3) +
  geom_col(aes(y = Average_Engagements, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Account Name", y = "Average", fill = "Metric") +
  scale_fill_manual(values = c( "Average Impressions" = "green", "Average Engagements" = "red")) +
  theme_bw()
```



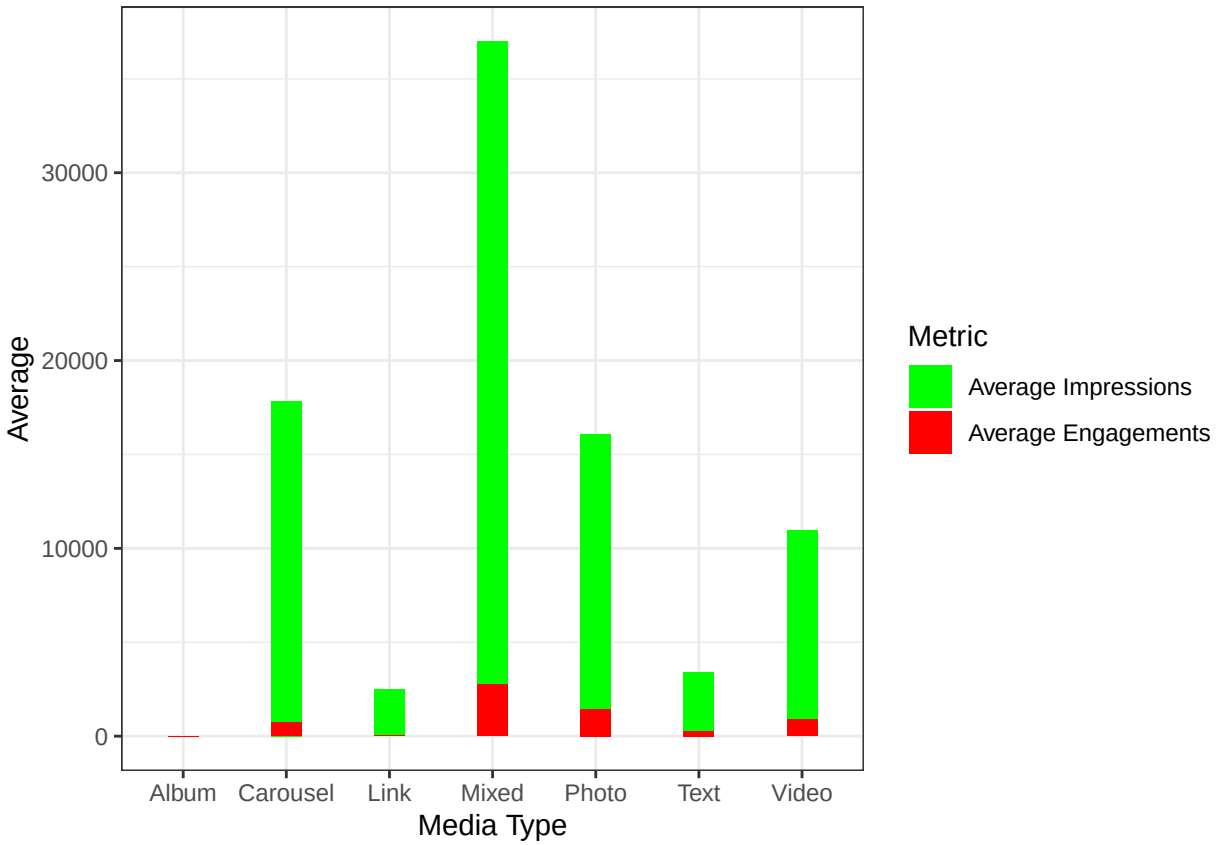
It seems that CSGO has the most impressions but fails to get a correlating engagement rate, with Valorant and DOTA2 posts doing better on average.

4. What media type performs the best?

```
mediatype <- social %>%
  group_by(`Media Type`) %>%
  summarize(Average_ER = mean(`Engagement`,na.rm=TRUE),
            Average_Impressions = mean(`Total Impressions`),
            Average_Engagements = mean(`Total Engagements`))

ggplot(mediatype, aes(x = `Media Type`)) +
  geom_col(aes(y = Average_ER, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Media Type", y = "Average", fill = "Metric") +
  theme_bw()
```



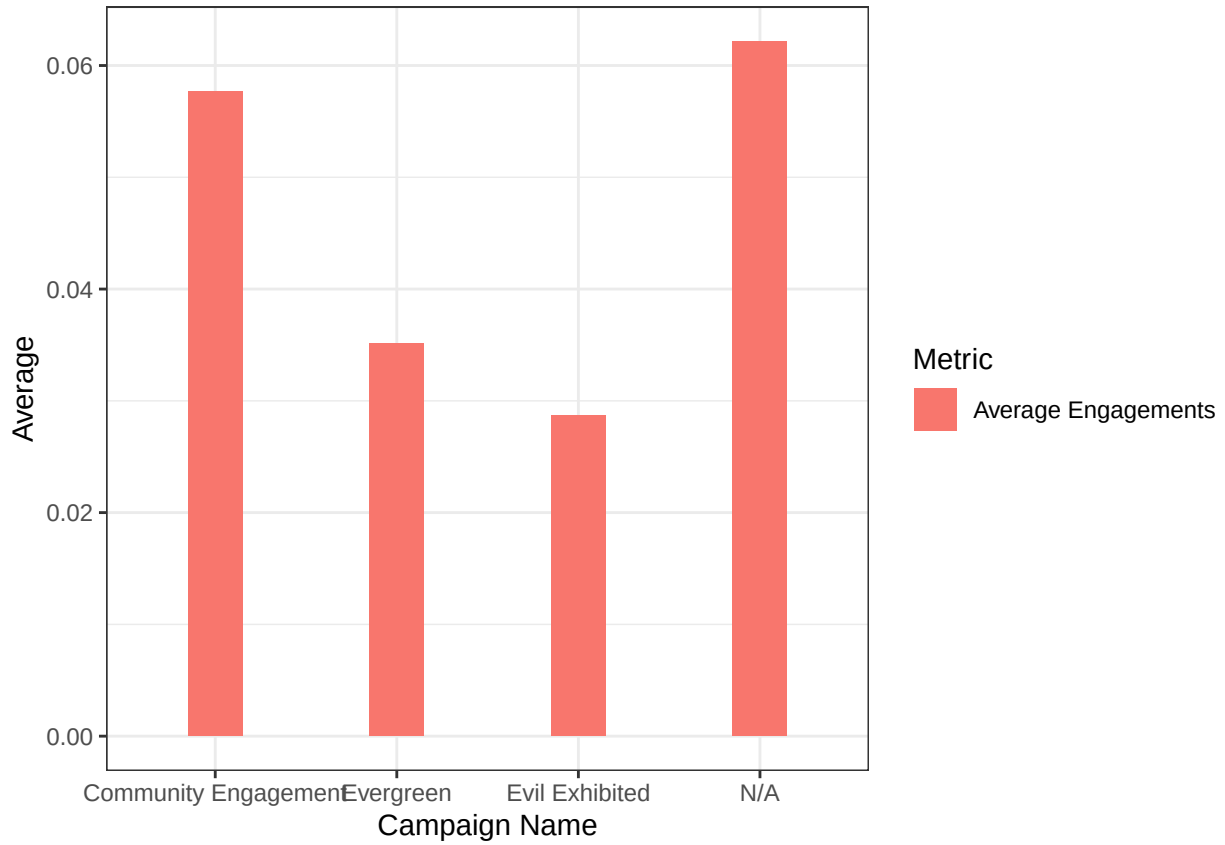

```
# Create the chart
ggplot(mediatype, aes(x = `Media Type`)) +
  geom_col(aes(y = Average_Impressions, fill = "Average Impressions"), width = 0.3) +
  geom_col(aes(y = Average_Engagements, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Media Type", y = "Average", fill = "Metric") +
  scale_fill_manual(values = c( "Average Impressions" = "green", "Average Engagements" = "red")) +
  theme_bw()
```



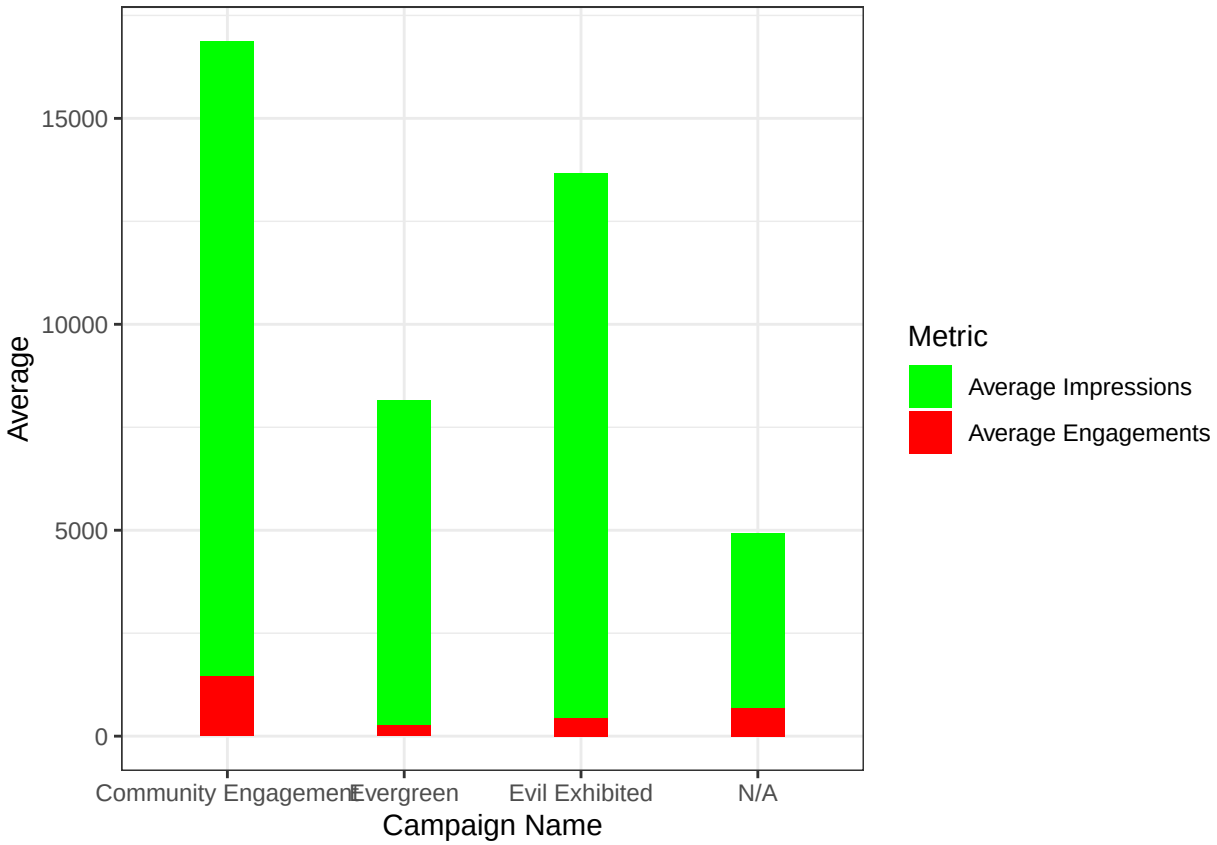
Here we can ignore 'Album' considering the fact that there is only 1 entry of that type. It seems that 'Mixed' and 'Photo' both perform well on average with engagement rate.

5. What is our best performing campaign?

```
campperf <- social %>%
  group_by(`Campaign Name`) %>%
  summarize(Average_ER = mean(`Engagement`,na.rm=TRUE),
            Average_Impressions = mean(`Total Impressions`),
            Average_Engagements = mean(`Total Engagements`))

ggplot(campperf, aes(x = `Campaign Name`)) +
  geom_col(aes(y = Average_ER, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Campaign Name", y = "Average", fill = "Metric") +
  theme_bw()
```




```
# Create the chart
ggplot(campperf, aes(x = `Campaign Name`)) +
  geom_col(aes(y = Average_Impressions, fill = "Average Impressions"), width = 0.3) +
  geom_col(aes(y = Average_Engagements, fill = "Average Engagements"), width = 0.3) +
  labs(x = "Campaign Name", y = "Average", fill = "Metric") +
  scale_fill_manual(values = c( "Average Impressions" = "green", "Average Engagements" = "red")) +
  theme_bw()
```



The best performing campaign seems to be the Community Engagement campaign.

6. Define out a posting strategy for our social channels based on your discoveries.

7. What suggestions would you give to the social media team if they want to expand their presence (e.g. if our CSGO youtube channel is doing well should we expand to TikTok)?