

Project 2003-2004, CMS : The Survey KIT

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Abstract

This documentation is a report our work. It is not intended to be a help file on how to use the Survey KIT. However some parts of this document may be valuable for new users as well as system administrators. As we were a bilingual group (German and French) we decided to write this document in English so that both of us could write part of it, although our English isn't perfect. This report is based on an advanced beta version of the Survey KIT.

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1 Introduction

The Survey KIT is a CMS ¹ meant to automate the construction and analysis of surveys and other feedback forms. This web application is destined to various groups of people (corporations, organisations, universities and educational institutions...) eager to get feedback or suggestions about their products or services. It can also be considered as part of the toolbox of marketing chiefs and executives. Eventually some parts of Survey KIT were designed to support non-anonymous replies, which makes this software also an useful basis for employees qualifying.

2 Interfaces, administration

2.1 The actors of Survey KIT

Let us imagine our marketing department wants to build a survey to find out something about the symbolic of colors in the Swiss population. Basically, the performance of this action in Survey KIT will involve three different kind of actors:

- The so called “users” the ones posting answers to the survey. (feelings about their colors and so on. . .).
- The “survey builder” is the one building and editing the survey. (a member of the marketing staff).
- The “kit master”, is the one who has the ability to create and manage new “survey builders” that means he is the superuser and administrator.

2.1.1 The Kit Master

The “kit master” is the superuser. He is the only one allowed to create new user and he can access to all the surveys stored in database (even to the ones he did not create).

When “installing” the Survey KIT on a web (or intranet) server, the kit master is automatically created but no “survey builders” are set (except for a dummy “survey builder”, set for testing purposes). The kit master has to create new accounts for them.

The kit master can log in on the page: http://www.your-site.com/survey_kit/login.php ²using the following parameters:

- Username: kit_master
- Password: test

Of course the password, for trivial security matters, should be changed on the first login of the “kit master”.

¹CMS: stands for Content Management System.

²We mean by “your-site.com” the place where the web application was installed. For this demonstration it is the url: http://diuf.unifr.ch/groups/nte2003/eggerd/exercises/survey_kit/

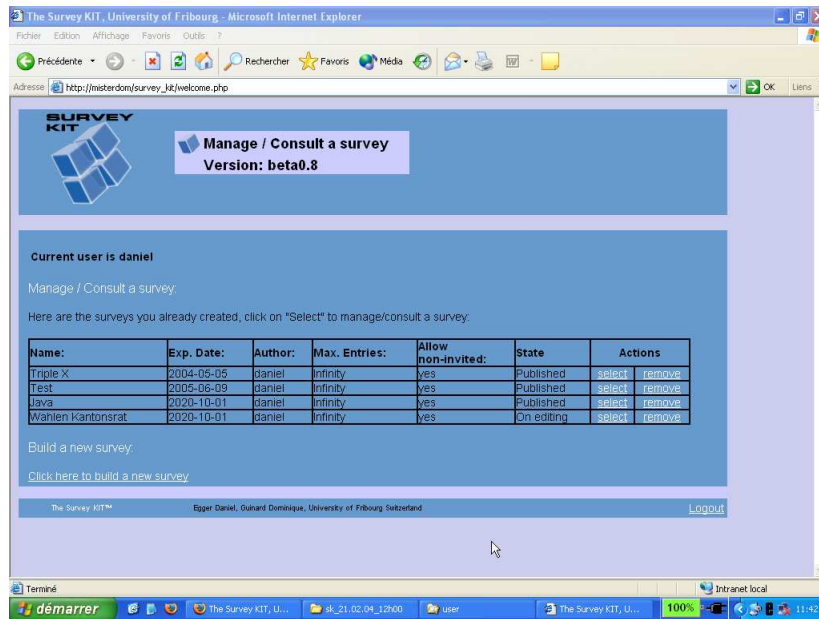


Figure 1: The welcome page as a survey builder

2.1.2 The Survey Builders

The “survey builders” are the content editors of this web application. They are in charge of creating new surveys.

They enter the site using the `http://www.your-site.com/survey_kit/login.php` and log on using parameters the “kit master” gave them.

In this version of the Survey KIT, a dummy user is created automatically. It is meant only for testing purposes³ and its login information are the following:

- Username: dummy
- Password: 46e8

Let us imagine we enter the site with these parameters. After logging in we come to the `welcome.php` page. This page displays all the surveys created by “dummy” as well as a link to create a new survey.

2.1.3 Creating a new survey

Again let us imagine we want to build a new survey to find out about the symbolic of colors in the Swiss population.

³It would be unsafe to use it for building real surveys as the password appears “in clear” in this document...

After the steps described in 2.1.2 we arrive to the `welcome.php` page. Lets click on the link: “click here to build a new survey” to enable us initialize a new survey.

This drives us to the page `build_step1.php` where some important general informations about the new survey are prompted. Fill them as follow:

- Survey name: you may want to choose an explicit name like: the ”swiss and the colors” as it will not appear on the user interface. We choose “swiss colors”
- Epiration date (optional field): this is the date until the users can post replies for your survey. It has the format yyyy-mm-dd (year-month-day). We pick “2010-10-24”.
- Maximum entries (optional field): is the maximal number of replies you want to set for this survey. We leave it blank.
- Allow non-invited user should be set on “yes” if you want anonymous users (most commonly used for survey) to be able to post replies. Set to “no” it allows you to choose the user you want to invite to reply.⁴ We set it on “yes”.

After a mouse click on “submit” we should come to the `build_step2.php` page. This page offers you to set:

- An introduction text: the “welcome” text of your survey. We set it like this: “Welcome to this survey about colors and the feelings they inspire you”.
- A logo for your survey. By clicking on “click here to upload (submit) a survey logo” we can set a logo for our survey.⁵ We do not use this fonctionnality.
- A privacy policy: this field let you inform the user about your privacy policy. We leave it blank.

A click on “submit” leads us to the page `build_step3.php`.

This page is the core of survey building. It allows you to choose a type of question.⁶ We choose choice (one answer).

Again, a mouse click on “submit” leads us to `build_question_0.php`. Here we are prompted for the number of answers.

By “number of answers” we mean the number of possible answers appearing above the question. The “user” can then choose only one of them as the type of question we are using is “choice one answer”. We choose 3.

“submit” leads us to a page where we need to enter the core of the question.

We enter:

⁴The “invite” module used for user invitation is not yet fully implemented in this version of the Survey KIT. See section 5.5 for more information about this module.

⁵This logo should be smaller than 200kb. It is going to appear on the final survey pages.

⁶In this version of the Survey KIT only one type of question is implemented (choice - one answer). However the database and the application was programmed using generic types so that adding any type of question should be straightforward.

- Question: What does the color blue inspire you ?
- Answer 1: Vitality
- Answer 2: Coldness
- Answer 3: Stability

We then come to a page with a link. It is just a confirmation that our question was added to the database. We can then chose to add a new question or quit the question building process by clicking on the links. We click on this last link and quit.

The last page of the survey building asks us to provide a conclusion: we write “Thanks for answering these questions, have a nice day”.

Clicking on “submit” gives us a confirmation that the survey is stored in the database.

2.1.4 The users

The “users” are the ones posting answers to published surveys. They can access the user interface of a published survey using a special URL that you can find by following these steps:

1. log in using a “survey builder” account
2. select a survey by clicking on “select” in the “action” part of the table on page `welcome.php`
3. click on the menu item “modify the selected survey”
4. change the state of the survey to “published”. This will publish your survey on the Internet (Intranet)
5. the link appearing on your screen is the link you should provide to the “users” in order to fill your survey.

The user interface is, we believe, quite self explaining so we will not describe how to use it on this document.⁷

2.2 The administration interface and its functions

Once again, two kind of users have access to the admin interface: the “survey builders” and the “kit master”. However the “survey builders” can use this interface only to manage the surveys they own, whereas the “kit master” uses it for both user- (survey builders) and surveys-administration.

⁷The usability tests we conducted confirmed the simplicity of this interface.

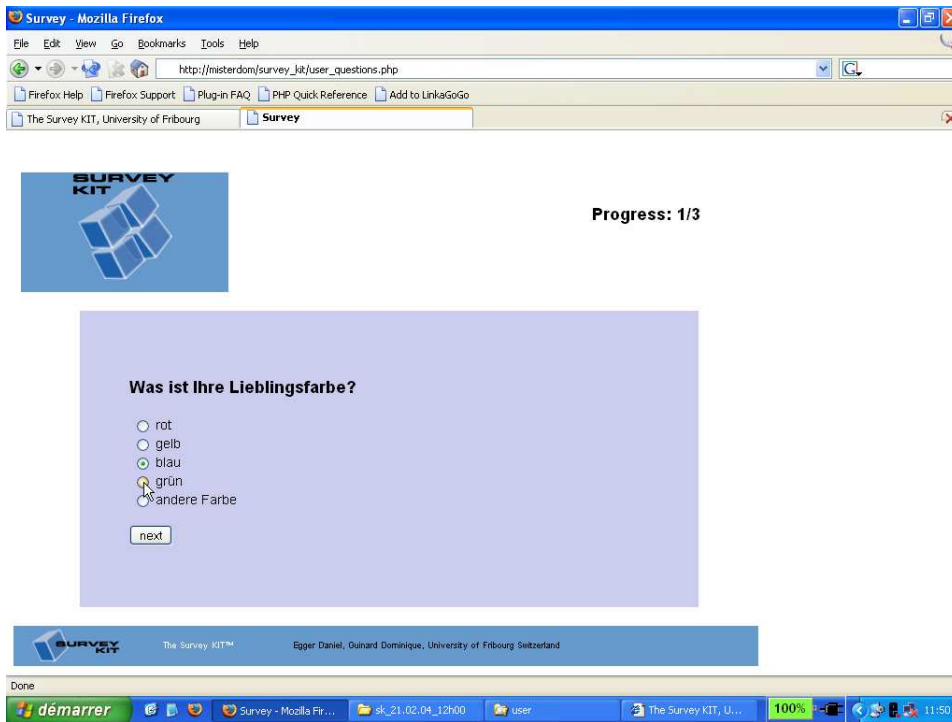


Figure 2: The user-interface

2.2.1 The “survey builders” administration interface

This interface appears on the screen of a “survey builder” after he logged in. It displays the surveys he currently owns. This first page of the interface is meant to select a survey in order to manage it or to delete a whole survey.

Say we select the survey we created in 2.1.3. This is done by clicking on “select” in the action part of the table.

This leads us to a second page which is meant to manage or consult the currently selected survey, the menu options are as follow:

- Building a survey: creating a new survey
- Modify the selected survey: this is where we can remove questions, publish the survey or view a sample of the output.
- Visualize results: this link enables us to visualize the results of this survey by question.
- Select another survey: this item drives us back to the first page where we can then select another survey to manage.
- Logout: this link logs the user out.



Figure 3: The Kitmaster welcome page with the link to the administration-part

2.2.2 The “kit master” administration interface

This interface contains the same options as the one described in 2.2.1. However a “builders administration” link was added to the first page. It enables the “kit master” to create new “survey builders” or to manage them.

Notice that the “kit master”, as a super user, has full rights on every survey and not only on the ones he created.

3 Programming the Survey KIT

3.1 Databases

The Survey KIT was programmed using a MySQL database. The tables were designed according to the “normal forms” and “integrity rules”.⁸ This design enables a user to add as many questions as he like.⁹

⁸For a description of these rules see: Meier in the References section.

⁹In short the Survey KIT is only limited by the numbers of tuples that can be created with MySQL which is known to be not so far from infinity. But that wouldn’t be that smart :-)

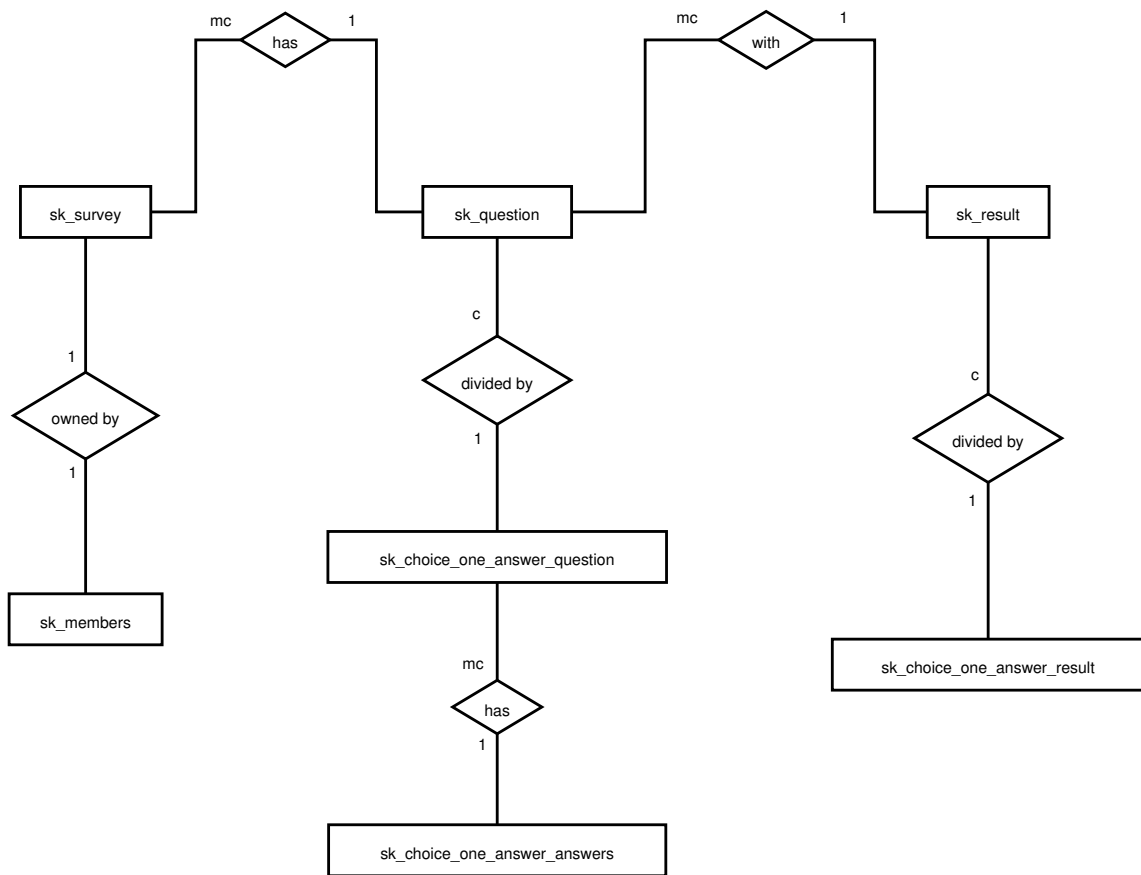


Figure 4: The Entity-Relationship-Model of the database

Basically the database contains, 8 tables:

1. `sk`: this is the main table it contains informations about the running version of the Survey KIT.
2. `sk_members`: contains the “survey builders” and the “kit master” entries.
3. `sk_survey`: references the stored surveys.
4. `sk_question`: is a table containing generic information about the questions.
5. `sk_survey`: contains generic information about the results.
6. `sk_choice_one_answer_question`
7. `sk_choice_one_answer_answers`
8. `sk_choice_one_answer_result` are the tables containing the information for questions of type “choice -one answer”.

This structure is meant to be extended, adding a type of question, say choice “choice-multiple answers” results only in adding three tables to the structure (`sk_choice_multiple_answers_question`, `sk_choice_multiple_answers_answers` and `sk_choice_multiple_answers_result`).

For further information about the database structure see the corresponding figures.

3.2 Software

Various software was used for developing this application:

- Macromedia Dreamweaver MX was used as the basis for our web application development.
- EasyPHP 1.7, was intended as a test web server (Apache).
- Internet Explorer 5.5 and 6.0, Mozilla Firebird 0.7 and Mozilla Firefox 0.8 were used as test browsers.
- PHP MyAdmin (on MySQL) was used to build the database and to check the inserts.
- This documentation was written using LyX
- The pictures, logos and images used in this web application were designed with Adobe Illustrator 10 and Macromedia Fireworks MX.

The template scripts of Dreamweaver MX were widely used. In short this means the interfaces of the Survey KIT could be completely changed within seconds. This also enabled us to create the PHP part of the application quite independently of the HTML part.

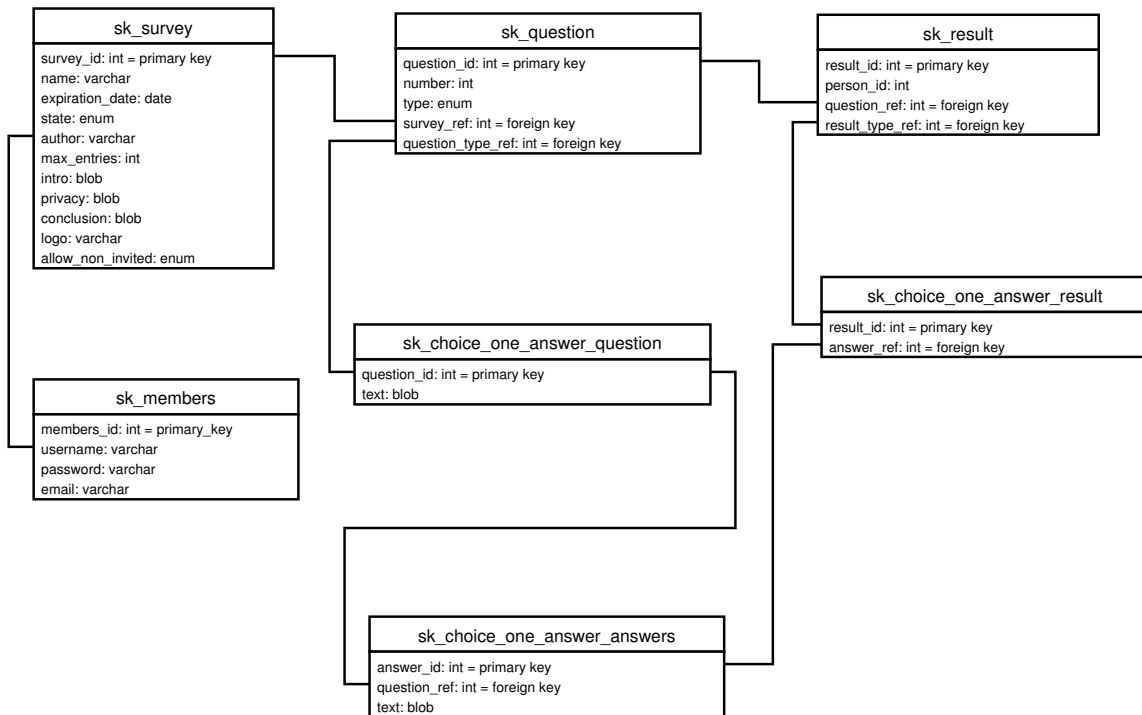


Figure 5: The detailed model of the database

3.3 Programming languages

The survey KIT uses various computer language such as:

- PHP
- ECMA Script (also known as JavaScript)
- HTML and CSS
- SQL

4 Usability test

4.1 Procedure

For the usability test we made up some tasks to do for our testers. We made three different task-groups for the three different user groups we have: The superuser, also called “Kit master”, the surveybuilders, which can create new surveys and the normal users which don’t use the advanced-interface but just have to fill out the surveys produced by the survey-builders. For the tests we used an already very advanced version of survey-kit. It had only a few differences compared to the final version. More accurate information about these differences will follow soon.

The concrete tasks were the following:

- **“Kit master”**: create a new user, change the attributes of a user, and remove a user
- **Surveybuilders**: create a new survey, change some modifiable attributes of a survey and finally publish the survey in the internet
- **Normal users**: fill out a survey

We had five persons to make our tests. Three of them are very computer literate the two others have medium internet and computer knowledge. Each person spent about thirty minutes for all the tests. We took notes of all their comments and also let them express their thoughts loudly.

4.2 Results

The tests were very valuable. The testers noticed many little flaws which we weren't able to detect before. Here is more complete lists of all the things noticed or detected by our testers:

Kit_master interface: In the user administration field the kit_master could remove himself from the database. We removed this option.

If the kit_master wanted to add a new user the password was visible, so we masked this field

Surveybuilder interface: The testers noticed that the menus were always visible even when they didn't select a survey. A click on a menu in this situation ended up with an error message so we removed these menu items under these circumstances.

We came aware of the biggest problem of our system in the survey building phase. The users didnt see our exit-button first and they ended their survey in a bad way. We corrected this usability-bug. Now the exit button should be there where it belongs. (Or at least there where our testers said we should put it.)

Another little problem was found directly after the login. The users had to click on a success-link when they logged in. They didnt find it naturally and they preferred an automatic redirection, so we implemented it that way.

Two of our testers had also problems with the short description of some of the fields during the survey building phase. They didnt really understand what was meant. We didnt change this until now. But it we still plan to implement a help-section for each page which describes all things in a complete manner.

Some problems also partially noticed by our testers do still remain in our system. The back-button in the browser doesnt always work like expected and can in some rare circumstances even screw up a survey in its building phase. We are

aware of this problem but we didnt change it until now because it would need a very time-consuming redesign of some inner-functions of our system.

User-Interface: Nobody of the testers had problems with the user-interface. They all found it very intuitive and easy to understand. We are very proud of that because an easy to use end-user interface was one of the main-goals of our project. A problem remains though: Some titles and texts in the user-interface are in English. That may confuse a user who wants to fill out a survey which is written in another language. A Multilanguage-version of the user-interface is still on our todo-list and couldn't be implemented yet due lack of time.

5 Some words about our work

5.1 Hours of work

Here is a summary of the hours of work and the tasks we had to deal with.

Date	Hours	Task	Who
30.12.03	14	Looking for an idea, a name and a logo	Daniel and Dominique
05.01.04	6	Specifications	Daniel and Dominique
12.01.04	6	Database design (on the paper)	Daniel and Dominique
19.01.04	8	Authentication	Daniel and Dominique
24.01.04	6	Authentication and graphical designing	Dominique
25.01.04	2	Authentication	Daniel
26.01.04	3	Authentication and database design	Daniel
18.02.04	16	DW MX template building, database design	Daniel and Dominique
19.02.04	16	Question builder module, user template	Daniel and Dominique
20.02.04	10	User generic output programming	Daniel and Dominique
21.02.04	6	User generic output, uploading system	Daniel and Dominique
22.02.04	4	remove module, welcome page programming	Dominique
22.02.04	4	Database diagrams	Daniel
23.02.04	16	Login, administration programming	Daniel and Dominique
24.02.04	20	Templates updating, look and feel, graphical designing	Daniel and Dominique
25.02.04	16	Documentation, debugging	Daniel and Dominique
29.02.04	6	uploading to the server, documentation	Daniel

This project was meant to be about 120 hours long, we spent about 175 hours to programm the Survey KIT.

The original Survey KIT logo was designed by Mathieu Girardin a graphic designer (and a friend of ours). We then designed the various images taking inspiration from this logo.

5.2 Problems, bugs and nightmares...

The biggest problems we had to face can be summarized into two groups:

First of all the problems related to the old version of PHP installed on the server we were supposed to store our application in. Our application was developed using one of the latest version PHP (version 4.3.3), a version where the register globals were turned off. When sending the application on the server we encountered various compatibility errors due to this issue. Also all the managing of the session variables has changed¹⁰!

Fixing them was not a “piece of cake” as the information we found (mainly about the session variables and the cookies) were quite confusing and unclear.

Second, we wanted to make the Survey KIT as extensible as possible. This meant we had to think in generic terms as much as possible. This is easier to say than to program... However, after quite long days of generic thinking we came out with a quite extensible version. (Many generic functions were used and the database was constructed to make it as extensible as possible).

5.3 Positive Points

5.3.1 Learning “project management”

One of the things we really appreciated was the fact that we had to manage our project. Given a dead line and useful information we had to plan and execute the various tasks. We have learned a lot about the basics of “project management” as it was our first project in groups at the University of Fribourg.

5.3.2 “Real” programming

We also liked the fact that we had to program a lot. This project was not only theoretical; we could even say it was the one most concrete task we had to do since we began our studies. Most of the time spent in this project was programming time and we liked it.

5.3.3 Moodle and the lessons

We were quite motivated by the lectures, particularly by the fact that they were not only based on technical facts but also on practical things. (usability, design, concrete examples and so on)

We also really appreciated the Moodle website. We took it as an easy to use and useful communication portal.

¹⁰See <http://www.php.net> for more information about these issues.

5.4 Less positive points

5.4.1 The stress

This project, as said before, was really motivating. We were eager to work on it, our heads full of ideas, but the thing is that we had more ideas than time. We really had to rush after the exam time. So seems to be the life of a student. . .

5.4.2 The server

The fact that a quite old version of PHP was installed on the server was very annoying. Most of it because programming the application especially for this server would have meant a significant amount of work to install it somewhere else (most servers have the register global off by now, there seems rarely to be a server with PHP < 4.2 nowadays), which is exactly the opposite of a portable CMS

5.5 Further extends

As said before, we had more ideas than time. This drives us to writing a further extends section.

Basically we have had 3 ideas of extends:

- Add more types of questions for the surveys. Such as: Choice multiple answers questions, Open ended questions, Question with images
- As said before our database was designed to support various types of questions so adding some questions should not be a huge amount of work
- We also had the idea to program a user invitation module. In some cases (employees feedbacks, special population) the survey is not meant to be filled by just anybody but by specific groups of people. In these cases the survey builder should have the opportunity to invite a group of people. This option is already partially imple
- Eventually we are eager to empower the results functions. Giving the ability to the survey builders to have a more graphical and precise view on the results.

We knew from the beginning we could not program a perfect survey tool in such a short period, but the future will certainly provide us with plenty of raining days, perfect days for making the Survey KIT better and better.

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