A Skill Exchange Platform Based on C2CWitkey

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Keywords: C2cwitkey, Web Crawler, Indexer, Ajax.

Abstract. This paper develops a skill exchange website named “Trees Amoy” to provide a C2C type transaction relationship between the skilled service provider and demander. Supported by structured extraction algorithm and regularization algorithm for witkey information, the system designs a witkey crawler to search demands issued on those popular witkey websites. Adopt this platform, students registered as witkeyers are able to exchange their technical advantages for benefits, and the demander can also solve all the technical problems timely by automatic matching service.

Introduction

With the development of science and technology rapidly, e-commerce platform has a great impact on social economy and people's life. In 1980s, a series of new applications, such as blog and Wikipedia, were separated from electronic bulletin board function gradually. At the beginning of twenty-first Century, intellect interactive quizzes were also beginning to separate from the electronic bulletin board. Due to extension of Internet payment, free sharing of information was becoming impossible. Wisdom, experience, and skills for commercial value could be becoming a commodity trading. The Witkey mode of knowledge creation was rapidly popular in the dual background of knowledge economy and the era of Web2.0. Knowledge, wisdom, experience, and skills could be converted into actual income through the Internet, which reflected on the new concept of people oriented and greatly released the intellectual resources of public groups [1].

While the concept of "Witkey" was created, it was concerned by academic, industry, science and technology immediately, and mainly used to solve problems put forward from the fields of science teleology, work, life, and others [2]. This paper develops a skill exchange website named “Trees Amoy”, which put intelligence and skill of students in school together and provide a C2C type transaction relationship between the skilled service provider and demander for personal technical service trading.

Analysis of Witkey Mode

The concept of Witkey mode was first proposed by Liufeng [1] to establish relations between two types of groups: the one is the experts in Chinese Academy of Sciences, who are named as provider; the other is the technological enterprises, who are named as demander. With in-depth development, the Witkey mode break the limit of geographical, time and working style further, and put workers around the world in the same platform through the Internet. And now, the
Witkey mode provides a fair competition environment for the laborer to display their talent in free time, and provides low cost and high quality services of wisdoms, ideas, experience and thoughts for enterprises to make greater development.

Now there are three kinds of Witkey[1]:

(1) Knowledge master type (askwitkey), defined as ask_answer type. Usually, skill providers gain accumulate points which can be used to exchange prizes by answering the question.

(2) Reward type (bidwitkey), also marked as a general sense of witkey. Skill providers bid to obtain the opportunity of some project, and get paid.

(3) Customer to customer type( c2cwitkey). Depending on the Witkey maps in the C2C trading platform, skill providers demonstrate, prove and manage their own ability to obtain benefits.

Based on c2cwitkey, the “Trees Amoy” website provides services to two groups: the one is skill provider such as college students and fresh graduates; the other is service demander such as enterprises and companies. Relied on real-time matching, the website establishes C2C trading relationship between the two to solve problems efficiently. Skill providers can get paid by servicing others and make more friends. At the same time, from the perspective of the whole society, the website makes a contribution to reduce the waste of human resources.

**System Design**

**Analysis of Business Process**

As shown in Figure 1, the core process of the website is focused on task releasement and execution:

(1) The demander releases task through the managed and unmanaged bounty;

(2) Task manager audit the task, if approved, the skill providers can view this task, if the task not, they can’t;

(3) The skill providers can view all tasks which are approved;

(4) The skill providers bid for the job before the deadline of the task;

(5) The demander selects the winning bid scheme. The managed bounty will be paid to the winner automatically, and the unmanaged bounty will be paid by manual.
Technical Framework

As shown in Figure 2, the website is established by the three-layer technology framework, and its core technology is mainly reflected in:

<table>
<thead>
<tr>
<th>Application layer</th>
<th>Homepage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crawler</td>
</tr>
<tr>
<td>Data layer</td>
<td></td>
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<tr>
<td></td>
<td>Ajax</td>
</tr>
<tr>
<td>Platform layer</td>
<td>ASP.NET, C#, win32, SQL Server</td>
</tr>
</tbody>
</table>

Figure 2. Technical Framework of the Skill Exchange Website.

(1) Platform is .NET; development language is C#, and database access is achieved mainly through SQL Server.

(2) Indexer technology: the purpose of establishing the index is to respond to the user's query request quickly. Firstly, the engine splits the web information into a number of key words; secondly, defines the key words as index terms; and lastly, generates the index table for the representation of documents.

(3) Web data mining: there are three kinds of mining technology, such as content mining, structure mining and usage mining.

(4) Ajax: Ajax, including XHTML and CSS standards, is an interactive web application development technology. It uses Object Model Document for dynamic display and interaction,
System Implementation

Function Module

There are three modules designed in the website: task distribution, task management, and personal center.

(1) Task distribution module provides the managed and unmanaged bounty styles after filling such information as task type, title, content, way of contact, bounty in the form.

(2) Task management module lists multiple task types such as program design, LOGO design, PPT design, document editing, event planning, and so on. For getting more tasks, the website designs a Witkey crawler software to grab similar information from some other Witkey website.

(3) Personal center module provides such functions as personal information modification, password modification, demand publishing, competitive bidding, task collection, task recommendation, prepaid management and message management.

Witkey Crawler

As shown in Figure 3, the skill exchange website establishes a simple process including information crawling, structural analyzing and database storing. For different Witkey web sites, the crawler has different regular expressions. In this paper, the regular expression package into five functions[3]: (1) content extraction from two key field intervals in HTML; (2) content extraction from the same field within a predetermined range in HTML; (3) space removing from HTML strings; (4) double quotes removing from HTML strings; (5) label removing from HTML strings.

The crawler completes the crawl process through four steps:

Step 1: Based on the packaged regularization functions and semantic dictionary, the crawler makes canonical description and definition on the content features of target page.

Step 2: Using breadth first search algorithm and removing the redundant space and double quotes of string, the crawler grabs the web page. Through this step, the system can delete the unnecessary information as far as possible.

Step 3: Using clustering analysis method, the crawler infers the semantic structure of semi structure information in web pages. And then, using the analysis algorithm based on Web content, the crawler evaluates web pages content and sorts them.

Step 4: By regular defined functions, the crawler obtains the corresponding Witkey website information successfully.
As shown in Figure 4, the website initializes the crawling rule and database, and then crawls down the information to the database through SQL Server2010. For different types of Witkey data, the system uses two methods implemented: (1) adding new records for new Witkey information; (2) updating record for information being grabbed in history.
Conclusion

Based on the Witkey mode of knowledge creation, this paper establishes a skill exchange website named “Trees Amoy” to improve the level of information society. By contacting college students with enterprises actively, the website helps to save human power, material and economic cost, works for building technology, efficient and low consumption society, and even reforms the training model of talent in colleges and universities. Currently, the site has been put into operation, some students have been registered as a Witkey user, and has completed more than 300 orders. By issuing questionnaires to the website users, we understand that the website plays an active role in enhancing the students' passion for learning and practice ability.

Acknowledgement

This research was financially supported by Zhejiang Provincial Natural Science Foundation of China (LY13F020034).

References

