Sentiment Analysis for Enterprise Tracking and Rating Services
(for Persian language)

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1. Aims Of the project:

Create a Web Service for Sentiment classification for Persian language.

What is sentiment analysis?

It refers to the use of natural language processing to identify and extract subjective information. Sentiment analysis aims to determine the attitude of a speaker or a writer as positive, negative or neutral.

Why for Persian language?

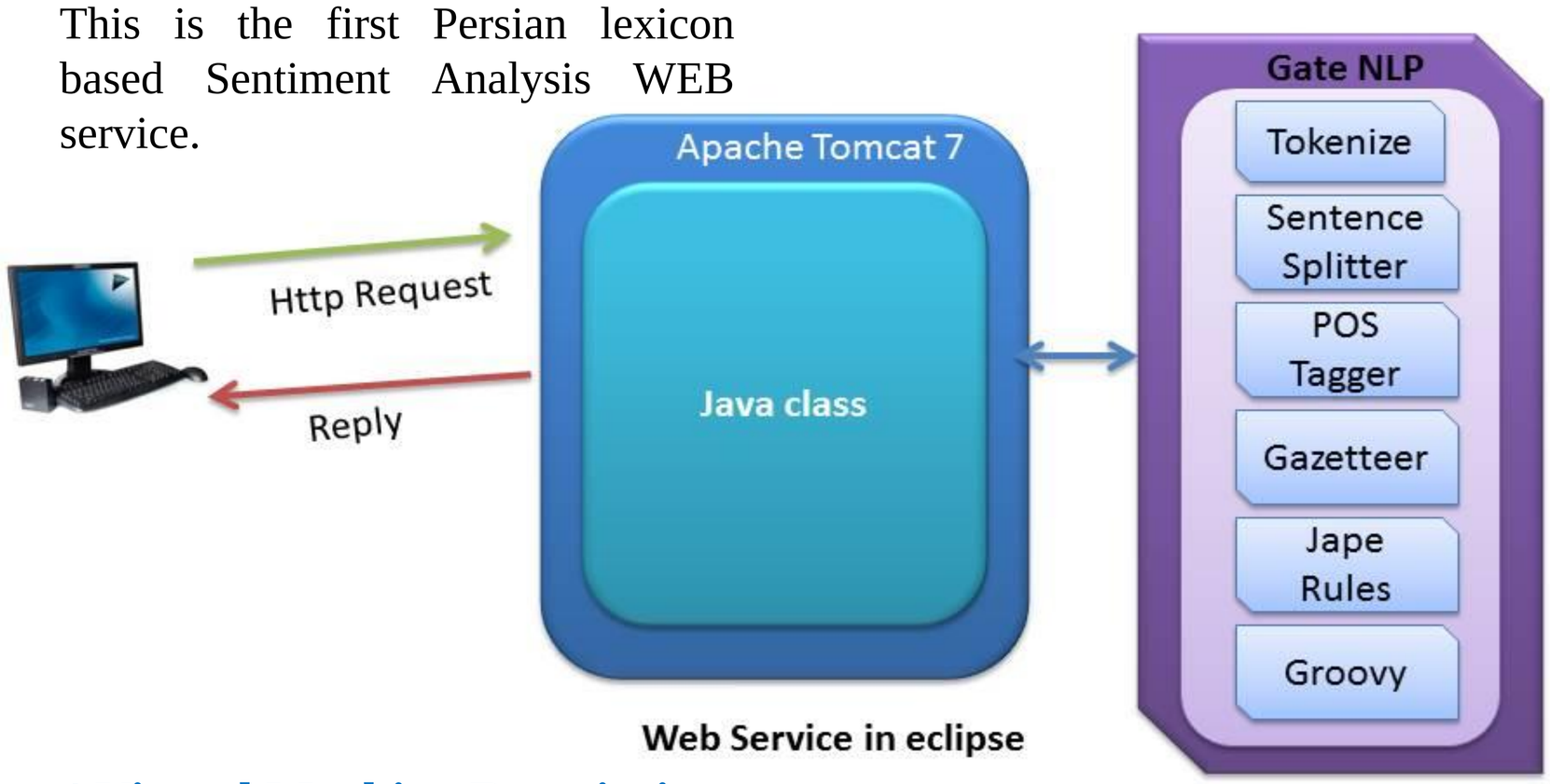
Although the amount of Persian text in the web are increasing rapidly, till now there isn't any work for Persian text and language in this filed. Many Business and enterprises need to know their customer feedback in an organized form.

2. Persian Sentiment Analysis WEB service

We have created a Persian sentiment analysis system with the use of GATE and lexicon-based approach that is done for the first time for Persian language. We used processing steps as tokenizing the document, tagging its parts, splitting the sentences and then using jape rules to define each sentence's sentiment. We calculate the sentiment of whole document with using the average sentiment of its sentences. Our system accuracy is about 65.7 percentages.

3. Web service Overview

The use of Web Services on the World Wide Web is expanding rapidly as the need for application-to-application communication and interoperability grows. These Web services provide a standard means of communication among different software applications, running on a variety of platforms and/or frameworks [W3.org].
This is the first Persian lexicon based Sentiment Analysis WEB service.



4.Virtual Machine Description

Hostname: vm-

Software installed:
Installed on: EIS3
XAMPP Package: MySQL 5.6.16
Apache 2.4.9, PHP 5.5.11
Eclipse Standard/SDK Luna Release (4.4.0)
GATE_Developer_8.0
Apache tomcat 7

Local Access:
OS User: Mohammad
Password: mh0037kh

5. How To Use In VM

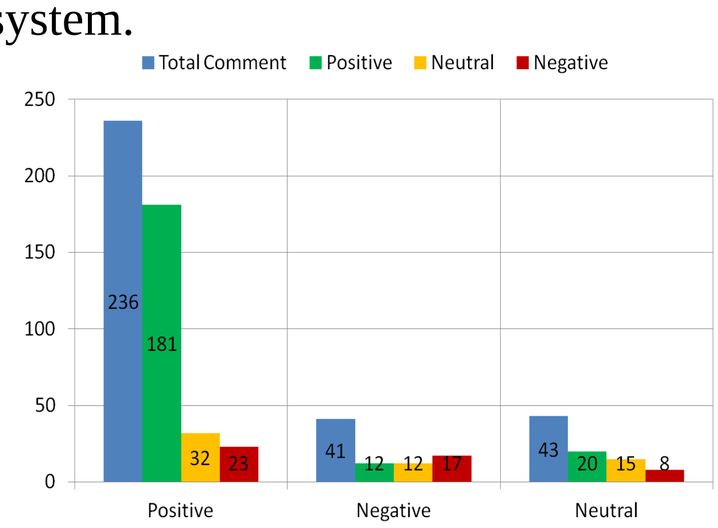
Log in to VM and run eclipse after that in server tab in eclipse run Tomcat server. When tomcat server run after that in browser go to this address:
http://localhost/sentiment/demo.php
In the Textbox insert your persian text and submit see the result under of text box.

6. WEB Service Structure

1. **Gate 8.0:** for NLP process as you can see in picture.
2. **Eclipse:** for running pipeline we created in Gate NLP in PersianSentiment.java class.
3. **Apache tomcat :** for creating JavaServer Pages in eclipse .

7. Performance testing:

To test the performance of our system, we choose a Persian website comments (www.iran-booking.com). This website is about hotel reservation. We got about 320 comments from this star base comments and identifying 1, 2 stars as negative, 3 starts as neutral and 4, 5 stars as positive text, and these comments made our performance database test data. By comparing the sentiment we reach from each comment to its star base sentiment we give the accuracy of 65.7 percentages from our system.



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