MES'S WADIA COLLEGE OF ENGINEERING, PUNE

Honors* in Artificial Intelligence and Machine Learning Fourth year of Engineering

410302: Machine learning Laboratory

NAME OF STUDENT:	**CLASS: BE**
SEMESTER/YEAR: VII	**ROLL NO:**
DATE OF PERFORMANCE:	**DATE OF SUBMISSION:**
EXAMINED BY: Dr. N. F. Shaikh	**EXPERIMENT NO: 06**

TITLE: Write a program to recognize a document is positive or negative based on polarity words using suitable classification method.

PROBLEM STATEMENT: Recognize a document is positive or negative based on polarity words using suitable classification method.

OBJECTIVES:

- To understand polarity word
- To understand document is positive or negative

OUTCOMES:

- Find out polarity words
- Find out document is positive or negative

PRE-REQUISITES:

1. Theoretical knowledge Sentiment Analysis
2. Different classification methods

THEORY:

Introduction

Polarity classification is well suited to various types of intelligence applications. Indeed, business intelligence seems to be one of the main factors behind corporate interest in the field. One of the most important needs of businesses and organizations in the real world is to find and analyze consumer or public opinions about their products and services (eg, *Why are consumers not buying our laptop?*). Polarity classification paves the way to several interesting applications, in almost every possible domain. For example, summarizing user reviews is a relevant task of analytics. Moreover, opinions matter a great deal in politics. Some work has focused on understanding what voters are thinking [108]. For instance, the US president Barack Obama used the polarity classification task of sentiment analysis to gauge feelings of core voters during the 2008 presidential election. A further task is the augmentation of recommendation systems, where the system might not recommend items that receive negative feedback several times

However, polarity classification has also been applied to more ethical principles. For example, on the basis of observations of Twitter's role in the civilian response during the

2009 Jakarta and Mumbai terrorist attacks, Cheong and Lee [109] proposed a structured framework to harvest civilian sentiment and response on Twitter during terrorism scenarios. Arunachalam and Sarkar [110] monitored and analyzed several social networks to assess the citizens' perception of government agencies for several purposes: fine-tuning of policies, identification of best practices positively perceived, negative aspects of the actions and decisions. Polarity classification has also been applied to the medical field. Cobb et al. [111] examined how exposure to messages about a smoking-cessation drug affects smokers' decision making regarding its use. In recent years, social networks have emerged as a potential source of information for sentiment analysis in the financial domain. Financial tweets have been investigated to predict short- and long-term stock market evolutions

Since sentiment analysis (SA) is nowadays accessible to a large audience (researchers, governments, institutions, companies, and corporations), we can expect even more upcoming applications: violence prevention, e-health intervention, monitoring of cyber bullying and cyber pedophilia, transportation optimization, and emergency management.

There are three levels on which SA can be conducted:

1. **Document level:** This approach considers the entire document (e.g. a comment or review) as a basic information unit, and then classifies it as positive, negative, or neutral. However, in some cases, the results given by this approach are incompatible; for example, a document that has positively recognized a particular item does not indicate that the author seems to have only positive opinions about all features of that item. Similarly, a document that has negatively recognized an item does not indicate that the author is completely negative about all features of that item. Typically, authors convey both positive and negative sentiments about a particular item and its features.

2. Sentence level: This approach attempts to establish the opinion expressed in each sentence by breaking the entire document into sentences, with each sentence handled as a separate information unit. It is first recognized whether a sentence is subjective or objective, and then it is decided whether the sentence conveys a positive or a negative opinion.

3. Aspect level: This approach performs a fine-grained analysis to identify relevant aspects and entities of a particular item, and the sentiment/polarity is expressed toward each aspect. Here is an aspect that refers to a feature of a particular item, e.g. the battery life of a mobile phone.

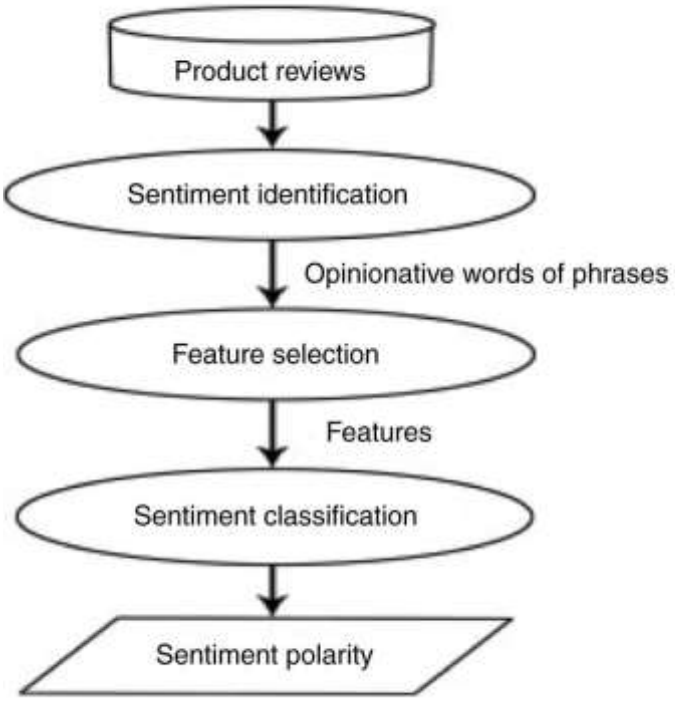

Fig: Sentiment Analysis Process

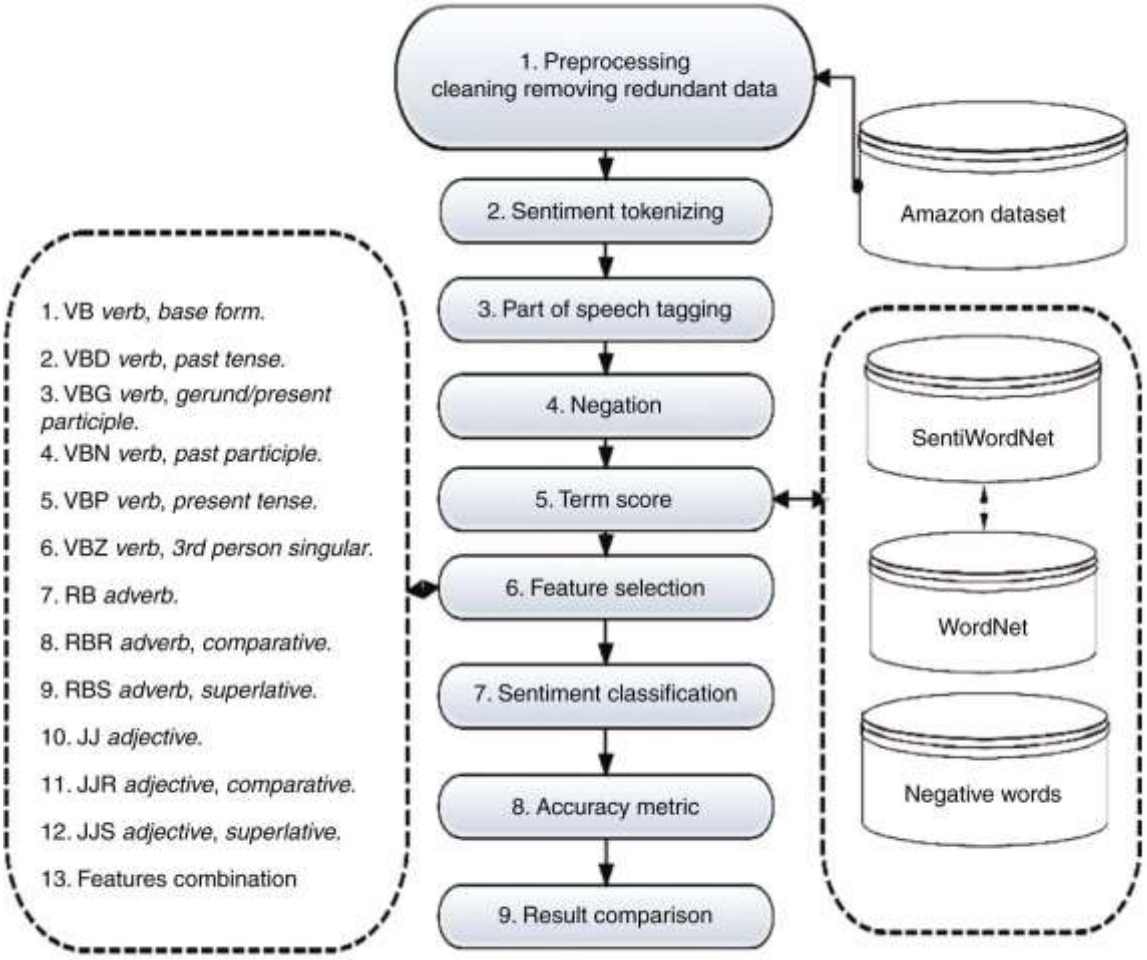

Fig: Sentiment Classification Framework.

Questions:

1. What are the methods of Polarity words?
2. How you can we identify if document is positive or negative?