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Smart Feedback Analysis System

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Abstract - The project entitled-smart feedback analysis system, works on acquiring feedbacks or voting of the college from stakeholders with the help of web crawling technique & sentiment analysis. This focuses on acquisition of the feedback regarding the college administration, faculties etc., from various social networking and educational websites. This feedback acquisition is done by crawling technique. With the advent in the computer technology and the popularity of social media, social media behavior has gained high importance. This gained popularity needs a proper interpretation and processing in order to use the feedbacks generated for organization betterment. Proposed system is a kind of smart system which first performs the web crawling of the various feedback-containing websites. By applying Sentiment analysis on the feedback, the feedback statements are categorized into positive or negative. The negative feedback can help the college for improving the quality of facilities and resources provided. However, the positive feedback helps the college to gain popularity in the industry which ultimately leads to approaching of various companies to the college, for activities like placements, seminars, guest lectures etc.

Key Words: Web Crawling, Crawling Techniques, Sentiment Analysis, Naïve Bayes Classification, Supervised Learning, Machine Learning, Smart System

1. INTRODUCTION

Now-a-days people state their views, comments, statements on various social networking websites. The alumni's or parents of students can state their feedbacks about the college on social networking websites. But the college is unaware about the comments, reviews, liking, and feedbacks. The aim of system is to find out the feedbacks from various websites given by stakeholders such as parents, students, faculty, industry etc. by using the technique of web crawling. This searched and captured feedbacks are stored into database and can be analyzed using various sentiment analysis techniques. Thus the negative feedback will help the college to improve the quality of the facilities and resources provided by them.

The proposed system is a smart system. Smart systems are those which incorporate functions of sensing, actuation, and control in order to describe and analyze a situation, and make decisions based on the available data in a predictive or adaptive manner, thereby performing smart actions.

However, the positive feedback helps the college to gain popularity in the industry which ultimately leads to approaching of various companies to the college, for activities like placements, seminars, guest lectures etc. The sentiment analysis can be performed by using Naïve Bayes Classification algorithm.

1.1 Software and Hardware Requirements

1.1 Software Requirements

- Operating System: Windows 7 with Service Pack 1 and onwards Windows.
- IDE: Microsoft visual studio 2015 and Sqlsever 2012
- Programming Language: C#

1.2 Hardware Requirements:

- System Type: 64- bit Operating System
- CPU Speed: 2GHz
- RAM: 4.00 GB

2. System Architecture

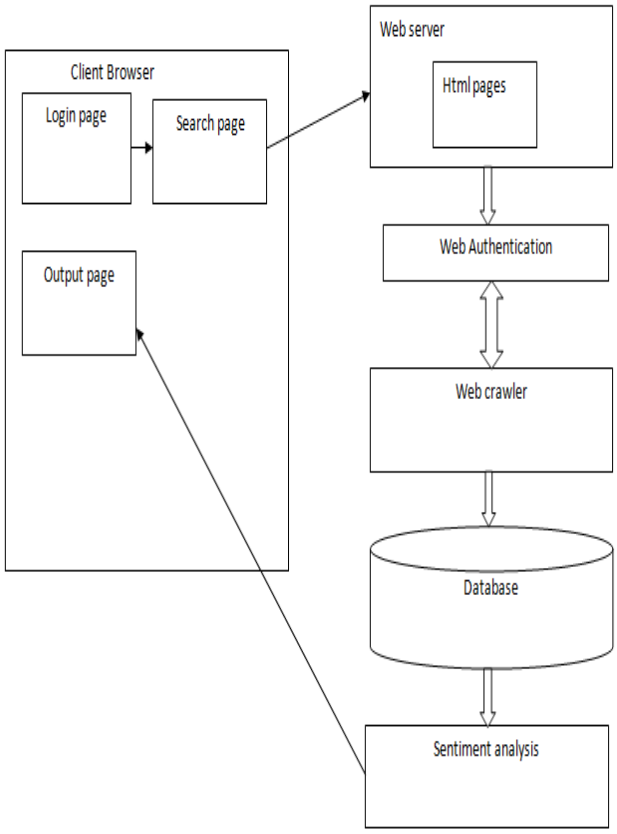

Fig -1: System Architecture

The system architecture contains the client browser, web server, web crawling, database and sentiment analysis modules. The client browser contains Login page where user enters user-id and the password. After successful login, the search page is displayed where user enters the college name which is to be searched.

The web server contains various html pages in which web authentication is supported. The actual data from html pages is crawled by using the technique of web crawling. The data acqusited is stored in a database, further on which sentiment analysis is performed.

3. WEB CRAWLING

Web crawling is a technique in which a software or programmed script is used to browse the World Wide Web pages in systematic and automated manner. It is an important method for collecting data and keeping up to date with the rapidly expanding Internet.

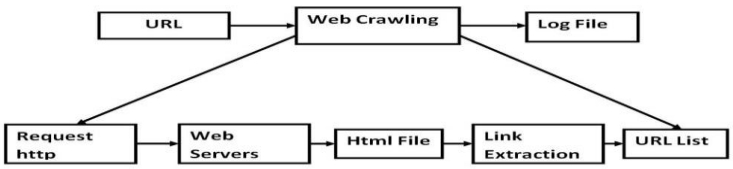

Fig-2: Web Crawling Architecture

4. SENTIMENT ANALYSIS

Sentiment analysis is the process of identifying and categorizing the opinions or reviews expressed in the form of text. Here this technique is used to analyze the feedbacks from various stalkholders and categorize them into positive and negative feedbacks. Naïve Bayesian classification algorithm is being used to classify the feedbacks into positive and negative feedbacks.

4.1 Naïve Bayesian classification

In machine learning, naïve bayes classifier is a supervised learning approach which is simply based on applying Bayesian theorem of simple probabilistic classifiers with strong native independence assumptions between the features.

$$P(c/x) = \frac{P(x/c)P(c)}{P(x)}$$

Above,

- P(c/x) is the posterior probability
- P(c) is the prior probability
- P(x/c) is the likehood which is the probability of predictor
- P(x) is the prior probability of predictor

5. CONCLUSION

The system is built with 2 different modules integrated together. In first module the web crawling is performed for collecting feedback from various URL's. In next module, sentiment analysis on the acquired feedbacks is performed. The result is displayed in the tabular form which contains total number of feedbacks, number of positive and negative feedbacks respectively, list of URL's used to fetch data, and the list positive and negative statements.

6. FUTURE SCOPE

The above system supports the websites that do not require authentication. The websites like Facebook and tweeter need user authentication for accessing them. Such websites do not allow crawling. The crawling methods for accessing these websites can explore in the future. This system structure can also be used in the other applications like advertisement, marketing, Recommendation systems etc.

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