

Toxic Comment Classification on Social Media website

Group Submission(Group-12)

Team Members:

1. Akshaykumar Laxman Pujari - 6662997
2. Ranjeet Singh Yadav - 6656616
3. Pavan Siddihally Venugopala Reddy - 6644984
4. Nischay Singh - 6670494
5. Vipul Mishra - 6657466

Project Objective

Humans have developed diverse models for communicating their thoughts through a lot of devices. The internet has been a boon for so many years. But nowadays individuals are found to be at the other end of rising levels of Cyberbullying or social media abuse. Racism, Hate, Casteism in the comments sections of social media posts have many people disgusted and alarmed. To create a safe environment for all the people on the Internet, social media companies need to filter, block, and takedown offensive posts. Enhancement to the existing model will ideally lead to more constructive and respectful online discussion. </p>

Dataset Description

It's important to recognize and exclude malicious content from public platforms. Human moderators can't analyze a large corpus of comments. Our strategy is to implement Natural Language Processing (NLP) techniques to build a rapid and robust method for detecting online toxicity. We are using Google AI Jigsaw Dataset for Toxic Comment classification. We'll create a multi-label model for detecting different types of social media abuse.

Dataset link-<https://www.kaggle.com/c/jigsaw-toxic-comment-classification-challenge/data>
(<https://www.kaggle.com/c/jigsaw-toxic-comment-classification-challenge/data>)

Models worked on

1. LogisticRegression
2. KNN
3. BernoulliNB
4. MultinomialNB
5. SVM
6. Random Forest
7. BinaryRelevance
8. LSTM

9. Label Powerset

10. Adapted

11. LinearSVC

```
In [1]: #importing all the libraries need to implement the models

import pandas as pd #to reached the dataset in the form of dataframe
import numpy as np #to perform mathematical operations
import re
import string
from nltk.corpus import stopwords #this package containd list of stop words
from nltk.tokenize import word_tokenize
from nltk.corpus import words
from nltk import pos_tag
from nltk.stem import WordNetLemmatizer
from nltk.corpus import wordnet
from keras.preprocessing.text import Tokenizer
from keras.preprocessing.sequence import pad_sequences
from keras.utils import to_categorical
from keras.models import Sequential
import keras
from keras.layers import Dense, LSTM, Embedding, Input
from keras.callbacks import EarlyStopping
from sklearn.model_selection import train_test_split
import matplotlib.pyplot as plt
from wordcloud import WordCloud
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.feature_extraction.text import CountVectorizer #importing the vectorizer
from sklearn.linear_model import LogisticRegression
from sklearn.svm import LinearSVC
from sklearn.multiclass import OneVsRestClassifier
from sklearn.metrics import confusion_matrix, classification_report, accuracy_score, f1_score
import seaborn as sns
```

```
In [2]: # removing warning from the output's
import warnings
warnings.filterwarnings("ignore")
```

Reading the training and testing data.

```
In [3]: comment_train = pd.read_csv("train.csv")

comment_train.head()
```

Out[3]:

	id	comment_text	toxic	severe_toxic	obscene	threat	insult	identity_hate
0	0000997932d777bf	Explanation\nWhy the edits made under my usern...	0	0	0	0	0	0
1	000103f0d9c9b60f	D'aww! He matches this background colour I'm s...	0	0	0	0	0	0
2	000113f07ec002fd	Hey man, I'm really not trying to edit war. It...	0	0	0	0	0	0
3	0001b41b1c6bb37e	"\nMore\nI can't make any real suggestions on ...	0	0	0	0	0	0
4	0001d958c54c6e35	You, sir, are my hero. Any chance you remember...	0	0	0	0	0	0

Data type of each fields.

```
In [4]: comment_train.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 159571 entries, 0 to 159570
Data columns (total 8 columns):
#   Column          Non-Null Count  Dtype
---  ---
0   id               159571 non-null object
1   comment_text     159571 non-null object
2   toxic            159571 non-null int64
3   severe_toxic     159571 non-null int64
4   obscene          159571 non-null int64
5   threat           159571 non-null int64
6   insult           159571 non-null int64
7   identity_hate    159571 non-null int64
dtypes: int64(6), object(2)
memory usage: 9.7+ MB
```

```
In [5]: comment_test = pd.read_csv("test.csv") #reading test dataset
comment_test
```

Out[5]:

	id	comment_text
0	00001cee341fdb12	Yo bitch Ja Rule is more succesful then you'll...
1	0000247867823ef7	== From RfC == \n\n The title is fine as it is...
2	00013b17ad220c46	" \n\n == Sources == \n\n * Zawe Ashton on Lap...
3	00017563c3f7919a	:If you have a look back at the source, the in...
4	00017695ad8997eb	I don't anonymously edit articles at all.
...
153159	ffcd0960ee309b5	. \n i totally agree, this stuff is nothing bu...
153160	fffd7a9a6eb32c16	== Throw from out field to home plate. == \n\n...
153161	ffda9e8d6fafa9e	" \n\n == Okinotorishima categories == \n\n I ...
153162	ffe8f1340a79fc2	" \n\n == ""One of the founding nations of the...
153163	ffffce3fb183ee80	" \n :::Stop already. Your bullshit is not wel...

153164 rows × 2 columns

```
In [6]: df_toxic_category = comment_train.drop(['id', 'comment_text'], axis=1) #different labels of toxic
df_toxic_category
```

Out[6]:

	toxic	severe_toxic	obscene	threat	insult	identity_hate
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
...
159566	0	0	0	0	0	0
159567	0	0	0	0	0	0
159568	0	0	0	0	0	0
159569	0	0	0	0	0	0
159570	0	0	0	0	0	0

159571 rows × 6 columns

Data visualisation and analysis.

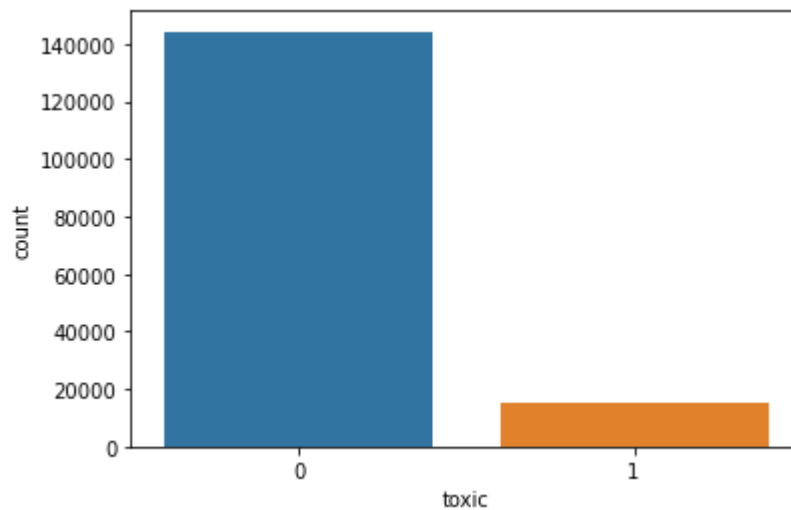
In [7]: `comment_train.describe()` *#it gives informations like mean,std, no of rows etc*

Out[7]:

	toxic	severe_toxic	obscene	threat	insult	identity_ha
count	159571.000000	159571.000000	159571.000000	159571.000000	159571.000000	159571.000000
mean	0.095844	0.009996	0.052948	0.002996	0.049364	0.008800
std	0.294379	0.099477	0.223931	0.054650	0.216627	0.093420
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
25%	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
50%	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
75%	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
max	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000

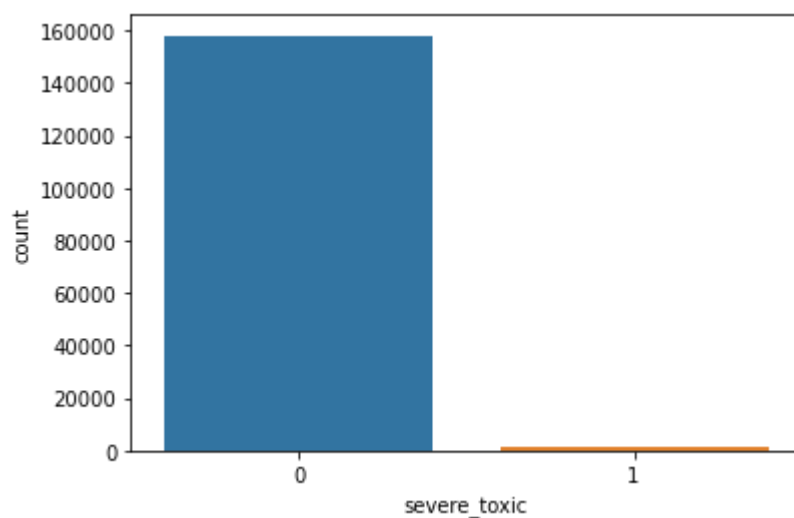
In [8]: `sns.countplot(df_toxic_category['toxic'])`

Out[8]: `<matplotlib.axes._subplots.AxesSubplot at 0x2c888ae4160>`



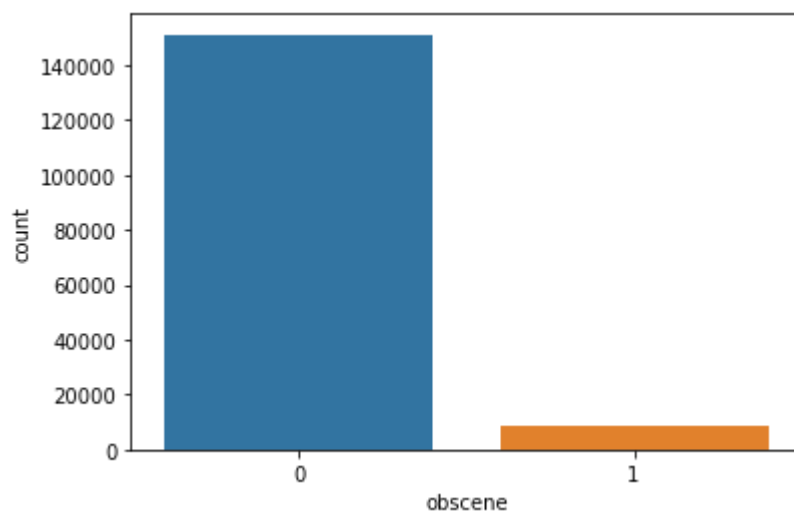
```
In [9]: sns.countplot(df_toxic_category['severe_toxic'])
```

```
Out[9]: <matplotlib.axes._subplots.AxesSubplot at 0x2c888be7eb0>
```



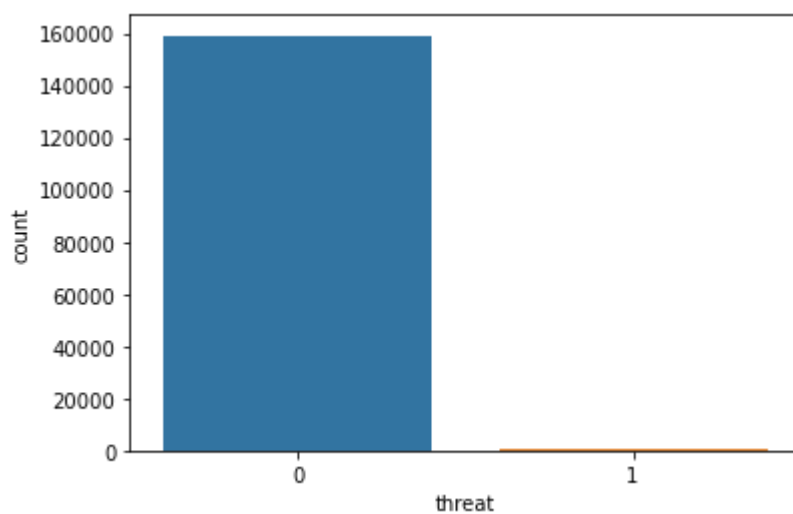
```
In [10]: print(sns.countplot(df_toxic_category['obscene']))
```

```
AxesSubplot(0.125,0.125;0.775x0.755)
```



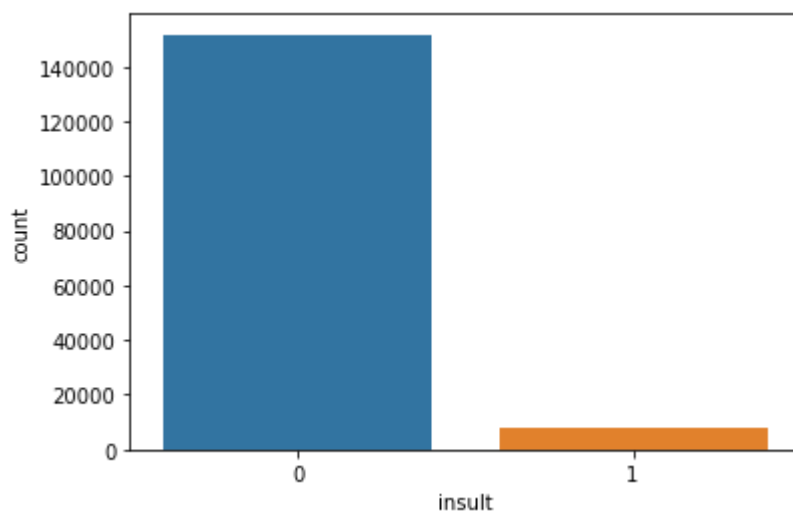
```
In [11]: print(sns.countplot(df_toxic_category['threat']))
```

AxesSubplot(0.125,0.125;0.775x0.755)



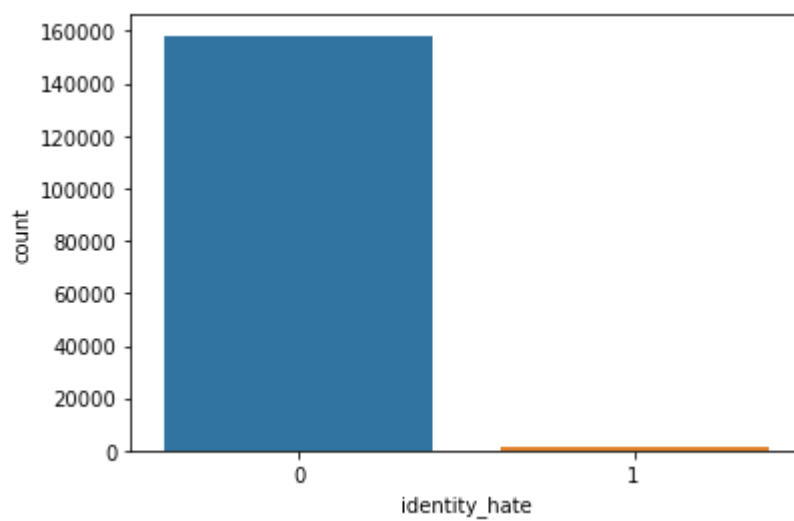
```
In [12]: print(sns.countplot(df_toxic_category['insult']))
```

AxesSubplot(0.125,0.125;0.775x0.755)



```
In [13]: print(sns.countplot(df_toxic_category['identity_hate']))
```

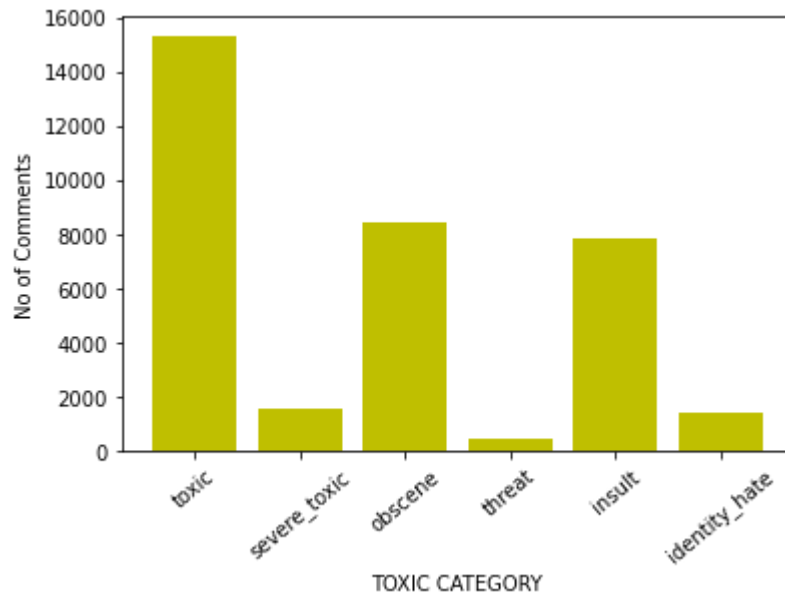
AxesSubplot(0.125,0.125;0.775x0.755)



From above visualization we can say that most of the values in each of the labels are zero's.


```
In [14]: # generating the bar graph to compare the count of each labels
Toxic = df_toxic_category
ValueCounts = []
subdivisions = list(Toxic.columns.values)
for f in subdivisions:
    ValueCounts.append((f, Toxic[f].sum()))
ValueCounts
lab=[] #empty list to store the labels of dataset
val=[] #empty list to store the count of the values
for i in ValueCounts:
    lab.append(i[0])
    val.append(i[1])

plt.bar(lab,val,color='y')
plt.xticks(rotation=40)
plt.xlabel("TOXIC CATEGORY")
plt.ylabel("No of Comments")
plt.show()
```



```
In [15]: num_rows = len(comment_train)
print(num_rows)
sum_tox = comment_train['toxic'].sum() / num_rows * 100
sum_sev = comment_train['severe_toxic'].sum() / num_rows * 100
sum_obs = comment_train['obscene'].sum() / num_rows * 100
sum_thr = comment_train['threat'].sum() / num_rows * 100
sum_ins = comment_train['insult'].sum() / num_rows * 100
sum_ide = comment_train['identity_hate'].sum() / num_rows * 100
```

159571

```
In [16]: ind = np.arange(6)
```

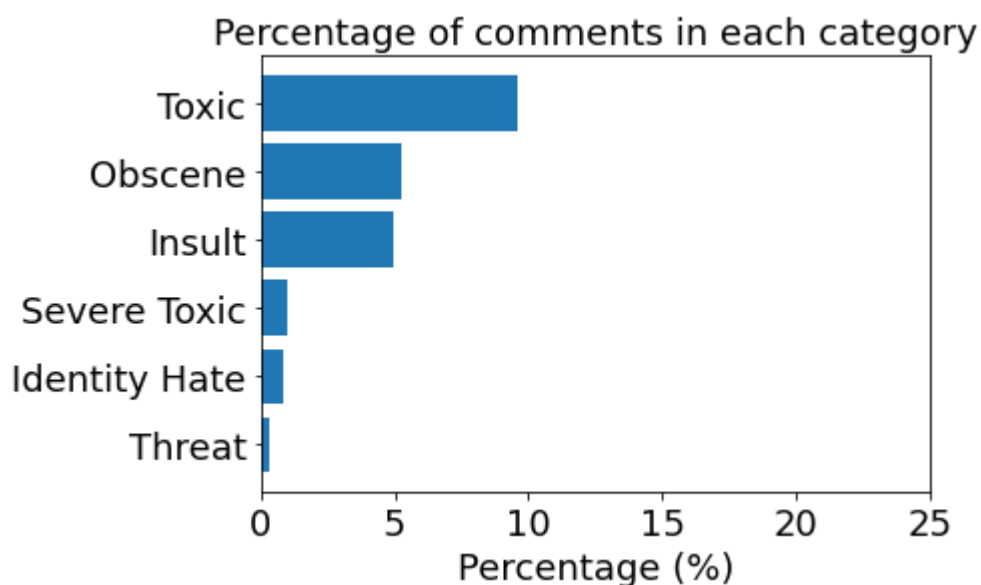
```
In [17]: # Let the ind variable be the x-axis, whereas the % of toxicity for each category be the y-axis.

# Sequence of % have been sorted manually.

ax = plt.barh(ind, [sum_tox, sum_obs, sum_ins, sum_sev, sum_ide, sum_thr])
plt.xlabel('Percentage (%)', size=18)
plt.xticks(np.arange(0, 30, 5), size=18)
plt.title('Percentage of comments in each category', size=18)
plt.yticks(ind, ('Toxic', 'Obscene', 'Insult', 'Severe Toxic', 'Identity Hate', 'Threat'), size=18)

# Inverting the graph in descending order

plt.gca().invert_yaxis()
plt.show()
```

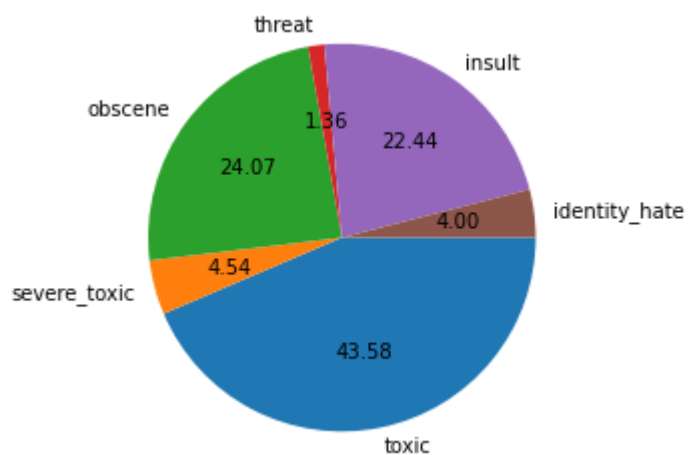


From the graph above we can clearly see that our dataset set is imbalanced. We need to make our dataset balanced so that our model does not overfit the data. Firstly, let's try and run the model without performing any balancing operations on the dataset.

```
In [18]: # Useful to show the words which occur most frequently for each category

import wordcloud
from PIL import Image
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
from nltk.corpus import stopwords
```

```
In [19]: plt.pie(val, labels=lab, autopct='%.2f', counterclock=False)
plt.axis('equal')
plt.show()
```

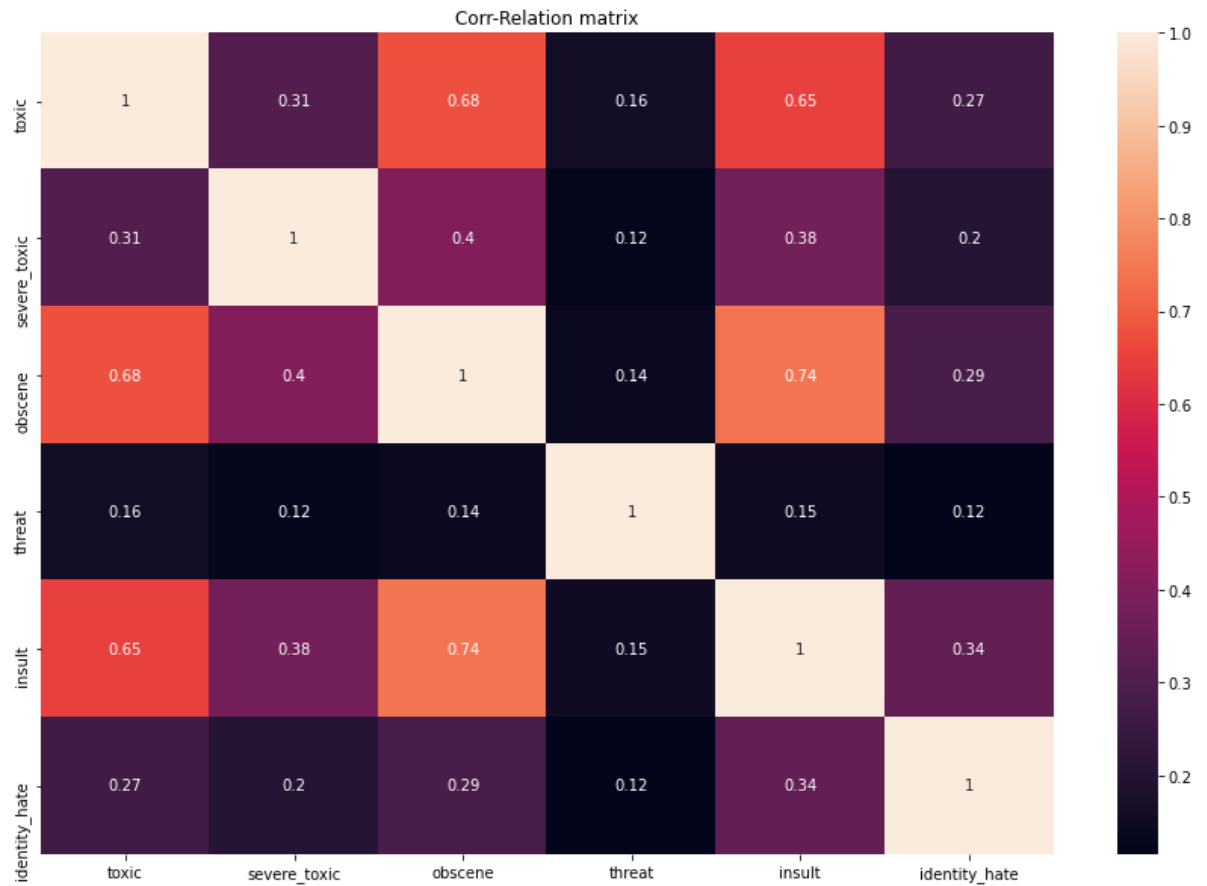


```
In [20]: cols=['toxic', 'severe_toxic', 'obscene', 'threat', 'insult', 'identity_hate']
```

```
In [21]: #defining co-relation matrix
data_category = df_toxic_category
co_relation_matrix = data_category.corr()

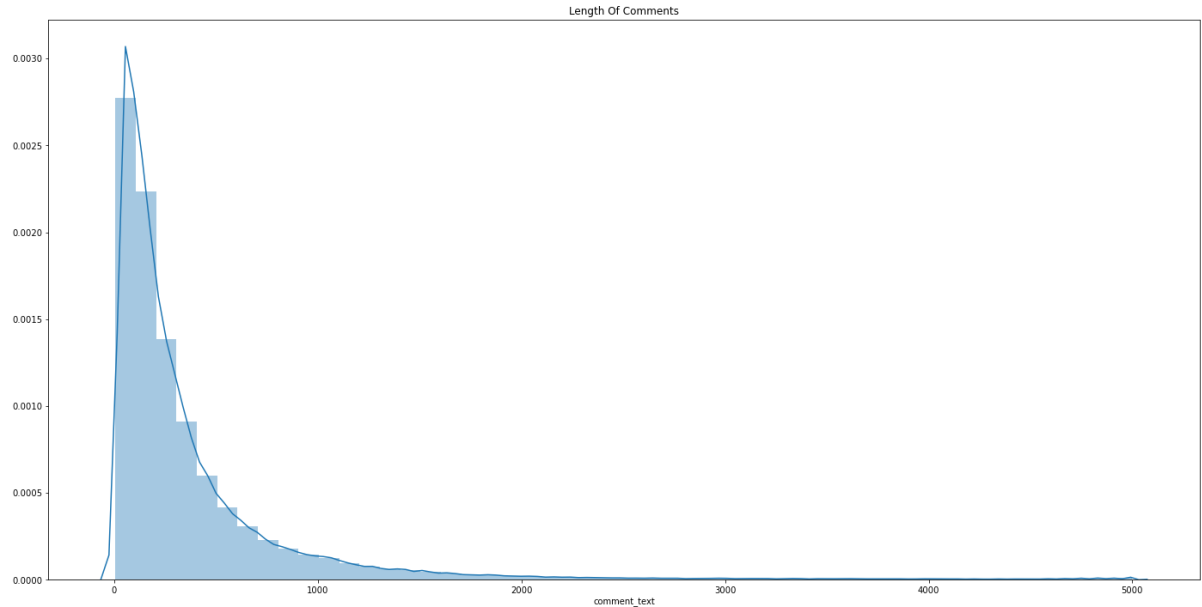
plt.figure(figsize=(15,10))
plt.title("Corr-Relation matrix")
sns.heatmap(co_relation_matrix,annot=True)

plt.show()
```



From the above matrix we can observe that obscene and insult both have similar kind of values and they are highly related to each others.

```
In [22]: plt.figure(figsize = (24,12))  
sns.distplot(comment_train["comment_text"].apply(lambda x : len(x)))  
plt.title("Length Of Comments")  
plt.show()
```



Pre-processing the data.

Data preprocessing involves removing unwanted symbols, stop words, punctuations, annotations and for this pre-processing approach I am using lemmatization for lemmatizing the words. For all this cleaning operations I have created separated function and I am passing my train and test data to this function and creating new column in the dataframe for the clean text.

```
In [23]: import nltk #importing nltk.  
nltk.download('stopwords') #downlaoding the stopwords.  
stop = stopwords.words('english') #As our training dataset is in only one Lang  
uage I am only importing the english stopwords.  
puncutations = string.punctuation #From string package we can retrieve the Lis  
t of puntuations using string.punctuation.  
stop = stop + list(puncutations) #adding the list of puntautions on the array  
we created for stop words.  
stop
```

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

```
Out[23]: ['i',
          'me',
          'my',
          'myself',
          'we',
          'our',
          'ours',
          'ourselves',
          'you',
          "you're",
          "you've",
          "you'll",
          "you'd",
          'your',
          'yours',
          'yourself',
          'yourselves',
          'he',
          'him',
          'his',
          'himself',
          'she',
          "she's",
          'her',
          'hers',
          'herself',
          'it',
          "it's",
          'its',
          'itself',
          'they',
          'them',
          'their',
          'theirs',
          'themselves',
          'what',
          'which',
          'who',
          'whom',
          'this',
          'that',
          "that'll",
          'these',
          'those',
          'am',
          'is',
          'are',
          'was',
          'were',
          'be',
          'been',
          'being',
          'have',
          'has',
          'had',
          'having',
          'do',
```


'does',
'did',
'doing',
'a',
'an',
'the',
'and',
'but',
'if',
'or',
'because',
'as',
'until',
'while',
'of',
'at',
'by',
'for',
'with',
'about',
'against',
'between',
'into',
'through',
'during',
'before',
'after',
'above',
'below',
'to',
'from',
'up',
'down',
'in',
'out',
'on',
'off',
'over',
'under',
'again',
'further',
'then',
'once',
'here',
'there',
'when',
'where',
'why',
'how',
'all',
'any',
'both',
'each',
'few',
'more',
'most',
'other',

'some',
'such',
'no',
'nor',
'not',
'only',
'own',
'same',
'so',
'than',
'too',
'very',
's',
't',
'can',
'will',
'just',
'don',
"don't",
'should',
"should've",
'now',
'd',
'll',
'm',
'o',
're',
've',
'y',
'ain',
'aren',
"aren't",
'couldn',
"couldn't",
'didn',
"didn't",
'doesn',
"doesn't",
'hadn',
"hadn't",
'hasn',
"hasn't",
'haven',
"haven't",
'isn',
"isn't",
'ma',
'mightn',
"mightn't",
'mustn',
"mustn't",
'needn',
"needn't",
'shan',
"shan't",
'shouldn',
"shouldn't",

```
'wasn',
'wasn't",
'weren',
'weren't",
'won',
'won't",
'wouldn',
'wouldn't",
'!',
'"',
'#',
'$',
'%',
'&',
"'",
'(',
')',
'*',
'+',
',',
',',
'-',
'.',
'/',
':',
';',
'<',
'=',
'>',
'?',
'@',
'[',
'\\',
']',
'^',
'_',
'~',
'{'',
'|',
'}',
'~']
```

Removing annotation.

```
In [24]: def annotation(data_text):
          annotation_sentence = re.sub('[^a-z A-Z]+', ' ', data_text)
          return annotation_sentence
```

```
In [25]: """
Making the sentences to lowercase so that it can be passed in Lemmetizing and
stopwords removal function
"""
def lower(data_text):
    lower_sentence = data_text.lower()
    return lower_sentence
```

Lemmatiztion.

Lemmatizing the words and joining them to return in the form of sentences.

```
In [26]: def lem(data_text):
    lemmatizer = WordNetLemmatizer()
    lem_words = [lemmatizer.lemmatize(d, 'v') for d in data_text.split()] #tok
    kenizing the words
    lem_sentence=' '.join(lem_words)
    return lem_sentence
```

Removing the stop words and puntuations.

```
In [27]: """
From string package List of punctuation can be extracted. After extracting th
e list of punctuation I have added it to the list
of stop words so that after each and every iteration I can remove stop words a
nd punctuation together.
"""
def stop_words_removal_puntuations(data_text):
    stop = list(set(stopwords.words('english')))
    puncutations = string.punctuation
    stop = stop + list(puncutations)
    stop_count=[d for d in data_text.split() if d not in stop]
    #print(stop_count)
    stop_count_sentence = ' '.join(stop_count)
    return stop_count_sentence
```

Calling all the above funtion.

```
In [28]: """
This function will call all the above function one by one for cleaning data.
"""
def preprocessing_text(sentence):
    processed_sentence = annotation(sentence)
    processed_sentence = lower(processed_sentence)
    processed_sentence = lem(processed_sentence)
    processed_sentence = stop_words_removal_punctuations(processed_sentence)

    return processed_sentence
```

```
In [29]: def cleaning(data):
text_data=preprocessing_text(data)
return text_data
```

```
In [30]: comment_train['Cleaned_data'] = comment_train['comment_text'].apply(cleaning)
# passing training dataset in cleaning function
```

```
In [31]: comment_train[0:5]
```

Out[31]:

	id	comment_text	toxic	severe_toxic	obscene	threat	insult	identity_hate
0	0000997932d777bf	Explanation\nWhy the edits made under my usern...	0	0	0	0	0	0
1	000103f0d9cfb60f	D'aww! He matches this background colour I'm s...	0	0	0	0	0	0
2	000113f07ec002fd	Hey man, I'm really not trying to edit war. It...	0	0	0	0	0	0
3	0001b41b1c6bb37e	"\nMore\nI can't make any real suggestions on ...	0	0	0	0	0	0
4	0001d958c54c6e35	You, sir, are my hero. Any chance you remember...	0	0	0	0	0	0



```
In [32]: #
words = ' '.join([k for k in comment_train['Cleaned_data']])
W_C = WordCloud(width=1000, height=250, random_state=31, max_font_size=200, background_color='pink').generate(words)

plt.figure(figsize=(20,8))
plt.imshow(W_C, interpolation="bilinear")
plt.axis('off')
plt.show()
```



```
In [36]: # Here I have used tf_idf beacause our model performs in a same way in both t  
he vectorizing technique. And using TF_IDF gave me f1-score of 0.66 however co  
untvectorizer gave me fi-score of 0.64  
tf_idf = TfidfVectorizer(analyzer='word', max_features=40000, ngram_range=(1,2  
) , stop_words='english') #here i am considering max-features as 40000 and pass  
ing bi-gram model  
X = tf_idf.fit_transform(comment_train['Cleaned_data'])  
X
```

```
Out[36]: <159571x40000 sparse matrix of type '<class 'numpy.float64'>'  
         with 4480696 stored elements in Compressed Sparse Row format>
```



```
In [37]: name_of_features=tf_idf.get_feature_names()  
name_of_features[0:50] #getting list of features.
```

```
Out[37]: ['aa',  
'aap',  
'aardvark',  
'aaron',  
'ab',  
'aba',  
'abandon',  
'abandonment',  
'abbas',  
'abbey',  
'abbott',  
'abbreviate',  
'abbreviation',  
'abbreviations',  
'abc',  
'abc news',  
'abd',  
'abduct',  
'abduction',  
'abdul',  
'abdullah',  
'abe',  
'abhira',  
'abhiras',  
'abhishek',  
'abhorrent',  
'abide',  
'abide wikipedia',  
'abilities',  
'ability',  
'ability create',  
'ability edit',  
'ability rename',  
'abit',  
'abkhazia',  
'able',  
'able add',  
'able block',  
'able change',  
'able check',  
'able come',  
'able contribute',  
'able edit',  
'able help',  
'able look',  
'able make',  
'able post',  
'able provide',  
'able read',  
'able stand']
```

```
In [38]: y=comment_train.drop(['id', 'comment_text','Cleaned_data'], axis=1)
y.drop(['toxic'], axis=1, inplace=True)
y
```

Out[38]:

	severe_toxic	obscene	threat	insult	identity_hate
0	0	0	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
...
159566	0	0	0	0	0
159567	0	0	0	0	0
159568	0	0	0	0	0
159569	0	0	0	0	0
159570	0	0	0	0	0

159571 rows × 5 columns

```
In [39]: """
train-75%
test-25%
"""
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = .25)
```

LinearSVC

```
In [40]: svc = LinearSVC() #creating object for linear SVC
```

```
In [41]: clf = OneVsRestClassifier(svc)
```

```
In [42]: clf.fit(X_train,y_train)
```

Out[42]: OneVsRestClassifier(estimator=LinearSVC())

```
In [43]: svc_pred= clf.predict(X_test)
svc_pred
```

```
Out[43]: array([[0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                ...,
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0]])
```

```
In [44]: cm_svc=confusion_matrix(y_test.values.argmax(axis=1),svc_pred.argmax(axis=1))
cm_svc
```

```
Out[44]: array([[37031,  422,    7,  115,   17],
                [ 564, 1098,    1,   80,    2],
                [  31,    2,    5,    2,    0],
                [ 329,   34,    2,   86,    9],
                [  39,    6,    0,    4,    7]], dtype=int64)
```

```
In [45]: print(classification_report(svc_pred.argmax(axis=1),y_test.values.argmax(axis=
1)))
```

	precision	recall	f1-score	support
0	0.99	0.97	0.98	37994
1	0.63	0.70	0.66	1562
2	0.12	0.33	0.18	15
3	0.19	0.30	0.23	287
4	0.12	0.20	0.15	35
accuracy			0.96	39893
macro avg	0.41	0.50	0.44	39893
weighted avg	0.96	0.96	0.96	39893

```
In [46]: accuracy_svc_pred=accuracy_score(y_test.values.argmax(axis=1),svc_pred.argmax(
axis=1))
accuracy_svc_pred
```

```
Out[46]: 0.9582382874188454
```

```
In [47]: print("f1_score:",f1_score(y_test,svc_pred, average="micro"))

f1_score: 0.6740800183423133
```

Creating a testing model to test my model with external data

Validating the model using LinearSVC

```
In [48]: com = ['i will kill you', 'piece of shit', "yor are an idiot", "you are an ass
hole", "Yo bitch Ja Rule is more succesful then you'll ever be whats up with yo
u and hating you sad mofuckas...i should bitch slap ur pethedic white faces an
d get you to kiss my ass you guys sicken me. Ja rule is about pride in da musi
c man. dont diss that shit on him. and nothin is wrong bein like tupac he was
a brother too...fuckin white boys get things right next time"]
```

```
In [49]: clean_com=[]
for i in com:
    clean_com.append(cleaning(i))

clean_com
```

```
Out[49]: ['kill',
'piece shit',
'yor idiot',
'asshole',
'yo bitch ja rule succesful ever whats hat sad mofuckas bitch slap ur pethed
ic white face get kiss ass guy sicken ja rule pride da music man dont diss sh
it nothin wrong bein like tupac brother fuckin white boys get things right ne
xt time']
```

```
In [50]: xt = tf_idf.transform(com)
xt
```

```
Out[50]: <5x40000 sparse matrix of type '<class 'numpy.float64'>'
with 39 stored elements in Compressed Sparse Row format>
```

```
In [51]: category=clf.predict(xt)
category
```

```
Out[51]: array([[0, 0, 1, 0, 0],
[0, 1, 0, 1, 0],
[0, 0, 0, 1, 0],
[0, 1, 0, 1, 0],
[0, 1, 0, 1, 0]])
```

```
In [52]: col=[ 'severe_toxic', 'obscene', 'threat', 'insult', 'identity_hate']
cat = pd.DataFrame(category, columns=col)
cat
```

```
Out[52]:
```

	severe_toxic	obscene	threat	insult	identity_hate
0	0	0	1	0	0
1	0	1	0	1	0
2	0	0	0	1	0
3	0	1	0	1	0
4	0	1	0	1	0

```
In [53]: for i in range(len(cat)):
          if cat.columns[(cat == 1).iloc[i]].notna().all():
              print(cat.columns[(cat == 1).iloc[i]].values)

['threat']
['obscene' 'insult']
['insult']
['obscene' 'insult']
['obscene' 'insult']
```

```
In [54]: from sklearn.pipeline import Pipeline
          from sklearn.feature_extraction.text import ENGLISH_STOP_WORDS, TfidfVectorizer
```

```
In [55]: pipeline = Pipeline(steps= [('tfidf', TfidfVectorizer(lowercase=True,
                                                                max_features=1000,
                                                                stop_words= ENGLISH_STOP
                                                                _WORDS)),
                                     ('model', OneVsRestClassifier(LinearSVC()))])
```

```
In [56]: pipeline.fit(comment_train.Cleaned_data, y)
```

```
Out[56]: Pipeline(steps=[('tfidf',
                          TfidfVectorizer(max_features=1000,
                                          stop_words=frozenset({'a', 'about', 'above',
                                                                  'across', 'after',
                                                                  'afterwards', 'again',
                                                                  'against', 'all',
                                                                  'almost', 'alone',
                                                                  'along', 'already',
                                                                  'also', 'although',
                                                                  'always', 'am', 'amon
g',
                                                                  'amongst', 'amoungst',
                                                                  'amount', 'an', 'and',
                                                                  'another', 'any',
                                                                  'anyhow', 'anyone',
                                                                  'anything', 'anyway',
                                                                  'anywhere', ...}))),
                          ('model', OneVsRestClassifier(estimator=LinearSVC()))])
```

```
In [57]: pipeline.predict(comment_train.Cleaned_data)
```

```
Out[57]: array([[0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                ...,
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0],
                [0, 0, 0, 0, 0]])
```

```
In [58]: text=["Piece of shit"]
```

```
In [59]: pipeline.predict(text)
```

```
Out[59]: array([[0, 1, 0, 1, 0]])
```

```
In [60]: from joblib import dump
```

```
In [61]: dump(pipeline, filename="text_classification.joblib")
```

```
Out[61]: ['text_classification.joblib']
```

```
In [62]: import pandas as pd  
from joblib import load
```

```
In [63]: text=["Piece of shit"]
```

```
In [64]: pipeline = load("text_classification.joblib")
```

```
In [65]: pipeline.predict(text)
```

```
Out[65]: array([[0, 1, 0, 1, 0]])
```

In [66]: !python main.py

```

* Serving Flask app "main" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: on
i will kill you
[[0 0 0 0 0]]
[]
piece of shit
[[0 1 0 1 0]]
['obscene' 'insult']
piece of shit
[[0 1 0 1 0]]
['obscene' 'insult']
i will kill you
[[0 0 0 0 0]]
[]
Poor upset Feminist a fucking ad triggers, but women stoned to death doesn't.
Here's an idea, drink some floor polish.
[[0 0 0 0 0]]
[]
ugly and fat with shit hair. Sad to be you
[[0 1 0 1 0]]
['obscene' 'insult']
smash your head
[[0 0 0 0 0]]
[]
i will kick your face
[[0 0 0 0 0]]
[]
you are a killer
[[0 0 0 0 0]]
[]
That literary reaction you recited is jealousy; men have names for other men
who outsmart them too, but, not having a word like ""bitch"" for them, they
have to resort to a greater variety of pejorative epithets. Though you haven't
been specific, I think that standard of femininity you referred to is a pretext
for subordination, which both sexes often strive to impose on the other, but
men have traditionally had more power. Because it is such a popular epithet in
slang, the connotations of ""bitch"" are diffuse, though still commonly pernicious.
I think bitch, in itself, is not chiefly a denunciation to punish women who do
not conform to that standard, but rather a contemptuous word often used for it.
[[0 1 0 0 0]]
['obscene']

```



```

* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [26/May/2021 02:53:29] "GET / HTTP/1.1" 200 -
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\flask
\\__pycache__\\debughelpers.cpython-38.pyc', reloading
127.0.0.1 - - [26/May/2021 02:53:43] "POST / HTTP/1.1" 200 -
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [26/May/2021 02:53:53] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 02:54:08] "GET / HTTP/1.1" 200 -
* Detected change in 'C:\\Users\\singh\\anaconda3\\Scripts\\conda-script.p
y', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\codecs.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\aliases.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\utf_8.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\cp1252.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\latin_1.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\io.cpyt
hon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\abc.cpy
thon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\site.cp
ython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\os.cpyt
hon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stat.cp
ython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\_collec
tions_abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\ntpath.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\generic
path.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\_sitebu
iltins.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\_bootlo
cale.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\types.c
python-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache
__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\warning
s.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache
__\\util.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache

```

```
__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\machinery.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\contextlib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\collections\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\keyword.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\heapq.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\repllib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\functools.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\__future__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\decoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\re.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\enum.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_compile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_parse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\copyreg.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\scanner.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\encoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\tempfile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\shutil.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\fnmatch.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\posixpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bz2.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\compression.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\threading.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\weakrefset.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\lzma.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\random.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bisect.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\weakref.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\collections\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\cli\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\cli\\__pycache__\\main.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\datetime.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\logging\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\traceback.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\linecache.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\tokenize.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\token.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\string.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\textwrap.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\getpass.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\__pycache__\\entity.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\vendor\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\vendor\\boltons\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\vendor\\boltons\\__pycache__\\timeutils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\__pycache__\\collection.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\auxlib\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
```

```
\\_vendor\\auxlib\\_vendor\\__pycache__\\five.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\imp.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\_vendor\\__pycache__\\six.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\struct.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\shlex.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\__pycache__\\ish.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\__pycache__\\logz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\__pycache__\\type_coercion.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\auxlib\\__pycache__\\decorators.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\toolz\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoolz\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoolz\\__pycache__\\compatibility.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\itertoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\compatibility.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\functoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\inspect.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\dis.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\opcode.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\signatures.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\dicttoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\__pycache__\\recipes.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\curried\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\curried\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\ast.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\curried\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz\\sandbox\\__pycache__\\__init__.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\sandbox\\__pycache__\\core.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\sandbox\\__pycache__\\parallel.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [26/May/2021 03:10:15] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:10:26] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:10:49] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:11:00] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:11:13] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:11:40] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [26/May/2021 03:11:53] "POST / HTTP/1.1" 200 -
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__
\\message.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\uu.cpyt
hon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__
\\_encoded_words.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__
\\iterators.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\idna.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stringp
rep.cpython-38.pyc', reloading
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\anaconda3\\Scripts\\conda-script.p
y', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\anaconda3\\Scripts\\conda-script.p
y', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\codecs.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\aliases.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\utf_8.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\cp1252.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache
__\\latin_1.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\io.cpyt
hon-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\site.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\os.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\collections_abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\ntpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\genericpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sitebuiltins.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bootlocale.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\types.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\warnings.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\util.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\machinery.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\contextlib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\collections\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\keyword.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\heapq.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\reprlib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\functools.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\__future__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\decoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\re.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\enum.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_com
```

```

pile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_parse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\copyreg.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\scanner.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\encoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\tempfile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\shutil.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\fnmatch.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\posixpath.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stringprep.cpython-38.pyc', reloading
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\anaconda3\\Scripts\\conda-script.py', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\codecs.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache__\\aliases.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache__\\utf_8.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache__\\cp1252.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\encodings\\__pycache__\\latin_1.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\io.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\site.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\os.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stat.cpython-38.pyc', reloading

```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\collections_abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\ntpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\genericpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sitebuiltins.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bootlocale.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\types.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\warnings.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\util.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\importlib\\__pycache__\\machinery.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\contextlib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\collections\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\keyword.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\heapq.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\repllib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\functools.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\__future__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\decoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\re.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\enum.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_compile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_parse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\sre_constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\copyreg.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\s
```



```
canner.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\json\\__pycache__\\encoder.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\tempfile.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\shutil.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\fnmatch.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\posixpath.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bz2.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\compression.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\threading.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\weakrefset.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\lzma.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\random.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\bisect.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\weakref.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\collections\\__pycache__\\abc.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\cli\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\cli\\__pycache__\\main.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\datetime.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\logging\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\traceback.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\linecache.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\tokenize.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\token.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\string.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\textwrap.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\getpass.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\entity.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\_vendor\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\_vendor\\boltons\\__pycache__\\__init__.cpython-38.pyc', r
eloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\_vendor\\boltons\\__pycache__\\timeutils.cpython-38.pyc',
reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\collection.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\_vendor\\__pycache__\\five.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\imp.cpy
thon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\_vendor\\__pycache__\\six.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\struct.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\shlex.c
python-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\ish.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\logz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\type_coercion.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\auxlib\\__pycache__\\decorators.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\_vendor\\toolz\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\__pycache__\\compatibility.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\itertoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\compatibility.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\functoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\inspec
t.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\dis.cpy
```

```
thon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\opcode.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\signatures.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\dicttoolz.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\__pycache__\\recipes.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\curried\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\curried\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\ast.cpy
thon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\curried\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\sandbox\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\sandbox\\__pycache__\\core.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\toolz
\\sandbox\\__pycache__\\parallel.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\__pycache__\\signatures.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\copy.cp
ython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\curried\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\curried\\__pycache__\\operator.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\curried\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\cytoo
lz\\__pycache__\\version.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\base\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\base\\__pycache__\\constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\__pycache__\\io.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\concurrent\\__pycach
e__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\concurrent\\futures
\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\concurrent\\futures
\\__pycache__\\base.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\concurrent\\futures
\\__pycache__\\process.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\queue.c
python-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\context.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\process.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\signal.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\reduction.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\pickle.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\_compat
_pickle.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\socket.
cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\selecto
rs.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\connection.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\util.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\subproc
ess.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\queues.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\concurrent\\futures
\\__pycache__\\thread.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\__pycache__\\constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\__pycache__\\path.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\distutils\\__pycache
__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\distutils\\__pycache
__\\spawn.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\distutils\\__pycache
__\\errors.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\distutils\\__pycache
__\\debug.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\distutils\\__pycache
__\\log.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\urllib\\__pycache__
__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\urllib\\__pycache__
__\\parse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\tqdm\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\tqdm\\__pycache__\\std.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\tqdm\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
ama\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
ama\\__pycache__\\initialise.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
ama\\__pycache__\\ansitowin32.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
ama\\__pycache__\\ansi.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
ama\\__pycache__\\winterm.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\color
```

```

ama\\__pycache__\\win32.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\ctypes\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\ctypes\\__pycache__\\_endian.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\ctypes\\__pycache__\\_wintypes.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\tqdm\\__pycache__\\_monitor.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\numbers.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\tqdm\\__pycache__\\cli.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\tqdm\\__pycache__\\_version.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_common\\__pycache__\\signals.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\cli\\__pycache__\\conda_argparse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\argparse.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\gettext.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\locale.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_base\\__pycache__\\context.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\platform.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\__pycache__\\appdirs.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\win32com\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\__pycache__\\pythoncom.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\win32\\_lib\\__pycache__\\pywintypes.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\win32comext\\shell\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\boltons\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\boltons\\__pycache__\\setutils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_vendor\\__pycache__\\frozendict.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_common\\__pycache__\\configuration.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\_common\\__pycache__\\serialize.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\cyaml.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\_ext\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\error.cpython-38.pyc', reloading

```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\reader.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\util.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\scanner.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\tokens.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\parser.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\events.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\composer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\nodes.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\constructor.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\base64.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\comments.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\scalarstring.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\anchor.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\scalarint.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\scalarfloat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\scalarbool.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\timestamp.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\emitter.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\serializer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\representer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\resolver.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\main.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\glob.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\loader.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\ruamel_yaml\\__pycache__\\dumper.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\_os\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\common\\_os\\__pycache__\\windows.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
```

```
\\common\\_os\\_pycache_\\linux.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\_pycache_\\url.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\urllib3\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\urllib3\\_pycache_\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\urllib3\\util\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\vendor\\urllib3\\util\\_pycache_\\url.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\_pycache_\\decorators.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\gateways\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\gateways\\_pycache_\\logging.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\cli\\_pycache_\\main_list.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\cli\\_pycache_\\common.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\models\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\models\\_pycache_\\match_spec.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\models\\_pycache_\\channel.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\models\\_pycache_\\version.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\core\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\core\\_pycache_\\prefix_data.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\pkg_formats\\_pycache_\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda
\\common\\pkg_formats\\_pycache_\\python.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\_pycache_\\csv.cpy
thon-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\parser.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\feedparser.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\errors.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\policybase.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\header.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\quoprimime.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\base64mime.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\_pycache_
\\charset.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__\\encoders.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\quopri.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\email\\__pycache__\\parseaddr.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\calendar.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\configparser.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\create.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\delete.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\link.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\permissions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\update.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\models\\__pycache__\\enums.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\read.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\hashlib.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\models\\__pycache__\\package_info.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\models\\__pycache__\\records.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\vendor\\boltons\\__pycache__\\timeutils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\disk\\__pycache__\\test.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\uuid.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\models\\__pycache__\\prefix_graph.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\history.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\models\\__pycache__\\dist.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stringprep.cpython-38.pyc', reloading
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\anaconda3\\Scripts\\conda-script.p
```



```

y', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\__pycache__\\stringp
rep.cpython-38.pyc', reloading
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\test.py', reloadi
ng
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Scripts\\ac
tivate_this.py', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
127.0.0.1 - - [26/May/2021 08:01:53] "GET / HTTP/1.1" 200 -
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\flask
\\__pycache__\\debughelpers.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\panda
s\\core\\computation\\__pycache__\\expressions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\panda
s\\core\\computation\\__pycache__\\check.cpython-38.pyc', reloading
127.0.0.1 - - [26/May/2021 08:02:12] "POST / HTTP/1.1" 200 -
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\boto3
\\s3\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\boto3
\\s3\\__pycache__\\inject.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\boto3
\\s3\\__pycache__\\transfer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\compat.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\managers.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\multiprocessing\\__p
ycache__\\shared_memory.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\manager.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\constants.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\futures.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3tra
nsfer\\__pycache__\\download.cpython-38.pyc', reloading

```

```
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\tasks.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\upload.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\copies.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\delete.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\bandwidth.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\s3transfer\\__pycache__\\subscribers.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\gateways\\__pycache__\\anaconda_client.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\__pycache__\\utils.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda\\core\\__pycache__\\subdir_data.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\anaconda3\\Lib\\site-packages\\conda_env\\__pycache__\\__init__.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\utils\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\utils\\__pycache__\\inject_securetransport.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\utils\\__pycache__\\typing.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\__pycache__\\__main__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\cli\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\cli\\__pycache__\\main.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_internal\\cli\\__pycache__\\autocompletion.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\__pycache__\\tokenizer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\_trie\\__pycache__\\__init__.cpython-38.pyc', reloading
```

```
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\_trie\\__pycache__\\py.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\_trie\\__pycache__\\_base.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\treebuilders\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\treebuilders\\__pycache__\\_base.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\treewalkers\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\html5lib\\__pycache__\\serializer.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\requests\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\__pycache__\\exceptions.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\packages\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\packages\\ssl_match_hostname\\__pycache__\\__init__.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\packages\\__pycache__\\six.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\__pycache__\\_version.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\__pycache__\\connectionpool.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\__pycache__\\connection.cpython-38.pyc', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\venv\\Lib\\site-packages\\pip\\_vendor\\urllib3\\util\\__pycache__\\__init__.cpython-38.pyc', reloading
* Restarting with windowsapi reloader
* Debugger is active!
* Debugger PIN: 135-057-490
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\main.py', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\main.py', reloading
* Detected change in 'C:\\Users\\singh\\Desktop\\NLP-LABS\\main.py', reloading
```

```
ng
* Restarting with windowsapi reloader
Traceback (most recent call last):
  File "C:\Users\singh\Desktop\NLP-LABS\main.py", line 1, in <module>
    from flask import Flask, render_template, request, redirect, url_for, resp
ose
ImportError: cannot import name 'response' from 'flask' (C:\Users\singh\anacon
da3\lib\site-packages\flask\__init__.py)
```

In [71]: !python main.py

^C

Test Case

In []:

In [77]: tc=pd.read_csv("Test_case_2.csv")

In [78]: tc

Out[78]:

	Comments	Expected Result	Actual Result	Test Result
0	That literary reaction you recited is jealousy...	Obscene	Obscene	Pass
1	It should definately say something about Kyle...	Obscene	Obscene	Pass
2	o bitch Ja Rule is more succesful then you'll ...	Obscene and Insult	Obscene and Insult	Pass
3	Hey bro, how are you doing, all good?	NaN	NaN	Pass
4	I did not see any estimates of the number of p...	Threat	NaN	Fail
5	#As a side note to others, it is grossly inapp...	NaN	NaN	Pass
6	You are a cuntish dick as far as I've seen	Obscene	Obscene	Pass
7	ugly and fat with shit hair. Sad to be you	Obscene and Insult	Obscene and Insult	Pass
8	Why was the image deleted? Were there copyrigh...	NaN	NaN	Pass
9	I will kill you	Threat	Threat	Pass

Conclusion

In Closing, We have imported `sklearn.pipeline` from the Sklearn library to streamline the process of Text Classification with respect to our project. From all the models implemented in the project by each individual, we have identified Linear SVC as the best model based on the accuracy of each model was given. Using `sklearn.pipeline.fit()` function and `pipeline.predict()` function we have trained the model from the training data and subsequently predicted the outcome. As part of testing, we have taken several test cases, both successful and unsuccessful test cases. On the UI itself, we have passed both clean and toxic comments to re-verify that the model is correctly predicting the comment, as learned from the training dataset. We have used `joblib()` function `dump` to dump the complete model into a callable file and later in the process, we have used `joblib.load` to load the model using Flask. By doing so we can predict the outcome of any comment taken outside of the dataset in terms of multi-label classification. This project can be integrated with various social media platforms, to filter out the clean comments from the toxic ones, creating a more healthy and wise digital environment

In []: