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AN AUTOMATED SYSTEM FOR MONITORING ONLINE SOCIAL MEDIA IN EDUCATION AREA

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Motivation - Social media

- What does information on social media reflect?
- How to make great use of social media to support organization's decisions?
- How to handle data from social media?

Problem statement

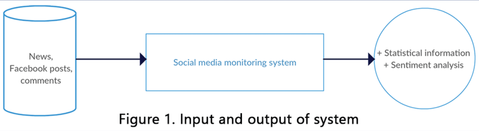

Figure 1. Input and output of system

Social Media Mornitoring System

- Monitoring related fields about Vietnam National University.
- Allow users to observe following information:
  - Number of mentions in a period of time for a concept.
  - Comparison between concepts.
  - Sentiment analysis on people's comments.

Technical solution

- Database: Lucene
- Website: Apache Tomcat, Grails
- Web service - RESTful API
- Build automation system: Gradle, Maven
- Sentiment analysis: AQL, Maximum Entropy

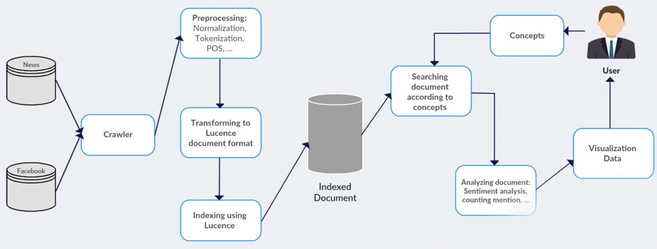

Figure 2. Social media monitoring system design

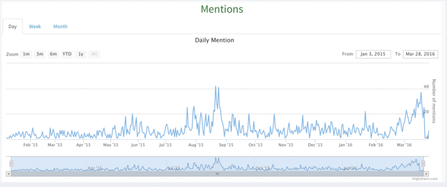

Figure 3. Number of mentions for Đại học Công nghệ concept

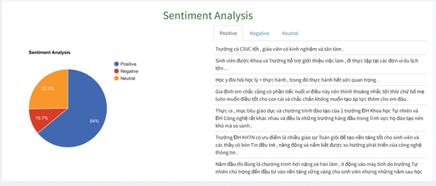

Figure 4. Sentiment analysis for Đại học Công nghệ concept

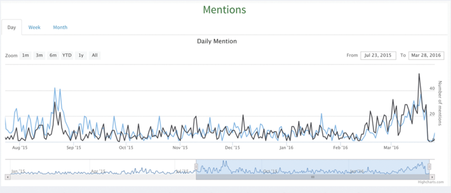

Figure 5. Comparison of number of mentions for Đại học Công nghệ and Đại học Ngoại Ngữ

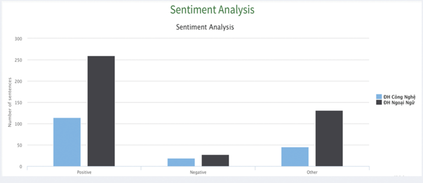

Figure 6. Comparison of sentiment analysis data for Đại học Công nghệ and Đại học Ngoại ngữ

Result and Evaluation

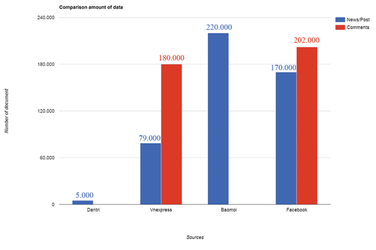

Figure 7. Comparison between data sources

Class	Precision (%)	Recall (%)	F1-score	Average accuracy
positive	58.09	45.68	51.14	63%
negative	46.06	34.41	39.39	
other	66.76	78.02	71.95	

Figure 8. Evaluation of Maximum Entropy method

Future plans

- Aim to analyze and understand people's feedback so that it can find out what the majority of them wants.
- Expand the system to other domains such as economy, medical, commerce...
- Upgrade the system to a real-time or near real-time system. instead of working offline

Conclusions

- We have designed and implemented a system to monitor social media information in a specific domain. Through our system, users can capture important points of a concept such as how frequent it is mentioned on the Internet or how people give opinion about it.
- This system brings benefit for managers, helps them to make consistent and timely decisions. Also, for normal users, especially students, they can get a glance at schools/universities, which supports their future choices of attendance.

References

[1] Cam-Tu Nguyen, Xuan-Hieu Phan and Thu-Trang Nguyen, "JVnTextPro: A Java-based Vietnamese Text Processing Tool", http://jvntextpro.sourceforge.net/, 2010.
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[3] B. Pang and L. Lee: Opinion mining and sentiment analysis, Foundations and Trends in Information Retrieval, 2(1-2):1-135, 2008.
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