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- ***InternShip Start Date And End Date :-*** *18-08-2023 To 30-09-2023*

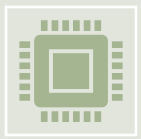
SENTIMENT ANALYSIS OF RESTAURANT REVIEWS

SYED SAMEER AHAMED

PROBLEM STATEMENT

The Project Topic is Sentiment Analysis
Of Restraunt Reviews

To provide a Sentiment Analysis system for customers review classification, that may be helpful to analyze the information where opinions are highly unstructure and are either positive or negative.



This project focusing on the estimation of the polarity of the sentiment evoked by an text through input box. To implement an algorithm for automatic classification of text into positive, negative or neutral.

Sentiment Analysis to determine the attitude of the mass is positive, negative, neutral towards the subject of interest. It is represented in the form of pie chart.

AGENDA

- Introduction
- Project Overview
- Who Are The Users?
- Modeling And Training
- Links & Results

Project Overview

The main objective of sentiment analysis on product reviews is to review different algorithm and techniques to extract feature wise summary of a product and analyze it to form an authentic review.

The purpose of this analysis is to build a prediction model to predict whether a review on the restaurant is positive or negative.

To do so, we will work on Restaurant Review dataset, we will load it into predicitve algorithms Multinomial Naive Bayes, Bernoulli Naive Bayes and Logistic Regression.

In the end, we hope to find a "best" model for predicting the review's sentiment

Introduction

- Sentiment analysis of Restraunt reviews has a crucial impact on a business's development strategy. Evolution of the internet in the past decade resulted in generation of voluminous data in all sectors. Due to these advents, the people have new ways of expressing their opinions about anything in the form of Google Reviews, Tweets, Blog Posts etc. Sentiment analyisis deals with the process of computationally identifying and categorizing opinions expressed in a piece of text, especially in order to determine whether the writer's attitude toward a particular topic is positive, negative or neutral. Knowing the opinion of customers is very important for any business.

Who are the End users?

This project focusing on the estimation of the polarity of the sentiment evoked by an text through input box. To implement an algorithm for automatic classification of text into positive, negative or neutral. Sentiment Analysis to determine the attitude of the mass is positive, negative, neutral towards the subject of interest. It is represented in the form of pie chart.

it's important for restaurant owners to understand how to best manage, respond, and showcase their establishment's reviews.

Modeling

Here we are receiving the data in the form of csv file from drive

Sentiment Analysis of Restaurant Reviews

File Edit View Insert Runtime Tools Help All changes saved

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RAM Disk

[27] # Connecting Google Drive with Google Colab
from google.colab import drive
drive.mount('/content/drive/')

```
Drive already mounted at /content/drive/; to attempt to forcibly remount, call drive.mount("/content/drive/", force_remount=True).
```

[5] # Importing essential libraries
import numpy as np
import pandas as pd

[6] # Loading the dataset
df = pd.read_csv('/content/drive/MyDrive/Restaurant_Reviews.tsv', delimiter='\t', quoting=3)

[7] df.shape

```
(1000, 2)
```

[8] df.columns

```
Index(['Review', 'Liked'], dtype='object')
```

Modeling

- Plotting the confusion matrix

Sentiment Analysis of Restaurant Reviews

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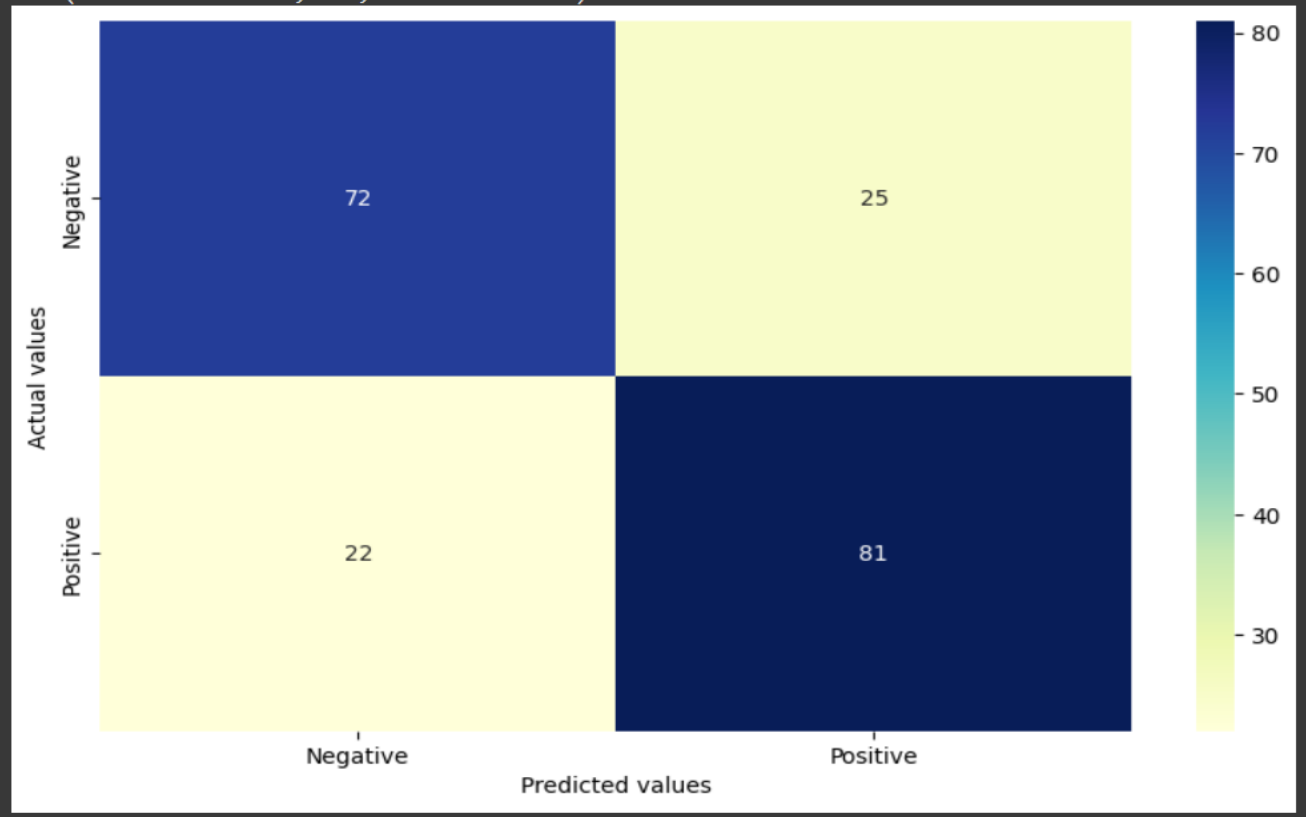
Comment Share

+ Code + Text

RAM Disk

```
sns.heatmap(cm, annot=True, cmap="YlGnBu", xticklabels=['Negative', 'Positive'], yticklabels=['Negative', 'Positive'])
plt.xlabel('Predicted values')
plt.ylabel('Actual values')
```

```
Text(95.72222222222221, 0.5, 'Actual values')
```



Modeling

Here I have used the training set of Naïve Bayes to Training set

ACCURACY SCORE OF THE PROJECT :76.5%

Model Building

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.20, random_state = 0)
```

```
[15] # Fitting Naive Bayes to the Training set
from sklearn.naive_bayes import MultinomialNB
classifier = MultinomialNB()
classifier.fit(X_train, y_train)
```

```
MultinomialNB
MultinomialNB()
```

```
[16] # Predicting the Test set results
y_pred = classifier.predict(X_test)
```

```
# Accuracy, Precision and Recall
from sklearn.metrics import accuracy_score
from sklearn.metrics import precision_score
from sklearn.metrics import recall_score
```

```
[17] # Accuracy, Precision and Recall
from sklearn.metrics import accuracy_score
from sklearn.metrics import precision_score
from sklearn.metrics import recall_score
score1 = accuracy_score(y_test,y_pred)
score2 = precision_score(y_test,y_pred)
score3= recall_score(y_test,y_pred)
print("---- Scores ----")
print("Accuracy score is: {}%".format(round(score1*100,2)))
print("Precision score is: {}".format(round(score2,2)))
print("Recall score is: {}".format(round(score3,2)))
```

```
---- Scores ----
Accuracy score is: 76.5%
Precision score is: 0.76
Recall score is: 0.79
```

Result

- This project present a study of important techniques to identify sentiment analysis of reviews. In this project major approaches applicable to identify the sentiment analysis of review text to be analyzed. We cover the maximum out of all existing techniques and also do the comparison of these techniques and use nlp for tokenization, remove stopwords and punctuation marks are also do stemming. And use a supervised machine learning algorithm which is linear regression and naïve multinomial algorithm for classification.

Project Link :-

- https://colab.research.google.com/drive/1mBzS-vrp-4ikSLSw-pqyWkZNl3lLdhuY?usp=drive_link

Thank You

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