**Import pandas as pd**

**Import re**

**Import string**

**From textblob import TextBlob**

**Import matplotlib.pyplot as plt**

**# Load the dataset**

**Reviews = pd.read\_csv(r”C:\Users\User\FULL PROJECT\Womens E-Commerce Clothing Reviews.csv”)**

**# Preprocess the text**

**Def clean\_text(text):**

**“””**

**Utility function to clean the text in a review by removing**

**Special characters and numbers using regex.**

**“””**

**# Remove special characters and numbers**

**Text = re.sub(‘[^A-Za-z]+’, ‘ ‘, text)**

**# Remove extra spaces**

**Text = re.sub(‘\s+’, ‘ ‘, text)**

**Return text.lower()**

**Reviews[‘Cleaned\_Text’] = reviews[‘Review Text’].apply(lambda x: clean\_text(str(x)))**

**# Perform sentiment analysis**

**Def analyze\_sentiment(text):**

**“””**

**Utility function to classify the polarity of a review**

**Using TextBlob.**

**“””**

**Analysis = TextBlob(text)**

**Polarity = analysis.sentiment.polarity**

**If polarity > 0:**

**Return ‘Positive’**

**Elif polarity == 0:**

**Return ‘Neutral’**

**Else:**

**Return ‘Negative’**

**Reviews[‘Sentiment’] = reviews[‘Cleaned\_Text’].apply(lambda x: analyze\_sentiment(x))**

**# Calculate sentiment percentages**

**Sentiment\_count = reviews[‘Sentiment’].value\_counts()**

**Total\_count = len(reviews)**

**Positive\_percent = sentiment\_count[‘Positive’] / total\_count \* 100**

**Neutral\_percent = sentiment\_count[‘Neutral’] / total\_count \* 100**

**Negative\_percent = sentiment\_count[‘Negative’] / total\_count \* 100**

**# Display results in table**

**Print(“Sentiment Analysis Results”)**

**Print(“-“ \* 50)**

**Print(“Positive Reviews: {:.2f}%”.format(positive\_percent))**

**Print(“Neutral Reviews: {:.2f}%”.format(neutral\_percent))**

**Print(“Negative Reviews: {:.2f}%”.format(negative\_percent))**

**# Display results in pie chart**

**Labels = [‘Positive’, ‘Neutral’, ‘Negative’]**

**Sizes = [positive\_percent, neutral\_percent, negative\_percent]**

**Colors = [‘yellowgreen’, ‘gold’, ‘red’]**

**Explode = (0.1, 0, 0)**

**Fig, ax = plt.subplots()**

**Ax.pie(sizes, explode=explode, labels=labels, colors=colors, autopct=’%1.1f%%’,**

**Shadow=True, startangle=90)**

**Ax.axis(‘equal’)**

**Ax.set\_title(“Sentiment Analysis Results”)**

**Plt.show()**