# Social Buzz Analysis

In [1]:
```
import pandas as pd
import numpy as np
import seaborn as sns
```

## Data Cleaning

Wrangling Reactions

In [2]:
```
R_df=pd.read_csv('reactions.csv')
```

In [3]:
```
R_df
```

Out[3]:

| | Unnamed: 0 | Content ID | User ID | Type | Datetime |
|---|---|---|---|---|---|
| **0** | 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | NaN | NaN | 2021-04-22 15:17:15 |
| **1** | 1 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 5d454588-283d-459d-915d-c48a2cb4c27f | disgust | 2020-11-07 09:43:50 |
| **2** | 2 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 92b87fa5-f271-43e0-af66-84fac21052e6 | dislike | 2021-06-17 12:22:51 |
| **3** | 3 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 163daa38-8b77-48c9-9af6-37a6c1447ac2 | scared | 2021-04-18 05:13:58 |
| **4** | 4 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 34e8add9-0206-47fd-a501-037b994650a2 | disgust | 2021-01-06 19:13:01 |
| **...** | ... | ... | ... | ... | ... |
| **25548** | 25548 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | 80c9ce48-46f9-4f5e-b3ca-3b698fc2e949 | dislike | 2020-06-27 09:46:48 |
| **25549** | 25549 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | 2bd9c167-e06c-47c1-a978-3403d6724606 | intrigued | 2021-02-16 17:17:02 |
| **25550** | 25550 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | NaN | interested | 2020-09-12 03:54:58 |
| **25551** | 25551 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | 5ffd8b51-164e-47e2-885e-8b8c46eb63ed | worried | 2020-11-04 20:08:31 |
| **25552** | 25552 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | 4edc3d1a-a7d9-4db6-89c3-f784d9954172 | cherish | 2021-01-04 04:55:11 |

In [4]:
```
R_df=R_df.drop(columns=['Unnamed: 0', 'User ID'])
```

In [5]:
```
R_df= R_df.dropna()
```

In [6]:
```
R_df
```

Out[6]:

| | Content ID | Type | Datetime |
|---|---|---|---|
| **1** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | disgust | 2020-11-07 09:43:50 |
| **2** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | dislike | 2021-06-17 12:22:51 |
| **3** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | scared | 2021-04-18 05:13:58 |
| **4** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | disgust | 2021-01-06 19:13:01 |
| **5** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | interested | 2020-08-23 12:25:58 |
| **...** | ... | ... | ... |
| **25548** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | dislike | 2020-06-27 09:46:48 |
| **25549** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | intrigued | 2021-02-16 17:17:02 |
| **25550** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | interested | 2020-09-12 03:54:58 |
| **25551** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | worried | 2020-11-04 20:08:31 |
| **25552** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | cherish | 2021-01-04 04:55:11 |

24573 rows × 3 columns

In [7]:
```
R_df['Type'].unique()
```

Out[7]:
```
array(['disgust', 'dislike', 'scared', 'interested', 'peeking', 'cherish',
       'hate', 'love', 'indifferent', 'super love', 'intrigued',
       'worried', 'like', 'heart', 'want', 'adore'], dtype=object)
```

In [8]:
```
R_df['Type']=R_df['Type'].replace({'disgust':'Disgust', 'dislike':'Dislike', 'scared':'Scared',
                                   'interested':'Interested', 'peeking':'Peeking','cherish':'Cherish','ha
                                   'love':'Love', 'indifferent':'Indifferent', 'super love':'super Love',
                                   'worried':'Worried', 'like':'Like', 'heart':'Heart', 'want':'Want', 'a
```

In [9]:
```
R_df['Datetime'] = pd.to_datetime(R_df['Datetime']).dt.strftime('%Y-%m-%d, %H-%M-%S')
```

In [10]:
```
R_df = R_df.rename(columns={'Type': 'Reaction_Type'})
```

In [11]:
```
R_df
```

Out[11]:

| | Content ID | Reaction_Type | Datetime |
|---|---|---|---|
| **1** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Disgust | 2020-11-07, 09-43-50 |
| **2** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Dislike | 2021-06-17, 12-22-51 |
| **3** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Scared | 2021-04-18, 05-13-58 |
| **4** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Disgust | 2021-01-06, 19-13-01 |
| **5** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Interested | 2020-08-23, 12-25-58 |
| **...** | ... | ... | ... |
| **25548** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Dislike | 2020-06-27, 09-46-48 |
| **25549** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Intrigued | 2021-02-16, 17-17-02 |
| **25550** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Interested | 2020-09-12, 03-54-58 |
| **25551** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Worried | 2020-11-04, 20-08-31 |
| **25552** | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Cherish | 2021-01-04, 04-55-11 |

Exporting reactions as Reactions_df

In [12]:
```
Reactions_df=R_df.to_csv('Reactions_df.csv', index=False)
```

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In [ ]:
```

```

Wrangling Reaction Types

In [13]:
```
RT_df=pd.read_csv('ReactionTypes.csv')
```

In [14]:
```
RT_df
```

Out[14]:

| | Unnamed: 0 | Type | Sentiment | Score |
|---|---|---|---|---|
| **0** | 0 | heart | positive | 60 |
| **1** | 1 | want | positive | 70 |
| **2** | 2 | disgust | negative | 0 |
| **3** | 3 | hate | negative | 5 |
| **4** | 4 | interested | positive | 30 |
| **5** | 5 | indifferent | neutral | 20 |
| **6** | 6 | love | positive | 65 |
| **7** | 7 | super love | positive | 75 |
| **8** | 8 | cherish | positive | 70 |
| **9** | 9 | adore | positive | 72 |
| **10** | 10 | like | positive | 50 |
| **11** | 11 | dislike | negative | 10 |
| **12** | 12 | intrigued | positive | 45 |
| **13** | 13 | peeking | neutral | 35 |
| **14** | 14 | scared | negative | 15 |
| **15** | 15 | worried | negative | 12 |

In [15]:
```
RT_df=RT_df.drop(columns=['Unnamed: 0'])
```

In [16]:
```
RT_df['Type']=RT_df['Type'].replace({'disgust':'Disgust', 'dislike':'Dislike', 'scared':'Scared',
                                     'interested':'Interested', 'peeking':'Peeking','cherish':'Cherish','ha
                                     'love':'Love', 'indifferent':'Indifferent', 'super love':'super Love',
                                     'worried':'Worried', 'like':'Like', 'heart':'Heart', 'want':'Want', 'a
```

In [17]:
```
RT_df['Sentiment']=RT_df['Sentiment'].replace({'positive':'Positive', 'negative':'Negative','neutral':'N
```

In [18]:
```
RT_df
```

Out[18]:

| | Type | Sentiment | Score |
|---|---|---|---|
| 0 | Heart | Positive | 60 |
| 1 | Want | Positive | 70 |
| 2 | Disgust | Negative | 0 |
| 3 | Hate | Negative | 5 |
| 4 | Interested | Positive | 30 |
| 5 | Indifferent | Neutral | 20 |
| 6 | Love | Positive | 65 |
| 7 | super Love | Positive | 75 |
| 8 | Cherish | Positive | 70 |
| 9 | Adore | Positive | 72 |
| 10 | Like | Positive | 50 |
| 11 | Dislike | Negative | 10 |
| 12 | Intrigued | Positive | 45 |
| 13 | Peeking | Neutral | 35 |
| 14 | Scared | Negative | 15 |
| 15 | Worried | Negative | 12 |

In [19]:
```
RT_df = RT_df.rename(columns={'Type': 'Reaction_Type'})
```

Exporting Reaction types as Reaction_Tpes_df

In [20]:
```
ReactionTypes_df=RT_df.to_csv('ReactionTypes_df.csv', index=False)
```

In [ ]:

In [ ]:

Wrangling Content

In [21]:
```
C_df=pd.read_csv("Content.csv")
```

In [22]:
```
C_df
```

Out[22]:

| | Unnamed: 0 | Content ID | User ID | Type | Category | URL |
|---|---|---|---|---|---|---|
| 0 | 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 8d3cd87d-8a31-4935-9a4f-b319bfe05f31 | photo | Studying | https://socialbuzz.cdn.com/content/storage/975... |
| 1 | 1 | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | beb1f34e-7870-46d6-9fc7-2e12eb83ce43 | photo | healthy eating | https://socialbuzz.cdn.com/content/storage/9f7... |
| 2 | 2 | 230c4e4d-70c3-461d-b42c-ec09396efb3f | a5c65404-5894-4b87-82f2-d787cbee86b4 | photo | healthy eating | https://socialbuzz.cdn.com/content/storage/230... |
| 3 | 3 | 356fff80-da4d-4785-9f43-bc1261031dc6 | 9fb4ce88-fac1-406c-8544-1a899cee7aaf | photo | technology | https://socialbuzz.cdn.com/content/storage/356... |
| 4 | 4 | 01ab84dd-6364-4236-abbb-3f237db77180 | e206e31b-5f85-4964-b6ea-d7ee5324def1 | video | food | https://socialbuzz.cdn.com/content/storage/01a... |
| ... | ... | ... | ... | ... | ... | ... |
| 995 | 995 | b4cef9ef-627b-41d7-a051-5961b0204ebb | 5b62e10e-3c19-4d28-a57c-e9bdc3d6758d | video | public speaking | NaN |
| 996 | 996 | 7a79f4e4-3b7d-44dc-bdef-bc990740252c | 4fe420fa-a193-4408-bd5d-62a020233609 | GIF | technology | https://socialbuzz.cdn.com/content/storage/7a7... |
| 997 | 997 | 435007a5-6261-4d8b-b0a4-55fdc189754b | 35d6a1f3-e358-4d4b-8074-05f3b7f35c2a | audio | veganism | https://socialbuzz.cdn.com/content/storage/435... |
| 998 | 998 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | b9bcd994-f000-4f6b-87fc-caae08acfaa1 | GIF | culture | https://socialbuzz.cdn.com/content/storage/4e4... |
| 999 | 999 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | b8c653b5-0118-4d7e-9bde-07c2de90f0ff | audio | technology | https://socialbuzz.cdn.com/content/storage/75d... |

1000 rows × 6 columns

In [23]:
```
C_df=C_df.drop(columns=['Unnamed: 0','User ID','URL'])
```

In [24]:
```
C_df
```

Out[24]:

| | Content ID | Type | Category |
|---|---|---|---|
| 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | photo | Studying |
| 1 | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | photo | healthy eating |
| 2 | 230c4e4d-70c3-461d-b42c-ec09396efb3f | photo | healthy eating |
| 3 | 356fff80-da4d-4785-9f43-bc1261031dc6 | photo | technology |
| 4 | 01ab84dd-6364-4236-abbb-3f237db77180 | video | food |
| ... | ... | ... | ... |
| 995 | b4cef9ef-627b-41d7-a051-5961b0204ebb | video | public speaking |
| 996 | 7a79f4e4-3b7d-44dc-bdef-bc990740252c | GIF | technology |
| 997 | 435007a5-6261-4d8b-b0a4-55fdc189754b | audio | veganism |
| 998 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | culture |
| 999 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | audio | technology |

1000 rows × 3 columns

In [25]:
```
C_df.dropna()
```

Out[25]:

| | Content ID | Type | Category |
|---|---|---|---|
| 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | photo | Studying |
| 1 | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | photo | healthy eating |
| 2 | 230c4e4d-70c3-461d-b42c-ec09396efb3f | photo | healthy eating |
| 3 | 356fff80-da4d-4785-9f43-bc1261031dc6 | photo | technology |
| 4 | 01ab84dd-6364-4236-abbb-3f237db77180 | video | food |
| ... | ... | ... | ... |
| 995 | b4cef9ef-627b-41d7-a051-5961b0204ebb | video | public speaking |
| 996 | 7a79f4e4-3b7d-44dc-bdef-bc990740252c | GIF | technology |
| 997 | 435007a5-6261-4d8b-b0a4-55fdc189754b | audio | veganism |
| 998 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | culture |
| 999 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | audio | technology |

In [26]:
```
C_df['Type'].unique()
```

Out[26]:
```
array(['photo', 'video', 'GIF', 'audio'], dtype=object)
```

In [27]:
```
C_df['Type']=C_df['Type'].replace({'photo':'Photo','video':'Video','audio':'Audio'})
```

In [28]:
```
C_df['Category'].unique()
```

Out[28]:
```
array(['Studying', 'healthy eating', 'technology', 'food', 'cooking',
       'dogs', 'soccer', 'public speaking', 'science', 'tennis', 'travel',
       'fitness', 'education', 'studying', 'veganism', 'Animals',
       'animals', 'culture', '"culture"', 'Fitness', '"studying"',
       'Veganism', '"animals"', 'Travel', '"soccer"', 'Education',
       '"dogs"', 'Technology', 'Soccer', '"tennis"', 'Culture', '"food"',
       'Food', '"technology"', 'Healthy Eating', '"cooking"', 'Science',
       '"public speaking"', '"veganism"', 'Public Speaking', '"science"'],
      dtype=object)
```

In [29]:
```
C_df['Category']=C_df['Category'].replace({'healthy eating':'Healthy Eating', 'technology':'Technology',
                                           'dogs':'Dogs', 'soccer':'Soccer', 'public speaking':'Public Sp
                                           'travel': 'Travel','fitness':'Fitness', 'education':'Educatio
                                           'animals':'Animals','culture':'Culture', '"culture"':'Culture
                                           '"dogs"':'Dogs','"tennis"':'Tennis','"food"':'Food','"technol
                                           '"veganism"':'Veganism','"science"':'Science'})
```

In [30]:
```
C_df
```

Out[30]:

| | Content ID | Type | Category |
|---|---|---|---|
| 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying |
| 1 | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | Photo | Healthy Eating |
| 2 | 230c4e4d-70c3-461d-b42c-ec09396efb3f | Photo | Healthy Eating |
| 3 | 356fff80-da4d-4785-9f43-bc1261031dc6 | Photo | Technology |
| 4 | 01ab84dd-6364-4236-abbb-3f237db77180 | Video | Food |
| ... | ... | ... | ... |
| 995 | b4cef9ef-627b-41d7-a051-5961b0204ebb | Video | Public Speaking |
| 996 | 7a79f4e4-3b7d-44dc-bdef-bc990740252c | GIF | Technology |
| 997 | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism |
| 998 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture |
| 999 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Audio | Technology |

1000 rows × 3 columns

In [31]:
```
C_df=C_df.rename(columns={'Type':'Reaction_Type'})
```

In [32]:
```
C_df
```

Out[32]:

| | Content ID | Reaction_Type | Category |
|---|---|---|---|
| 0 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying |
| 1 | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | Photo | Healthy Eating |
| 2 | 230c4e4d-70c3-461d-b42c-ec09396efb3f | Photo | Healthy Eating |
| 3 | 356fff80-da4d-4785-9f43-bc1261031dc6 | Photo | Technology |
| 4 | 01ab84dd-6364-4236-abbb-3f237db77180 | Video | Food |
| ... | ... | ... | ... |
| 995 | b4cef9ef-627b-41d7-a051-5961b0204ebb | Video | Public Speaking |
| 996 | 7a79f4e4-3b7d-44dc-bdef-bc990740252c | GIF | Technology |
| 997 | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism |
| 998 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture |
| 999 | 75d6b589-7fae-4a6d-b0d0-752845150e56 | Audio | Technology |

1000 rows × 3 columns

Exporting content as Content_df

In [33]:
```
Content_df=C_df.to_csv("Content_df.csv")
```

## Data Was Exported to SQL for further Table Aggregation

In [ ]:
```

```

In [34]:
```
import seaborn as nsns
import matplotlib.pyplot as plt
import warnings
warnings.filterwarnings("ignore")
%matplotlib inline
```

### Importing Merged Data

In [35]:
```
SB=pd.read_csv("Merged.csv")
```

In [36]:
```
SB.tail()
```

Out[36]:

| | content_id | content_type | category | reaction_type | datetime | sentiment | score |
|---|---|---|---|---|---|---|---|
| **98287** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-05-10 09:27:42 | Negative | 12 |
| **98288** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 |
| **98289** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 |
| **98290** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 |
| **98291** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 |

## Feature Transformation

## Which month has the most Traffic?

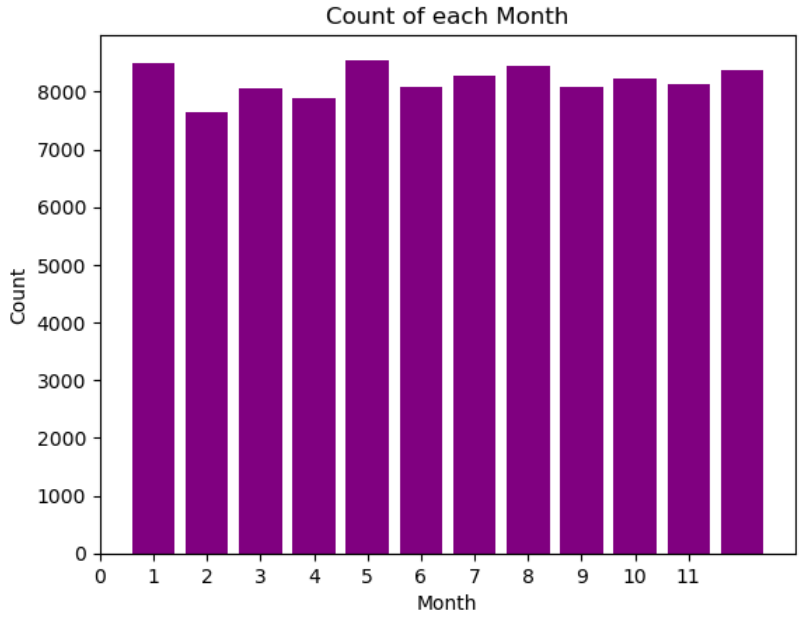
In [37]:
```
SB['datetime'] = pd.to_datetime(SB['datetime'])

SB['month'] = SB['datetime'].dt.month
```

In [38]:
```
month_counts=SB['month'].value_counts()
```

In [39]:
```
month_counts
```

Out[39]:
```
month
5     8552
1     8504
8     8456
12    8368
7     8280
10    8224
11    8136
9     8088
6     8084
3     8048
4     7896
2     7656
Name: count, dtype: int64
```

In [40]:
```
plt.bar(month_counts.index, month_counts.values , color='purple')

plt.xlabel('Month')
plt.ylabel('Count')
plt.title('Count of each Month')
plt.xticks(np.arange(len(month_counts.index)))
plt.show()
```



### May Has the most Traffic With content activity

In [41]:
```
SB['Hour']=SB['datetime'].dt.hour
```

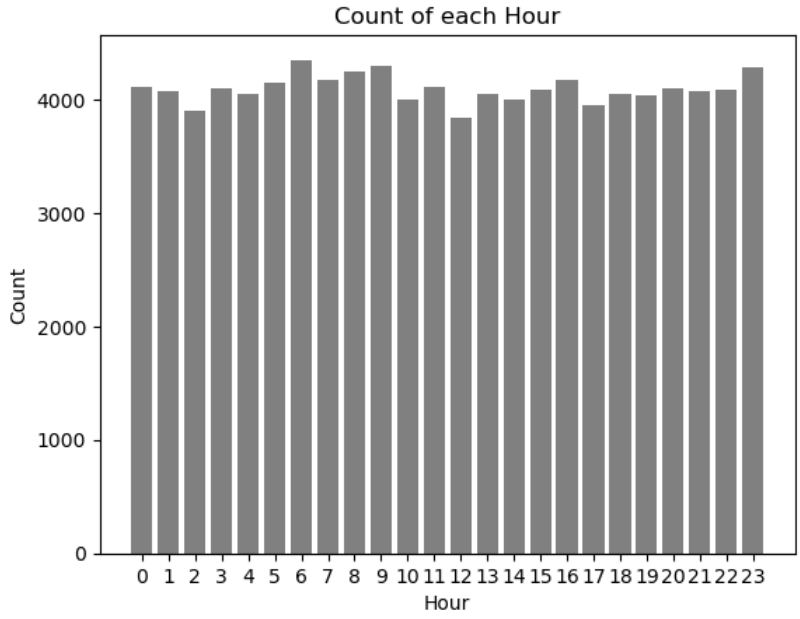
## Which Hour is Known to have more traffic?

In [42]:
```
Hour_counts=SB['Hour'].value_counts()
```

In [43]:
```
Hour_counts
```

Out[43]:
```
Hour
6     4348
9     4300
23    4288
8     4240
7     4176
16    4176
5     4152
0     4116
11    4104
3     4096
20    4096
15    4084
22    4084
21    4076
1     4068
18    4052
13    4052
4     4044
19    4040
14    4004
10    4004
17    3952
2     3900
12    3840
Name: count, dtype: int64
```

In [44]:
```
plt.bar(Hour_counts.index, Hour_counts.values , color='grey')

plt.xlabel('Hour')
plt.ylabel('Count')
plt.title('Count of each Hour')
plt.xticks(np.arange(len(Hour_counts.index)))

plt.show()
```



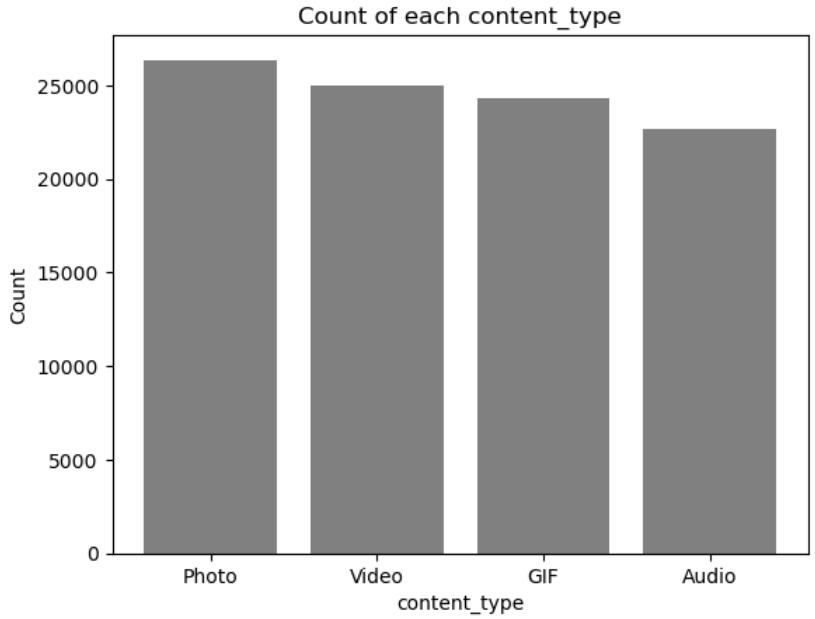
**Most users View Content at 6am**

## Most Popular Type of content Among Users?

In [45]:
```
Content_counts=SB['content_type'].value_counts()
Content_counts
```

Out[45]:
```
content_type
Photo    26356
Video    24980
GIF      24316
Audio    22640
Name: count, dtype: int64
```

In [46]:
```
plt.bar(Content_counts.index, Content_counts.values , color='grey')

plt.xlabel('content_type')
plt.ylabel('Count')
plt.title('Count of each content_type')
plt.xticks(np.arange(len(Content_counts.index)))

plt.show()
```




**Photos Gain more traction on Social Buzz**

## Content Sentiment in relation to content Type

In [47]:
```
sentiment_counts = SB.groupby(['content_type', 'sentiment']).size().unstack(fill_value=0)
print(sentiment_counts)
```

```
sentiment     Negative  Neutral  Positive
content_type
Audio             7084     2692     12864
GIF               7696     3096     13524
Photo             8228     3328     14800
Video             7772     3168     14040
```

## Photos Get the most views and positive reactionsfollowed by videos then Gif's then Audios

In [48]:
```
SB
```

Out[48]:

| | content_id | content_type | category | reaction_type | datetime | sentiment | score | month | Hour |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 |
| 1 | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 |
| 2 | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 |
| 3 | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 |
| 4 | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2020-07-06 09:26:17 | Positive | 60 | 7 | 9 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 98287 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-05-10 09:27:42 | Negative | 12 | 5 | 9 |
| 98288 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 |
| 98289 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 |
| 98290 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 |
| 98291 | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 |

98292 rows × 9 columns

In [49]:
```
SocialBuzzData=SB.to_csv("SocialBuzzData.csv")
```

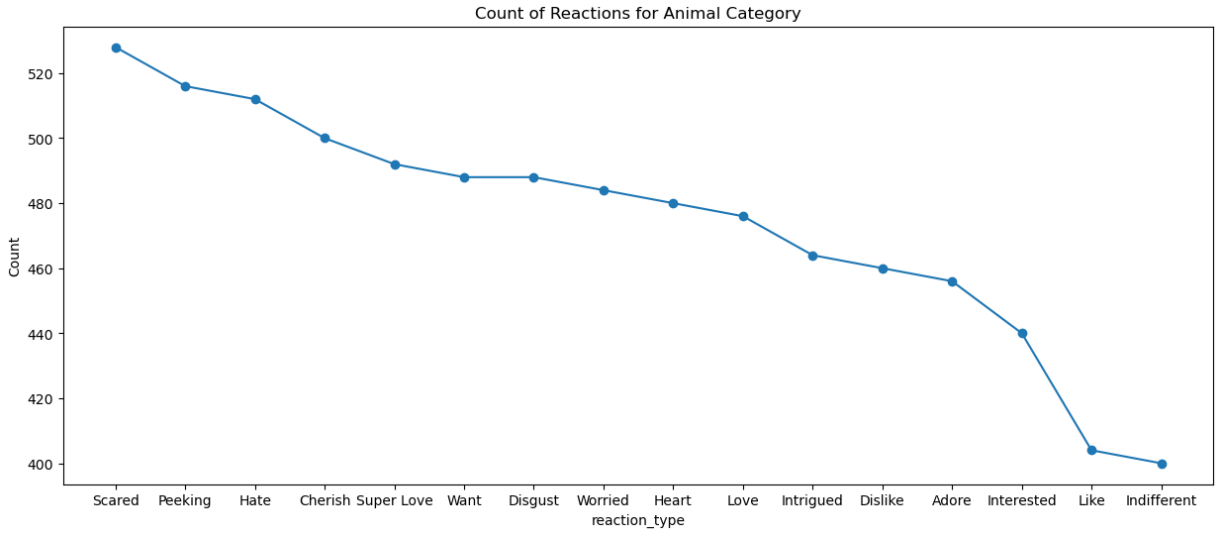
In [50]:
```
animal_reactions = SB[SB['category'] == 'Animals']
animal_reaction_counts = animal_reactions['reaction_type'].value_counts()
print(animal_reaction_counts)
```

```
reaction_type
Scared         528
Peeking        516
Hate           512
Cherish        500
Super Love     492
Want           488
Disgust        488
Worried        484
Heart          480
Love           476
Intrigued      464
Dislike        460
Adore          456
Interested     440
Like           404
Indifferent    400
Name: count, dtype: int64
```

In [51]:
```
animal_reaction_counts.sum()
```

Out[51]: 7588

In [52]:
```
plt.figure(figsize=(15, 6))
plt.plot(animal_reaction_counts.index, animal_reaction_counts.values, marker='o', linestyle='-')
plt.xlabel('reaction_type')
plt.ylabel('Count')
plt.title('Count of Reactions for Animal Category')



plt.show()
```




## Feature Engineering

In [53]:
```
SB
```

Out[53]:

| | content_id | content_type | category | reaction_type | datetime | sentiment | score | month | Hour |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 |
| **1** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 |
| **2** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 |
| **3** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 |
| **4** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2020-07-06 09:26:17 | Positive | 60 | 7 | 9 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **98287** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-05-10 09:27:42 | Negative | 12 | 5 | 9 |
| **98288** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 |
| **98289** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 |
| **98290** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 |
| **98291** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 |

98292 rows × 9 columns

In [54]:
```
sentiment_mapping = {'Neutral': 0, 'Positive': 1, 'Negative': -1}
SB['sentiment_score'] = SB['sentiment'].map(sentiment_mapping)
```

In [55]:
```
SB.tail()
```

Out[55]:

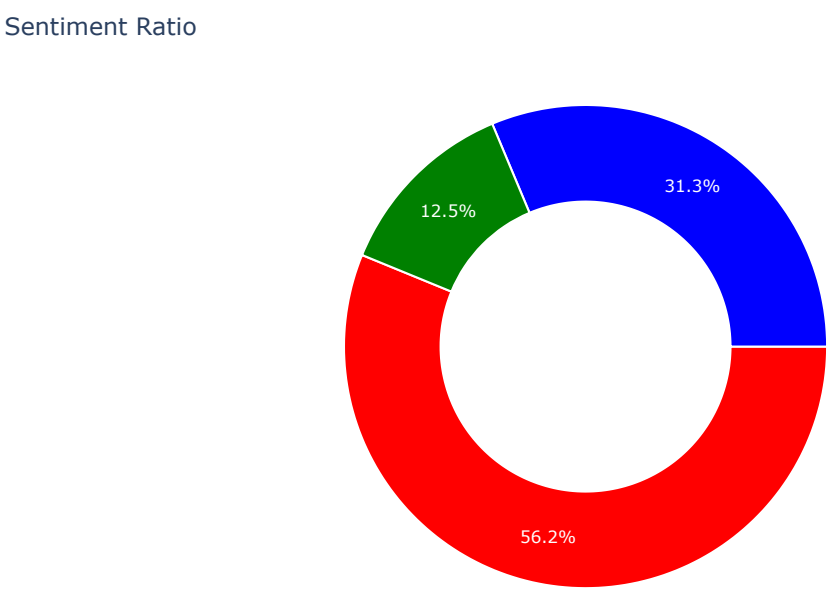
| | content_id | content_type | category | reaction_type | datetime | sentiment | score | month | Hour | sentiment_score |
|---|---|---|---|---|---|---|---|---|---|---|
| **98287** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-05-10 09:27:42 | Negative | 12 | 5 | 9 | -1 |
| **98288** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 | -1 |
| **98289** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 | -1 |
| **98290** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 | -1 |
| **98291** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 | -1 |

## Sentiment Ratio

In [56]:
```
SB['sentiment_score'].value_counts()
```

Out[56]:
```
sentiment_score
 1    55228
-1    30780
 0    12284
Name: count, dtype: int64
```

In [57]:
```
import plotly.graph_objects as go

plot_data=[
    go.Pie(
        labels=("Negative", "Neutral","Positve"),
        values=SB['sentiment_score'].value_counts(),
        marker=dict(colors=["Red","Blue","Green"],
                    line=dict(color="white",
                              width=1.5)),

        rotation=90,
        hoverinfo= 'label+value+text',
        hole=.6)
]

plot_layout = go.Layout(dict(title='Sentiment Ratio'))
fig = go.Figure(data=plot_data, layout=plot_layout)
fig.show()
```

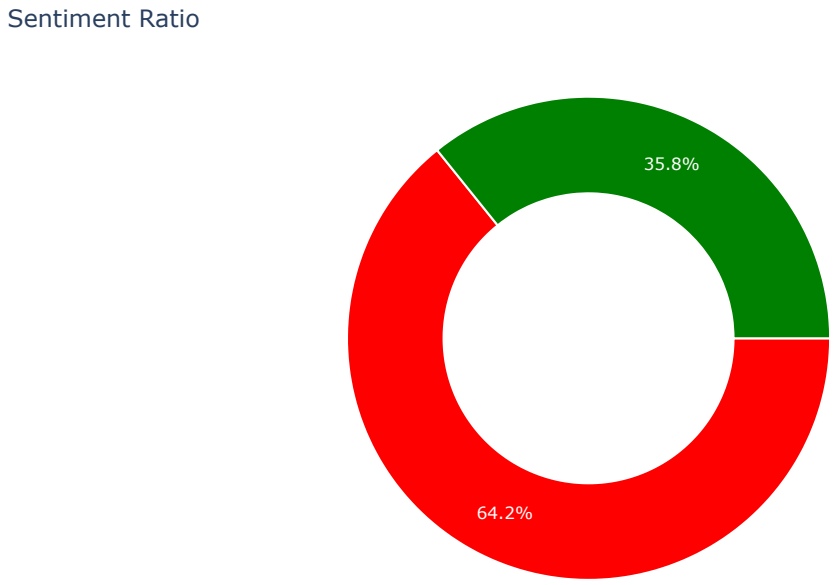



In [ ]:
```
```

In [58]:
```
sentiment_mapping = {'Neutral': -1, 'Positive': 1, 'Negative': 0}
SB['sentiment_score'] = SB['sentiment'].map(sentiment_mapping)
```

In [59]:
```
SB=SB.drop(SB[SB['sentiment_score'] == -1].index)
```

In [60]:
```
import plotly.graph_objects as go

plot_data=[
    go.Pie(
        labels=("Negative","Positve"),
        values=SB['sentiment_score'].value_counts(),
        marker=dict(colors=["Red","Green"],
                    line=dict(color="white",
                              width=1.5)),

        rotation=90,
        hoverinfo= 'label+value+text',
        hole=.6)
]


plot_layout = go.Layout(dict(title='Sentiment Ratio'))

fig = go.Figure(data=plot_data, layout=plot_layout)


fig.show()
```




In [ ]:
```
```

In [61]:
```
SB['content_type']=SB['content_type'].replace([True, False],[1,0])
```

## Further Data Cleaning

In [62]:
```
SB.dropna()
```

Out[62]:

| | content_id | content_type | category | reaction_type | datetime | sentiment | score | month | Hour | sentiment_score |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 | 1 |
| **1** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60 | 2 | 11 | 1 |
| **2** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 | 1 |
| **3** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60 | 5 | 21 | 1 |
| **4** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2020-07-06 09:26:17 | Positive | 60 | 7 | 9 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **98287** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-05-10 09:27:42 | Negative | 12 | 5 | 9 | 0 |
| **98288** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 | 0 |
| **98289** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-03-02 19:21:19 | Negative | 12 | 3 | 19 | 0 |
| **98290** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 | 0 |
| **98291** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | Photo | Studying | Worried | 2021-04-11 20:47:13 | Negative | 12 | 4 | 20 | 0 |

86008 rows × 10 columns

In [63]:
```
from sklearn.preprocessing import OneHotEncoder

ohe=OneHotEncoder()
ohe.fit_transform(SB[['content_type','category','reaction_type','score',]]).toarray()
```

Out[63]:
```
array([[0., 1., 0., ..., 0., 0., 0.],
       [0., 1., 0., ..., 0., 0., 0.],
       [1., 0., 0., ..., 0., 0., 0.],
       ...,
       [0., 0., 1., ..., 0., 0., 0.],
       [0., 0., 1., ..., 0., 0., 0.],
       [0., 0., 1., ..., 0., 0., 0.]])
```

In [64]:
```
feature_arry=ohe.fit_transform(SB[['content_type','category','reaction_type']]).toarray()
ohe.categories_
```

Out[64]:
```
[array(['Audio', 'GIF', 'Photo', 'Video'], dtype=object),
 array(['Animals', 'Cooking', 'Culture', 'Dogs', 'Education', 'Fitness',
        'Food', 'Healthy Eating', 'Healthy eating', 'Public Speaking',
        'Science', 'Soccer', 'Studying', 'Technology', 'Tennis', 'Travel',
        'Veganism'], dtype=object),
 array(['Adore', 'Cherish', 'Disgust', 'Dislike', 'Hate', 'Heart',
        'Interested', 'Intrigued', 'Like', 'Love', 'Scared', 'Super Love',
        'Want', 'Worried'], dtype=object)]
```

In [65]:
```
feature_df = pd.DataFrame(feature_arry, columns=ohe.get_feature_names_out(['content_type','category','rea
feature_df
```

Out[65]:

| | content_type_Audio | content_type_GIF | content_type_Photo | content_type_Video | category_Animals | category_Cooking | category_Culture |
|---|---|---|---|---|---|---|---|
| **0** | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| **1** | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| **2** | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **3** | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **4** | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **...** | ... | ... | ... | ... | ... | ... | ... |
| **86003** | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **86004** | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **86005** | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **86006** | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **86007** | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |

86008 rows × 35 columns

In [66]:
```
SBM= pd.concat([SB, feature_df], axis=1)
SBM
```

Out[66]:

| | content_id | content_type | category | reaction_type | datetime | sentiment | score | month | Hour | sentiment_score | ... | reaction_type_Hat |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60.0 | 2.0 | 11.0 | 1.0 | ... | 0. |
| **1** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | GIF | Culture | Heart | 2021-02-25 11:06:11 | Positive | 60.0 | 2.0 | 11.0 | 1.0 | ... | 0. |
| **2** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60.0 | 5.0 | 21.0 | 1.0 | ... | 0. |
| **3** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2021-05-12 21:26:24 | Positive | 60.0 | 5.0 | 21.0 | 1.0 | ... | 0. |
| **4** | 435007a5-6261-4d8b-b0a4-55fdc189754b | Audio | Veganism | Heart | 2020-07-06 09:26:17 | Positive | 60.0 | 7.0 | 9.0 | 1.0 | ... | 0. |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **86003** | NaN | NaN | NaN | NaN | NaT | NaN | NaN | NaN | NaN | NaN | ... | 0. |
| **86004** | NaN | NaN | NaN | NaN | NaT | NaN | NaN | NaN | NaN | NaN | ... | 0. |
| **86005** | NaN | NaN | NaN | NaN | NaT | NaN | NaN | NaN | NaN | NaN | ... | 0. |
| **86006** | NaN | NaN | NaN | NaN | NaT | NaN | NaN | NaN | NaN | NaN | ... | 0. |
| **86007** | NaN | NaN | NaN | NaN | NaT | NaN | NaN | NaN | NaN | NaN | ... | 0. |

98284 rows × 45 columns

In [ ]:
```

```

In [67]:
```
SBM=SBM.drop(columns=['content_type','category','reaction_type','sentiment','datetime'])
SBM
```

Out[67]:

| | content_id | score | month | Hour | sentiment_score | content_type_Audio | content_type_GIF | content_type_Photo | content_type_Video | c |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | 60.0 | 2.0 | 11.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | |
| **1** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | 60.0 | 2.0 | 11.0 | 1.0 | 0.0 | 1.0 | 0.0 | 0.0 | |
| **2** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 5.0 | 21.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | |
| **3** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 5.0 | 21.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | |
| **4** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 7.0 | 9.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **86003** | NaN | NaN | NaN | NaN | NaN | 0.0 | 0.0 | 1.0 | 0.0 | |
| **86004** | NaN | NaN | NaN | NaN | NaN | 0.0 | 0.0 | 1.0 | 0.0 | |
| **86005** | NaN | NaN | NaN | NaN | NaN | 0.0 | 0.0 | 1.0 | 0.0 | |
| **86006** | NaN | NaN | NaN | NaN | NaN | 0.0 | 0.0 | 1.0 | 0.0 | |
| **86007** | NaN | NaN | NaN | NaN | NaN | 0.0 | 0.0 | 1.0 | 0.0 | |

98284 rows × 40 columns

## Fixing Skewness In Data

In [68]:
```
SBM.describe()
```

Out[68]:

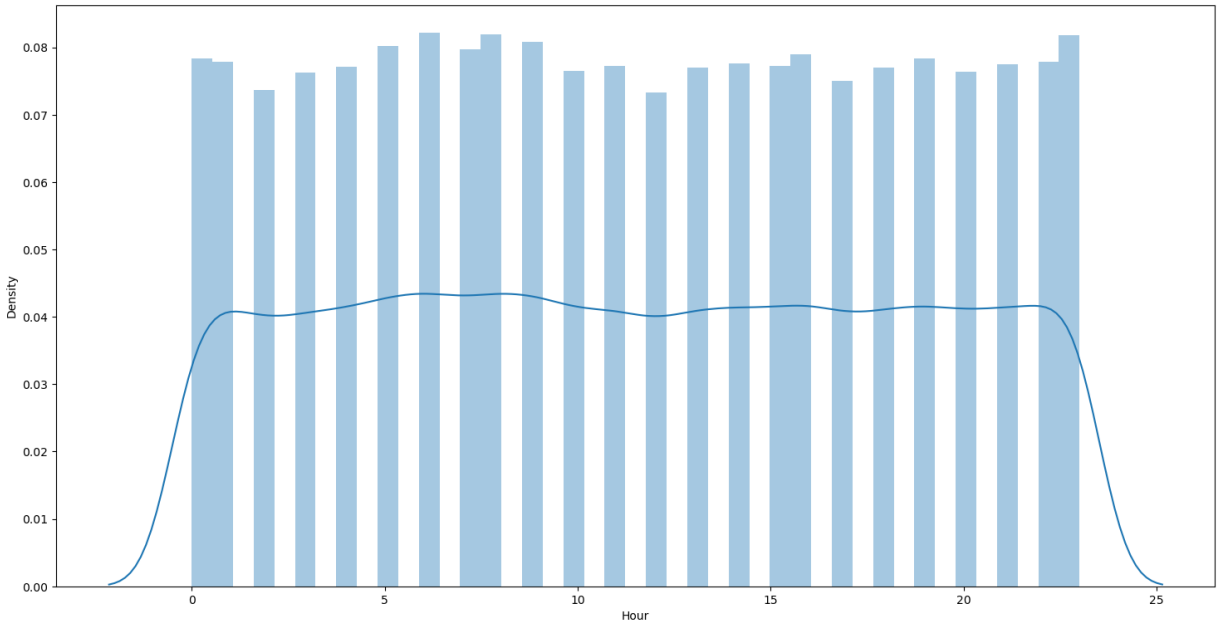
| | score | month | Hour | sentiment_score | content_type_Audio | content_type_GIF | content_type_Photo | content_type_Vi |
|---|---|---|---|---|---|---|---|---|
| **count** | 86008.000000 | 86008.000000 | 86008.000000 | 86008.000000 | 86008.000000 | 86008.000000 | 86008.000000 | 86008.000 |
| **mean** | 41.337550 | 6.522789 | 11.498977 | 0.642126 | 0.231932 | 0.246721 | 0.267743 | 0.253 |
| **std** | 27.267521 | 3.456571 | 6.926214 | 0.479377 | 0.422068 | 0.431106 | 0.442785 | 0.435 |
| **min** | 0.000000 | 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000 |
| **25%** | 12.000000 | 4.000000 | 6.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000 |
| **50%** | 50.000000 | 7.000000 | 11.000000 | 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000 |
| **75%** | 70.000000 | 10.000000 | 18.000000 | 1.000000 | 0.000000 | 0.000000 | 1.000000 | 1.000 |
| **max** | 75.000000 | 12.000000 | 23.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000000 | 1.000 |

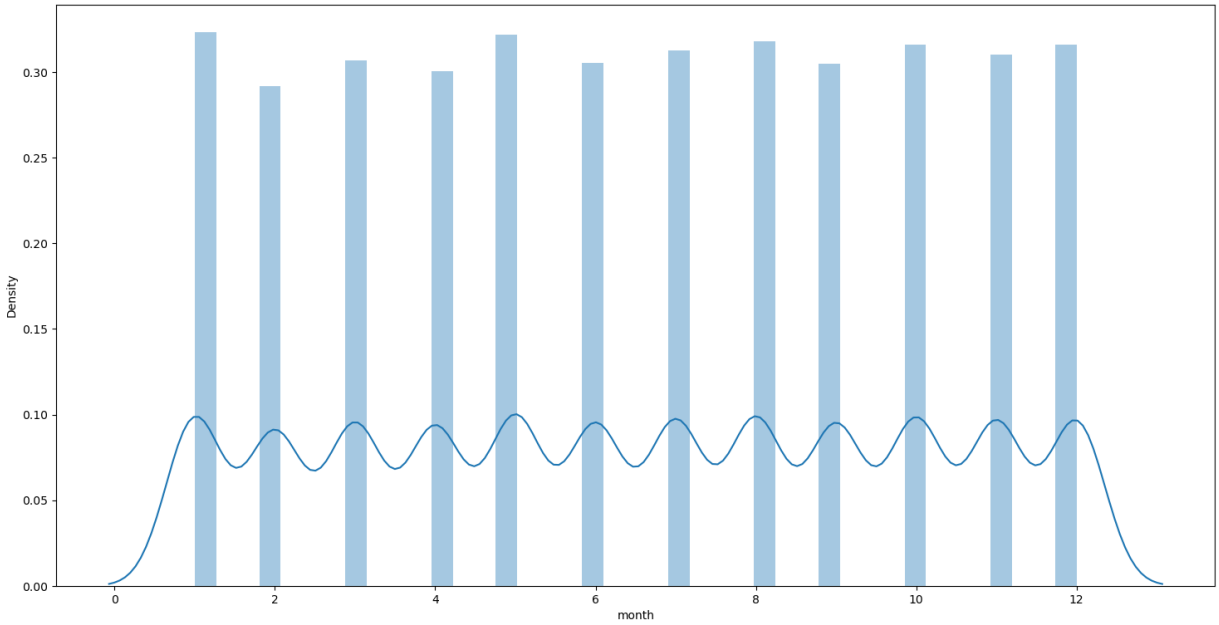
8 rows × 39 columns

In [69]:
```
parameters_with_std_gt_1 = SBM.describe().loc['std'] > 1


print("Parameters with standard deviation greater than 1:")
print(parameters_with_std_gt_1[parameters_with_std_gt_1].index.tolist())
```

```
Parameters with standard deviation greater than 1:
['score', 'month', 'Hour']
```

In [70]:
```
fig, axs = plt.subplots(nrows=2, figsize=(18, 20))

sns.distplot((SBM["Hour"].dropna()), ax=axs[0])
sns.distplot((SBM["month"].dropna()), ax=axs[1])
plt.show()
```

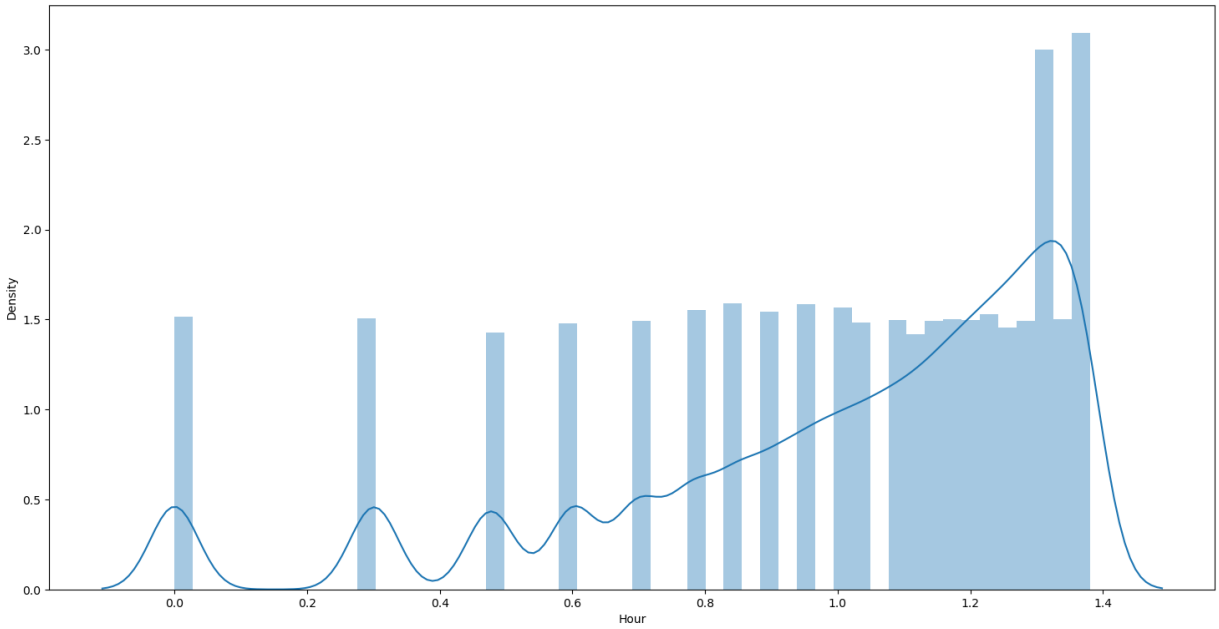


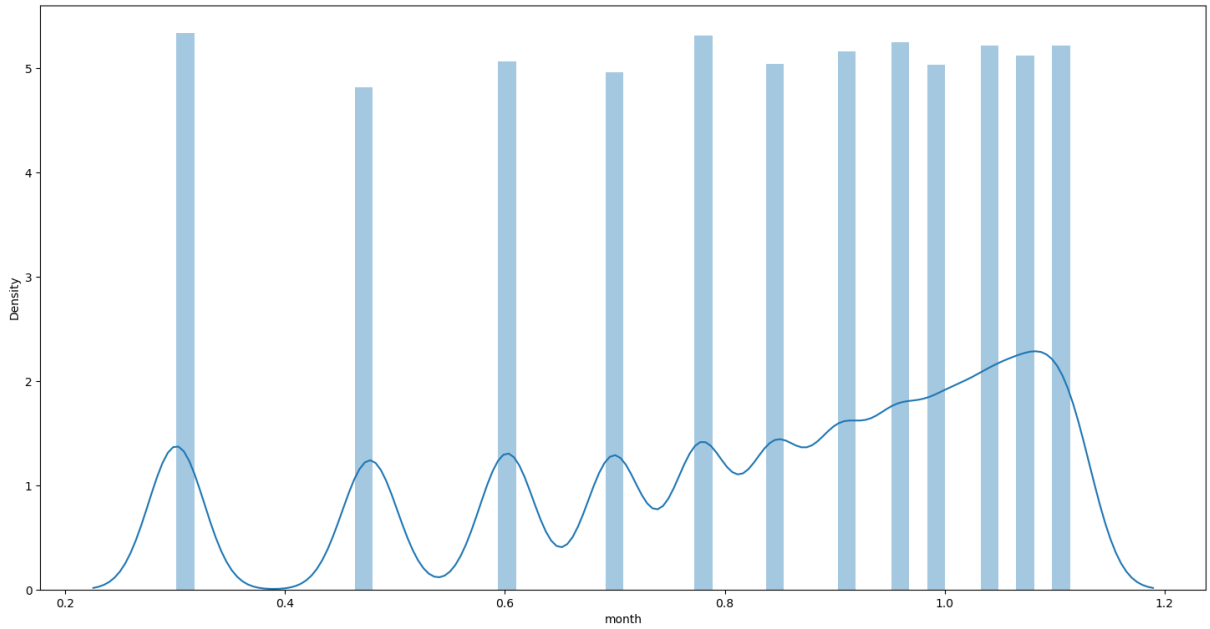




In [ ]:
```
```

In [71]:
```
SBM["Hour"] = np.log10(SBM["Hour"] + 1)
SBM["month"] = np.log10(SBM["month"]+ 1)
```

In [72]:
```
fig, axs = plt.subplots(nrows=2, figsize=(18, 20))

sns.distplot((SBM["Hour"].dropna()), ax=axs[0])
sns.distplot((SBM["month"].dropna()), ax=axs[1])
plt.show()
```

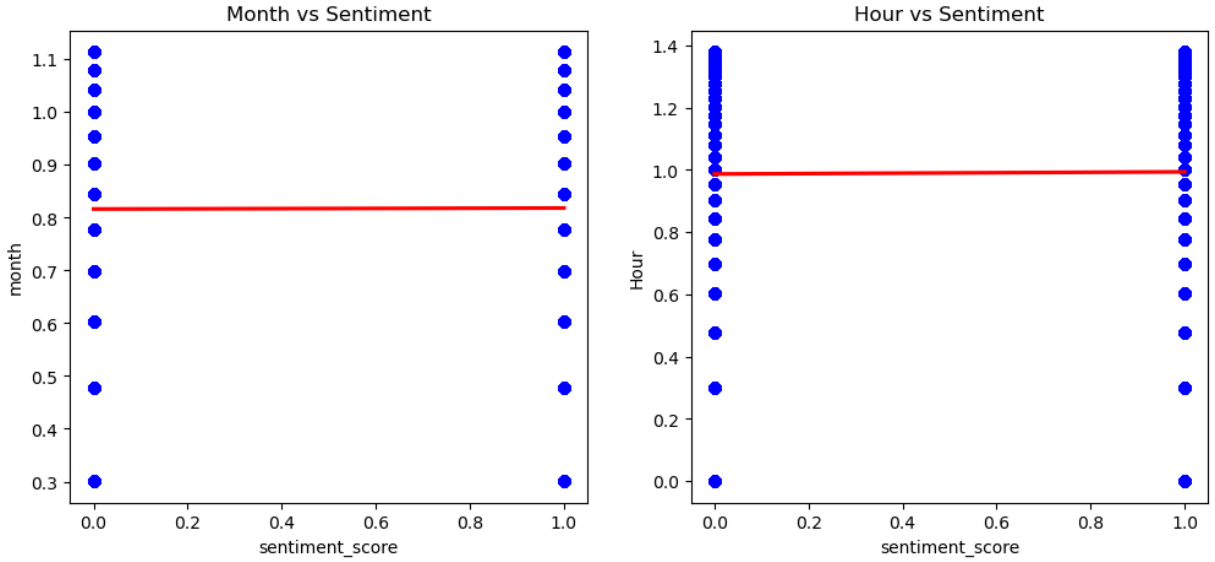



In [ ]:

In [73]:
```
fig, axs = plt.subplots(nrows=1, ncols=2, figsize=(12, 5))

sns.regplot(y='month', x='sentiment_score', data=SBM,scatter_kws={'color': 'blue'}, line_kws={'color': '
axs[0].set_title('Month vs Sentiment')


sns.regplot(y='Hour', x='sentiment_score', data=SBM,scatter_kws={'color': 'blue'}, line_kws={'color': 'r
axs[1].set_title('Hour vs Sentiment')
```

Out[73]: Text(0.5, 1.0, 'Hour vs Sentiment')




In [74]:
```
SBM.columns
```

Out[74]:
```
Index(['content_id', 'score', 'month', 'Hour', 'sentiment_score',
       'content_type_Audio', 'content_type_GIF', 'content_type_Photo',
       'content_type_Video', 'category_Animals', 'category_Cooking',
       'category_Culture', 'category_Dogs', 'category_Education',
       'category_Fitness', 'category_Food', 'category_Healthy Eating',
       'category_Healthy eating', 'category_Public Speaking',
       'category_Science', 'category_Soccer', 'category_Studying',
       'category_Technology', 'category_Tennis', 'category_Travel',
       'category_Veganism', 'reaction_type_Adore', 'reaction_type_Cherish',
       'reaction_type_Disgust', 'reaction_type_Dislike', 'reaction_type_Hate',
       'reaction_type_Heart', 'reaction_type_Interested',
       'reaction_type_Intrigued', 'reaction_type_Like', 'reaction_type_Love',
       'reaction_type_Scared', 'reaction_type_Super Love',
       'reaction_type_Want', 'reaction_type_Worried'],
      dtype='object')
```

In [75]:
```
SBM=SBM.dropna()
```

In [76]:
```
SBM
```

Out[76]:

| | content_id | score | month | Hour | sentiment_score | content_type_Audio | content_type_GIF | content_type_Photo | content_type_Vic |
|---|---|---|---|---|---|---|---|---|---|
| **0** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | 60.0 | 0.477121 | 1.079181 | 1.0 | 0.0 | 1.0 | 0.0 | |
| **1** | 4e4c9690-c013-4ee7-9e66-943d8cbd27b7 | 60.0 | 0.477121 | 1.079181 | 1.0 | 0.0 | 1.0 | 0.0 | |
| **2** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 0.778151 | 1.342423 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **3** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 0.778151 | 1.342423 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **4** | 435007a5-6261-4d8b-b0a4-55fdc189754b | 60.0 | 0.903090 | 1.000000 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | |
| **79775** | 9f737e0a-3cdd-4d29-9d24-753f4e3be810 | 45.0 | 1.000000 | 0.000000 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **79776** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 45.0 | 0.954243 | 0.954243 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **79777** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 45.0 | 0.954243 | 0.954243 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **79778** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 45.0 | 0.301030 | 1.230449 | 1.0 | 1.0 | 0.0 | 0.0 | |
| **79779** | 97522e57-d9ab-4bd6-97bf-c24d952602d2 | 45.0 | 0.301030 | 1.230449 | 1.0 | 1.0 | 0.0 | 0.0 | |

73732 rows × 40 columns

In [77]:
```
SocialBuzzContent=SBM.to_csv('SocialBuzzContent.csv')
```

In [78]:
```
SocialBuzzContent1=SB.to_csv('SocialBuzzContent1.csv')
```

In [ ]:
```

```