Product Aspect Ranking and Its Applications

ABSTRACT:

Numerous consumer reviews of products are now available on the Internet. Consumer reviews contain rich and valuable knowledge for both firms and users. However, the reviews are often disorganized, leading to difficulties in information navigation and knowledge acquisition. This article proposes a product aspect ranking framework, which automatically identifies the important aspects of products from online consumer reviews, aiming at improving the usability of the numerous reviews. The important product aspects are identified based on two observations: 1) the important aspects are usually commented on by a large number of consumers and 2) consumer opinions on the important aspects greatly influence their overall opinions on the product. In particular, given the consumer reviews of a product, we first identify product aspects by a shallow dependency parser and determine consumer opinions on these aspects via a sentiment classifier. We then develop a probabilistic aspect ranking algorithm to infer the importance of aspects by simultaneously considering aspect frequency and the influence of consumer opinions given to each aspect over their overall opinions. The experimental results on a review corpus of 21 popular products in eight domains demonstrate the effectiveness of the proposed approach. Moreover, we apply product aspect ranking to two real-world applications, i.e., document-level sentiment classification and extractive review summarization, and achieve significant performance improvements, which...
demonstrate the capacity of product aspect ranking in facilitating real-world applications.

EXISTING SYSTEM:

Existing techniques for aspect identification include supervised and unsupervised methods. Supervised method learns an extraction model from a collection of labeled reviews. The extraction model, or called extractor, is used to identify aspects in new reviews. Most existing supervised methods are based on the sequential learning (or sequential labeling) technique. On the other hand, unsupervised methods have emerged recently. They assumed that product aspects are nouns and noun phrases. The approach first extracts nouns and noun phrases as candidate aspects. The occurrence frequencies of the nouns and noun phrases are counted, and only the frequent ones are kept as aspects.

PROBLEM DEFINITION:

- The reviews are disorganized, leading to difficulties in information navigation and knowledge acquisition.

- The frequency-based solution is not able to identify the truly important aspects of products which may lead to decrease in efficiency of the review.
PROPOSED SYSTEM:

- We propose a product aspect ranking framework to automatically identify the important aspects of products from numerous consumer reviews.

- We develop a probabilistic aspect ranking algorithm to infer the importance of various aspects by simultaneously exploiting aspect frequency and the influence of consumers’ opinions given to each aspect over their overall opinions on the product.

- We demonstrate the potential of aspect ranking in real-world applications. Significant performance improvements are obtained on the applications of document-level sentiment classification and extractive review summarization by making use of aspect ranking.

ADVANTAGES OF PROPOSED SYSTEM:

- Identifies important aspects based on the product, which increases the efficiency of the reviews.

- The proposed framework and its components are domain-independent.
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SYSTEM ARCHITECTURE:

![Diagram showing system architecture]

HARDWARE REQUIREMENTS:

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Colour.
- Mouse : Logitech.
- Ram : 512 Mb.
SOFTWARE REQUIREMENTS:

- Operating system: Windows XP/7.
- Coding Language: ASP.net, C#.net
- Tool: Visual Studio 2010
- Database: SQL SERVER 2008