

SOFTWARE SYNTHESIS OF THE WEB-BASED QUESTIONNAIRE SYSTEM

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Abstract: The questionnaires on the web are increasing in the fields of business and personals recently. However, staff peoples of business areas and conventional personals can not implement them by themselves. Usually they ask professionals of information technology fields for building of such kinds of questionnaires. In this case it takes many times and costs much. If staff peoples of business fields and personals can easily make it by themselves, it is very useful. Software synthesis system of a web-based questionnaire system for them is developed.

1 INTRODUCTION

Today, the questionnaires on the web have been increasing in the fields of business and personals recently. However, staff peoples of business areas and conventional personals can not implement them by themselves. Because, some expertise of information technology, e.g. a script language and a database, is required to make a questionnaire on the web. So, usually they ask professionals of information technology fields for building of such kinds of questionnaires. In this case it takes many times and costs much more. Therefore, it is required that even if staff peoples of business fields and personals can easily make it by themselves. In order to overcome this problem, we have developed software synthesis system of a web-based questionnaire system for them.

2 SYNTHESIS METHODOLOGY

Web-based application systems are usually represented with HTML. Therefore, our aim is to generate questionnaires represented by HTML. In order to do, generate computer screens on the web which people to make questionnaires easily input a question and answering items into the system on the web. At this time, the system has prepared basic several question patterns of questionnaires conventionally used. When people to make a

questionnaire input the question name and answering items corresponding to the question into the system, the system generates the questionnaire systems screen according to the input information. At this time, the mechanism to store answering data replied by people to answer is provided. Using generated questionnaire's screen on the web, most people can answer it as a conventional web based questionnaire.

3 OVERVIEW OF THE SYSTEM

Synthesis system has major three functions, making a questionnaire, answering to a questionnaire and viewing results of a questionnaire.

3.1 Making Questionnaire

The system generates a questionnaire building screen on the web page. In this system, usually three kinds of questionnaire questions are prepared.

Multiple Selections

Single Selection

Text Input

People involved in making the questionnaire select the type of question first. After that, they describe a question.

Then, they write answering items corresponding to the type of question. If the type is Multiple

Selections or Single Selection, they can describe multiple answering items. In the case of Input Text, a blank space for writing view is left.

After every question there is Continue and Finish button. If the administrator wants to make more questions, then he presses the Continue button while End button is used when there is no more question to include.

Then the system starts to synthesize process. When Multiple Selections is selected, a question name and input answering items with checkbox are generated.

When Single Selection is selected, a question name and input answering items with radio button are generated. When Text Input is selected, a question name and input answering items with a text input are generated.

3.2 Answering to Questionnaire

Answering to a questionnaire is performed according to the synthesized screen, generated by Making Questionnaire. This is the same to the traditional web-based questionnaire. When people answering to a questionnaire reply to questions, answering items on the screen are stored into the database in the system.

3.3 Viewing Results of Questionnaire

The system creates the web screen to show the answering result of a questionnaire. In this case, when a question is Multiple Selections or Single Selection, a question and answering items with the total number of voting and graph representation in %. In case, when a question is Text Input, answering texts are displayed in order of answer.

4 SOFTWARE CONFIGURATION OF SYNTHESIS SYSTEM

Synthesis system is composed of major four functional modules, System Input Screen Generation, Making Questionnaire Generation, Generation of Answering to Questionnaire and Generation of Viewing Results of Questionnaire, as shown in Fig. 1.

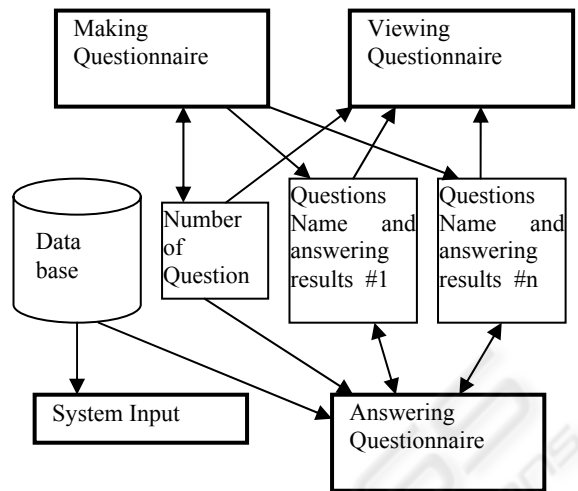


Figure 1: Software Configuration of Synthesis System.

4.1 System Input Screen Generation

When the system runs, at first, System Input Screen is generated as shown in Fig. 2. In this screen, making a questionnaire and answering to a questionnaire are possible.

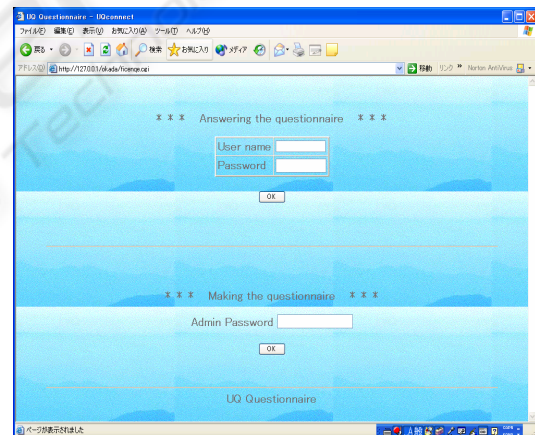


Figure 2: Software Configuration of Synthesis System.

4.1.1 Making a Question

So that only authorized people can make a questionnaire and update a questionnaire, password checking is performed. To do this, passwords of permitted people are stored into the database.

4.1.2 Answering to a Questionnaire

In order to enter into the screen of answering to questionnaire, two types of answering are considered, that is, everybody or only permitted

person can answer. Here, only permitted person can answer after user name and password checking. To do this, previously user names and passwords of permitted people are stored into the database.

4.2 Making Questionnaire Generation

When making a questionnaire, a screen is generated as shown in Fig. 3. Conventionally usable three types of question to a questionnaire are generated the following as shown in Fig. 3.

1. Multiple Selections
2. Single Selection
3. Text Input

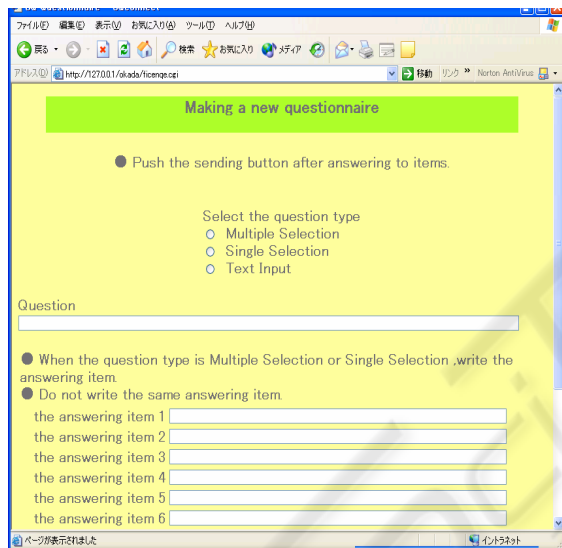


Figure 3: Screen of Making Questionnaire.

Based on this screen, people of making a questionnaire select one of three question types and insert a question name.

When a question type is Multiple Selections or Single Selection, multiple answering items are described corresponding to a question. Then they send the screen to the system. According to this, a question is generated. At this time, a database to store the number of questions is generated. A database to store a question name and answering items corresponding to a question are also generated. When a question type is Text Input, a database to store the number of questions is generated. A database to store a question name and an answering text area corresponding to a question is generated.

At this stage, a process of generating a question is finished. When they want to make a next question,

they continue this process repeatedly. At making a second question, a previously generated database to store number of questions is increased by one. In addition, a database to store a question name and answering items corresponding to a question or answering text corresponding to a question are generated. After that, this process is continued for another question if required more. After this stage the process of generating a question is finished.

4.3 Answering to Questionnaire

Pushing the Finish Button at Making Questionnaire, a screen of Answering to Questionnaire is generated as shown in Fig. 4. People to answer a questionnaire reply to questions based on this screen.

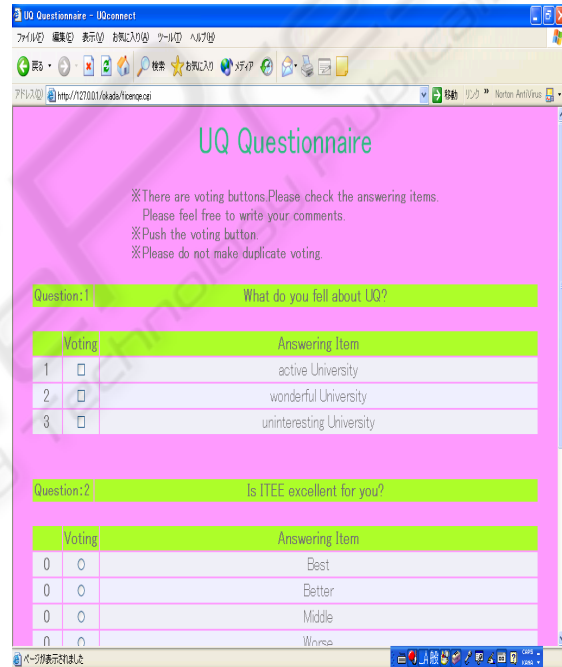


Figure 4: Screen of Answering to Questionnaire.

When a type of question is Multiple Selections, check the voting button (multiple checking is allowed) to the answering item. When a type of question is Single Selection, check the voting button (just one) to the answering item. When a type of question is Text Input, insert an answering text corresponding to the question. After checking a voting button or inserting an answering text, push the voting button at end. After that, if question is Multiple Selections or Single Selection, the database corresponding to the answering item is increased by one. If a type of question is Text Input, answering

text is added to the database corresponding to the question.

4.4 Generation of Viewing Results of Questionnaire

After finishing making a questionnaire, a screen of thanks is displayed. At this screen, there are two buttons of View the Statistics of Questionnaire and Back. When pushing the button of View the Statistics of Questionnaire, a screen of Viewing Results of Questionnaire is generated as shown in Fig. 5. Result of a questionnaire is displayed according to a database which stores a question name and answering items.

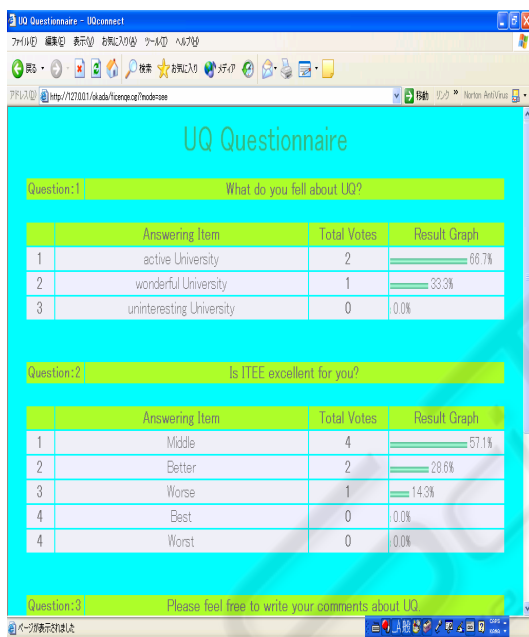


Figure 5: Screen of Results of Questionnaire.

When a type of question is Multiple Sections or Single Section, a question name is displayed and answering items, number of voting and voting graph represented scale are displayed. When a type of question is Text Input, a question name and answering texts are displayed. This process is performed for all questions of a questionnaire by the number of questions stored in a database.

5 SYSTEM CONFIGURATION

The system is composed of a browser, a www server, synthesis software and a database as shown in Fig. 6.

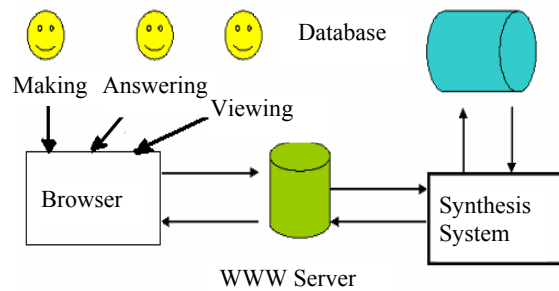


Figure 6: System Configuration.

Browser. Browser is used for displaying screens of Making Questionnaire, Answering to Questionnaire and Viewing Results of Questionnaire. It is the same to a conventional browser, e.g. Internet Explorer.

WWW server. A www server stores synthesis software and a database for results of answering. At here, Apache Active Server is adopted.

Synthesis software. Synthesis software is nucleus of this system and composed of four functional modules described before. It is written with a script language, Perl.

A database. As a database, a relational database, MySQL is used.

6 CONCLUSION AND FUTURE WORK

Using this system, non expert people of information technology fields can easily develop a web-based questionnaire system. As a result, implementation time is reduced and production cost is also saved.

In this system, three types of questions are prepared. If more different types are required, it is possible to easily extend the system.

This system is a prototype system. User interface is to be improved for practical use. In addition, the function to print results of questionnaire as a graphical format is to be added.

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