Second-Handed Product Price Suggestion for On-line Bidding

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ABSTRACT

This paper is the project proposal of course text mining. We decide to build a system that could give suggestion on product price to costumers based on description texts of products. In this paper we will introduce the definition of our problem, the importance of our problem, related work, potential techniques and algorithms that we will apply and how to evaluate our work.

1 INTRODUCTION

It can be really hard to know how much something's really worth, especially for second-handed product, since small details can mean big differences in pricing. So we decide to design a new algorithm that can give customer price suggestion on second-handed product based on its seller description. We believe this is a really promising research field because it can help customers making decision on buying second-handed product a lot and save their unneccessary money. In this project we try to make our own contribution in this field by solving this problem in other perspective and proposing a new model on it.

Currently we decide solve this problem first by extracting important features like brand, style, size and so on, and then use machine learning algorithm like logistic regression to predict its approximate prize. We will also compare our model with other related work by using the evaluation metric called root mean squared logarithmic error.

2 RELATED WORK

Our work can be separated into two parts. The first part is to extract products' features from description, utilizing text mining algorithm. The second part is to predict the product price in an online auction with machine learning approach.

2.1 Features Extraction

In [3], the approach mines raw feature descriptions from thousands of product specification extracting from Internet. Then it uses a novel clustering algorithm to automatically find out and characterize product features. At last, it draws inferences about the relationships between features, which are not possible to achieve from features that are extracted from only some requirements specifications.

Feature models constitute popular methods to specify product similarities and differences in a compact way, and to provide automated support to domain analysis process. Domain analysis is the process of analyzing related products to identify their commons and variabilities. In [1], they first extract feature models from tabular data files. Then they synthesize a feature model characterizing the valid combinations of features supported by the set of products.

2.2 Price Prediction

In [4], the proposed system uses naive bases to predict whether the item will sell or not. The support vector machine algorithm gives the how much that item will sell for and does the item will maximize profit or not. Similarly, in [5], the sale price prediction used a large selection of features with regression and classification. There is also other approach that used nearest neighbor clustering, which also required large features. [2]

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