In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
from IPython import get_ipython
import warnings
warnings.filterwarnings("ignore")
```

In [4]:

```
data = pd.read_csv('stress.txt')
```

In [5]:

```
data.head()
```

Out[5]:

	subreddit	post_id	sentence_range	text	id	label	confidence	social_time
0	ptsd	8601tu	(15, 20)	He said he had not felt that way before, sugge...	33181	1	0.8	15216
1	assistance	8lbrx9	(0, 5)	Hey there r/assistance, Not sure if this is th...	2606	0	1.0	15270
2	ptsd	9ch1zh	(15, 20)	My mom then hit me with the newspaper and it s...	38816	1	0.8	15359
3	relationships	7rorpp	[5, 10]	until i met my new boyfriend, he is amazing, h...	239	1	0.6	15164
4	survivorsofabuse	9p2gbc	[0, 5]	October is Domestic Violence Awareness Month a...	1421	1	0.8	15398

5 rows × 116 columns

In [6]:

```
data.tail()
```

Out[6]:

	subreddit	post_id	sentence_range	text	id	label	confidence	social_time
2833	relationships	7oee1t	[35, 40]	* Her, a week ago: Precious, how are you? (I i...	1713	0	1.000000	15151
2834	ptsd	9p4ung	[20, 25]	I don't have the ability to cope with it anymo...	1133	1	1.000000	15398
2835	anxiety	9nam6l	(5, 10)	In case this is the first time you're reading ...	10442	0	1.000000	15392
2836	almosthomeless	5y53ya	[5, 10]	Do you find this normal? They have a good rela...	1834	0	0.571429	14889
2837	ptsd	5y25cl	[0, 5]	I was talking to my mom this morning and she s...	961	1	0.571429	14889

5 rows × 116 columns

In [7]:

```
data.shape
```

Out[7]:

```
(2838, 116)
```

In [8]:

```
data.columns
```

Out[8]:

```
Index(['subreddit', 'post_id', 'sentence_range', 'text', 'id', 'label',
       'confidence', 'social_timestamp', 'social_karma', 'syntax_ari',
       ...
       'lex_dal_min_pleasantness', 'lex_dal_min_activation',
       'lex_dal_min_imagery', 'lex_dal_avg_activation', 'lex_dal_avg_image
ry',
       'lex_dal_avg_pleasantness', 'social_upvote_ratio',
       'social_num_comments', 'syntax_fk_grade', 'sentiment'],
      dtype='object', length=116)
```

In [9]:

```
data.duplicated().sum()
```

Out[9]:

```
0
```

In [10]:

```
data.isnull().sum()
```

Out[10]:

```
subreddit                   0
post_id                     0
sentence_range              0
text                        0
id                          0
                           ..
lex_dal_avg_pleasantness    0
social_upvote_ratio         0
social_num_comments         0
syntax_fk_grade             0
sentiment                   0
Length: 116, dtype: int64
```

In [11]:

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2838 entries, 0 to 2837
Columns: 116 entries, subreddit to sentiment
dtypes: float64(106), int64(6), object(4)
memory usage: 2.5+ MB
```

In [12]:

```
data.describe()
```

Out[12]:

	id	label	confidence	social_timestamp	social_karma	syntax_ari
count	2838.000000	2838.000000	2838.000000	2.838000e+03	2838.000000	2838.000000
mean	13751.999295	0.524313	0.808972	1.518107e+09	18.262156	4.684272
std	17340.161897	0.499497	0.177038	1.552209e+07	79.419166	3.316435
min	4.000000	0.000000	0.428571	1.483274e+09	0.000000	-6.620000
25%	926.250000	0.000000	0.600000	1.509698e+09	2.000000	2.464243
50%	1891.500000	1.000000	0.800000	1.517066e+09	5.000000	4.321886
75%	25473.750000	1.000000	1.000000	1.530898e+09	10.000000	6.505657
max	55757.000000	1.000000	1.000000	1.542592e+09	1435.000000	24.074231

8 rows × 112 columns

In [13]:

```
data['subreddit'].unique()
```

Out[13]:

```
array(['ptsd', 'assistance', 'relationships', 'survivorsofabuse',
       'domesticviolence', 'anxiety', 'homeless', 'stress',
       'almosthomeless', 'food_pantry'], dtype=object)
```

In [14]:

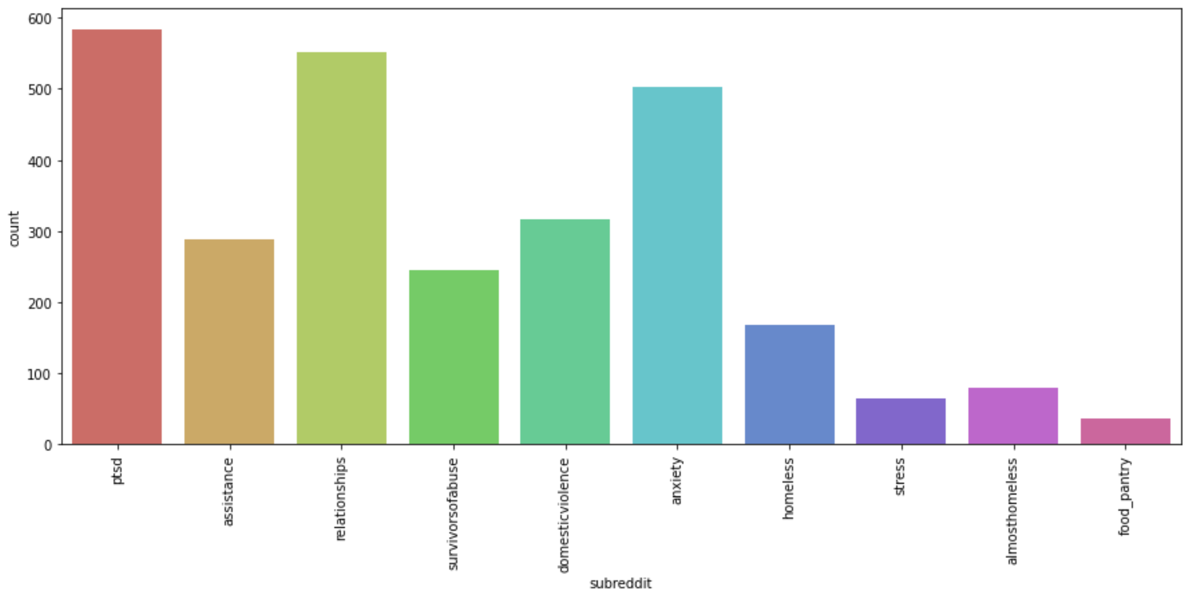
```
data['subreddit'].value_counts()
```

Out[14]:

```
ptsd                584
relationships       552
anxiety             503
domesticviolence    316
assistance          289
survivorsofabuse    245
homeless            168
almosthomeless       80
stress               64
food_pantry          37
Name: subreddit, dtype: int64
```

In [16]:

```
plt.figure(figsize=(15,6))
sns.countplot('subreddit', data = data, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



In [17]:

```
data['label'].unique()
```

Out[17]:

```
array([1, 0], dtype=int64)
```

In [18]:

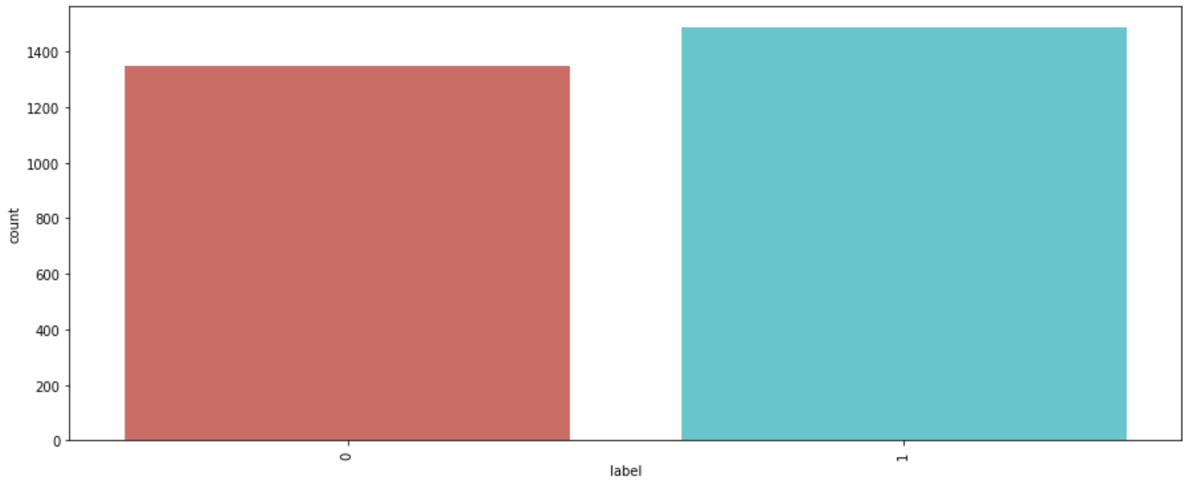
```
data['label'].value_counts()
```

Out[18]:

```
1    1488
0    1350
Name: label, dtype: int64
```

In [19]:

```
plt.figure(figsize=(15,6))
sns.countplot('label', data = data, palette = 'hls')
plt.xticks(rotation = 90)
plt.show()
```



In [20]:

```
import nltk
import re
nltk.download('stopwords')
stemmer = nltk.SnowballStemmer("english")
from nltk.corpus import stopwords
import string
stopword=set(stopwords.words('english'))
```

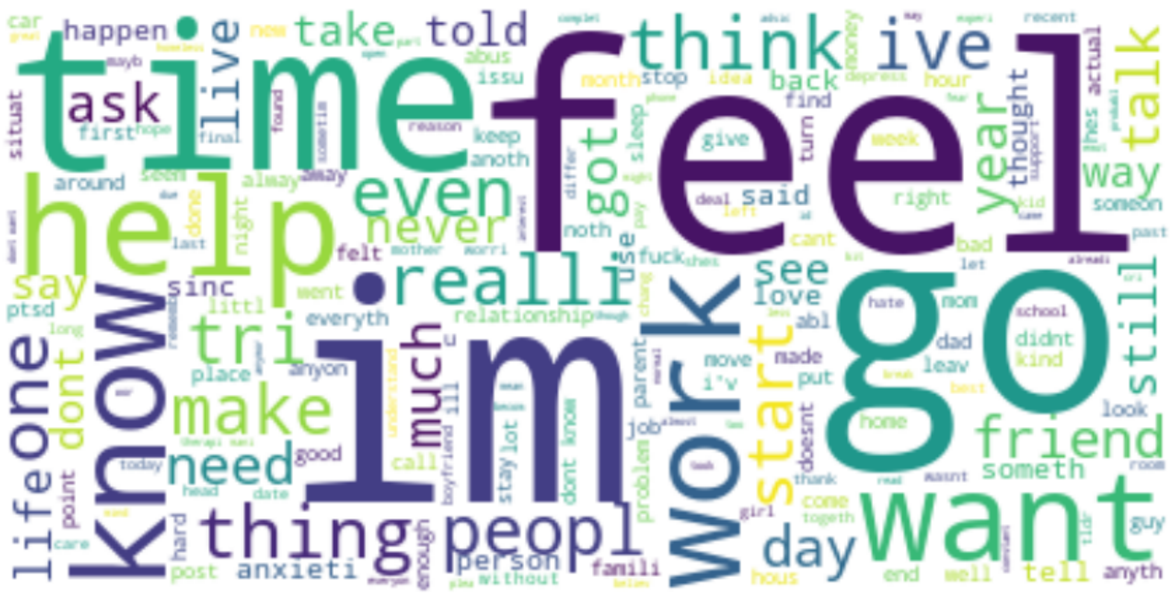
```
[nltk_data] Downloading package stopwords to
[nltk_data]     C:\Users\pc\AppData\Roaming\nltk_data...
[nltk_data]   Package stopwords is already up-to-date!
```

In [21]:

```
def clean(text):
    text = str(text).lower()
    text = re.sub('\[.*?\]', '', text)
    text = re.sub('https?://\S+|www\.\S+', '', text)
    text = re.sub('<.*?>+', '', text)
    text = re.sub('[%s]' % re.escape(string.punctuation), '', text)
    text = re.sub('\n', '', text)
    text = re.sub('\w*\d\w*', '', text)
    text = [word for word in text.split(' ') if word not in stopword]
    text=" ".join(text)
    text = [stemmer.stem(word) for word in text.split(' ')]
    text=" ".join(text)
    return text
data["text"] = data["text"].apply(clean)
```

In [22]:

```
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
text = " ".join(i for i in data.text)
stopwords = set(STOPWORDS)
wordcloud = WordCloud(stopwords=stopwords,
                      background_color="white").generate(text)
plt.figure( figsize=(15,10))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis("off")
plt.show()
```



In [23]:

```
data["label"] = data["label"].map({0: "No Stress", 1: "Stress"})
data = data[["text", "label"]]
print(data.head())
```

```
                                                text      label
0  said felt way sugget go rest trigger ahead you...     Stress
1  hey rassist sure right place post goe  im curr...  No Stress
2  mom hit newspap shock would know dont like pla...     Stress
3  met new boyfriend amaz kind sweet good student...     Stress
4  octob domest violenc awar month domest violenc...     Stress
```

In [24]:

```
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.model_selection import train_test_split
```

In [25]:

```
x = np.array(data["text"])
y = np.array(data["label"])
```

In [26]:

```
cv = CountVectorizer()
X = cv.fit_transform(x)
xtrain, xtest, ytrain, ytest = train_test_split(X, y,
                                                test_size=0.33,
                                                random_state=42)
```

In [27]:

```
from sklearn.linear_model import LogisticRegression
from sklearn.tree import DecisionTreeClassifier
from sklearn.ensemble import RandomForestClassifier
from sklearn.neighbors import KNeighborsClassifier
from sklearn.naive_bayes import BernoulliNB
```

In [28]:

```
model_log = LogisticRegression()
model_log.fit(xtrain, ytrain)
```

Out[28]:

```
LogisticRegression()
```

In [29]:

```
print("Score of the model with X-train and Y-train is : ", str(round(model_log.score
print("Score of the model with X-test and Y-test is : ", str(round(model_log.score(x
```

```
Score of the model with X-train and Y-train is :  99.63 %
Score of the model with X-test and Y-test is :  71.5 %
```

In [30]:

```
model_dt = DecisionTreeClassifier()
model_dt.fit(xtrain,ytrain)
```

Out[30]:

```
DecisionTreeClassifier()
```

In [31]:

```
print("Score of the model with X-train and Y-train is : ", str(round(model_dt.score
print("Score of the model with X-test and Y-test is : ", str(round(model_dt.score(x
```

```
Score of the model with X-train and Y-train is :  100.0 %
Score of the model with X-test and Y-test is :  60.83 %
```

In [32]:

```
model_rf= RandomForestClassifier(n_estimators= 10,
                                   criterion="entropy")
model_rf.fit(xtrain, ytrain)
```

Out[32]:

```
RandomForestClassifier(criterion='entropy', n_estimators=10)
```

In [33]:

```
print("Score of the model with X-train and Y-train is : ", str(round(model_rf.score
print("Score of the model with X-test and Y-test is : ", str(round(model_rf.score(x
```

```
Score of the model with X-train and Y-train is :  99.21 %
Score of the model with X-test and Y-test is :  66.28 %
```

In [34]:

```
model = BernoulliNB()
model.fit(xtrain, ytrain)
```

Out[34]:

```
BernoulliNB()
```

In [35]:

```
print("Score of the model with X-train and Y-train is : ", str(round(model.score(xt
print("Score of the model with X-test and Y-test is : ", str(round(model.score(xtes
```

```
Score of the model with X-train and Y-train is :  91.95 %
Score of the model with X-test and Y-test is :  74.71 %
```

In [39]:

```
user = input("Enter a Text: ")
data = cv.transform([user]).toarray()
output = model_dt.predict(data)
print(output)
```

```
Enter a Text: i am mentally strong.
['No Stress']
```

In [41]:

```
user = input("Enter a Text: ")
data = cv.transform([user]).toarray()
output = model_dt.predict(data)
print(output)
```

```
Enter a Text: i am in stress.
['Stress']
```