In [22]:

```
import pandas as pd
from textblob import TextBlob
import seaborn as sns
```

In [3]:

```
df1=pd.read_csv(r'D:/Datasets/UTA2019/CleanedData_2.csv')
```

```
C:\Users\priya\Anaconda3\lib\site-packages\IPython\core\interactiveshell.py:3020:
DtypeWarning: Columns (2,10) have mixed types. Specify dtype option on import or
set low_memory=False.
  interactivity=interactivity, compiler=compiler, result=result)
```

In [68]:

```
df1.shape
```

Out[68]:

```
(202406, 13)
```

In [7]:

```
df2=pd.read_csv(r'D:/Datasets/UTA2019/P1ProductData_UTA2019.csv')
```

In [8]:

```
df2.head(5)
```

Out[8]:

	SKU	ProductName	CountOfBigTransactions	ClassID	Weight	Width	Depth	Height	L
0	2790275	RPL HDW COLETTE LEGS	0	9801	1.10	3.35	3.35	11.93	F
1	3191777	google express	0	7590	1.00	1.00	1.00	1.00	F
2	2842220	X14 ORN JINGLE BELL SILVER $	0	1506	0.04	2.00	2.00	2.00	F
3	3888295	REUSABLE BAGS, PROMO V.#2	0	9801	0.15	20.00	6.00	16.00	F
4	3186445	DISPLAY CRTN AURA MINERAL	0	9801	0.59	9.50	0.01	11.00	F

In [4]:

```
df1.shape
```

Out[4]:

```
(202406, 12)
```

In [5]:

```
df1.head(5)
```

Out[5]:

	id	name	sku	title	questioncount	answercount	reviewcount	commentcount
0	2.0	Antonio Russo	3127014	Love my mermaid pillow	0	0	21	0
1	4.0	Audrey Audrey	3019613	NaN	0	0	21	0
2	5.0	Audrey Audrey	3205114	NaN	0	0	4	0
3	6.0	Audrey Audrey	3084816	NaN	0	0	1	0
4	7.0	monica maltby	2916178	Lovely lamp!	0	0	1	0

```
In [86]: df1.groupby('sku')['Sentiment'].mean()
```

```
Out[86]: sku
         1872426     0.044444
         2043881     0.500000
         2064021     0.000000
         2118072     0.000000
         2121139     0.479167
         2121141     0.350000
         2121167     0.250505
         2121195     0.000000
         2132994     0.166667
         2140332     0.227778
         2156768     0.333705
         2197699     0.570040
         2221815     0.237857
         2222469     0.250000
         2222612     0.000000
         2224533     0.112500
         2224546     0.000000
         2230305     0.000000
         2248874     0.245833
         2252898     0.700000
         2257624     0.293750
         2261334     1.000000
         2262473     0.000000
         2262718     0.062500
         2270125     0.000000
         2274409     0.250000
         2279505     0.214286
         2279561     0.000000
         2279574     0.000000
         2282578     0.587500
                       ...
         PS78452     0.491667
         PS78457     0.360606
         PS78461     0.350000
         PS78609     0.071212
         PS78634     0.346764
         PS78647     0.737500
         PS78659     0.591071
         PS78660     0.312500
         PS79139     0.422500
         PS79168     0.135490
         PS79187     0.482143
         PS79419    -0.025446
         PS80706     0.120758
         PS82058     0.500000
         PS82060     0.200000
         PV530-21    0.100000
         PV530-22    0.503333
         PV530-28    0.018182
         PV530-29    0.156000
         PV530-33    0.162500
         PV530-36   -0.001989
         PV530-45   -0.187500
         PV530-47   -0.098264
         PV530-48    0.125669
         PV530-49    0.052812
         PV530-50    0.212307
         PV530-51    0.089775
```

```
PV530-52   -0.167027
PV530-53    0.337500
PV530-74    0.300397
Name: Sentiment, Length: 34206, dtype: float64
```

```
In [74]: df2.shape
```

```
Out[74]: (37377, 19)
```

```
In [84]: len(df2['SKU'].unique())
```

```
Out[84]: 37123
```

```
In [16]: df1.isna().sum()
```

```
Out[16]: id                   1
         name                 0
         sku                  0
         title            51153
         questioncount        0
         answercount          0
         reviewcount          0
         commentcount         0
         averagerating        0
         text                 3
         tags             75735
         dateTime             0
         dtype: int64
```

```
In [55]: df1['text'].fillna(' ',inplace=True)
```

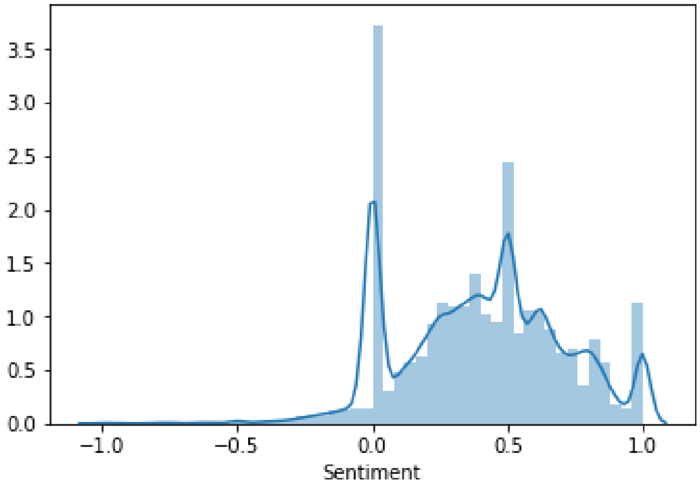
```
In [58]: x=[]

         for sentence in df1['text']:
             blob = TextBlob(sentence)
             if blob.sentiment.polarity==' ':
                 x.append(0)
             else:
                 x.append(blob.sentiment.polarity)
```

```
In [60]: df1['Sentiment']=x
In [61]: sns.distplot(df1['Sentiment'])
```

```
C:\Users\priya\Anaconda3\lib\site-packages\scipy\stats\stats.py:1713: FutureWarni
ng: Using a non-tuple sequence for multidimensional indexing is deprecated; use `
arr[tuple(seq)]` instead of `arr[seq]`. In the future this will be interpreted as
an array index, `arr[np.array(seq)]`, which will result either in an error or a d
ifferent result.
  return np.add.reduce(sorted[indexer] * weights, axis=axis) / sumval
```

```
Out[61]: <matplotlib.axes._subplots.AxesSubplot at 0x186a5b24588>
```



```
In [66]: print(df1[['text','Sentiment']][1:25])
```

```
                                                 text  Sentiment
1   The coloring on this is so pretty! I love the ...   0.406250
2          Very comfortable and easy to take care of.   0.476667
3            Pretty design, great quality. I love it.   0.516667
4   I love this lamp - it matches my Living room p...   0.500000
5                    Love the product and the service   0.500000
6   I love this scent.  Every time I smell it, it ...   0.258333
7   Perfect for snacks or veggies and looks beautiful   0.925000
8   I love when it's all lit up at night with my c...   0.500000
9   Beautiful lanterns ... Look expensive and perf...   0.450000
10  I so love this chair! The velvet fabric is ver...   0.572500
11        Soft and beautiful throw. Washes very well.   0.383333
12  I love the Moscow Mule Mugs! I definitely reco...   0.145833
13         Looks perfect with the chairs on my porch.   1.000000
14  Love the mobile. Sometimes hard to find the of...   0.293056
15                       Love them. Wish I bought more    0.500000
16  I love the smell. Purchasing the oils next for...   0.250000
17  Warmer works properly and its priced reasonable.    0.100000
18                    Scent its not like the candle.    0.000000
19             Very pretty and easy to take care of.    0.379167
20              Did not look like i though it would.    0.000000
21  Nice looking, however it would be better if yo...   0.550000
22  Charge does not last very long. Very pretty wh...   0.086667
23                   Very nice and easy to take care.   0.606667
24                         Scent is not like candle.    0.000000
```

```
In [67]: df1.to_csv('withsentiment.csv')
```

In [64]:

```
x=[]
for i in ['Worst','Scent is not like candle','I love the multiple types of fiber arts']:
    blob = TextBlob(i)
    x.append(blob.sentiment.polarity)
```

In [65]:

```
print (x)
```

```
[-1.0, 0.0, 0.25]
```

In [6]:

```
df1['text'].isna().sum()
```

Out[6]:

```
3
```