E Commerce Product Rating Based On Customer Review Mining

Objectives

- Our motive is to generate feature wise rating of the product
- Comments of user will contribute to generate overall rating of the product

INTRODUCTION

Today E-commerce have become an important part of our day to day life and people are getting dependent on these website products. The user reviews too, are becoming important for customers.

So, through this project we are building a chrome plug-in, which rates the E-commerce products based on sentiment analysis of user reviews. With this shopping for customers will become very convenient as well as time saving from reviewing large set of user reviews.

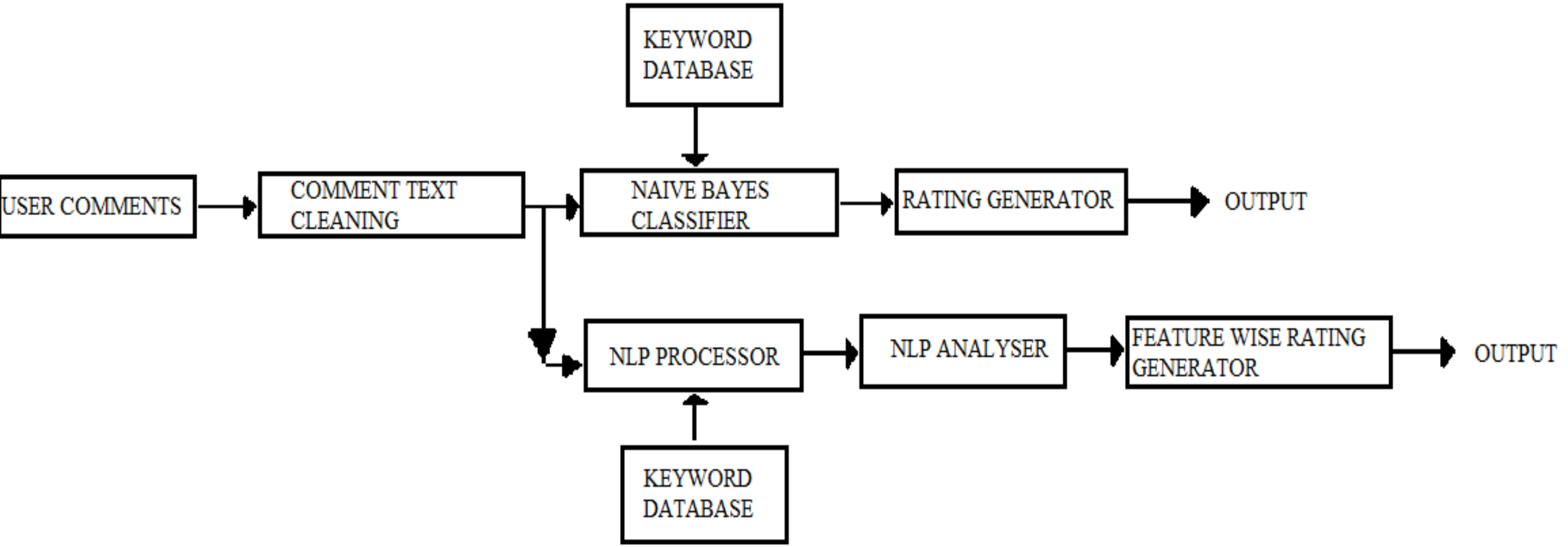
LITERATURE SURVEY

- To extract and analyse opinions from online reviews, it is unsatisfactory to merely obtain the overall sentiment about a product. In most cases, customers expect to find fine-grained sentiments about an aspect or feature of a product that is reviewed. For example: This phone has a colorful and big screen, but its LCD resolution is very disappointing.
- We focuses on positive and negative sentiments about each topic of the product that are useful for the customer as well as focuses on how to improve aspect-level opinion mining for online customer reviews.

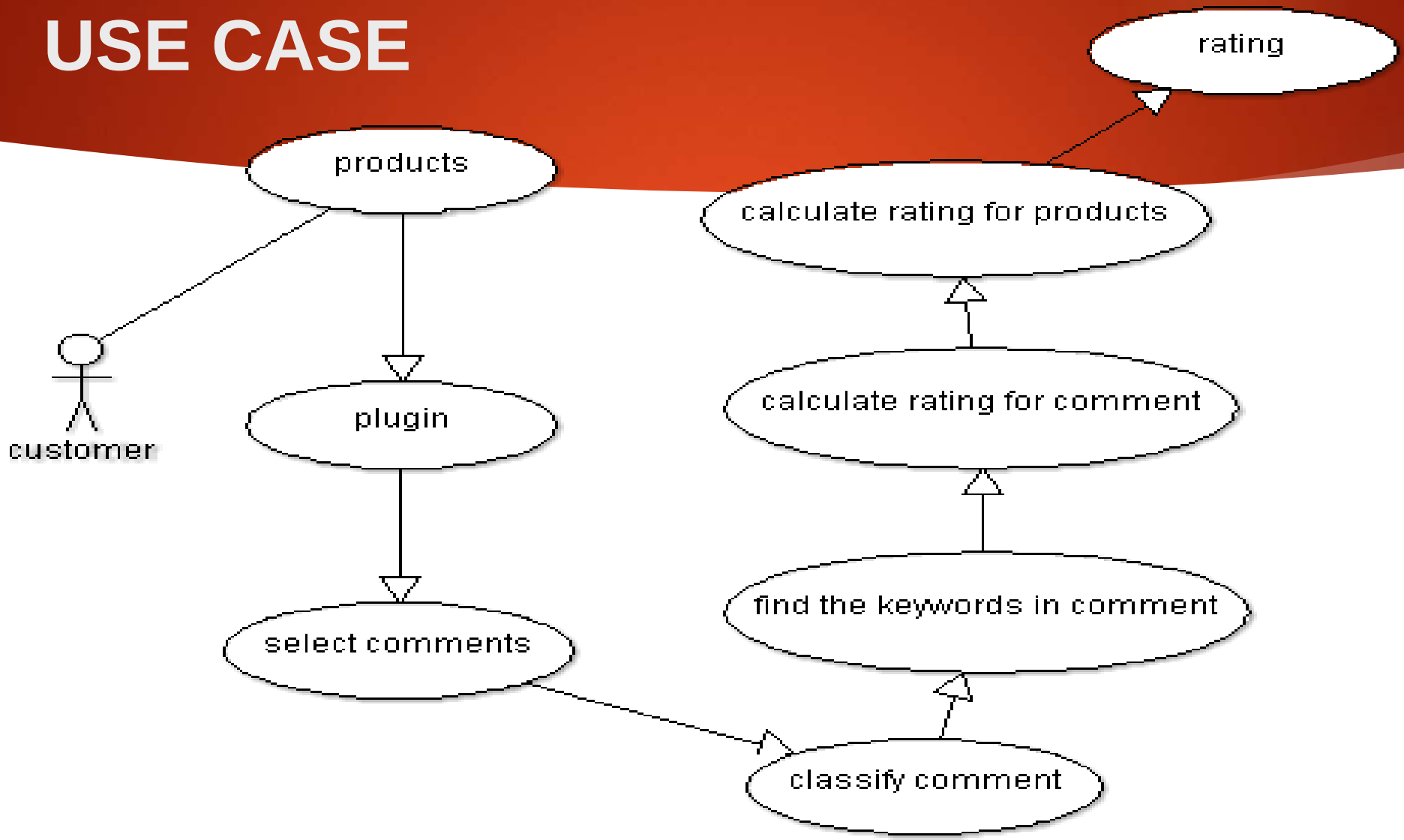
PROJECT IDEA

- The goal is to generate rating for products based on customer reviews
- Main focus of our project is textual data mining of user comments based on sentiment analysis
- We will achieve this using Naive Baye's algorithm as classifier, NLP, opinion word, opinion target and opinion analysis for excluding some basic limitation of sentiment analysis

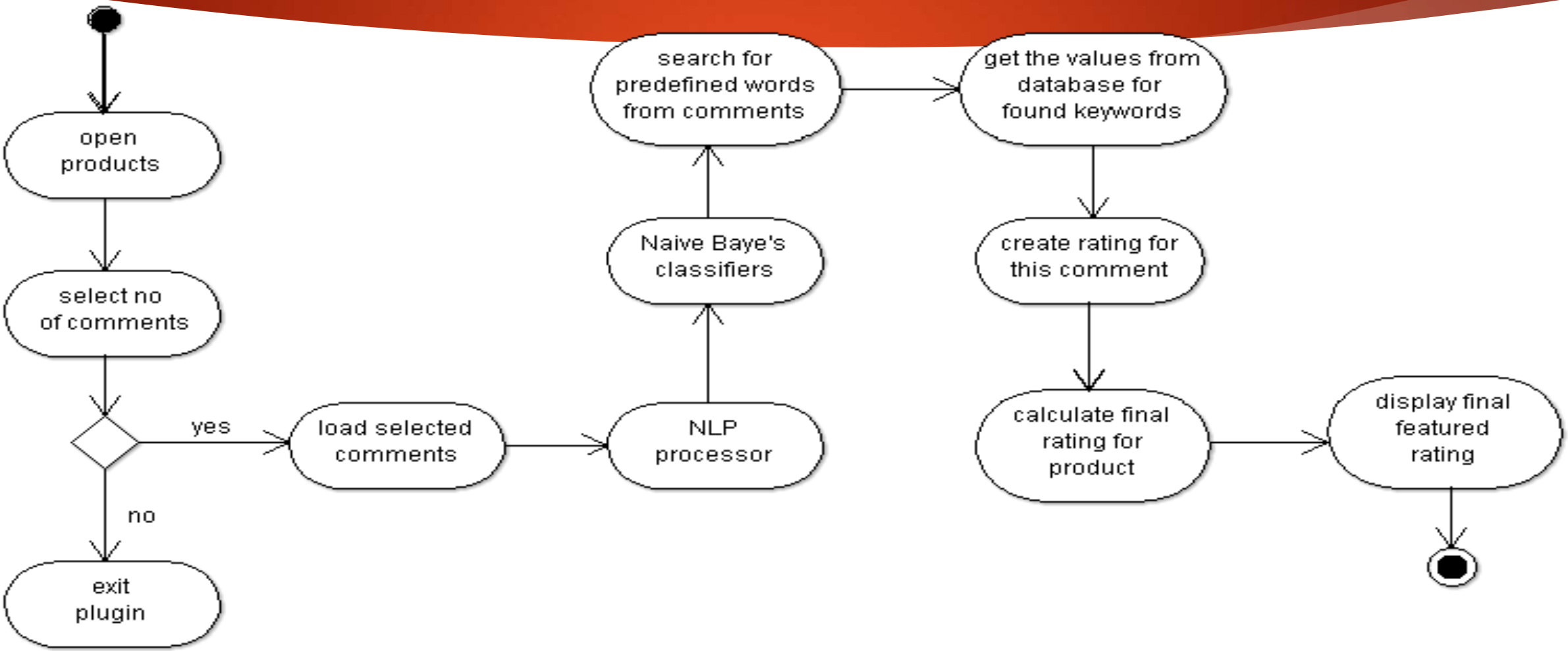
BLOCK DIAGRAM



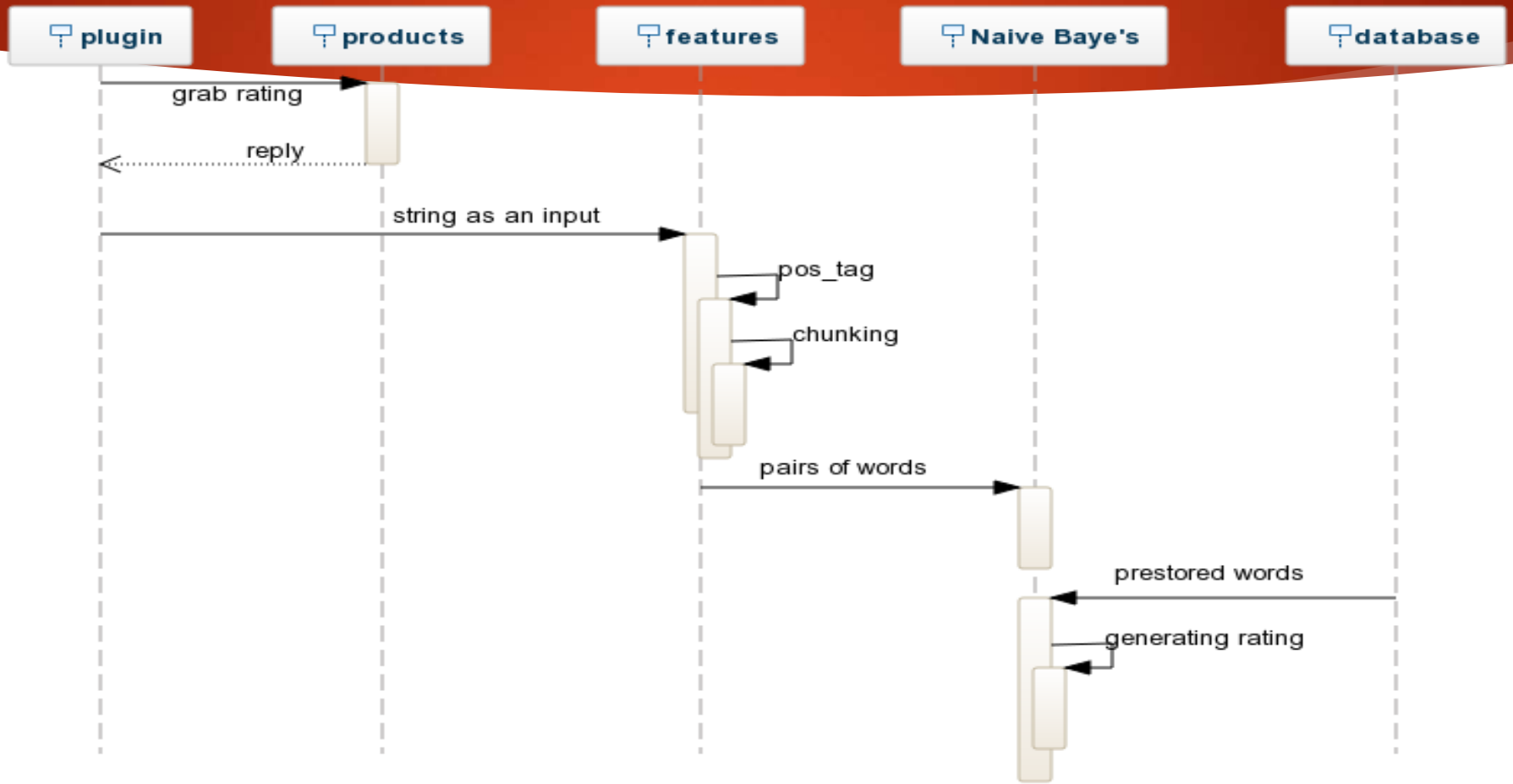
USE CASE


rating
products
calculate rating for products
customer
plugin
calculate rating for comment
find the keywords in comment
select comments
classify comment

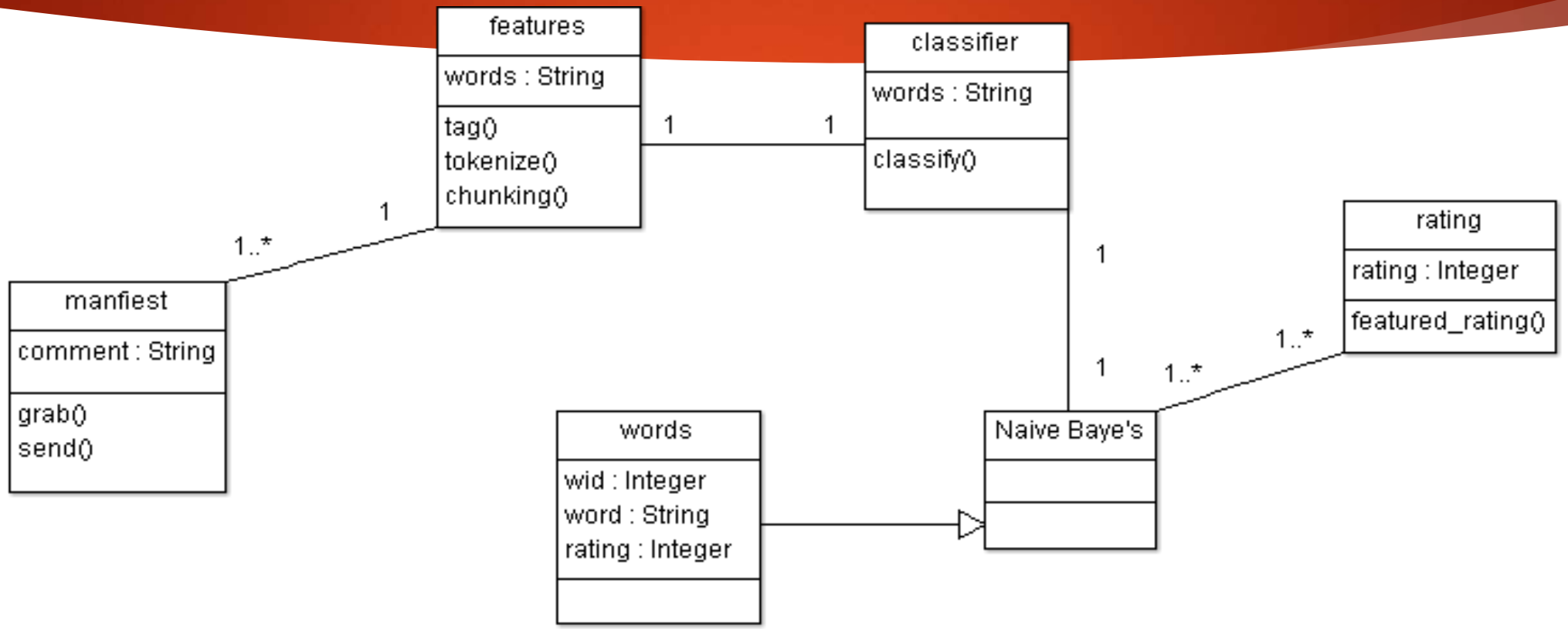
ACTIVITY DIAGRAM



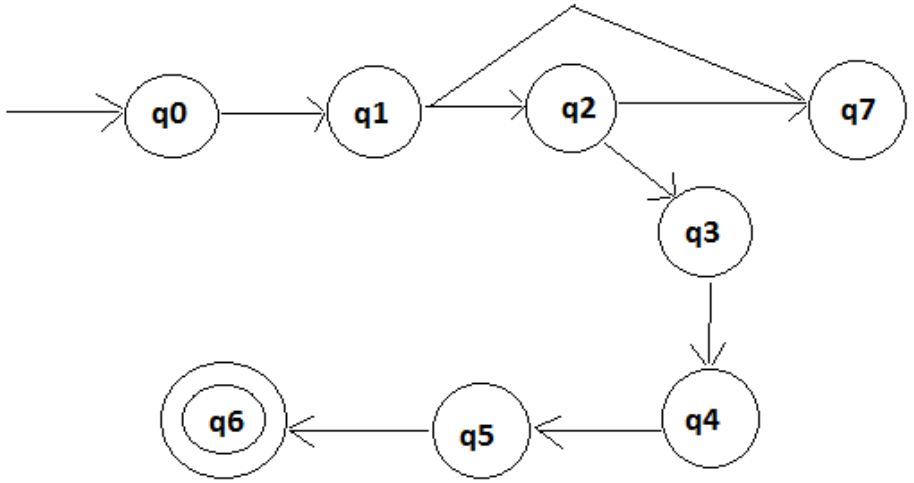
SEQUENCE DIAGRAM



CLASS DIGARAM

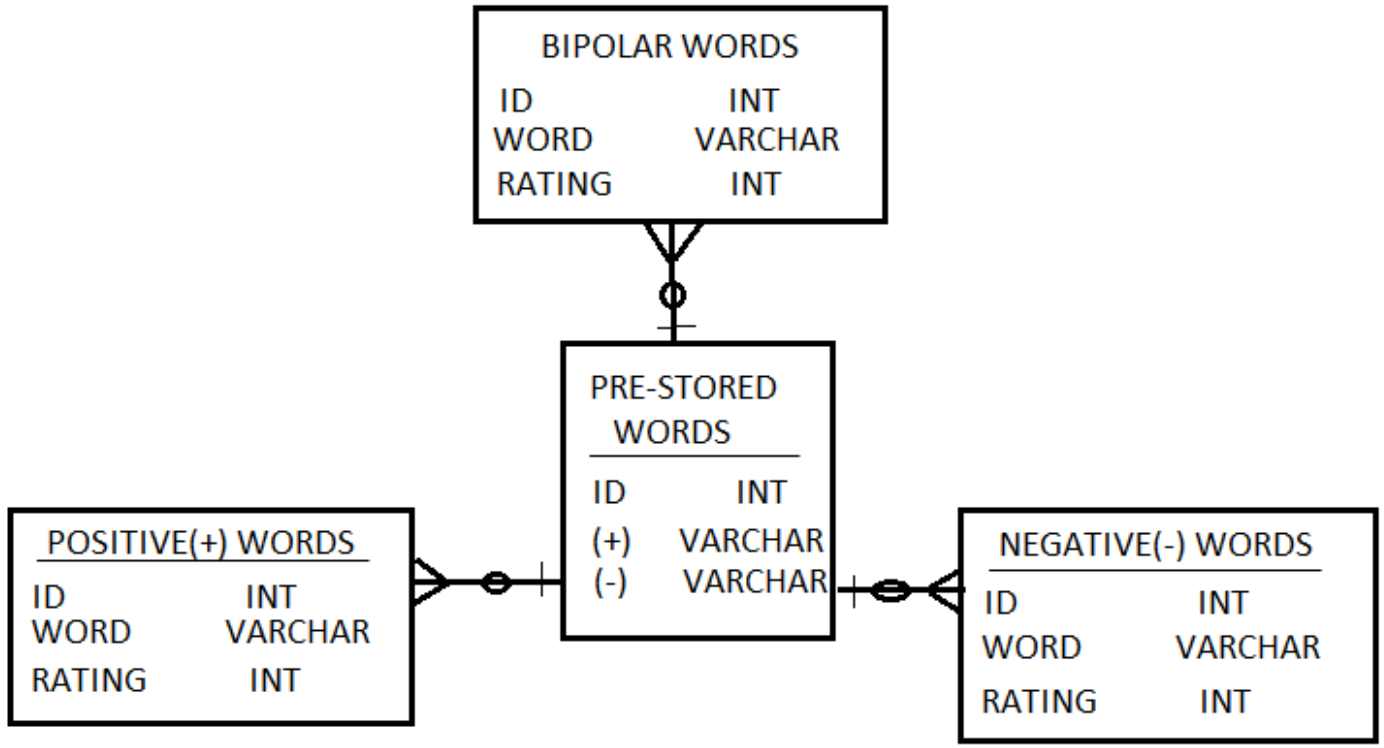


STATE DIAGRAM

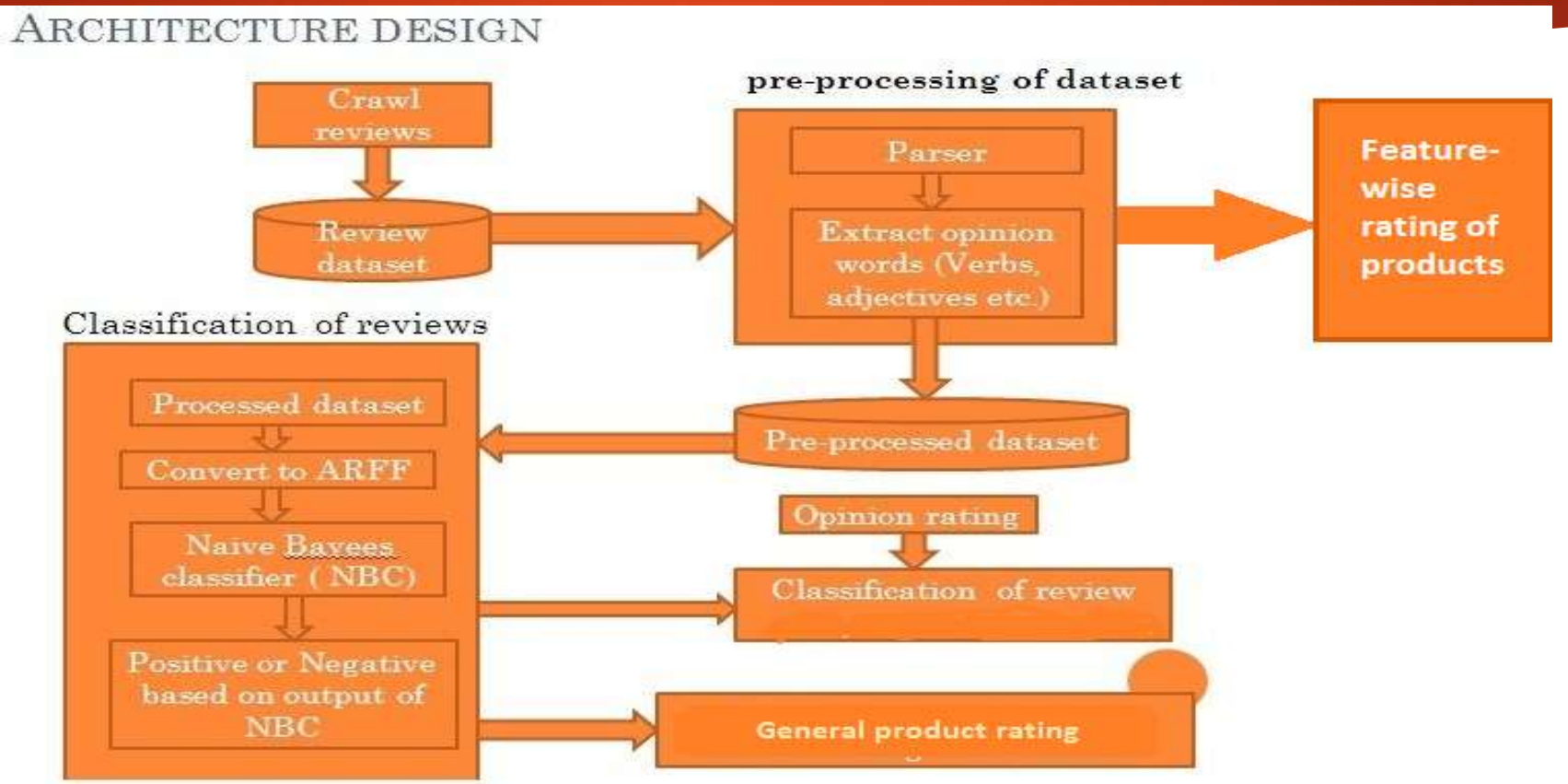


q0= initial state(product page)
q1= plugin pop up(set comment limit)
q2= generate word pairs(noun&associated adjective)
q4= pre-stored words with associated rating
q5= rating calculated for each pair
q6= end state(final rating for the product)
q7= failure or if user quit

DATABSE DESIGN



ARCHITECTURE DESIGN



Project Requirement Analysis

- Basic project workstation will be HTML with google plugin SDK.
- Google chrome extension uses javascript as the basic language and json as basic framework.
- So the project platform will be json and javascript.
- Extension also is in communication with database for which SQL server will be used.
- For NLP we are using python with nltk library.

INSTALLATION

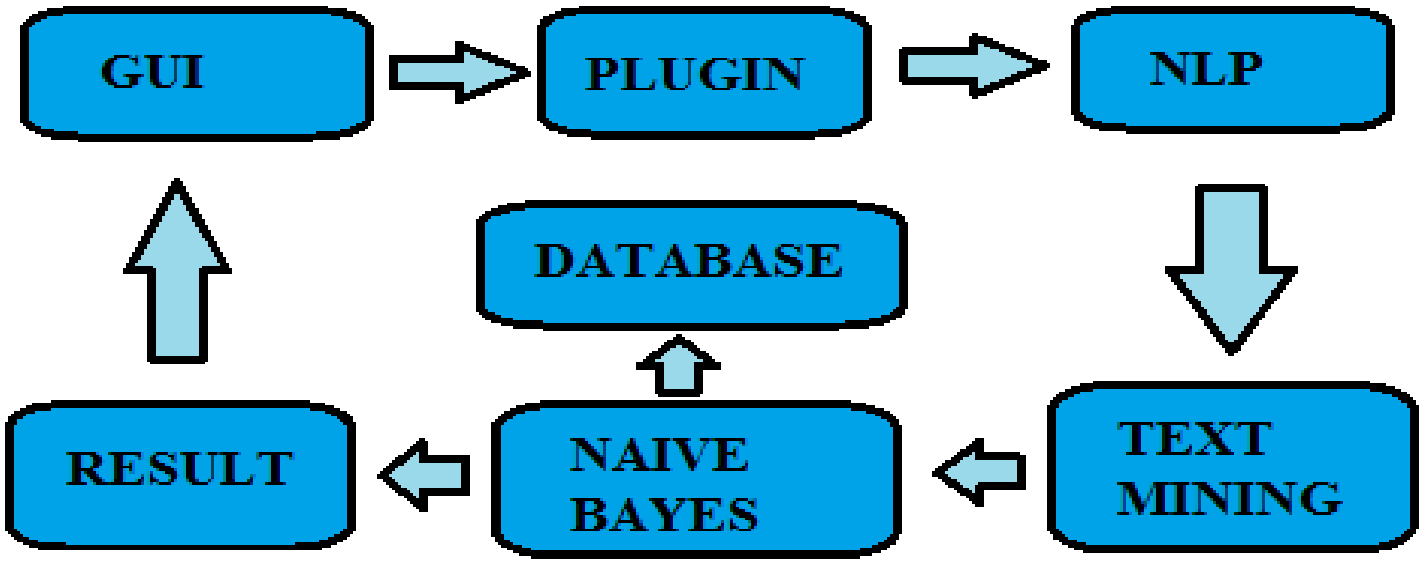
- Installation will need basic java integration with Google chrome browser.
- A google chrome browser is necessary as extension only works with Google chrome browser
- While installing all the javascript files in package will be downloaded.
- Installation will be through Google extension installer.

Programming Details

- **Project Functions**
  1. Manifest
     1. Content
     2. Popup
     3. Website specific urls
  2. NLP Processing
     1. Tokenizer
     2. Position tagging
     3. Chunking
  3. Database

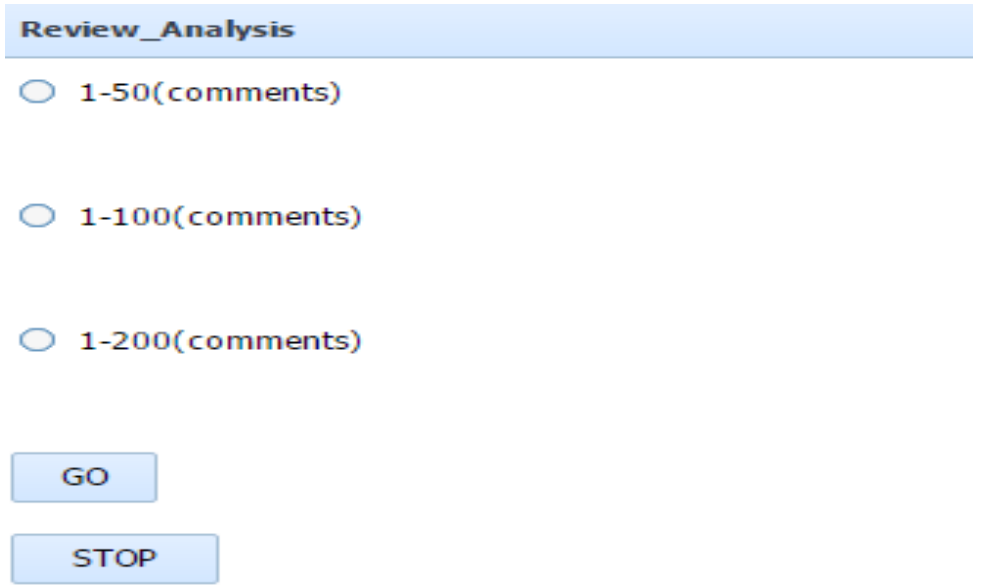
Programming Details

- **System Interface**



Programming Details

- **GUI**



TEST CASES

- **Input**
  1. **Input for our system is comments for the product, which is used for generating the result**
  2. **The system may behave abnormally in case of sarcastic comments and slangs**
- **Action**
  1. **Fetched comments are processed making chunks of noun and its corresponding adjectives by nlp using nltk library**
  2. **Separated pairs are grabbed by text mining method processed and given to Naive Bayes algorithm**
  3. **Bayesian classifier is used to categorize the chunks based on their polarity which is decided on set of prestored positive and negative words in database and assign appropriate rating**

TEST CASES

- **Drawback**
  1. **Correct result cannot be obtained if proper chunks are not formed**
  2. **Some comments may contain ambiguous sentences where system may fail to produce suitable rating**
- **Output**
  1. **System may take sometime to give the desired output if the number of reviews are more due to which many customer may not prefer to use the plugin**

RESULT

- The result of this system will be rating generated by mining user review by applying Naïve Baye's algorithm.
- Rating generated will be based on sentiment words in the product review.
- It will be a numerical value between '0-5' based on the product review contents. This value will be calculated by pre-stored words in database and their respective assigned values.

LIMITATION

- Comments with numeric data cannot be considered
- Languages other than English in comments will not be considered
- Sarcastic comments will not be considered

CONCLUSION

- System developed which will fetch user comments and perform analysis on them
- Rating is provided to every product making it convenient to customers
- Rating is given considering every comment making contribution of each comment

FUTURE SCOPE

- Service based rating of vendors
- Easy product recommendations directly from website

REFERENCES

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