In [33]:
```
import pandas as pd
import numpy as np
df = pd.read_csv("Womens Clothing E-Commerce Reviews.csv")
df.head()
```

Out[33]:

	Unnamed: 0	Clothing ID	Age	Title	Review Text	Rating	Recommended IND	Positive Feedback Count	Division Name	Department Name	Class Name
0	0	767	33	NaN	Absolutely wonderful - silky and sexy and comf...	4	1	0	Initmates	Intimate	Intimates
1	1	1080	34	NaN	Love this dress! it's sooo pretty. i happene...	5	1	4	General	Dresses	Dresses
2	2	1077	60	Some major design flaws	I had such high hopes for this dress and reall...	3	0	0	General	Dresses	Dresses
3	3	1049	50	My favorite buy!	I love, love, love this jumpsuit. it's fun, fl...	5	1	0	General Petite	Bottoms	Pants
4	4	847	47	Flattering shirt	This shirt is very flattering to all due to th...	5	1	6	General	Tops	Blouses

In [34]:
```
df.shape
```

Out[34]:
```
(23486, 11)
```

In [35]:
```
df.isnull().sum()
```

Out[35]:
```
Unnamed: 0                    0
Clothing ID                   0
Age                           0
Title                      3810
Review Text                 845
Rating                        0
Recommended IND               0
Positive Feedback Count       0
Division Name                14
Department Name              14
Class Name                   14
dtype: int64
```

In [36]:
```
df.dropna(inplace=True)
```

In [37]:
```
df.isnull().sum()
```

Out[37]:
```
Unnamed: 0                 0
Clothing ID                0
Age                        0
Title                      0
Review Text                0
Rating                     0
Recommended IND            0
Positive Feedback Count    0
Division Name              0
Department Name            0
Class Name                 0
dtype: int64
```

In [6]:
```
df.shape
```

Out[6]:
```
(19662, 11)
```

In [38]:
```
df_useful = df[["Review Text","Recommended IND"]]
df_useful.tail()
```

Out[38]:

	Review Text	Recommended IND
23481	I was very happy to snag this dress at such a ...	1
23482	It reminds me of maternity clothes. soft, stre...	1
23483	This fit well, but the top was very see throug...	0
23484	I bought this dress for a wedding i have this ...	1
23485	This dress in a lovely platinum is feminine an...	1

In [39]:
```
df_useful["Review Text"] = df_useful["Review Text"].astype(dtype=np.str)
```

```
<ipython-input-39-7a5384ad40d9>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead
```

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning
-a-view-versus-a-copy
  df_useful["Review Text"] = df_useful["Review Text"].astype(dtype=np.str)
```

In [40]:
```
lower_list =[]
for text in df_useful["Review Text"]:
    lower_text = text.lower()
    lower_list.append(lower_text)
```

In [41]:
```
lower_case = pd.DataFrame(lower_list)
df_useful["Review Text"] = lower_case
print(df_useful.head())
```

```
                                          Review Text  Recommended IND
2  this shirt is very flattering to all due to th...                0
3  i love tracy reese dresses, but this one is no...                1
4  i aded this in my basket at hte last mintue to...                1
5  i ordered this in carbon for store pick up, an...                0
6  i love this dress. i usually get an xs but it ...                1
<ipython-input-41-db375e7f27f8>:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning
-a-view-versus-a-copy
  df_useful["Review Text"] = lower_case
```

In [42]:
```
df_useful.dropna(inplace=True)
```

```
<ipython-input-42-08f3eb72f282>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning
-a-view-versus-a-copy
  df_useful.dropna(inplace=True)
```

In [43]:
```
df_useful.head()
```

Out[43]:

	Review Text	Recommended IND
2	this shirt is very flattering to all due to th...	0
3	i love tracy reese dresses, but this one is no...	1

	Review Text	Recommended IND
4	i aded this in my basket at hte last mintue to...	1
5	i ordered this in carbon for store pick up, an...	0
6	i love this dress. i usually get an xs but it ...	1

In [44]:
```
sentiments = df_useful["Recommended IND"].values[:15000]
reviews = df_useful["Review Text"].values[:15000]
sentiments.shape
```

Out[44]:
```
(15000,)
```

In [45]:
```
import textblob
```

In [46]:
```
i = 10
for review, sentiment in zip(reviews,sentiments):
    while i >0:
        print("Review of dress is ",review)
        print("Original sentiment is",sentiment)
        print("Predicted polarity is ",textblob.TextBlob(review).sentiment.polarity)
        print("-"*75)
        i -=1
```

```
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
wear with leggings and it is sleeveless so it pairs well with any cardigan. love this shirt!!!
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
wear with leggings and it is sleeveless so it pairs well with any cardigan. love this shirt!!!
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
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Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
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```

```
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
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Original sentiment is 0
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Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
wear with leggings and it is sleeveless so it pairs well with any cardigan. love this shirt!!!
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
wear with leggings and it is sleeveless so it pairs well with any cardigan. love this shirt!!!
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
Review of dress is  this shirt is very flattering to all due to the adjustable front tie. it is the perfect length to
wear with leggings and it is sleeveless so it pairs well with any cardigan. love this shirt!!!
Original sentiment is 0
Predicted polarity is  0.512890625
---------------------------------------------------------------------------
```

In [47]:

```
polarity_sentiment = [textblob.TextBlob(review).sentiment.polarity for review in reviews]
predicted_sentiments = [1 if score>=0 else 0 for score in polarity_sentiment]
print("Polarities are converted to Binary form of Sentiment")
```

```
Polarities are converted to Binary form of Sentiment
```

In [51]:

```
from sklearn.metrics import accuracy_score
acc_score = accuracy_score(sentiments,predicted_sentiments)
print(acc_score)
```

```
0.7840666666666667
```

In [ ]: