Airline Sentiment Analysis Tool: Analyzing and Classifying Airline Tweets

Description:

The "Airline Sentiment Analysis Tool" is a robust application designed to analyze and classify tweets related to various airlines. As a programmer, your task is to develop this application with specific requirements in mind.

Key Features:

- First, the application will **check** whether there is "**model.pickle**" file in the application directory or not.
- If the file **exists**, then the application will **read** and **load** the **data training** from the **file**.
- If the file **doesn't exist**, then the application will **train** the tweet data with **Naïve Bayes Classifier** from **NLTK data twitter sample** provided in "**dataset.csv**". The **data training** will be following these rules:
  - **Preprocess** the dataset by **tokenizing the words**, **remove stopwords**, **remove symbols and number**, **stemming**, and **lemmatizing the words**.
  - Compare the tweet words with the words in list of dictionaries.
    - If the tweet is in the **positive** category, then set the **tweet category** to **positive**.
    - If the tweet is in the **negative** category, then set the **tweet category** to **negative**.
  - **Train** the model using **Naïve Bayes**.
  - **Show 5 most informative features** and **training accuracy**.
  - **Save training model to pickle file** with format name "**model.pickle**".

```
Most Informative Features
                    call = True           negati : positi =     11.6 : 1.0
                    then = True           negati : positi =      9.1 : 1.0
                    hour = True           negati : positi =      7.8 : 1.0
                   phone = True           negati : positi =      7.8 : 1.0
                      no = True           negati : positi =      6.8 : 1.0
Training Accuracy : 74.0
Training Model Complete...
Press enter to continue...
```

- The application menu will **show user tweets** and consist of **3 menus**. **Validate** in the menu, that user can only choose number in the range of menu provided (**1 - 3**).
  1. **Write tweet**
  2. **Analyze tweet**
  3. **Exit**

- If user choose **menu 1** (“**Write tweet**”), then the application will:
  - Ask the user to input tweet. **Validate** that the input must **at least contains of 5 words**.
  - After that, the application will **save** the **tweet**.
- If user choose **menu 2** (“**Analyze tweet**”), then the application will:
  - **Check** whether there is a **tweet** or not.
  - If there is no **tweet exists**, then show a **message** to notify the user and redirect user **back to main menu**.
  - If there is **tweet exists**, then the application will do these following procedures:
    - **Show Part of Speech** (**POS**) **Tagging**.

```
Tweet Part Of Speech Tag :
1. Love : VB
2. the : DT
3. experience : NN
4. with : IN
5. this : DT
6. airline : NN
Press enter to continue..
```

    - **Show** the **synonyms** and **antonyms** of the word in the tweet. If the word doesn’t have any **synonym** or **antonym**, **show message** to notify the user.

```
Word : Love
-------------------------------------
Synonym
(+)love
        Antonym
        (-)hate
-------------------------------------
```

    - **Predict** and show the result of the **tweet category**.

```
Tweet Category : positive
Press enter to continue..
```

- If user choose **menu 3** (“**Exit**”), then **terminate** the application.