

**An Online Automatic Survey Maker for Computer
Engineering Department at EMU**

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ABSTRACT

In this study, we have developed a survey system to help the Department of Computer Engineering to overcome the difficulties that a surveyor can face with, such as finding surveyees and updating his/her information.

The survey system provides the Department of Computer Engineering to create a line of communication between the department and the surveyee. The division of labor in our survey system provides a powerful control of the system. In addition, the survey system is going to support the department since it requires less effort and is an easy-to-use system.

Our system is designed for the Department of Computer Engineering at Eastern Mediterranean University, yet the system can be used by other organizations or institutes as well.

Keywords: Web application, Survey, Computer Engineering.

ÖZ

Bu çalışmada, Bilgisayar Mühendisliği Bölümü'ne yardımcı olmak için anketörlerin ve karşılaştıkları zorlukları (örneğin; anketi dolduracak ilgili kişileri bulmak ve bu kişilerin bilgilerini güncellemek gibi) aşabilmelerini sağlamak amacıyla bir anket sistemi geliştirilmiştir.

Bu sistem Bilgisayar Mühendisliği Bölümü'nün anketi dolduracak ilgili kişilerle arasında bir iletişim hattı oluşturmasını sağlar. Bu anket sisteminde iş bölümü olması sistemin güçlü bir kontrol mekanizması olmasını sağlar. Buna ek olarak sistem az çaba gerektirdiği ve kolay kullanım özelliğine sahip olduğu için bölümün destekçisi olacaktır.

Bu sistem Doğu Akdeniz Üniversitesi Bilgisayar Mühendisliği Bölümü için tasarlanmış olsa da diğer kurum ya da kuruluşlar tarafından da kullanılabilir.

Anahtar Kelimeler: Web uygulaması, Anket, Bilgisayar Mühendisliği.

To My Father: Abdunasser Abduljabr Alfaisal

To My Mother: Ghoson Hazem Alsaqar

To My Fiancée: Gül Selay Sırsat

To My Sister and Brothers

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LIST OF ABBREVIATIONS

EMU	Eastern Mediterranean University
ABET	Accreditation Board for Engineering and Technology
PHP	Hypertext Preprocessor
CSS	Cascading Style Sheet
MySQL	My Structured Query Language

Chapter 1

INTRODUCTION

Survey is an effective way to evaluate an organization, institute or company work. It is a good way to know what is needed to be improved in an organization from the client point of view. Surveys can help the organization to meet the client requirements. There are different types of surveys. Some of them are written questionnaires, face-to-face interviews, telephone surveys and Web-based surveys. The written questionnaire consists of questions written on a paper and then these questions are distributed to the surveyee [1]. There are several advantages and disadvantages of the written questionnaires. One of the advantages is anonymity and on the other hand, consuming a lot of time and expense are some of the disadvantages [1]. The face-to-face survey is very similar to written questionnaires but it has more advantages when it is compared with written questionnaires [2]. Some of the advantages are clarification which refers to explaining the questions in different words and skipping unnecessary questions by the surveyor [2]. However, face-to-face surveys have disadvantages as well, for example; it needs a lot of effort to reach to the surveyee, and just like in written questionnaires it consumes a lot of time and expense [2]. The third type of the surveys is called the telephone survey. Telephone survey also has several similarities with the written questionnaires; however, at the same time this type has the advantage of reducing the expense and the time that is the opposite in both face-to-face interviews and written questionnaires [2]. There are also several disadvantages of the telephone surveys. For

example; the surveyee may not pay a lot of attention to the questions or may not understand the questions clearly [2]. The fourth type is called the Web-based surveys. Web-based surveys are getting popular among all the other types of the surveys [3]. Some of the advantages given in the study [3] are as follows: No papers are needed since everything is done by electronically; it requires less effort in collecting responses and creating survey reports; everything is done by automatically; the surveyee can participate in a particular survey at anytime and anywhere, it consumes less expense and time since everything is done by automatically and electronically, and the last advantage is related with flexibility (by using pipe questions (skip logic), surveyor can design surveys in a more flexible way than other survey types).

In the department of Computer Engineering, different types of surveys are formed with the under graduate, graduated students, employers, etc. Generally, the department is making surveys for ABET (Accreditation Board for Engineering and Technology) since it has ABET accreditation and has some responsibilities to do several regular surveys for ABET. Some of these ABET surveys are as follows:

- **Exit Survey:** Is a survey that is formed every semester for the graduating students.
- **Course Outcome Surveys:** Is a survey that is formed every semester for the current students.
- **Alumni Survey:** Is a survey that is formed every two years in March (even years) for the graduated students.

- **Employer Survey:** Is a survey that is formed every two years in March (even years) for the employers of graduated student.

There are several problems that the department can face with while working on these surveys. Some of these problems are; finding and adding new surveyee to the existing list of surveyee. After student graduates from the University it is hard for a surveyor to find students contact information or keep their information updated with the last statues (e.g. bachelor, master, PhD). Having only two user types (i.e. surveyor and surveyee) makes it hard to create and control the surveys. More user types are needed to invite or suggest a student or control the survey statistics.

In our system, we are going to develop a system that will be initialized once and then it will work alone starting from doing the surveys and managing users to generate significant statistics. This system is going to support the department since it requires less effort and it is easy-to-use system.

In our system, the following novel features are also included. Powerful users' management is developed by including dynamic categorization and division of labor technique in the system in order to distribute a survey to the right responder in easy, fast and effective way. Dynamic categorization system is included to enhance the users' management system. We divided the surveyees into different categories. Surveyee can enroll in one or more categories. Furthermore, they can leave and/or join other category/ies. For example they can leave and join other categories; student can change statues rapidly, for example; a student can graduate from Bachelor degree and start a Master program which this means that a change in category is needed. Another example is that when a PhD student starts to work, he/she should belong to

two categories (e.g. Phd and Employee) and this time again an update in category is needed. Moreover to enhance the users' management system, four types of users (i.e. Administrator, auditor, surveyor and surveyee) are used to help to control the system in a better way and this is division of labor. Responds Time Controlling: refers to enhancing the reliability of responses by knowing the time that the surveyee is spending reading and responding to each question. Note that all features and details of our system will be given in the further sections.

Additionally, our system is designed for the Department of Computer Engineering at Eastern Mediterranean University; however, the system can also be used by other organizations or institutes as well.

Architecture and design of the survey system is explained in chapter two. The implementation of the survey system is explained in chapter three. Comparison with related work is explained in chapter four. Finally, the concluding remarks of the study are explained in chapter five.

Chapter 2

SYSTEM ARCHITECTURE AND DESIGN

The system is composed of four main modules. These are comprised of administrator, auditor, surveyee, and surveyor which are described in the sections 2.1, 2.2, 2.3 and 2.4 respectively. The use case modeling will be described in the section 2.5. Finally the database of the system will be described in section 2.6.

2.1 Administration Module

The first module is called the administration module that has a full control of the system. The administrator is responsible of the system's news feed management, user management, category management and report review of the system.

Figure 2.1 shows the news feed management (i.e. add new news feed, delete old news feed). News feed allows the administrator to send information (news and updates) to the home page of the Web site. Firstly, the administrator enters new news feed (id, name, description and date) with a title and a content (Process 1). The news feed is created in the database according to the entered information (Process 2). The system sends an acknowledgement to the administrator about the added news feed (Process 3). Administrator requests to list the news feed (Process 4). System will create the list of news feed (Process 5). The list of news feed will be send to the administrator (Process 6). The administrator is able to select news feed from the list for deletion. The request of the administrator for deletion will be sent to the system (Process 7). The news feed will be deleted from the database (Process 8). An

acknowledgement message will be send to the administrator about the deletion of the news feed (Process 9).

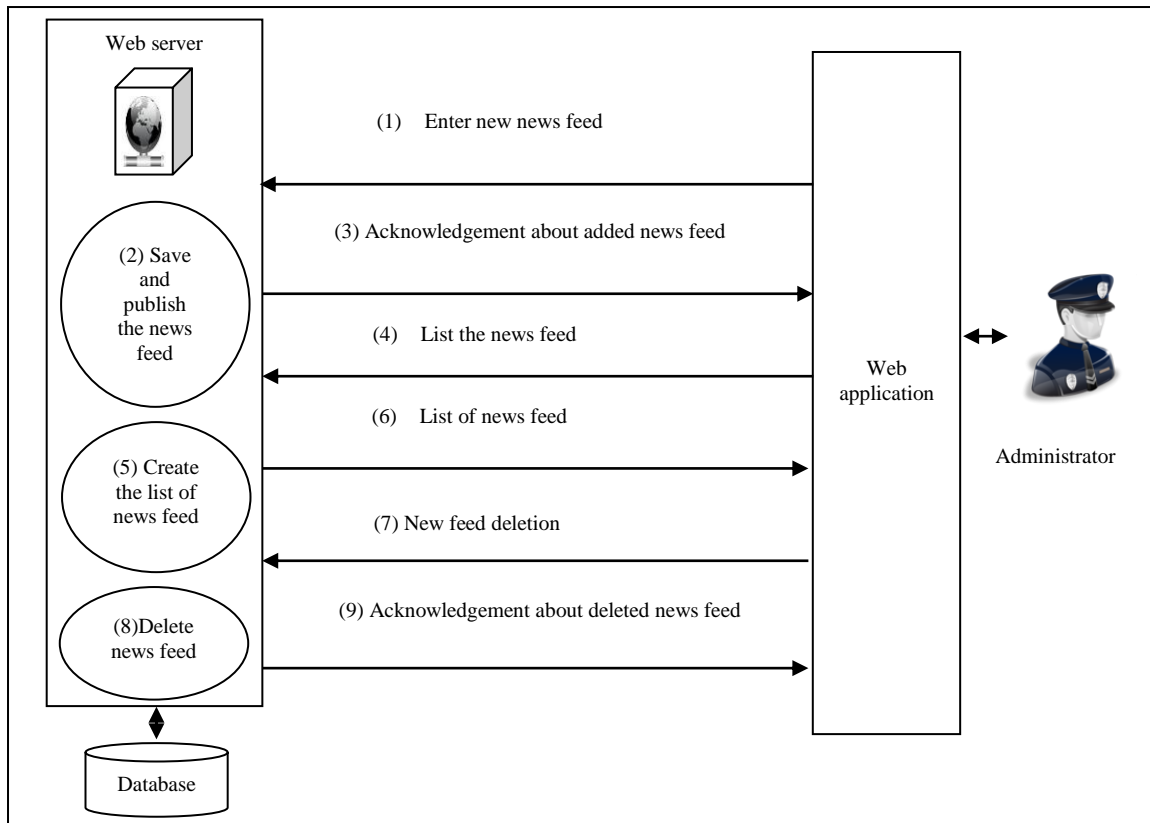


Figure 2.1: News feed management.

As shown in figure 2.2, user management is consists of adding new user, approving surveyee pending, editing user information, deleting user and sending mass e-mail to the users. Administrator is responsible of creating a new user (administrator, auditor, surveyor and surveyee) with the following information (id, name, second name, surname, categories (category will be explained in the categories management section in detail), e-mail address and password) (Process 1). The system will check the format of an e-mail and its existence in the database. If nothing is wrong, then new user will be created and information will be stored in the database (Process 2). An acknowledgement message about the created new user will be sent to the

administrator (Process 3). Second way of registration is that surveyee can request to register. Administrator must approve surveyee who requested to register (Process 4). System will change the surveyee type from inactive to active and allow surveyee to use the system (Process 5). An acknowledgement message about the approved user will be sent to the administrator (Process 6). Administrator is able to enter the list of the users. Administrator requests user list from the database (Process 7). System creates the user list from the database (Process 8). The list then will be sent to the administrator (Process 9). Administrator is able to search for a user from the list for fast access. Administrator enters the user name in order to search for a user (Process 10). System will look up for the user in the database (Process 11). The system will send the user information to the administrator (Process 12). Administrator is able to edit the user information. Administrator requests to edit user information (Process 13). The system will update the old information in database with the new information entered by the administrator (Process 14). An acknowledgement message about the edited information will be sent to the administrator (Process 15). Administrator is able to delete a user. User deletion request is send by the administrator (Process 16). The system will delete user record from the database (Process 17), and generate an acknowledgement message about the deletion and sent it to the administrator (Process 18). Administrator can send a mass e-mail to surveyee (Process 19). The system will check all of the surveyee's e-mail addresses and then send them an e-mail one by one (Process 20). An acknowledgement message about the mass e-mail will be sent to the administrator (Process 21).

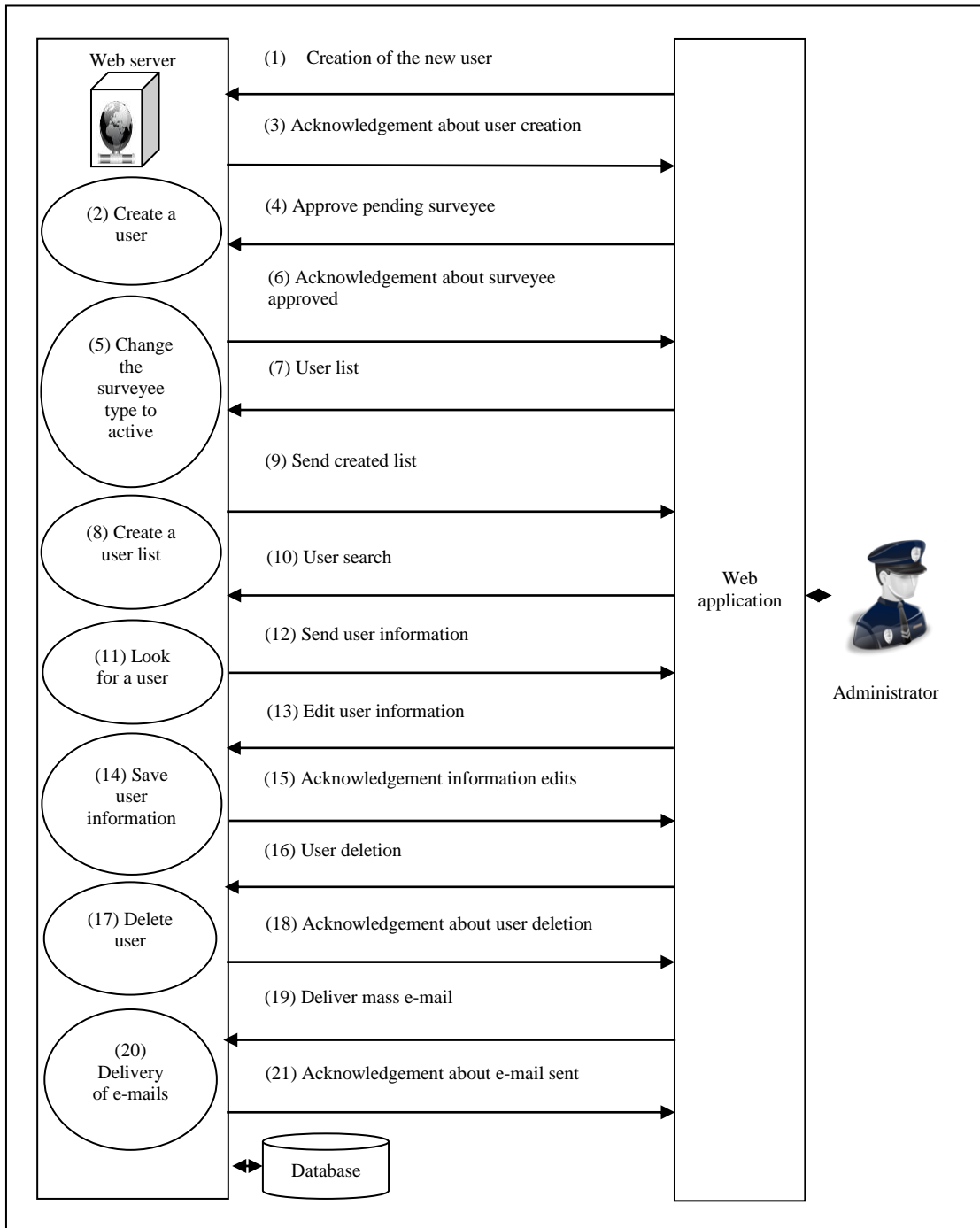


Figure 2.2: User management.

In figure 2.3, category management includes the following sections; view category, create new category, edit category, and delete category. Surveyee is grouped in one category (Master, Alumni, etc.) and participates in the same surveys. Surveys are created by the surveyors which have the control over the category.

Administrator is able to view the available categories by listing them in the system (Process 1). The system will create the list of available categories (Process 2). The list of categories will be sent to the administrator (Process 3). Administrator can create a new category (Process 4). System will create the new category in the database (Process 5). Acknowledgement message about the new category will be sent to the administrator (Process 6). Administrator is able to delete category from the list of the categories. Administrator requests for category deletion (Process 7). Category will be deleted from the system (Process 8). An acknowledgement message about the category deletion will be sent to the administrator (Process 9). Administrator is able to edit category from the list of categories. Administrator requests for category edit (Process 10). Category will be updated in the database (Process 11). An acknowledgement message about the category edited will be sent to the administrator (Process 12).

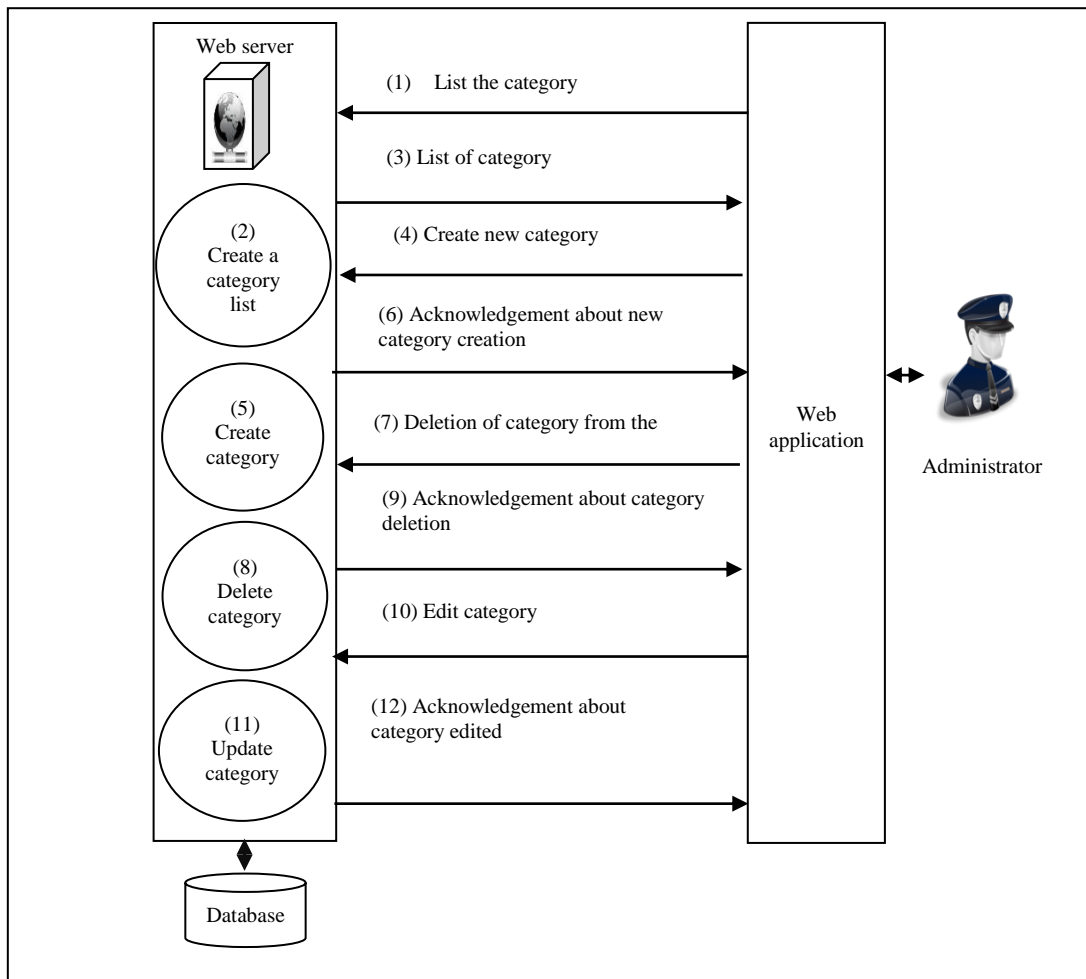


Figure 2.3: Categories management.

Figure 2.4 exhibits the report review structure. Report review contains the outcomes of the survey section (textual reports section and graphical reports section), individualized surveyee reports section, and download textual reports section. Textual and graphical representation is divided into three areas (i.e. monthly archive, semesterly archive and yearly archive). Each area is divided into different parts. Each part represents one of the categories (Master, alumni, etc.) in the system. Inside each category the related surveys are shown along with his/her reports. All the details about the report (i.e. report date, time spent to fill the survey) are represented in the report review.

Figure 2.5 demonstrates the report review section which is the process of the report review structure. Administrator is able to list the textual reports. Administrator request for textual report list (Process 1). System creates the report list (Process 2). The report list will be sent to the administrator (Process 3). Administrator is able to list the graphical reports. Administrator request for graphical report list (Process 4). System creates the graphical report list (Process 5). The graphical report list will be sent to the administrator (Process 6). Administrator is able to list the individualized reports. Administrator request for individualized report list (Process 7). System creates the individualized report list (Process 8). The individualized report list will be sent to the administrator (Process 9). Administrator is able to download reports. Administrator request for download reports (Process 10). System creates report to download (Process 11). Administrator receives the report by downloading (Process 12).

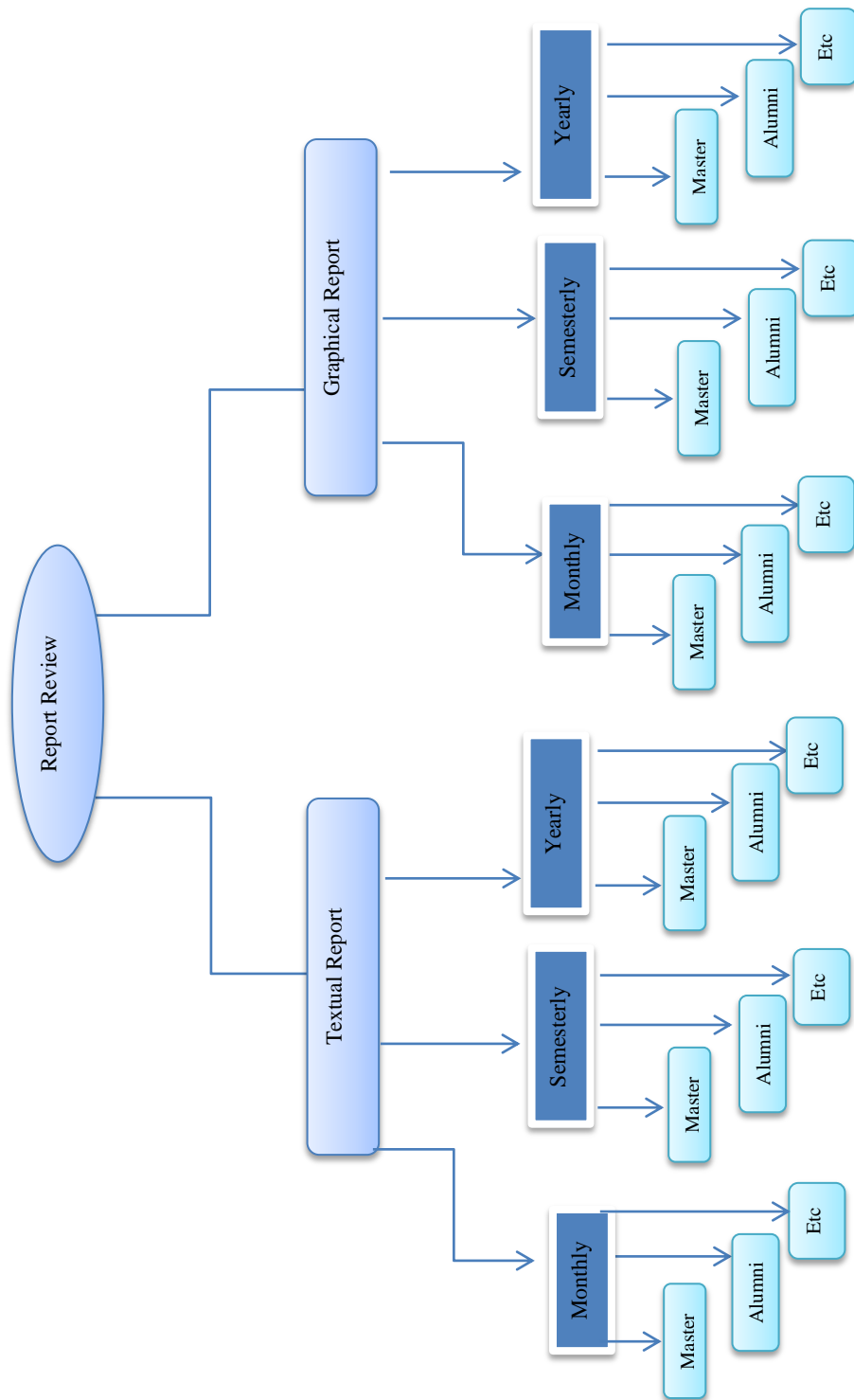


Figure 2.4 Report review structure

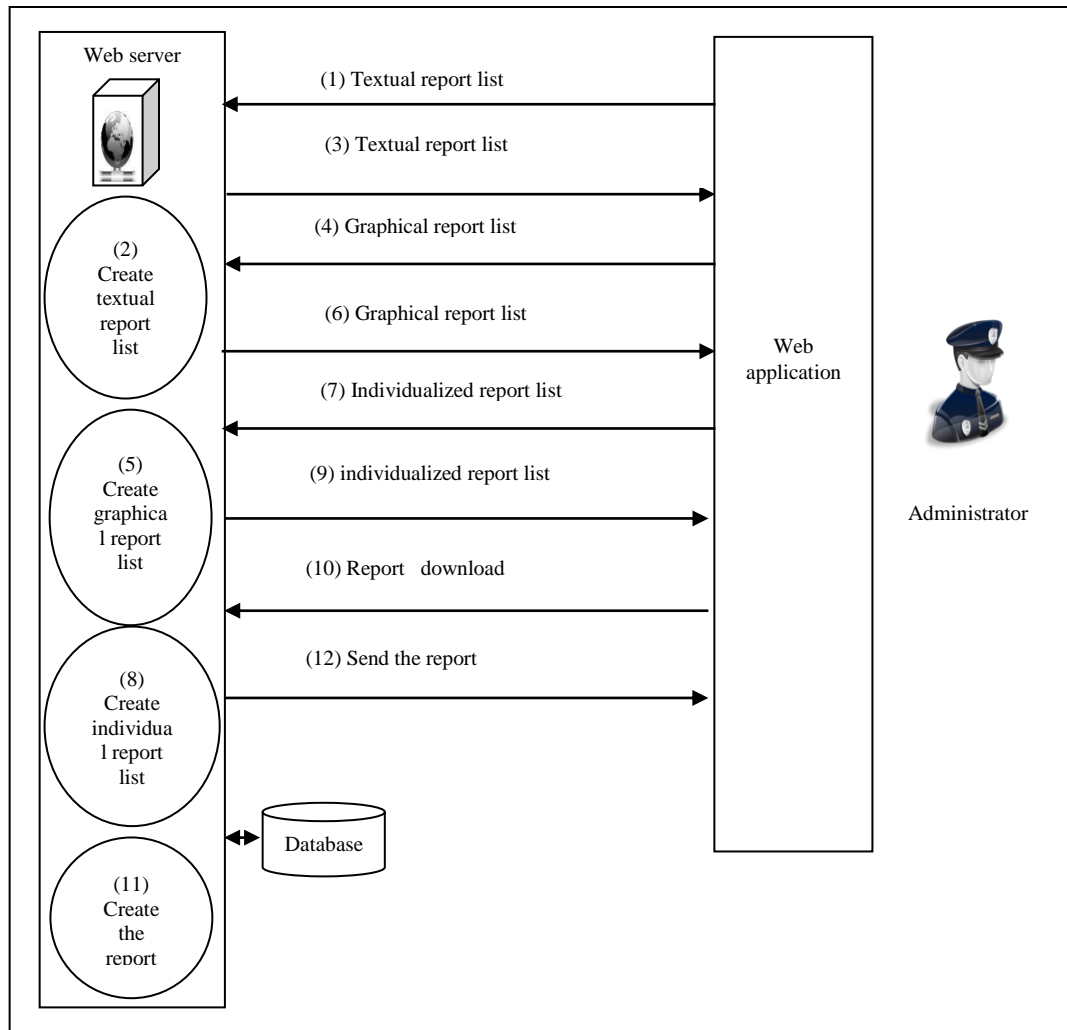


Figure 2.5: Administrator report review section.

Figure 2.6 shows the profile management section in the administrator module. Profile management section enables the administrator to update the personal information in the database. Administrator request for profile edit (Process 1). System prepares the profile edit form (Process 2) and then sent the form to the administrator (Process 3). Administrator edits the existing information (name, second name, surname, e-mail address, manger e-mail, new password, address).Updated information is sent to the system (Process 4). System saves the new information retrieved on existing record in the database (Process 5). The system sends an acknowledgement message to the administrator about the updated operation (Process 6).

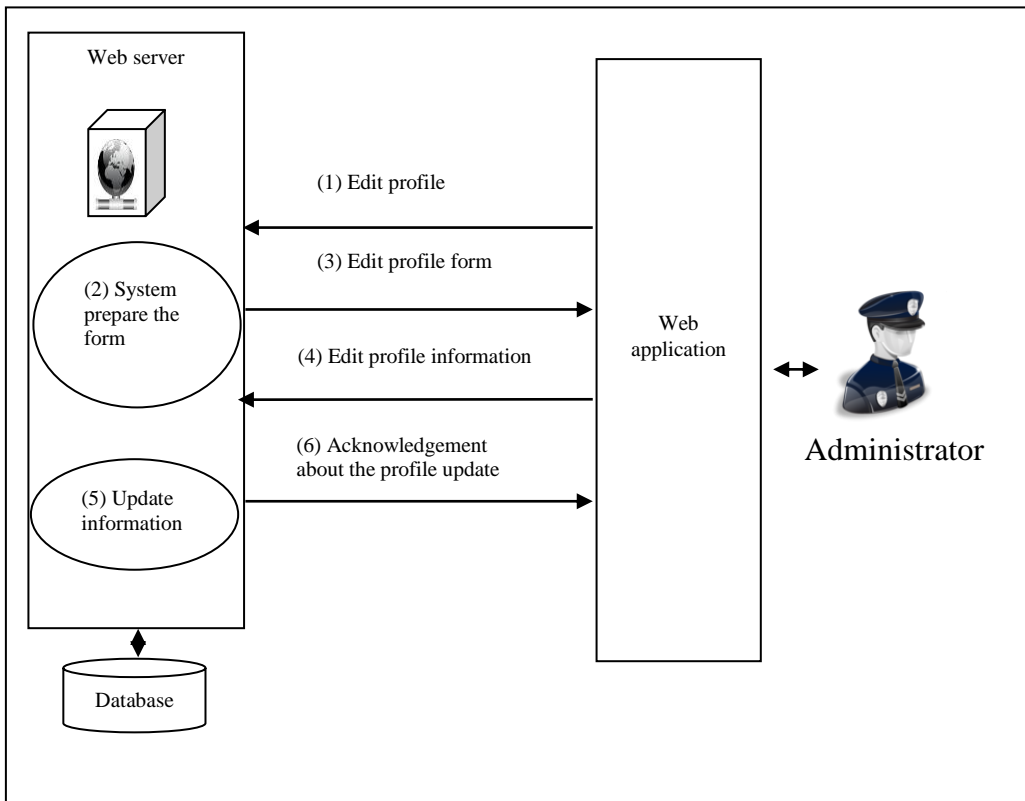


Figure 2.6: Administrator profile management.

2.2 Auditor Module

The second module is called the auditor module which has control of the system report review section for all surveys. The auditor is responsible of the report review section and profile management.

Figure 2.7 exhibits report review section in the auditor module. The auditor has the same options with the administrator. Additionally, auditor has the ability to view the active survey (the surveys which their date has not come to an end) and the number of the participants for each survey. Auditor requests for the list of active surveys (Process 1). System creates the active survey list (Process 2). The active survey list will be sent to the auditor (Process 3). Auditor can request to see the number of participants in the active survey. Auditor requests the detail of survey (Process 4). System checks the database and finds out the number of the participant(s) for selected survey (Process 5) and then sends this information to the auditor (Process 6). Auditor is able to list the textual reports. Auditor request for textual report list (Process 7). System creates the report list (Process 8). The report list will be sent to the auditor (Process 9). Auditor is able to list the graphical reports. Auditor request for graphical report list (Process 10). System creates the graphical report list (Process 11). The graphical report list will be sent to the auditor (Process 12). Auditor is able to list the individualized reports. Auditor request for individualized report list (Process 13). System creates the individualized report list (Process 14). The individualized report list will be sent to the auditor (Process 15). Auditor is able to download reports. Auditor request for download reports (Process 16). System creates report for download (Process 17). Auditor receives the report by downloading (Process 18).

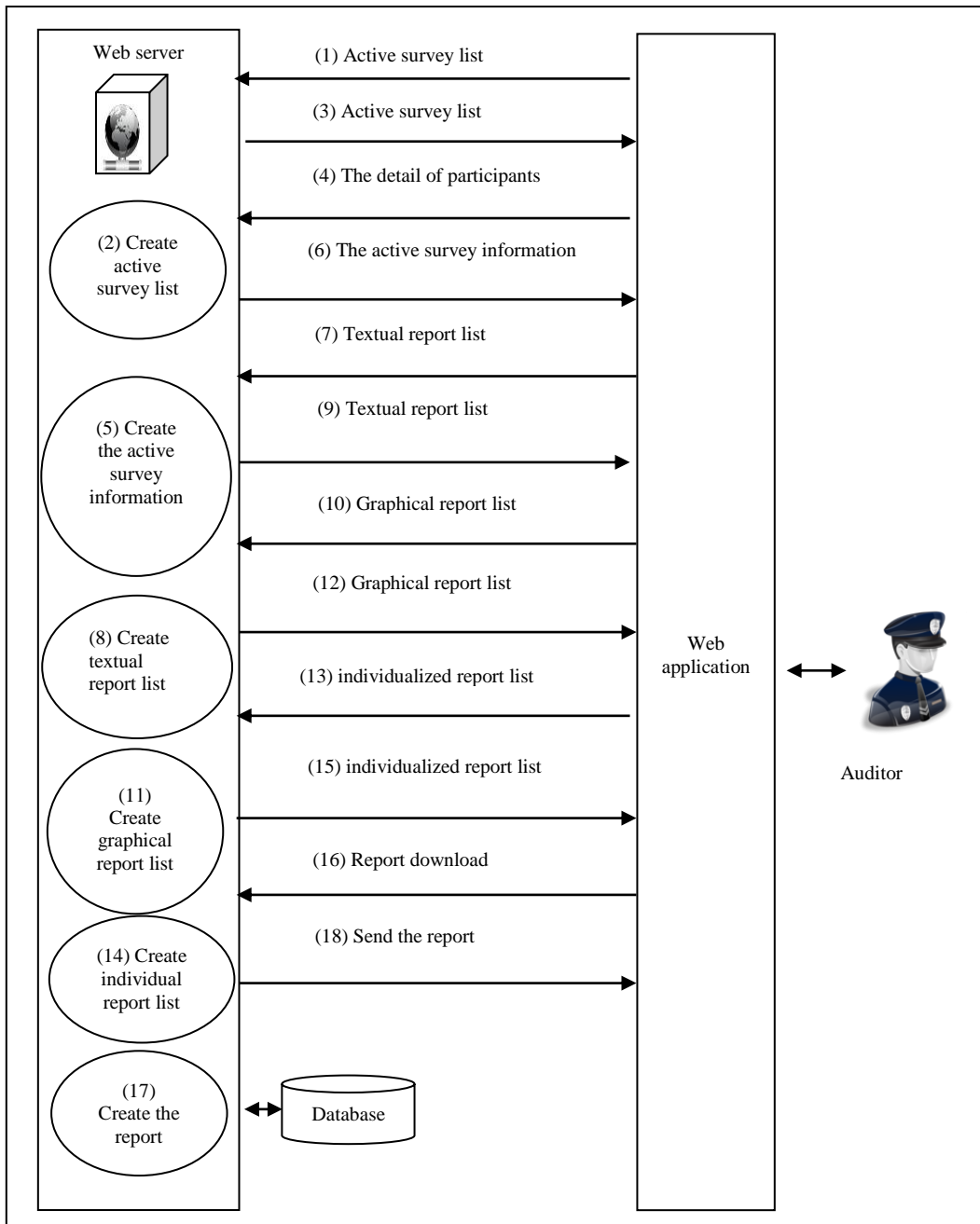


Figure 2.7: Auditor report review section.

In figure 2.8 the profile management section in auditor module is demonstrated. Profile management section lets the auditor to update the personal information in the database. Auditor request for profile updates (Process 1). System prepares the profile update form (Process 2), and sends it to the auditor (Process 3). Auditor updates any of the existing information (name, second name, surname, e-mail address, manager e-mail, new password, address), and the updated information will be sent to the

system (Process 4). System saves the new information retrieved on the existing record in the database (Process 5). An acknowledgement message will be sent to the auditor about the updated operation (Process 6).

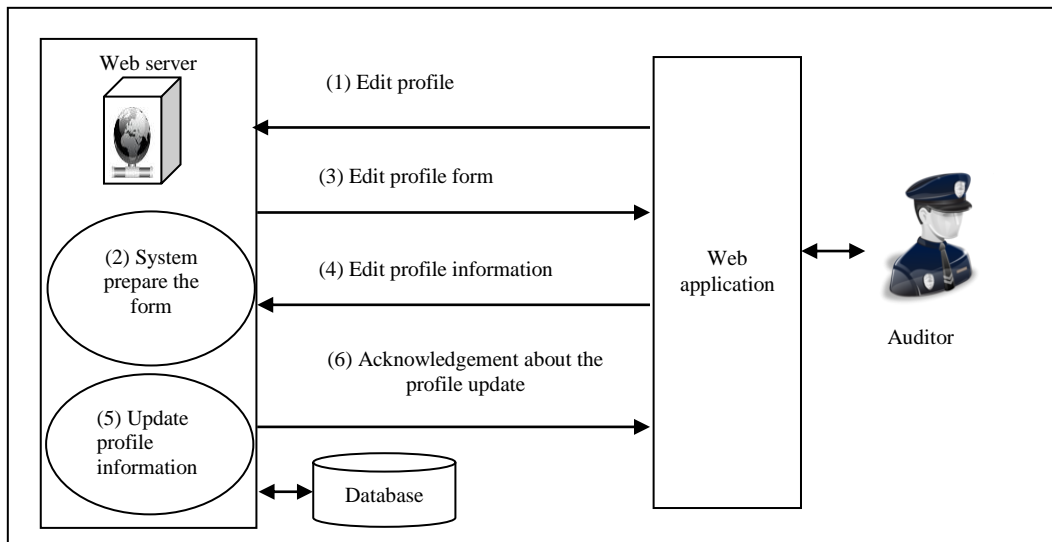


Figure 2.8: Auditor profile management.

2.3 Surveyee Module:

Survey filling out section allows surveyee to fill out the available surveys and view the completed surveys. Also the Survey filling out section collects the information that surveyee entered and stores it to the database for further use.

Figure 2.9 demonstrates the survey fill-out-section. Surveyee request for available survey list (Process 1). System prepares the available survey list (Process 2), and sends it to the surveyee (Process 3). Survey can either fill-out the entire survey or only part of the survey and complete it later. Surveyee responses question (Process 4). System stores the surveyee response into the database (Process 5) and sends an acknowledgment message to the surveyee (Process 6). Surveyee completes the survey (Process 7). System then completes the survey (Process 8) and sends an

acknowledgement message to the surveyee (Process 9). Surveyee can participate in uncompleted survey. Surveyee requests for uncompleted survey (Process 10). System prepares the uncompleted survey list (Process 11), and sends it to the surveyee (Process 12).

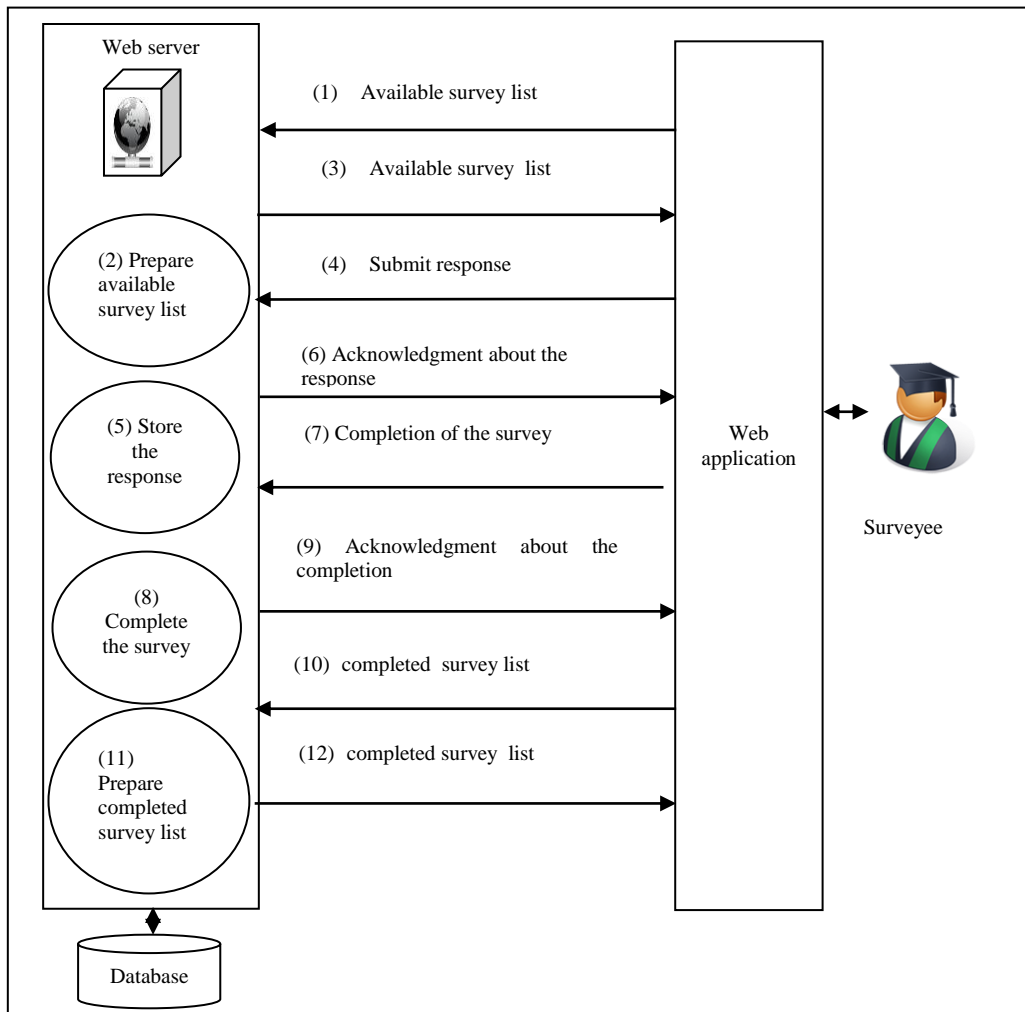


Figure 2.9: Survey fill-out-section.

The invitation system is another way of registration to the survey system. The invitation system gives the ability to the surveyee to invite new member to the survey system. By using the invitation system new surveyee can join the survey system which provides the user management more option in the survey system.

Figure 2.10 demonstrates surveyee invitation system. Surveyee request for invitation form (Process 1). System prepares the invitation form (Process 2). And it then sends to the surveyee (Process 3). Surveyee enters the information of the new surveyee (name, e-mail address) and then the information will be sent to the system (Process 4). System stores the information entered by the surveyee to the database and then sends invitation (Process 5). An acknowledgement message will be sent to the invited surveyee about the invitation operation (Process 6).

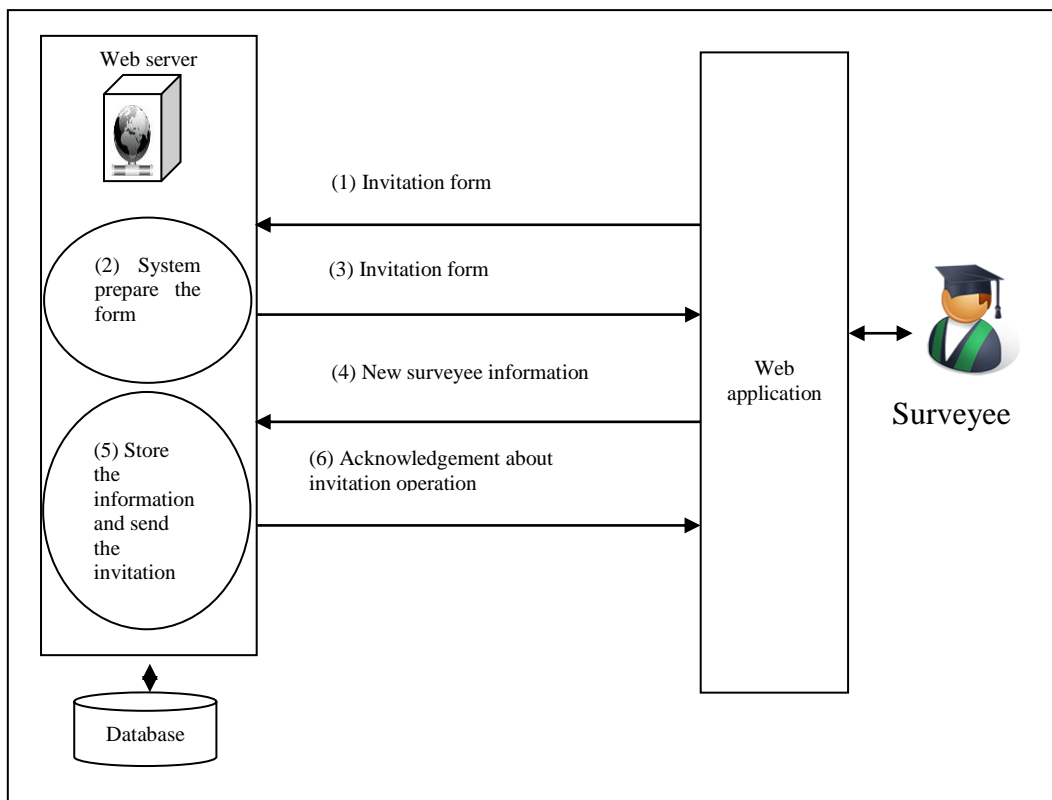


Figure 2.10: Surveyee invitation system.

Figure 2.11 exhibits the profile management section in the surveyee module. Profile management section lets the surveyee to update the personal information sorted in the database. Surveyee requests for profile update (Process 1). System prepares the profile update form (Process 2) and sends it to the surveyee (Process 3). Surveyee updates the existing information (name, second name, surname, e-mail address,

manager e-mail, new password, and address) and sends the updated information to the system (Process 4). System saves the new information retrieved on the existing record in database (Process 5). After completing the process, an acknowledgement message will be sent to the surveyee about the updated operation (Process 6).

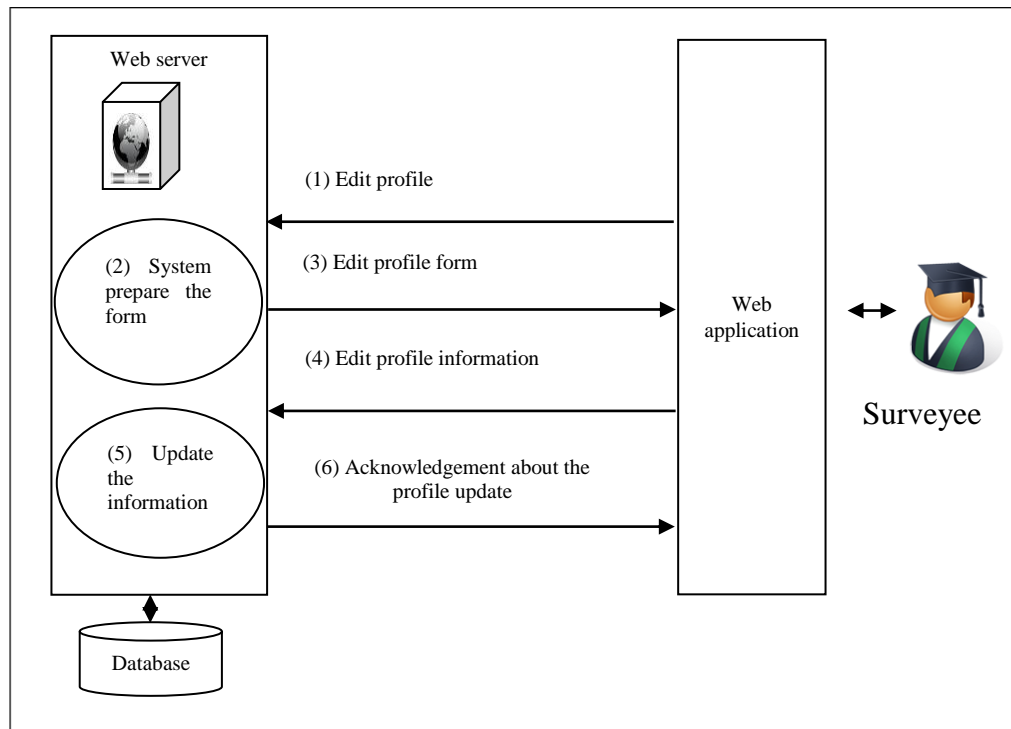


Figure 2.11: Surveyee profile management.

2.4 Surveyor Module:

The last section is called the surveyor section. Surveyor has control of the survey creation for certain category, edit the survey, activate the survey, review reports of the surveys and edit own profile.

Figure 2.12 and figure 2.13 exhibits the survey creation management section. In this section survey is created, edited, activated and lastly distributed.

Surveyor is able to use different type of questions (i.e. single choice (this question requires picking only one response), multiple choice (this question requires picking one or more response(s), and comment-box (this question requires the surveyee to enter his/her response as a text) in preparing the survey. Surveyor requests for survey creation (Process 1). System prepares the survey detail entry form (Process 2) and sends it to the surveyor (Process 3). By sending the detail entry form, the operation for survey creation will be started and this will be followed by some more processes. Surveyor enters the survey details (i.e. name, start date, and finish date) and submits it to the system (Process 4). The system stores the survey details to the database (Process 5) and sends single choice questions entry form to the surveyor (Process 6). Surveyor enters the questions with its related responses and submits it to the system with its order number (order number of question helps the surveyor to order the view of the question appearance. Surveyor can give a question order number or leave it as default order number. If two questions have the same order number the first written question will appear first) (Process 7). System stores the question to the database with its details (Process 8), and then sends an acknowledgement message about the stored questions to the database (Process 9). Surveyor requests for multiple choice questions entry form (Process 10). System prepares multiple choice questions entry form (Process 11) and sends it to the surveyor (Process 12). Surveyor enters the questions with its responses and submits it to the system (Process 13). System stores the questions with the responses into the database (Process 14) and sends an acknowledgement message about the insertion of the questions (Process 15). Surveyor requests for comment-box question entry form (process 16). System prepares the comment-box question entry form (Process 17) and sends it to the surveyor (Process 18). Surveyor enters the question and submits it to the system

(Process 19). System stores the question in the database (Process 20) and sends an acknowledgement message about the insertion of the question (Process 21). Surveyor can create piped question; piped question is the question which depends on the previous response of the surveyee to decide which question to display next. Skip logic is critical part of the survey system. Rotella and Chulani stated in their study that [4] surveyee gives the best result in first 15 minutes and after 15 minute the results becomes less reliable; therefore, skip logic helps to control time by skipping many unnecessary questions. Surveyor requests for piped-able question form (piped question is the original question which will have sub-question(s)) (Process 22). System prepares the piped-able question form (Process 23) and sends it to surveyor (Process 24). Surveyor chooses the piped question and request for response list of this question (Process 25). System creates the list of the piped-able question with the response (Process 26) and sends it to the surveyor (Process 27). Surveyor picks one of the responses and connects it to the pipe question (pipe question is the sub-question that belong to the piped question) (Process 28). The system stores the pipe question in the database and links it to the chosen response of the piped question (Process 29). An acknowledgement message will be sent about the question connection (Process 30). Surveyor can keep the survey inactive in the system. Surveyor can update inactive surveys. Surveyor requests for inactive surveys list (Process 31). System prepares the inactive surveys list (Process 32) and sends them to the surveyor (Process 33). Surveyor can request to update one of the available surveys (Process 34). The system prepares the chosen survey (Process 35) and sends it to the surveyor (Process 36). Surveyor submits the edit question (Process 37). System updates the question in the database (Process38) and sends an acknowledgement message to the surveyor about the updated question. Surveyor can

change the survey mode from inactive to active mode. Surveyor requests to change the surveys mode to active (Process 39), system adds the survey to the active surveys (Process 40) and sends an acknowledgement message to the surveyor about the addition (Process 41).

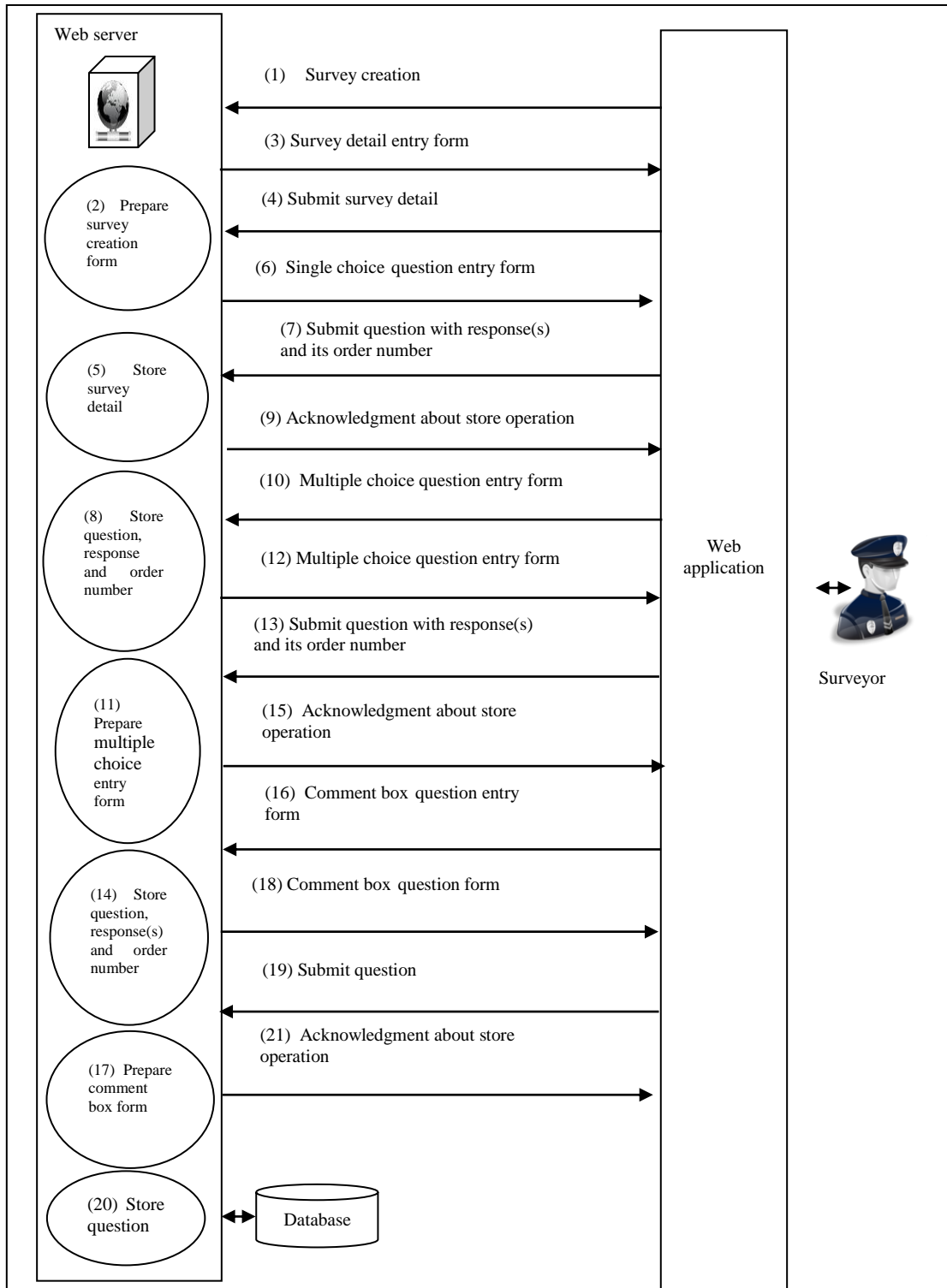


Figure 2.12: Survey creation management-part A.

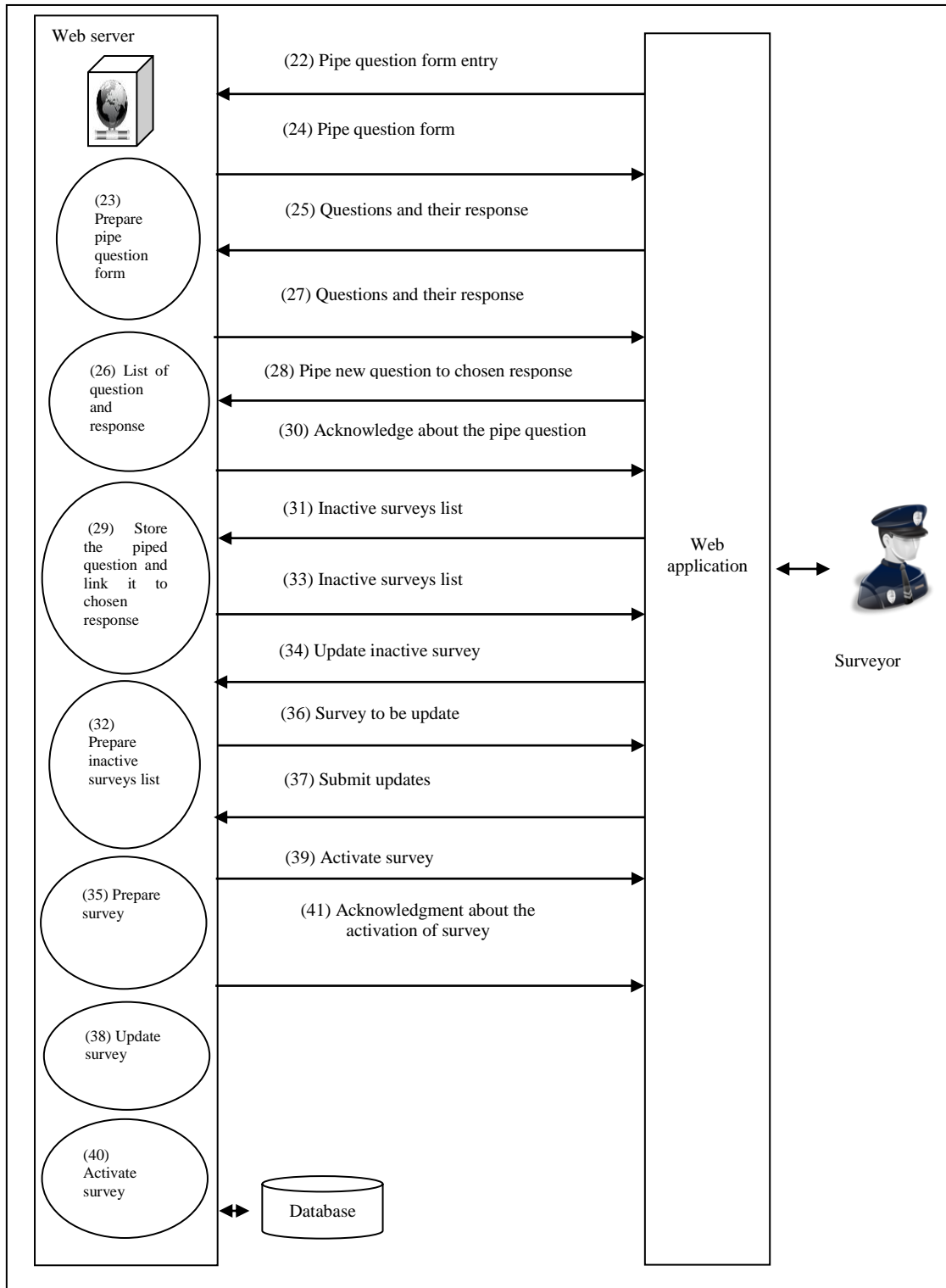


Figure 2.13: Survey creation management-part B.

In the figure 2.14 report review section in the surveyor module is demonstrated. The surveyor has the same options with the auditor. Surveyor requests for the list of active surveys (Process 1). System creates the active survey list (Process 2) and

sends the active survey list to the surveyor (Process 3). Surveyor can request to see the number of participants in the active survey. Surveyor requests the details of the participants (Process 4). System checks the database and finds out the number of the participants for the selected survey (Process 5), and this information is sent to the surveyor (Process 6). Surveyor is able to list the textual reports. Surveyor requests for textual report list (Process 7). System creates the report list (Process 8). The report list will be sent to the surveyor (Process 9). Surveyor is able to list the graphical reports. Surveyor requests for graphical report list (Process 10). System creates the graphical report list (Process 11). The graphical report list will be sent to the surveyor (Process 12). Surveyor is able to list the individualized reports. Surveyor requests for individualized report list (Process 13). System creates the individualized report list (Process 14). The individualized report list will be sent to the Surveyor (Process 15). Surveyor is able to download reports. Surveyor request for download reports (Process 16). System creates report for download (Process 17). Surveyor receives the report by downloading (Process 18).

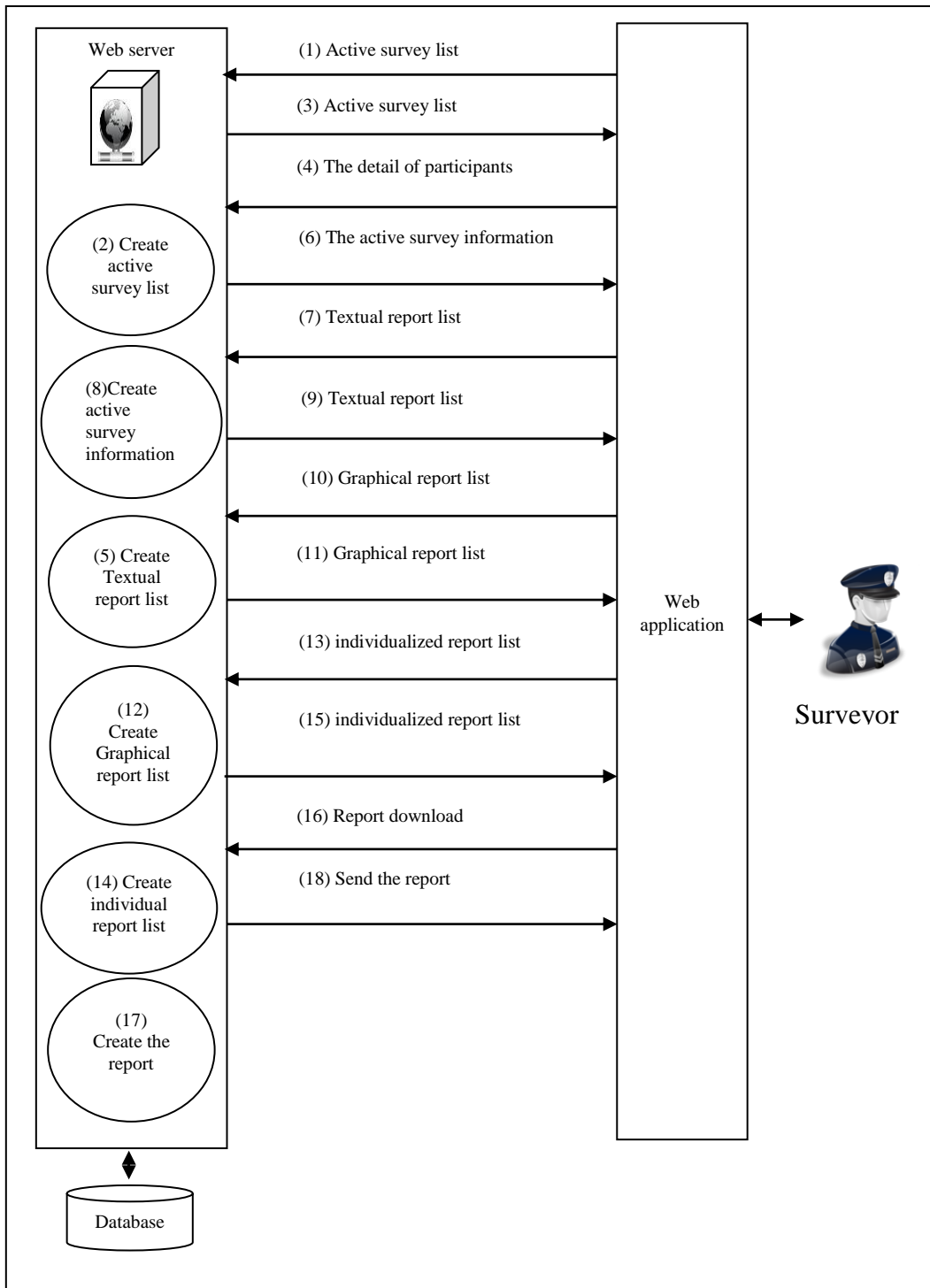


Figure 2.14: Surveyor report review section.

Figure 2.15 shows the profile management section in the surveyor module. Profile management section enables the surveyor to update the personal information in the database. Surveyor requests for profile update (Process 1). The system prepares the profile update entry form (Process 2), and sends it to the surveyor (Process 3).

Surveyor updates the existing information (name, second name, surname, e-mail address, manager e-mail address, new password, address), then the updated information will be sent to the system (Process 4). System saves the new information retrieved on the existing record in database (Process 5). An acknowledgement message will be sent to the surveyor about the updated operation (Process 6).

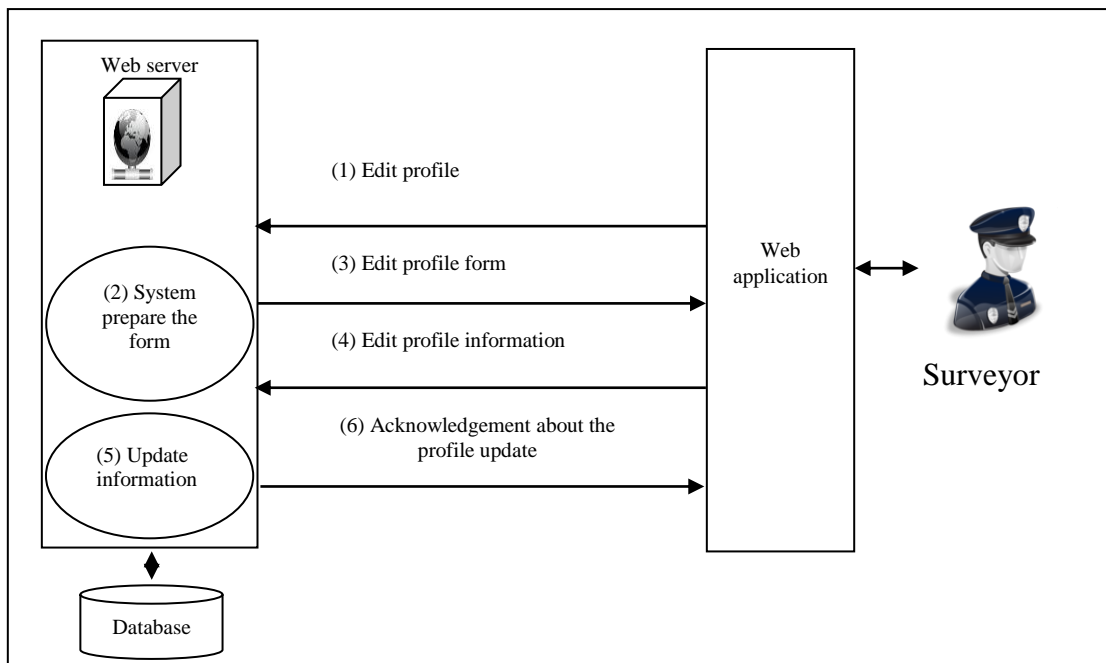


Figure 2.15: Surveyor profile management.

2.5 Use case modelling

The figure 2.16 represents the class diagram of the system. The system is built on 12 classes and they are the mechanism of the system:

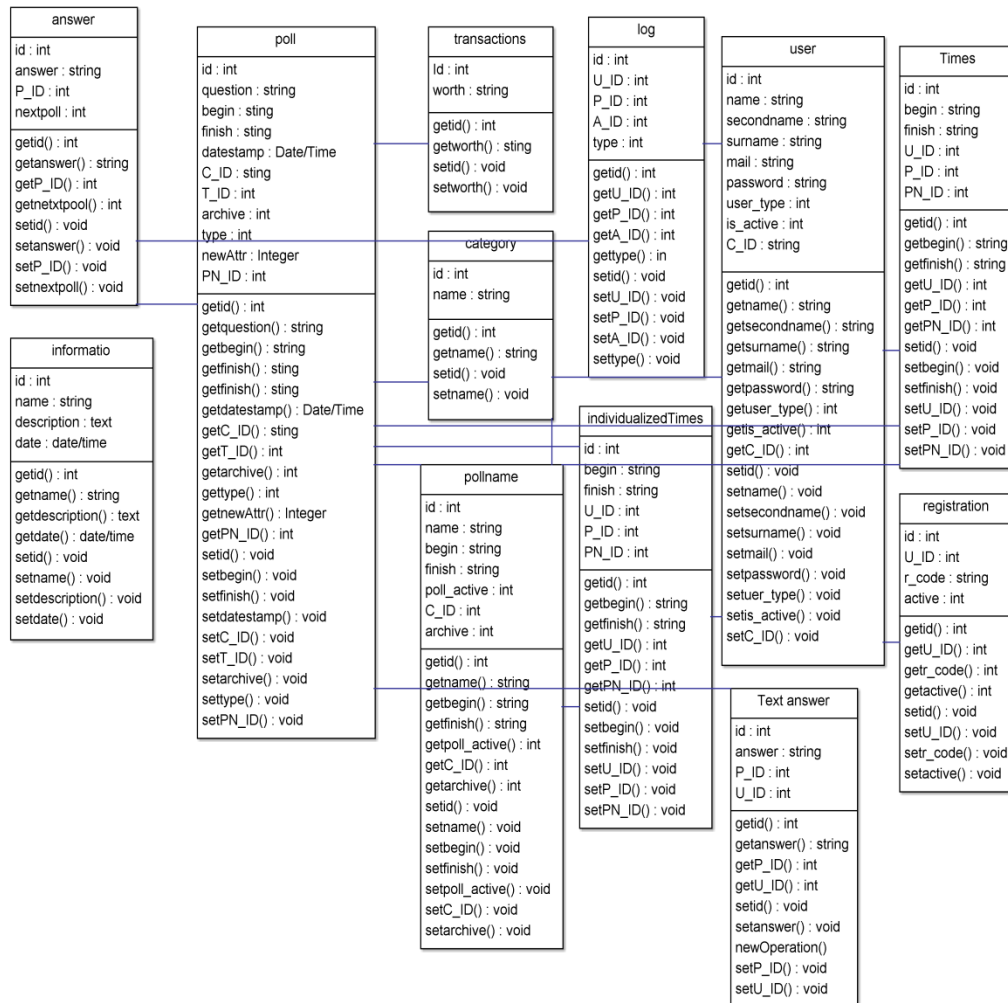


Figure 2.16: The class diagram of the survey system.

In sections 2.5.1, 2.5.2, 2.5.3 and 2.5.4 the system actor will be described respectively.

2.5.1 Administrator actor

- **Login and logout:** admin should login to the system and logout from the system.
- **Create news feed:** admin creates news feed in the login page of the system.
- **Create user:** admin is able to create a user; users can be surveyor, surveyee or auditor.
- **Approve user:** admin can approve or reject pending user request to join the system.
- **Edit user:** admin have full right to edit user information.
- **View report:** admin can view survey's report; admin is able to view report in monthly, semesterly or yearly manner.
- **View graphical report:** admin can view survey's graphical report; admin is able to view report in monthly, semesterly or yearly manner.
- **Download report:** admin can download survey's report; admin is able to download report in monthly, semesterly or yearly manner.
- **Create or edit category:** admin is responsible to create category and attach users to related category.
- **Add new admin:** admin is able to create a new admin to the system.
- **Edit profile:** admin have the right to edit own profile. .

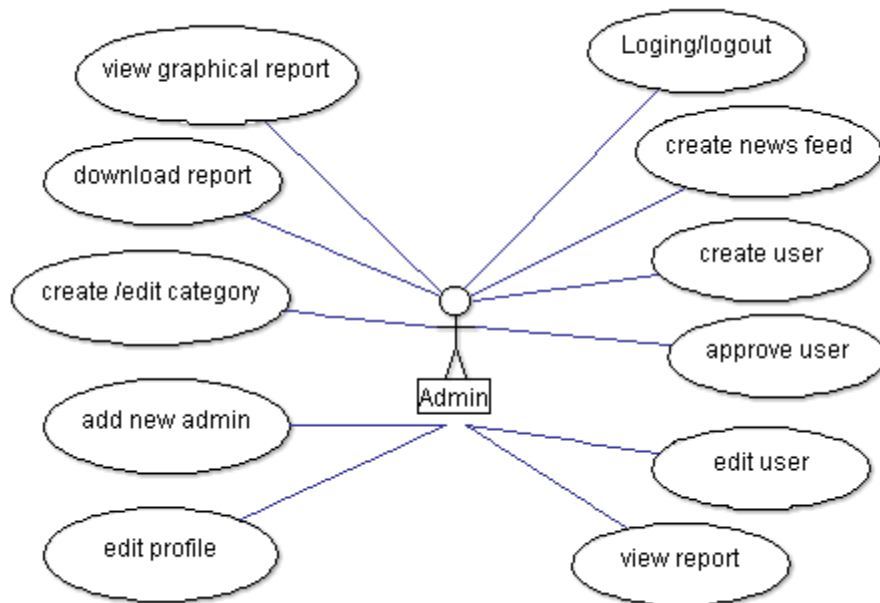


Figure 2.17: Admin actor.

2.5.2 Surveyor actor

Login and logout: surveyor should login to the system and logout from the system.

Create survey: surveyor creates survey to a specific category.

Edit survey: surveyor has the right to edit inactive surveys, or edit the name and the date for an active survey.

Active survey: surveyor has the right to create survey and activate it later on.

View report: surveyor can view survey's report which belongs to same category; surveyor is able to view in monthly, semesterly or yearly reports.

View graphical report: surveyor can view survey's graphical report which belongs to the same category; surveyor is able to view in monthly, semesterly or yearly reports.

Download report: surveyor can download survey's report which belongs to the same category; surveyor is able to download monthly, semesterly or yearly reports.

Edit profile: surveyor has the right to edit its own profile.

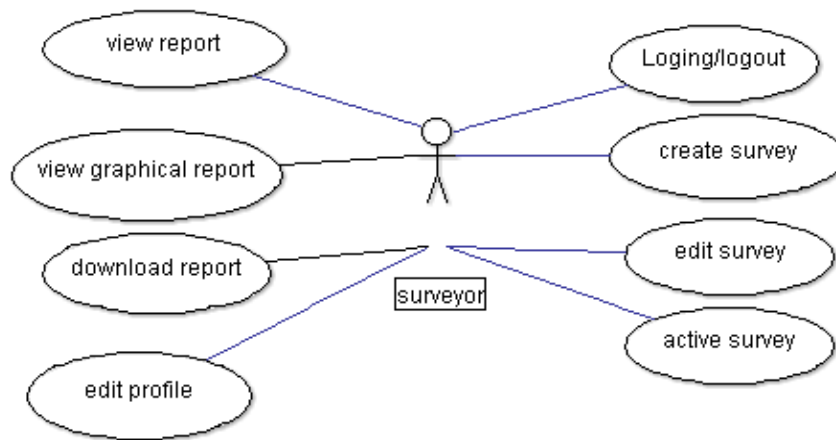


Figure 2.18: Surveyor actor.

2.5.3 Auditor actor

Login and logout: auditor should login to system and logout from the system.

View report: auditor can view survey's report; auditor is able to view report in monthly, semesterly or yearly manner.

View graphical report: auditor can view survey's graphical report; auditor is able to view report in monthly, semesterly or yearly manner.

Download report: auditor can download survey's report which belongs to the same category; auditor is able to download report in monthly, semesterly or yearly manner.

Edit profile: auditor has the right to edit its own profile.

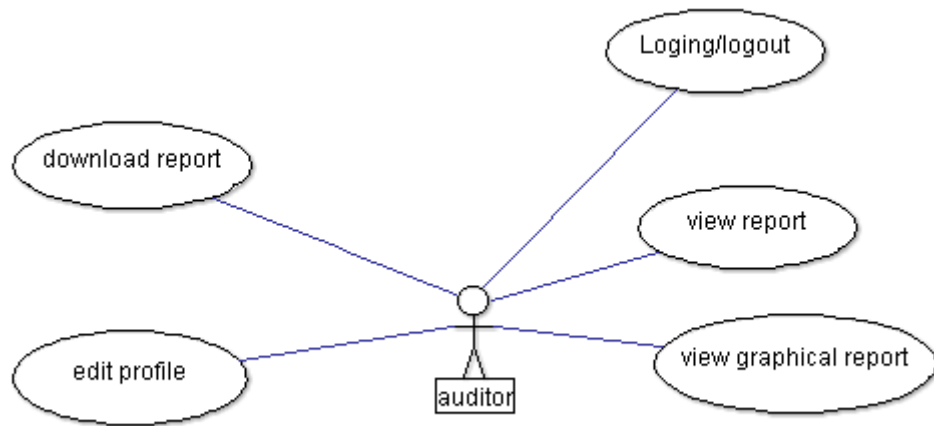


Figure 2.19: Auditor actor.

2.5.4 Surveyee actor

Login and logout: Surveyee should login to system and logout from the system

Fill Surveyee: Surveyee fills the related survey and submits it to the system.

View filled survey: Surveyee has the right to view the filled survey.

Invite member: Surveyee can invite new member(s) to the system by using an e-mail address.

Edit profile: surveyee has the right to edit its own profile.

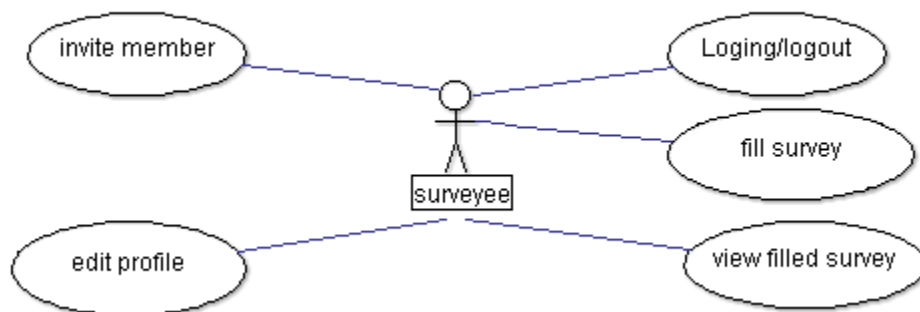


Figure 2.20: Auditor actor.

2.6 Database

Database is the data collection of the survey system. Database of the system is created by using MySQL via phpMyAdmin. The database stores all the information about all the users, surveys and the surveys reports. All the database tables with its relationships are shown in figure 2.21.

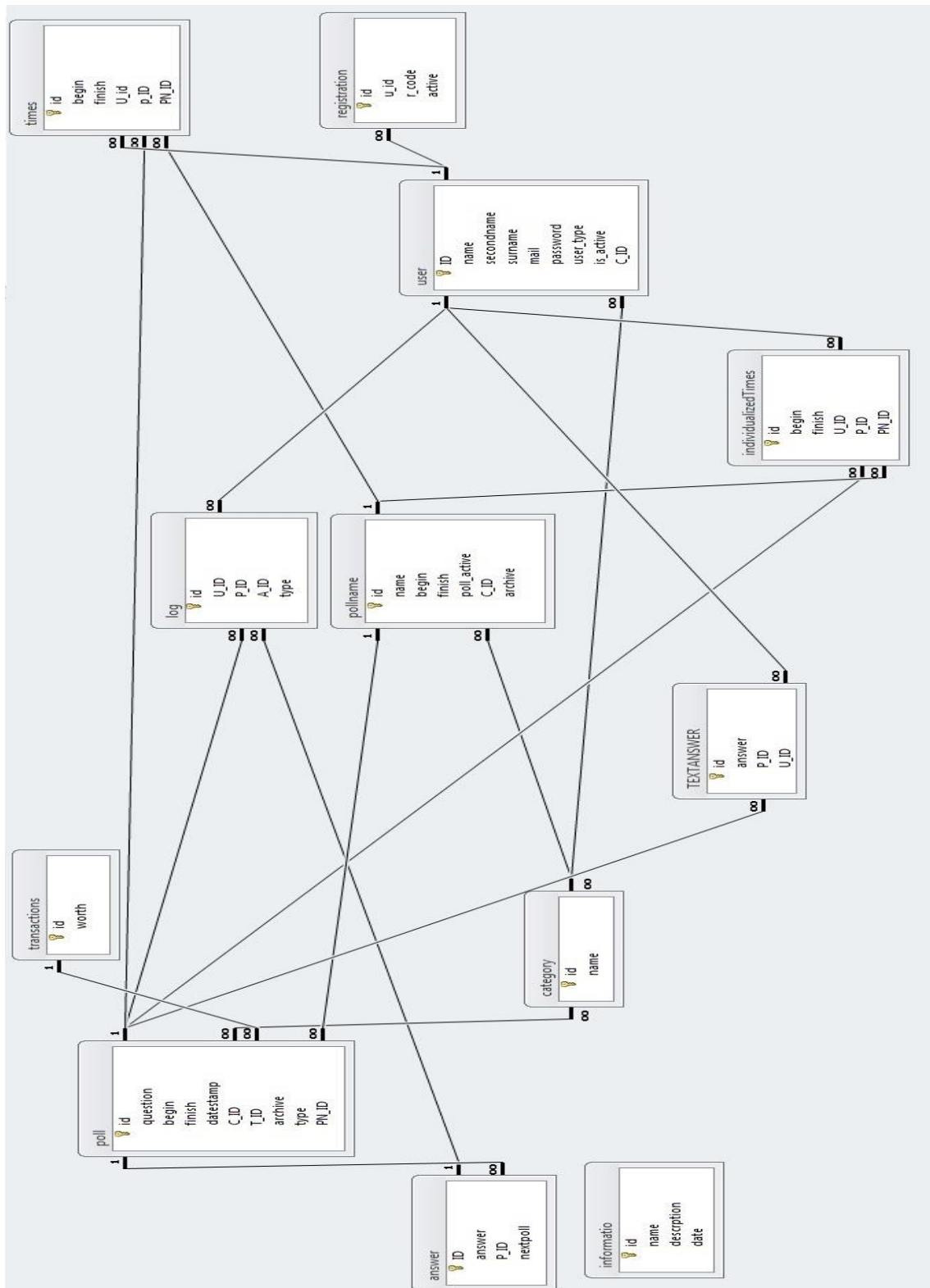


Figure 2.21: Entity Relationship diagram of the database.

‘poll’ table (Table 1) stores the survey’s data. The ‘id’ field is the primary key of the table and shows the record number. ‘question’ field stores question for the survey. ‘begin’ field stores the start date of the survey. ‘finish’ is the finish date of the survey and it has the same properties of ‘begin’ field. ‘datestamp’ field stores the exact time when survey is created and it is used to determine the survey’s archive section (i.e. monthly, semesterly or yearly). ‘Archive’ keeps the records of the survey when finish date occurs. The value 0 means that the survey is not archived while the value 1 means that the survey is archived. The ‘type’ shows the question types. The types are 0, 3, 4 and 1. The value 0 represents the single choice question , the value 3 represents multiple choice questions, the value 4 represents the text-box questions and the value ‘1’ represents the feature type of question (pipe question). ‘Sortbys’ stores the order number of the question. The field ‘C_ID’ of ‘poll’ table is the foreign key for the ‘ID’ field of the ‘category’ table. The relationship between these fields is many-to-many. The field ‘T_ID’ of ‘poll’ table is foreign key for the field ‘ID’ of ‘transaction’ table. The relationship between these fields is many to one-to-many. The field ‘PN_ID’ of ‘poll’ table is foreign key for the field ‘ID’ of ‘pollname’ table. The relationship between these fields is many to many-to-one.

Table 1. “poll” table

Poll		
	Field name	Data type
Primary key	Id	Int(11)
	question	Varchar(255)
	begin	Varchar(255)
	finish	Varchar(255)
	datestamp	Date/Time
Foreign key	C_ID	Int(11)
Foreign key	T_ID	Int(11)
	Archive	Int(1)
	Type	Int(1)
Foreign key	PN_ID	Int(11)
	Sortbys	Int(11)

‘user’ table (Table 2) keeps all the information related with the user. The ‘id’ field is the primary key of the table and shows record number. The ‘name’ field stores user the first name of the user. The ‘secondname’ stores the user’s second name. And it’s optional to fill it or leave it blank. The ‘surname’ field stores the surname of the user. ‘Address’ field stores user address. ‘mail’ field store user e-mail. ‘exmail’ field stores user manager e-mail. ‘password’ field stores user password. ‘user_type’ field stores user type and have the values 1, 2, 3 and 4. The value 1 represents the administrator user, the value 2 represents the surveyor user, the value 3 represents the surveyee user and the value 4 represents the auditor user. ‘is_active’ stores the user statue which is 0 or 1. The value 0 represents the inactive users while the value 1 represents the active users. The ‘C_ID’ field of ‘user’ table is a foreign key for the ‘ID’ field of the ‘category’ table. The relationship between these two fields is many-to-many.

Table 2. “user” table

User		
	Field name	Data type
Primary key	Id	Int
	name	Varchar(40)
	secondname	Varchar(255)
	surname	Varchar(40)
	address	Varchar(255)
	mail	Varchar(80)
	exmail	Varchar(80)
	password	Varchar(80)
	user_type	Int(1)
	is_active	Int(1)
Foreign key	C_ID	Varchar(255)

‘registration’ table (Table 3) keeps information about the user and its registration status. The ‘id’ field is the primary key of the table and shows record number.

‘R_code’ field stores the unique code which is sent to user by an e-mail. ‘Active’ field stores the statue of the user and can have the values 0 or 1. The value 0 shows that the user did not activate his/her account. The value 1 shows that user has activated his/her account. The field ‘U_ID’ of ‘registration’ table is the foreign key for the field ‘ID’ of ‘category’ table. The relationship between these two fields is many-to-one.

Table 3. “registration” table

Registration		
	Field name	Data type
Primary key	Id	Int(11)
Foreign key	U_ID	Int(11)
	R_code	Varchar(255)
	Active	Int(1)

‘times’ table (Table 4) deals with the times spent to fill the survey. The ‘id’ field is the primary key of the table and shows record number. ‘begin’ field stores the start time of filling the question. ‘finish’ is the finish time of filing the question. The field ‘U_ID’ of ‘times’ table is the foreign key for the field ‘ID’ of ‘user’ table. The relationship between these two fields is many to one. The field ‘P_ID’ of ‘times’ table is the foreign key for the field ‘ID’ of ‘poll’ table. The relationship between these two fields is many to one. The field ‘PN_ID’ of ‘times’ table is the foreign key for the field ‘ID’ of ‘pollname’ table. The relationship between these two fields is many-to-one.

Table 4. “times” table

Times		
	Field name	Data type
Primary key	Id	Int(11)
	Begin	Varchar(255)
	Finish	Varchar(255)
Foreign key	U_ID	Int(11)
Foreign key	P_ID	Int(11)
Foreign key	PN_ID	Int(11)

‘informatio’ table (Table 5) keeps information about the news feed of the system. The ‘id’ field is the primary key of the table and shows record number. The ‘name’ field keeps information about the names of the news. The ‘description’ field keeps the news feed. The ‘date’ field keeps the creation date of the news feed.

Table 5. “Informatio” table

Informatio		
	Field name	Data type
Primary key	Id	Int(11)
	Name	Varchar(255)
	Description	Text
	Date	Date/Time

‘transactions’ table (Table 6) keeps tracks of the transaction that happens in the poll table. The ‘id’ field is the primary key of the table and shows record number. The field ‘P_ID’ of ‘transactions’ table is the foreign key for the field ‘ID’ of ‘poll’ table. The relationship between these two fields is one-to-many.

Table 6. “transactions” table

Transactions		
	Field name	Data type
Primary key	Id	Int(11)
	Worth	Varchar(11)

‘Individualized times’ table (Table 7) keeps information about the individual record of the time for the surveyee. The ‘id’ field is the primary key of the table and shows the record number. ‘begin’ field stores the start time of the question. ‘finish’ is the finish time of the question. The field ‘U_ID’ of ‘individualized Times’ table is the foreign key for the field ‘ID’ of ‘user’ table. The relationship between these two fields is many to one. The field ‘P_ID’ of ‘individualizedTimes’ table is the foreign key for the field ‘ID’ of ‘poll’ table. The relationship between these two fields is many-to-one. The field ‘PN_ID’ of ‘individualizedTimes’ table is the foreign key for the field ‘ID’ of the ‘pollname’ table. The relationship between these two fields is many-to-one.

Table 7. “IndividualizedTimes” table

individualizedTimes		
	Field name	Data type
Primary key	Id	Int(11)
	Begin	Varchar(255)
	Finish	Varchar(255)
Foreign key	U_ID	Int(11)
Foreign key	P_ID	Int(11)
Foreign key	PN_ID	Int(11)

‘textanswer’ table (Table 8) stores the text type questions. ‘id’ field is the primary key of the table and shows record number. ‘answer’ field stores the answers of the question. The field ‘P_ID’ of ‘textanswer’ table is the foreign key for the field ‘ID’ of ‘poll’ table. The relationship between these two fields is many to one. The field ‘U_ID’ of ‘textanswer’ table is the foreign key for the field ‘ID’ of ‘user’ table. The relationship between these two fields is many-to-one.

Table 8. “textanswer” table

textanswer		
	Field name	Data type
Primary key	id	Int(11)
	answer	Varchar(255)
Foreign key	P_ID	Int(11)
Foreign key	U_ID	Int(11)

‘Log’ table (Table 9) creates the individualized reports. ‘id’ field is the primary key of the table and shows record number. ‘Type’ field stores the type of the question. The field ‘U_ID’ of ‘log’ table is the foreign key for the field ‘ID’ of ‘user’ table. The relationship between these two fields is many to one. The field ‘P_ID’ of ‘log’ table is the foreign key for the field ‘ID’ of ‘log’ table. The relationship between these two fields is many-to-one. The field ‘A_ID’ of ‘log’ table is the foreign key for the field ‘ID’ of ‘answer’ table. The relationship between these two fields is many-to-one.

Table 9. “log” table

Log		
	Field name	Data type
Primary key	Id	Int(11)
Foreign key	U_ID	Int(11)
Foreign key	P_ID	Int(11)
Foreign key	A_ID	Int(11)
	Type	Int(11)

‘pollname’ table (Table 10) stores the information of the surveys. ‘id’ field is the primary key of the table and shows record number. ‘name’ field stores the name of the surveys. ‘begin’ field stores the start date of the surveys. ‘finish’ is the finish date of the surveys. ‘Poll_active’ field stores the statue of the surveys and can have the values from 0 and 1. The value ‘0’ shows that the survey is inactive while the value ‘1’ shows that the survey is active. ‘Archive’ shows the survey’s statue. The value

'0' means that the survey is not archived while the value '1' means that the survey is archived. The field 'C_ID' of 'pollname' table is the foreign key for the field 'ID' of 'category' table. The relationship between these two fields is many-to-many.

Table 10. "pollname" table

Pollname		
	Field name	Data type
Primary key	Id	Int(11)
	Name	Varchar(255)
	Begin	Varchar(255)
	Finish	Varchar(255)
	Poll_active	Int(1)
Foreign key	C_ID	Int(11)
	Archive	Int(1)

'Category' table (Table 11) keeps information about the user's category. 'Id' field is the primary key of the table and shows record number. 'name' field stores the name of the category.

Table 11. "category" table

category		
	Field name	Data type
Primary key	id	Int(11)
	Name	Varchar(255)

'answer' table (table 12) is the table where the information about the answers of the question are stored. 'id' field is the primary key of the table. 'answer' field stores the answers of the question. The field 'P_ID' of 'answer' table is the foreign key for the field 'ID' of the 'poll' table. The relationship between these two fields is many to one. The field 'nextpoll' of 'poll' table is the foreign key for the field 'ID' of 'poll' table. The relationship between these two fields is many-to-one.

Table 12. “answer” table

Answer		
	Field name	Data type
Primary key	Id	Int(11)
	Answer	Varchar(255)
Foreign key	P_ID	Int(11)
	Nextpoll	Int(11)

Chapter 3

IMPLEMENTATION

In this chapter, information about the essential tools is used to build the system, and the technical documents of the system.

3.1 Essential tools used

The application of our system is built by using state-of-the-art tools which are described below.

3.1.2 Hypertext Preprocessor (PHP)

PHP is a server-side scripting language for developing Web developments. PHP is famous general-purpose is scripting which helps to create all type of Web sites from simplest to the most complex and the main characteristics of PHP are familiarity, simplicity, efficiency, security and flexibility [5]. PHP's structure and rules are very consistent and clear. Most of the language's rules are taken from the Perl, Java and C, thus programmers faces with no difficulties in learning or using PHP [6].

3.1.3 Cascading Style Sheets (CSS)

CSS is the language of design which determines the form of an HTML document. CSS is responsible of fonts, colors, margins, width, height, the site background image, how to distribute the spaces and many other things. Using CSS requires knowledge about the basics of the HTML. The difference between HTML and CSS is that HTML is used to develop the structural and logical contents of the system, while CSS is used to add design for the content. CSS can save a lot of time in Web

design in a completely new way [7]. CSS's characteristic provides benefit in design control. And these controls through a single file [7].

3.1.4 JavaScript

JavaScript is a client-side programming which is developed by the company called Netscape in order to add specifications to make the Web page more dynamic and interactive. For instance JavaScript adds a stopwatch, an impressive graphic or certain effect on mouse movement. JavaScript does not require any compiling [8]. JavaScript codes are embedded within the code of HTML and are shown by the browsing program. Therefore, they do not need any additional files such as applets to perform its operation [8]. JavaScript became a standardization of the European Union for computer manufacturers [9].

3.1.5 JQuery

jQuery is a popular software library for JavaScript. The users, who used JavaScript before, know the advent of jQuery very well. jQuery has greatly facilitated dealing with the elements of the HTML pages [10]. Some of the advantages of jQuery are as follows:

- Easier and faster than the use of JavaScript [10].
- Decrease the effort of writing many codes for compatibility with all browsers [10].
- Provide an easy method to move elements of the HTML pages. This helps to improve the interactive applications [10].
- Facilitated the exchange of data through the development of special tools for Ajax [10].

3.1.6 MySQL

MySQL is the world's number one database for Web-based applications and most of the popular Web sites like Facebook, Twitter, LinkedIn, Yahoo! and Amazon uses MySQL [11]. MySQL is open source database which is available on the most platforms like Linux, Microsoft Windows, Oracle Solaris, Apple Mac OS, FreeBSD and some of the advantages of the MySQL are as follows: secure, inexpensive, fast, it manages memory very well , supports Novell Cluster Services, runs on many operating systems and supports several development interfaces [11].

3.1.7 Cron Job

Cron job is an effective tool which runs automatically without user intervention through the scheduled tasks on specific implementation and repetition of any code on every hour, every day or any period of time. The basic task of the cron is execute which takes place at specific times on server and cron job is a series of tasks (codes) executed from a script file [12]. An example for Cron job is; execute a command to empty temp folder automatically every week [12].

3.2 The Survey System Application

This survey system is implemented based on four sections “Administration”, “Surveyor”, “Auditor” and “Surveyee” and it is easy-to-use and handheld-computer-friendly interface. These sections all together act accordingly in order to provide a complete system.

The home page is the common page for the administrator, surveyor, surveyee and auditor for entrance to the system. The home page is comprised of the “login section”, “News Feed”, “Password recovery” form and “Registration” as shown in figure 3.1 this will be explained below.

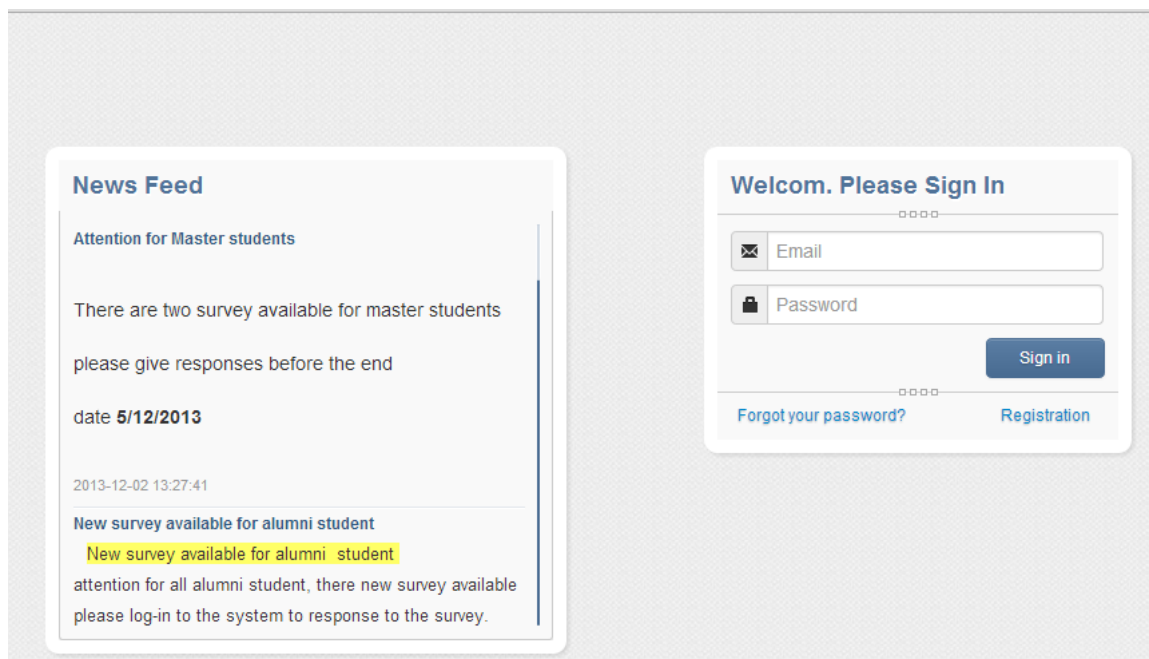


Figure 3.1: Home page.

“News Feed” allows the administrator to send information (news and updates) to the home page of the Web site. It is a must for all the users (administrator, surveyor, surveyee and auditor) to enter his/her e-mail and password in order to login to the system. If a user loses his/her password, he/she can use “Forgot your password?” as

shown in figure 3.1. To request log-in information, user must enter his/her e-mail address then click on to “Send request” as shown in figure 3.2 and he/she will receive the log-in information with an e-mail.

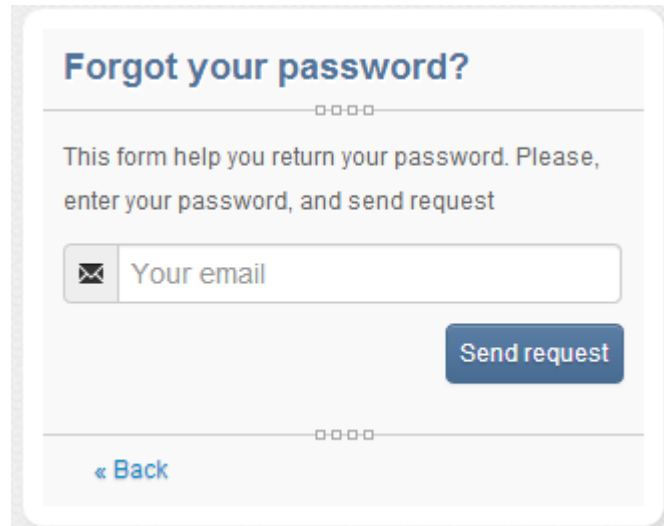


Figure 3.2: Recovering Password.

New surveyee who would like to register to the system can register itself by clicking on the “Registration” link as shown in figure 3.1. Surveyee should fill the required information (i.e. name, surname, category, password and e-mail) and then click on to “Register” button as shown in figure 3.3. After that, user should verify his/her e-mail address by clicking on the link that already is sent to his/her e-mail. After user verifies his/her e-mail the registration procedure will need to be approved by the administrator in order to give the privilege to surveyee for using the system. The user approving will be explained in detail in the administrator section.

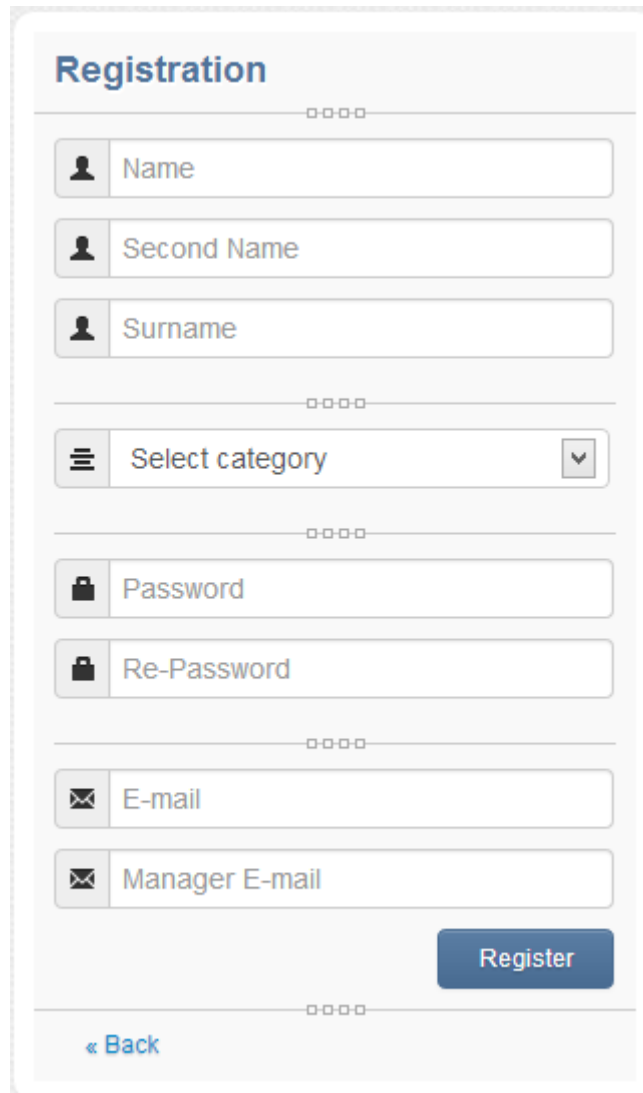
The image shows a registration form titled "Registration" in a light blue header. Below the title, there are four horizontal dividers, each consisting of a line of four small squares. The form contains several input fields: three for names ("Name", "Second Name", "Surname") each with a person icon; a dropdown menu for "Select category" with a hamburger menu icon and a downward arrow; two for passwords ("Password", "Re-Password") each with a lock icon; and two for email addresses ("E-mail", "Manager E-mail") each with an envelope icon. A blue "Register" button is positioned to the right of the "Manager E-mail" field. At the bottom left, there is a blue link labeled "« Back".

Figure 3.3: Registration form.

After user successfully log-in to the system, he/she will be redirected to the correspond panel (i.e. administration panel, auditor panel, surveyee panel and surveyor panel). Each panel will be explained in detail in the following section.

3.2.1 Administrator section

Administrator is responsible of the user management (approve pending registration, create user and edit user information) and monitoring reports. The first page after the administrator completes his/her log-in is the “admin panel”. As shown in figure 4.4, the administrator panel contains the menu bar which has all the component of the system and the shortcut menu for the frequently used item(s) in the system, with big

sized icons to make it easier and faster to access the most frequently item(s) of the administrator panel.

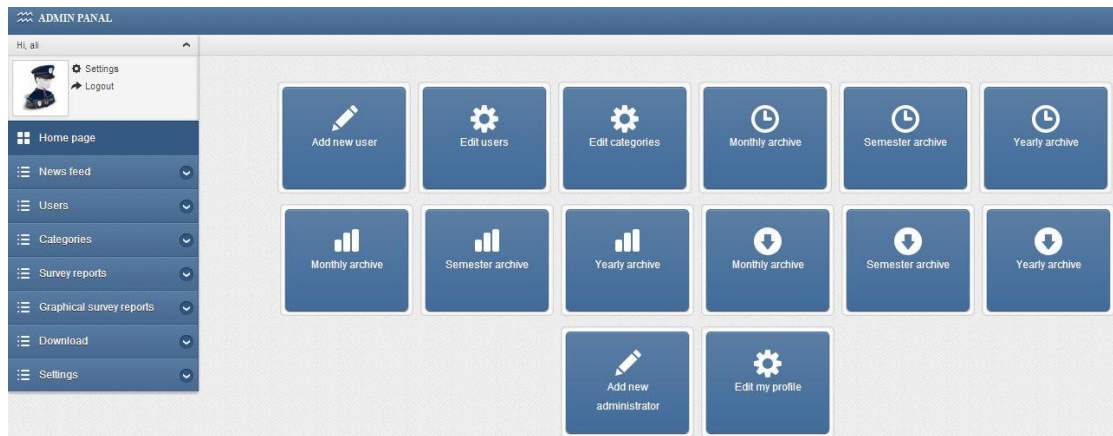


Figure: 3.4 Administrator home page

The graphical user interface of the system is designed as handheld-computer-friendly. The home page of the administrator in handheld-computer hides the menu bar according to the resolution of the handheld-computer. The “handheld-computer-friendly menu” creates a shortcut for the frequent used items in the system for an easy and a fast access as shown in figure 3.5. The handheld-computer snapshot was taken by using an iPad 2 (9.5 inch) with iOS 7’s Safari Web browser.

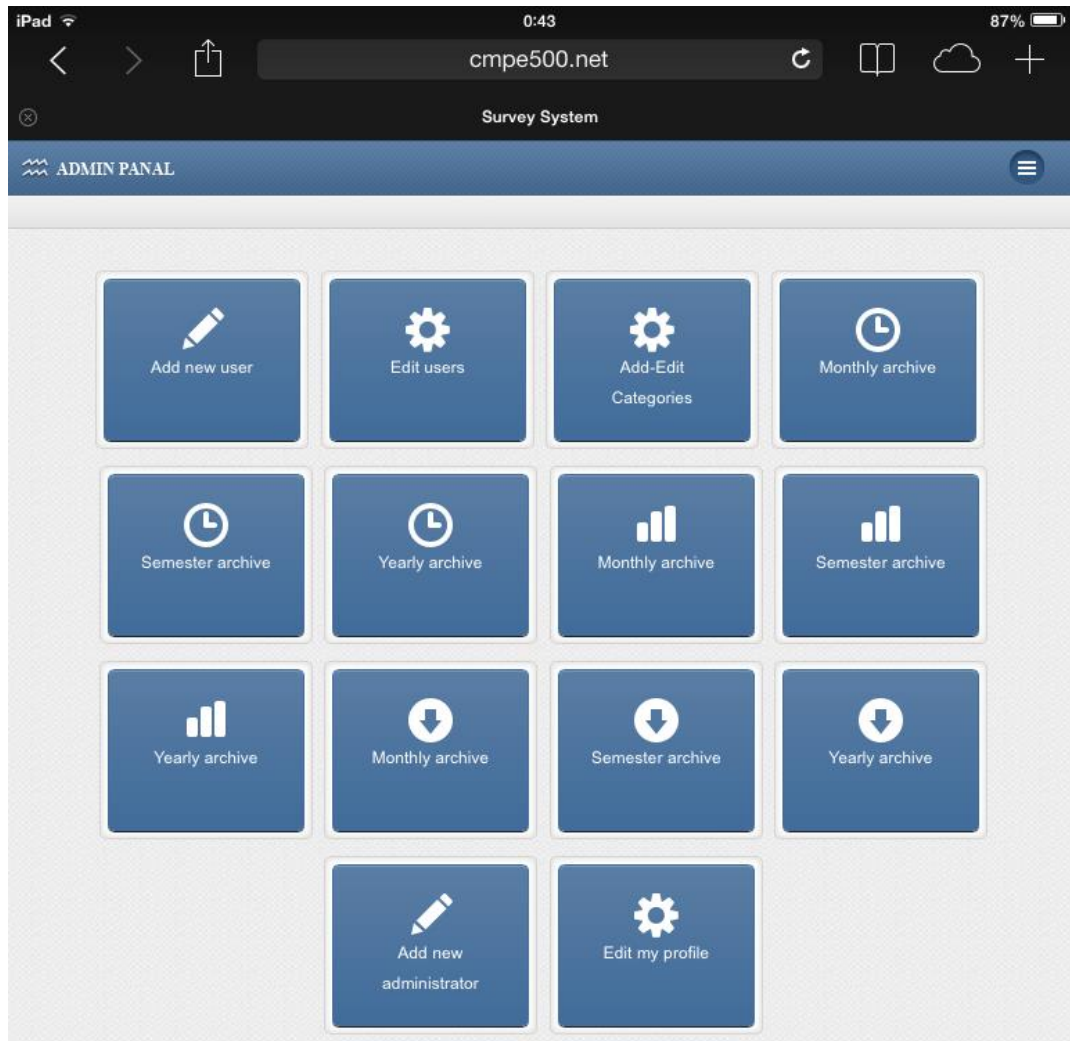


Figure 3.5: Administrator handheld-computer-friendly menu


The main bar contains all the components of the system, administrator can access to the main bar by clicking on the top-right icon () as shown in figure 4.6



Figure 3.6: Administrator handheld-computer-friendly bar

The menu bar which is shown in figure 3.7 has all the component of the system. The administrator menu bar items are composed of “home page”, “News feed”, “Users”, “Categories”, “Survey reports”, “Graphical survey reports”, “download” and “Settings” which will be explained in the following sections.

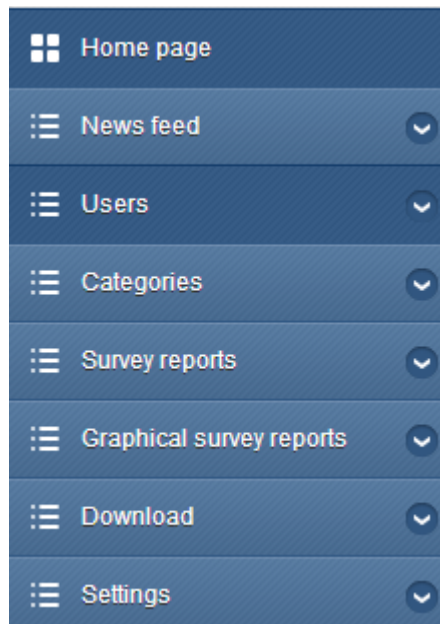


Figure 3.7: The administrator menu bar

3.2.1.1 “Home page”

The first item of the menu bar is the “home page”, which redirects the administrator to the home page of the administrator panel which is shown in figure 3.4.

3.2.1.2 “News Feed”

The second item of the menu bar is the “News feed”. Administrator can attach information (news and updates) to the home page of the Web site as it is shown in figure 3.8. This item is consist of two parts “Add New News Feed” and “Delete News Feed” which will be explained in the following section.

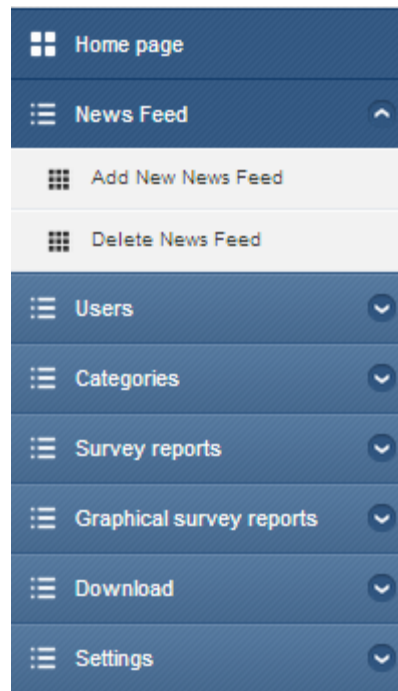


Figure 3.8: News feed management

3.2.1.2.1 “Add New News Feed”

The first part of the “News Feed” is “Add New News feed” that allows the administrator to create a new “News Feed”. By clicking on to “Add New News Feed”, the administrator will be directed to the writing page. As it is shown in figure 3.9 this item has three parts: The first part is the title part where administrator creates a title for the news feed; the second is the description part where the administrator enters all the information needed to be stored in the news feed; lastly, is the editing tools (the administrator can use this section to organize the text size, color, style and other related text design). After filling the necessary information, administrator must click on the add button to add the new news feed to the system and redirect the administrator to the home page.

Add New News Feed

Title:


Description:

B I U abc x, x' T rT HI T [Rich Text Editor Icons]

New survey available for alumni student
 attention for all alumni student, there new survey available please log-in to the system to response to the survey.

Figure 3.9: News feed writing page

3.2.1.2.2 “Delete News Feed”

The second part of the “News Feed” item is “Delete News Feed”. As figure 3.8 shows, by clicking on “Delete News Feed”, list of available news feed will be displayed as shown in figure 3.10. Administrator can click on the delete icon () in order to a news feed.



ID	News Feed	Delete
4	New survey available for alumni student	
6	Attention for Master students	

Figure 3.10: New feed deletion

3.2.1.3 “Users”

The third item of the menu bar is the “Users”. As shown in figure 3.11, in “Users” item, the administrator is allowed to “Add new user”, “Pending Approval surveyee”, “Edit users” and “Send E-mail to users” which this will be explained in the following sections.

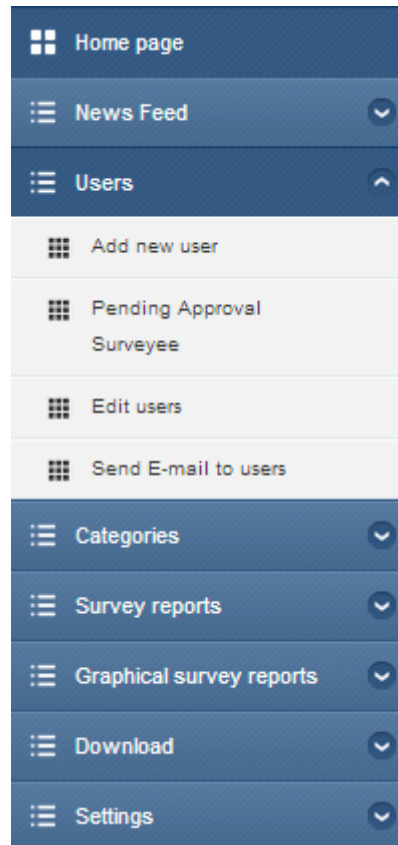


Figure 3.11: Users

3.2.1.3.1 “Add new users”

The first part of the “Users” item is the “Add new user”. “Add new user” allows the administrator to create a new user (i.e. surveyee, surveyor or auditor). As shown in figure 3.12, the administrator need to fill the “user creation form” (i.e. user type, name, second name, surname, address, Category, E-mail, managers E-mail, and password) and then click on the add button to add the new user to the system.

Info!
 If the user you are creating survey auditor, There is no need to choose category .

Add new user

User type:	<input type="text" value="SURVEYEE"/>
Name:	<input type="text"/>
Second name:	<input type="text"/>
Surname:	<input type="text"/>
Address:	<input style="height: 40px;" type="text"/>
Category:	<input type="text" value="Select Category..."/>
E-mail address:	<input type="text"/>
Secondary E-mail :	<input type="text"/>
Password:	<input type="text"/>

Figure 3.12: user creation form.

3.2.1.3.2 “Approve pending surveyee”

If surveyee requests to register his/her self to the system through the registration form he/she will not be able to use the system until the administrator approves his/her registration. Administrator is able to know the number of registration approval waiting on the home page as shown in figure 3.4. Administrator should click on “approve pending surveyee” to open a window for confirming the registration of the pending surveyee as shown in figure 3.13. Administrator should click on the confirm icon (✓) to give the privilege to the surveyee of using the system. Administrator can click on the delete icon (✗) to cancel the user registration request.



Pending Approval Surveyee				
Show <input type="text" value="5"/> entries		Search: <input type="text"/>		
ID	Full Name	E-mail	Categories	Actions
12	Ahmed Kasapbashi	a.kasapbashi@live.com	Master	✓ ✕
21	muhammed Alobaidi	115088@students.emu.edu.tr	Master	✓ ✕





Showing 1 to 2 of 2 entries

First Previous 1 Next Last

Figure 3.13: User approval

3.2.1.3.3 “Edit user”

Administrator can delete or edit the information of the user. To delete a user administrator can click on the delete icon () as shown in figure 3.14. To edit user information, administrator can click on the edit icon () as shown in figure 3.15. The list of user information will be displayed to the administrator to edit any field then click the edit button to store the new information and redirect the administrator to the administrator panel.

Add user				
Edit users				
Show <input type="text" value="5"/> entries		Search: <input type="text"/>		
ID	Full Name	User Type	Edit	Delete
7	ali abduljabar alfaisal	Student		
8	ali abdulnasser abduljabar	Student		

Showing 1 to 5 of 9 entries

First Previous 1 2 Next Last

Figure 3.14: Users management

Info!
Keep password empty if you don't wish to change it

Edit users

Name:

Second name:

Surname:

Categories:

E-mail address:

Password:

Figure 3.15: edit user

3.2.1.3.4 “Send E-mail to users”

The last part of the “user” item is “Send E-mail to users” as shown in figure 3.11. By clicking on the “Send E-mail to users”, the e-mail forms will open to allow the administrator to send e-mail to all the users as shown in figure 3.16. This item has three parts: The first part is the title part where administrator creates a title for the e-mail; second part is the description part where administrator enters all the information that is needed to be sending to the users; lastly, is the editing tools; in this part the administrator can use this section to organize the text size, color, style and other related text designs. After filling the necessary information, administrator must click on the send button to send the e-mail to the users and redirect administrator to home page.

Send E-mail to users

Title:

Description:

B *I* U abc x_2 x^2 T- rT- H1- T-

Send

Figure 3.16: E-mail sending page

3.2.1.4 “Categories”

The next item is “Category” as shown in figure 3.17. Surveyee is grouped in one category (Master, Alumni, etc.) In one category surveyee practices same surveys.

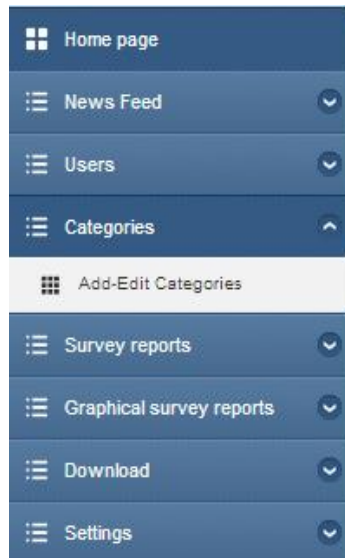


Figure 3.17 categories

By clicking on “Categories” administrator will have the option to “Add-Edit Categories” as shown in figure 3.18. Administrator can enter a new category name and by clicking on the “add” button can create a new category.

📄 Add new Categories

Category name:

Add

🗪 Add-Edit Categories

Show 5 entries Search:

ID	Category name	Edit	Delete
2	almuni		
1	MASTER		

Showing 1 to 2 of 2 entries
First
Previous
1
Next
Last

Figure 3.18: Category management

Administrator can delete a category by clicking on the delete button as shown in figure 3.18. To edit a category, administrator can click on the edit button as shown in figure 3.18. Then edit the name of the category and click on to “Edit” to update name in database record shown in figure 3.19.

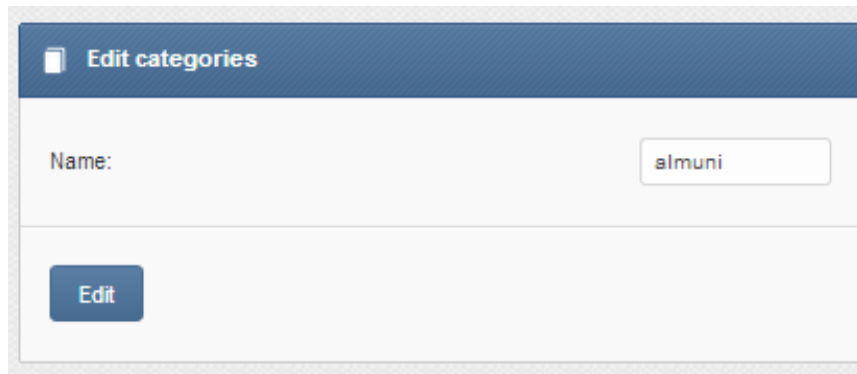


Figure 3.19: Category edit

3.2.1.5 Survey reports

Administrator is able to view all the types of reports this will be explained in detail in the auditor section.

3.2.1.6 “Settings”

The “Setting” item allows the administrator to “add new administrator” and “Edit my profile” as shown in figure 3.20 which will be explained in the following sections.

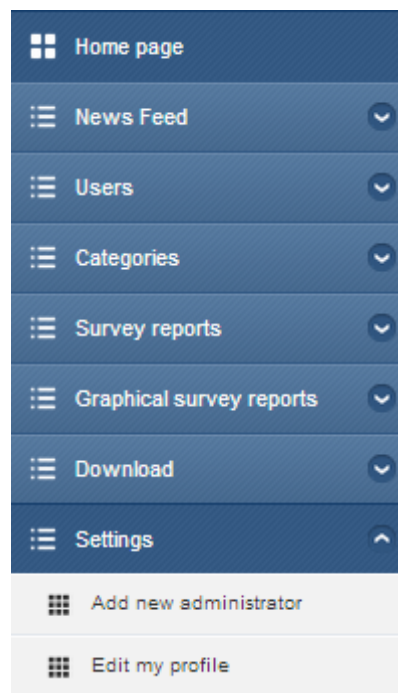
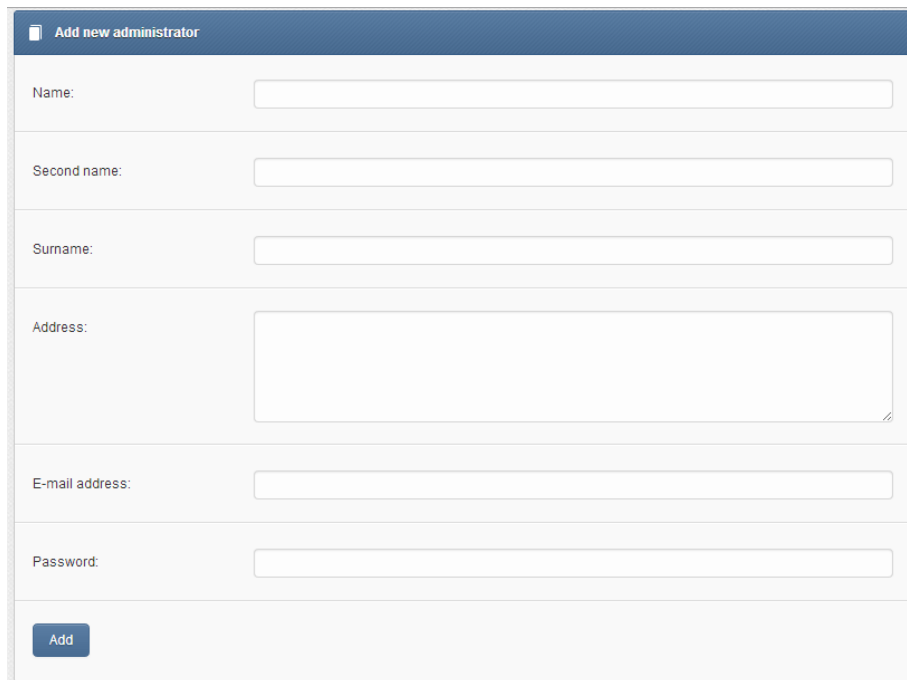


Figure 3.20: Settings

“Add new administrator”

By clicking on to the “Add new administrator” the “administrator creation form” will be displayed as shown in figure 3.21. Administrator must fill all the information (i.e. name, second name, address, E-mail and password) and then click on to the “Add” button to store the new administrator information to the system.



The image shows a web form titled "Add new administrator". The form is contained within a light gray border. At the top, there is a dark blue header bar with the text "Add new administrator" in white. Below the header, the form consists of several rows, each with a label on the left and an input field on the right. The labels and their corresponding input fields are: "Name:" with a single-line text box; "Second name:" with a single-line text box; "Surname:" with a single-line text box; "Address:" with a larger, multi-line text area; "E-mail address:" with a single-line text box; and "Password:" with a single-line text box. At the bottom left of the form, there is a blue button with the word "Add" in white text.

Figure 3.21: Administrator creations.

“Edit My Profile”

The administrator can edit his/her own profile information including e-mail, password or name. Administrator must click on the “Edit My Profile” to open the edit form. In the edit form, administrator can make changes as shown in figure 3.22 and then click on to “Edit” to store the new information to the system.

Info!
If you will not change your password leave it empty!

Edit My Profile

Name:

Second name:

Surname:

E-mail address:

E-mail address 2:

Old password:

New password:

Address:

Figure 3.22: Administrator profile managements

3.2.2 Auditor section

Auditor is responsible of monitoring reports for all the categories (“Active Surveys” (the survey which is still active for surveyee), “Individualized Reports”, “Monthly Archive”, “Semesterly Archive”, “Yearly Archive”, “Graphical Archive” and “Download Reports”). The first page after the auditor completes the login process

successfully, is the “Auditor panel” as shown in figure 3.23. The auditor panel contains the menu bar which has all the components of the system and the shortcut menu for the frequently used items in the system with big sized icons to make easier and faster access to the most frequently used items of the administrator panel. The big sized icons makes it more efficient to use the system with handheld-computer.

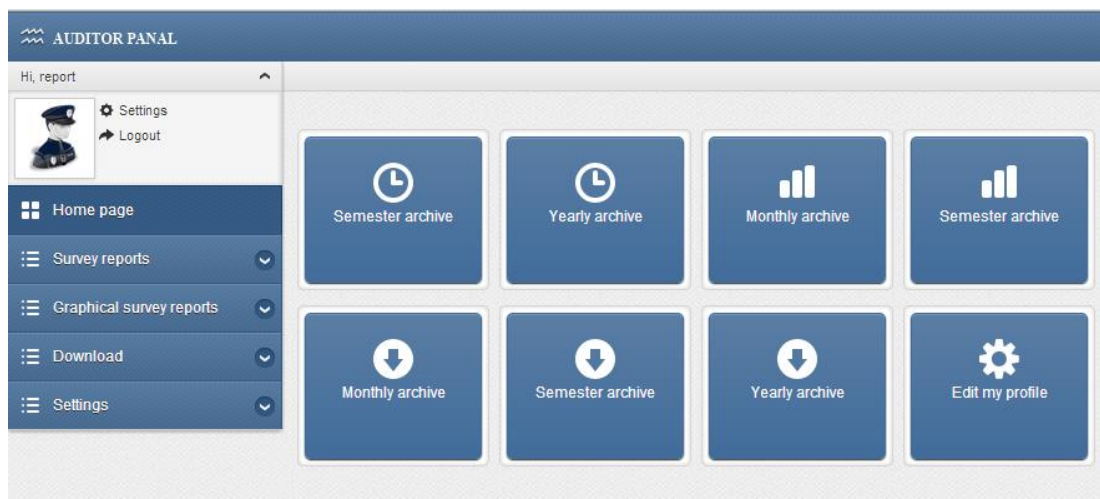


Figure: 3.23 Auditor home page

The graphical user interface of the system is designed as handheld-computer-friendly. The home page of the auditor in handheld-computer hides the menu bar according to the resolution of the handheld-computer. The “handheld-computer-friendly menu” creates a shortcut for the system frequently used item for easy and fast access as shown in figure 3.24. The handheld-computer snapshot was taken by using an iPad 2 (9.5 inch) with iOS 7’s Safari Web browser.

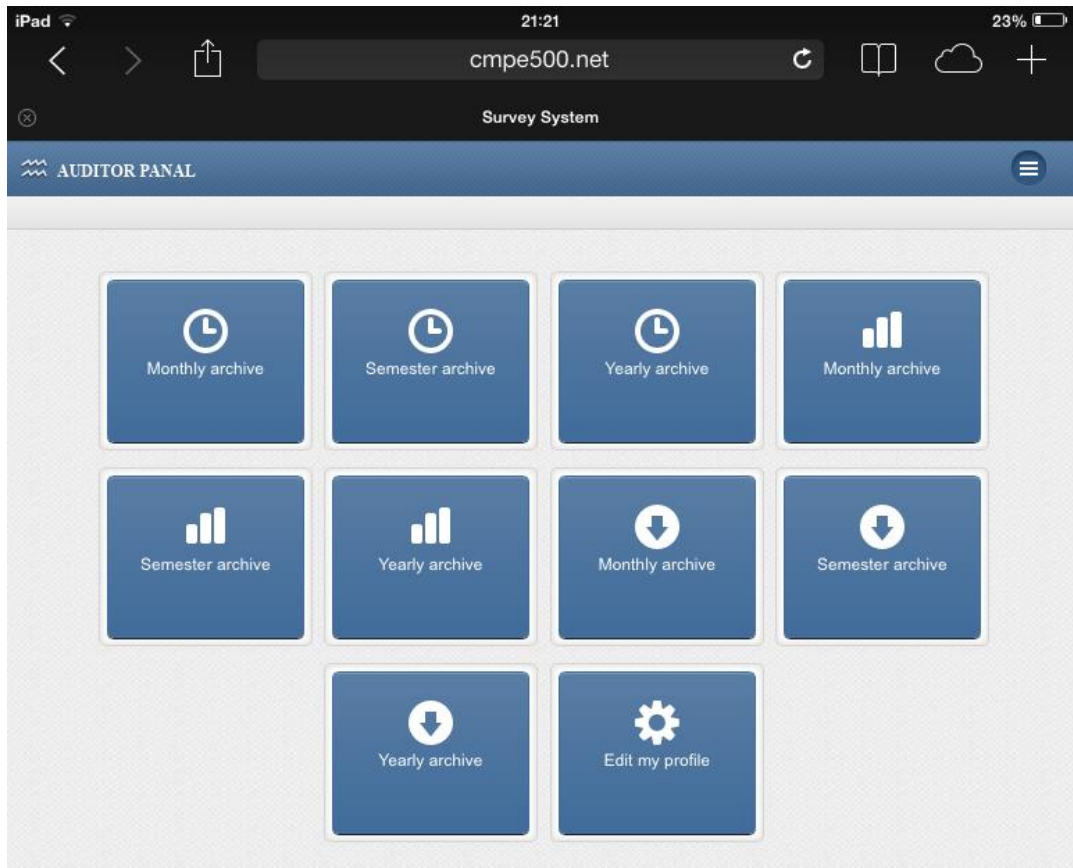



Figure 3.24: Auditor handheld-computer-friendly menu

Auditor can access to the main bar by clicking on the top-right icon () as shown in figure 3.25.

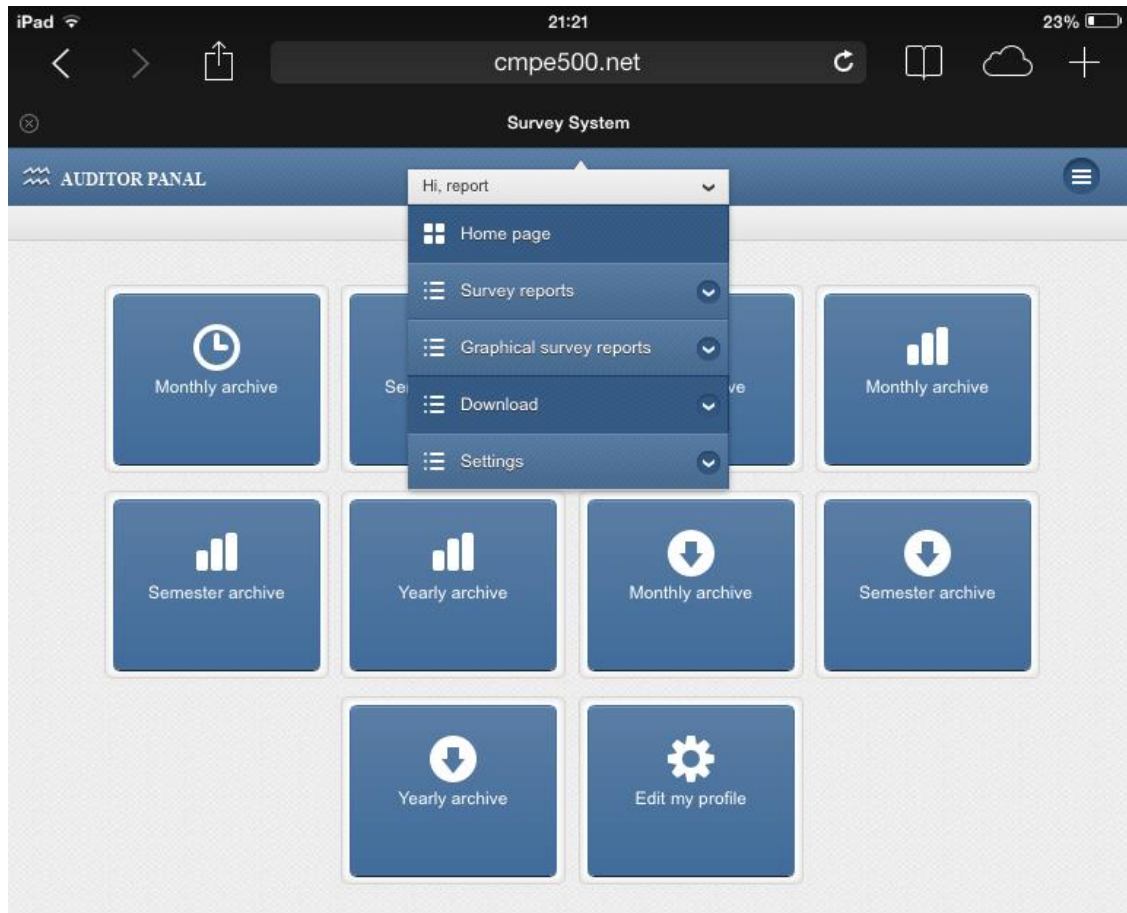


Figure 3.25: Auditor handheld-computer-friendly bar

The menu bar which is shown in figure 3.26 has all the components of the system. The auditor menu bar items are consisted of “home page”, “Survey reports”, “Graphical survey reports”, “download” and “Settings” which will be explained in the following sections.

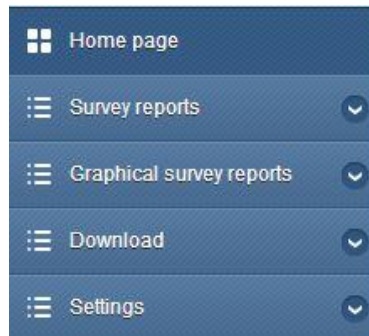


Figure 3.26: The auditor menu bar\

3.2.2.1 “Home page”

The first item of the menu bar is the “home page”, it is used to redirect the auditor to the home of the auditor panel which is shown in figure 3.23

3.2.2.2 “Survey Reports”

The auditor is responsible to monitor the whole system reports. The “survey reports” item contains the following parts “Active surveys”, “Individualized Reports”, “Monthly archive”, “Semester archive”, “Yearly archive” as shown in figure 3.27. Each of these items will be explained in the following sections.



Figure 3.27 Auditor survey reports

3.2.2.2.1 “Active Surveys”

Auditor can monitor the “Active Surveys”. By clicking on the first part of the “Survey reports”, the list of the “Active surveys” will be displayed as shown in figure 3.28.

Active surveys		
ID	Survey name	Detail
2	Ali	
5	Anket	

Figure 3.28: Auditor Active Surveys

In order to have detail about “Active Surveys” auditor should click on the detail icon () to open “survey detail page” as shown in figure 3.29. By clicking on the detail button the information of the active survey will be displayed (i.e. survey name, the start date of survey, the end date of survey and the total participant of survey).

Survey detail	
Survey name:	Anket
The start date:	30/05/2013
The end date:	30/05/2014
Total participant:	3 participants

Figure 3.29: Auditor Active Survey Detail


3.2.2.2.2 “Individualized reports”

Administrator has the ability to check the reports for each surveyee individually. By clicking on the “Individualized reports”, the categories of the system will be displayed as shown in figure 3.30

Categories	
#	Category
1	MASTER
2	almuni

Figure 3.30: Individualized reports- Categories

By clicking on the category the available surveyee in the category will be displayed as shown in figure 3.31.



The screenshot shows a software interface with a dark blue header bar containing a grid icon and the text "Individualized Reports". Below the header is a table with two columns: "#", which contains numerical identifiers, and "Name Surname", which contains the names of the surveyees. The table lists six entries with alternating light and dark grey background colors for each row.

#	Name Surname
3	Ali Abduljabar
9	Aws Shehab
10	Selay Sirsat
11	Yahya Namik
16	Ahmed Abdulrahman

Figure 3.31: Individualized reports surveyees list

Auditor should click on the surveyee to get the surveys which has done by the mentioned surveyee as shown in figure 3.32.

Surveys responded	
#	Survey name
1	23/5/2013
2	Ali
3	Asdasdas
10	Merhaba Anket
12	Tessst
19	Real survey
20	Survey test126
28	University Faculty Satisfaction
31	Second db test

Figure 3.32: Individualized report surveyee's surveys

To check specific responses of survey, auditor must click on the survey name. The surveyee response will be represented in red color and other responses will be represented in blue color as it is shown in figure 3.33. The time that the surveyee spent to read and respond to the questions will be attached to each question. The time attached to measure the reliability of the response is given by the surveyee.

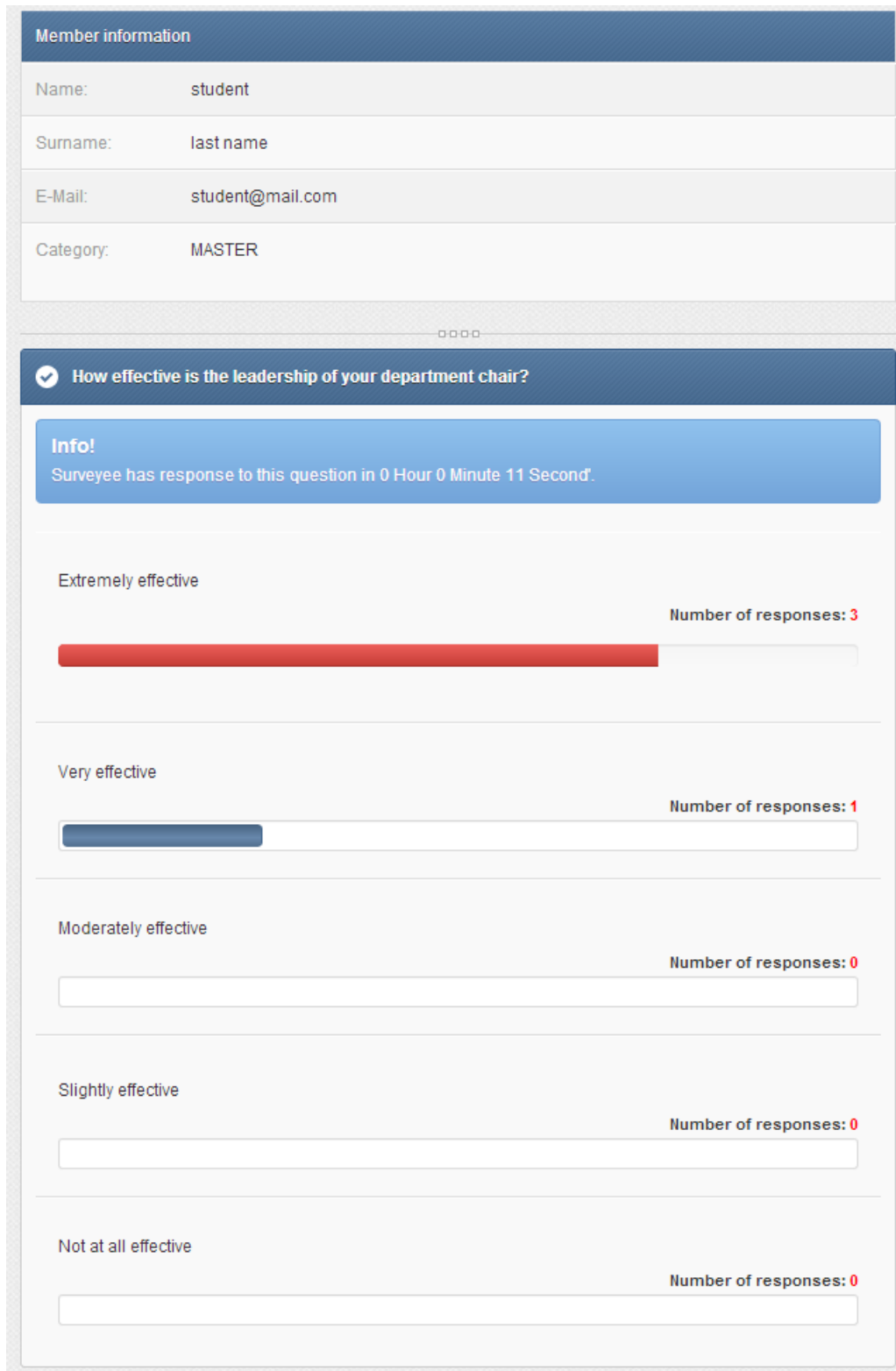


Figure 3.33: Individualized reports- Survey Responses

3.2.2.2.3 “Monthly Archive”

“Monthly archive” is the third part of “Survey reports” this item contains reports of the survey which has been in the system for a month period of time. By clicking on

the “Monthly Archive”, the categories that already is available in the system will be displayed to the auditor as shown in figure 3.34.

Monthly survey reports	
#	Category
1	MASTER
2	almuni

Figure 3.34: Auditor Monthly Archive- categories list

By clicking on category, the available reports list will be displayed as shown in figure 3.35.

Monthly Archive	
#	Survey
65	Q1q1q1
66	Without
67	Aaaa
68	UNIX_TIMESTAMP(DATE(NOW()))
69	Test survey
70	This is an Ms Survey
71	This is an all Survey
73	Education Survey
76	Exit survey

Figure 3.35: Textual Monthly Archive- available reports list

Auditor must click on the reports name in order to have the full report of that survey. Figure 3.36 shows that each question will be attached to the average of time spent to answer this question and the number of answers and the percentage of each answer.

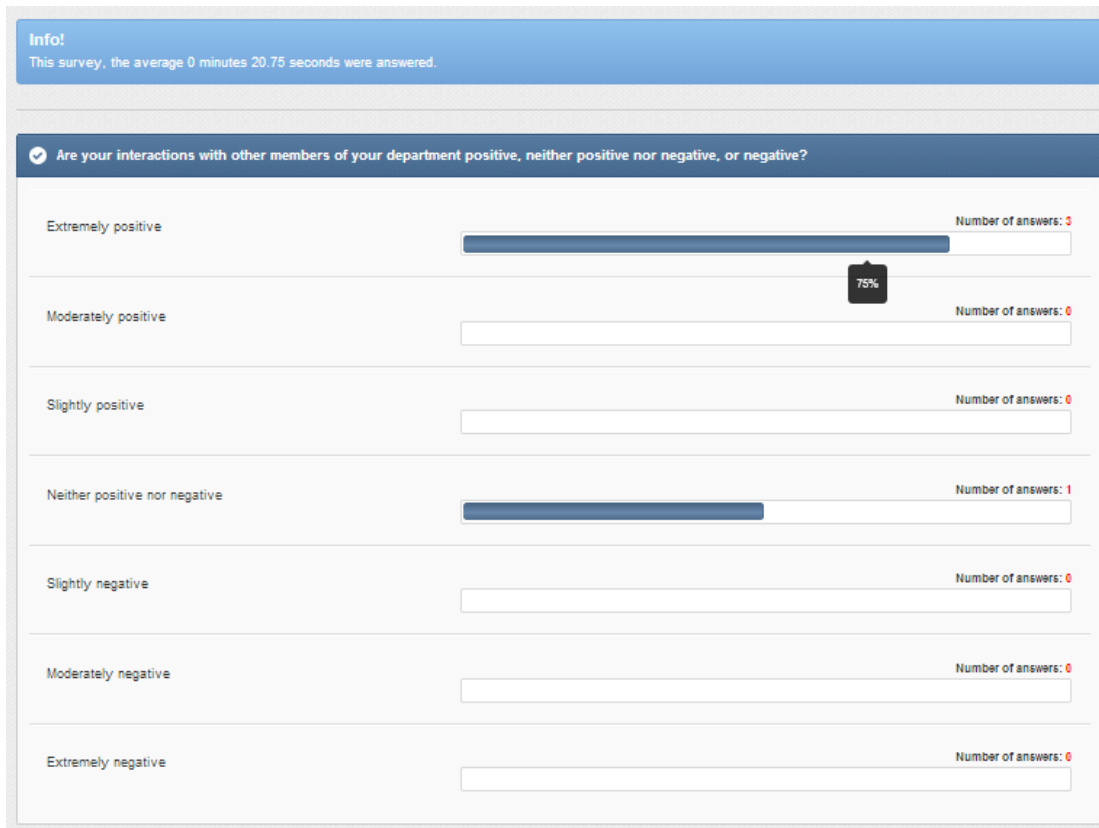


Figure 3.36 Monthly Archive- Reports details

Auditor can follow the same step that is mentioned in the monthly archive in order to check the semesterly and also the yearly archive.

3.2.2.3 “Graphical Survey Reports”

Auditor can view the graphical representation of the reports by clicking on the “Graphical Survey Reports” as it is shown in figure 3.37 and this will be explained as follows.

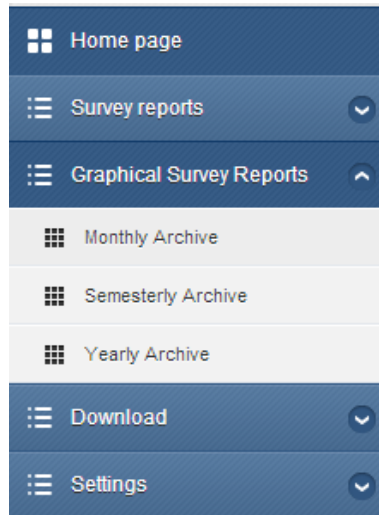


Figure 3.37: Graphical Survey Reports

By clicking on category, the available reports list will be displayed as it is shown in figure 3.38.

Monthly Archive	
#	Survey
27	Asdasda
28	University Faculty Satisfaction
29	Pipe question
30	Test for database
31	Second db test
33	Test
34	Ss

Figure 3.38: Graphical Monthly Archive- available reports list

Auditor must click on reports name in order to have the graphical report of that survey as shown in figure 3.39..

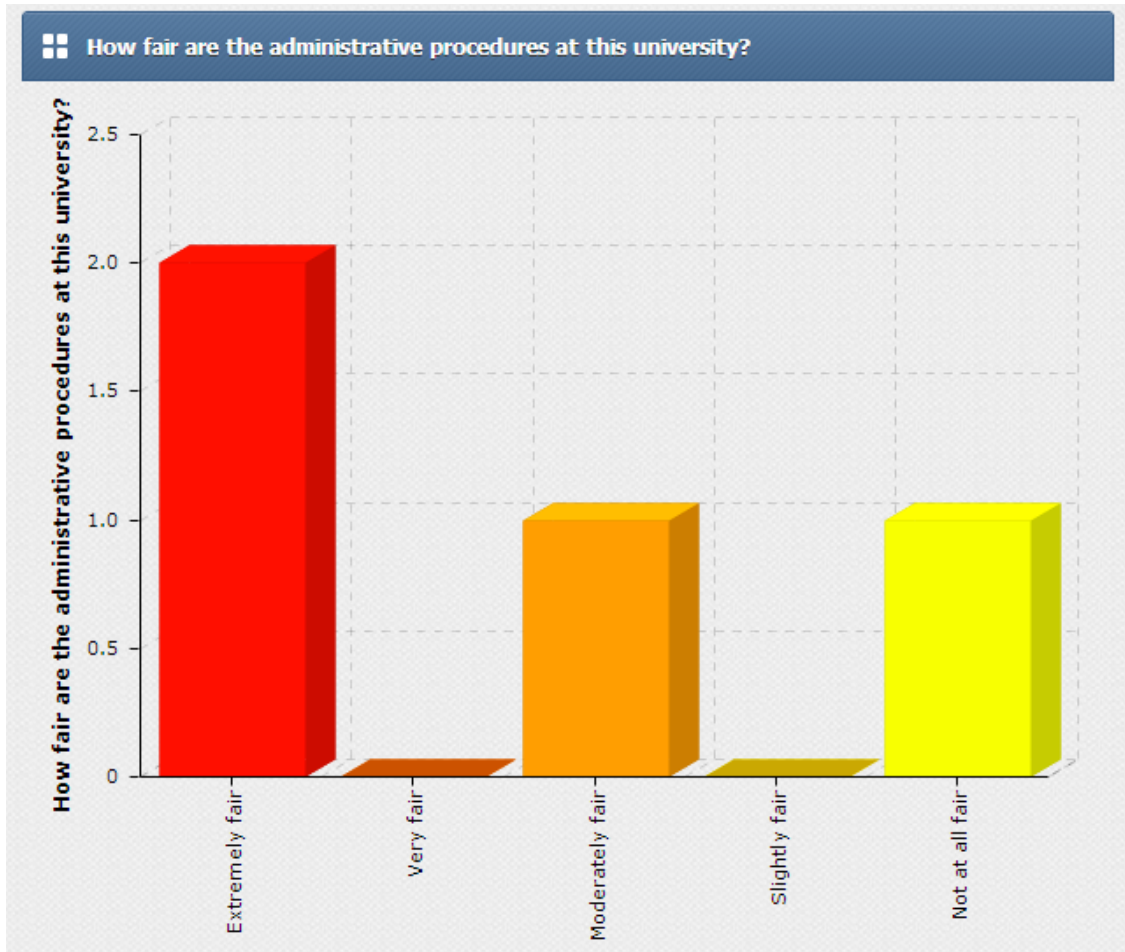


Figure 3.39: Graphical Monthly Archive- graphical representation

Auditor can follow the same steps that are mentioned in the monthly archive in order to check the semesterly and also the yearly archive.

3.2.2.4 “Download”

Auditor can download one month archive as “PDF”. Auditor must click on the download to be able to choose which archive (i.e. “Monthly Archive”, “Semesterly Archive” and “Yearly Archive”) to download as shown in figure 3.40.

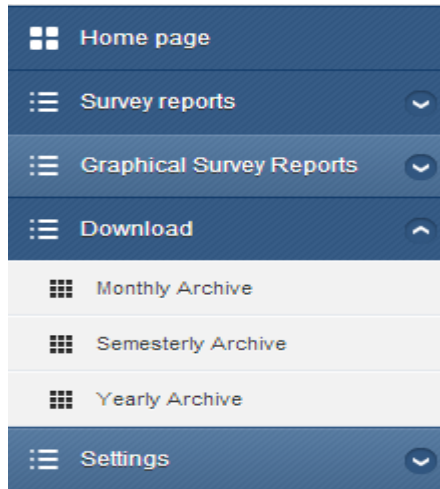


Figure 3.40 Download

After auditor clicks on the monthly reports, the archive will be downloaded as shown in figure 3.41

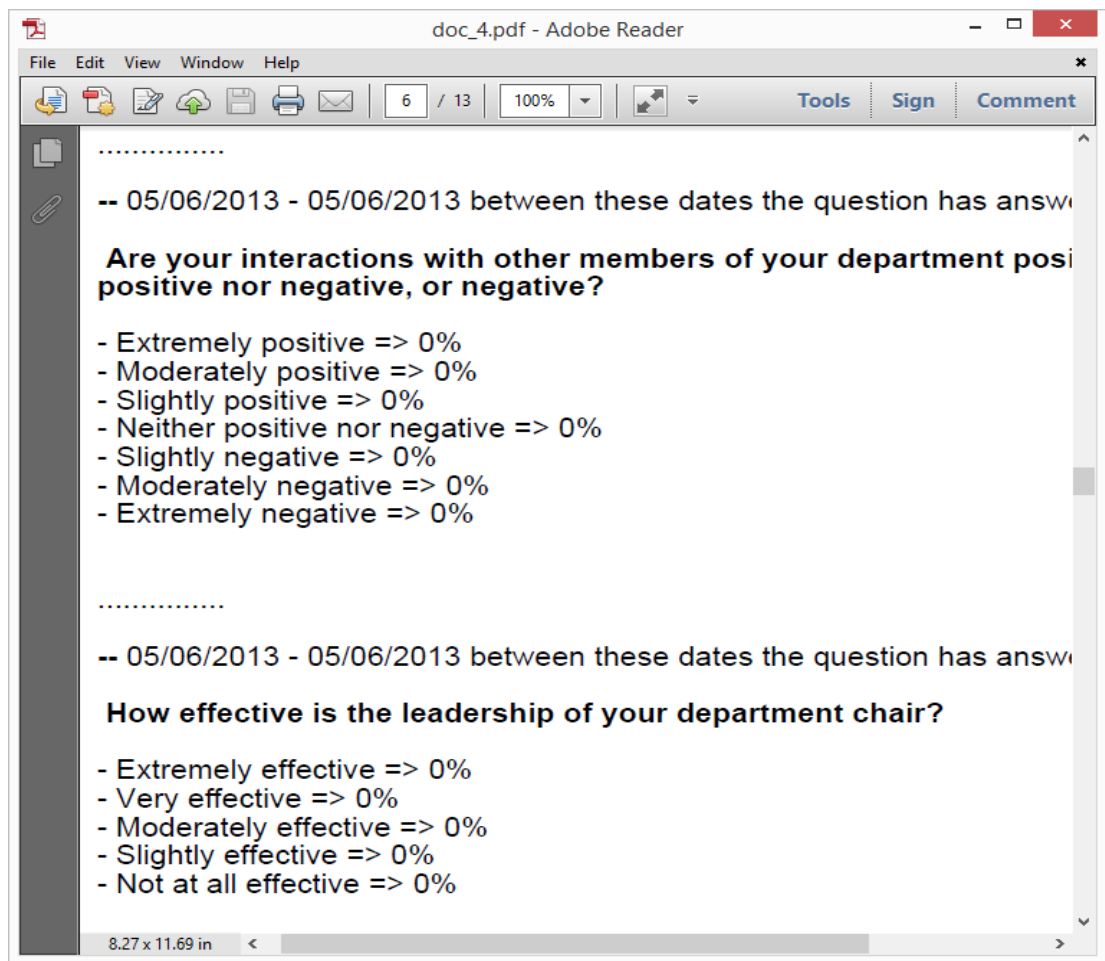


Figure 3.41 Monthly Report Archive

3.2.2.5 “Setting”

The auditor can edit his/her own profile information for instance e-mail, password or name. Auditor must click on “Edit My Profile”. In the edit form auditor can make the change then click edit to store the new information to the system as shown in figure 3.42.

Info!
If you will not change your password leave it empty!

Edit My Profile

Name:

Second name:

Surname:

E-mail address:

E-mail address 2:

Old password:

New password:

Address:

Figure 3.42: auditor profile managements

3.2.3 Surveyee section

Surveyee is responsible of given responses for the surveys and inviting other members to the survey system. Surveyee panel contains “Fill the survey”, “view old surveys” and “invite a friend”. The first page, after the surveyee completes his/her log-in, is the “Surveyee panel” as shown in figure 3.43.

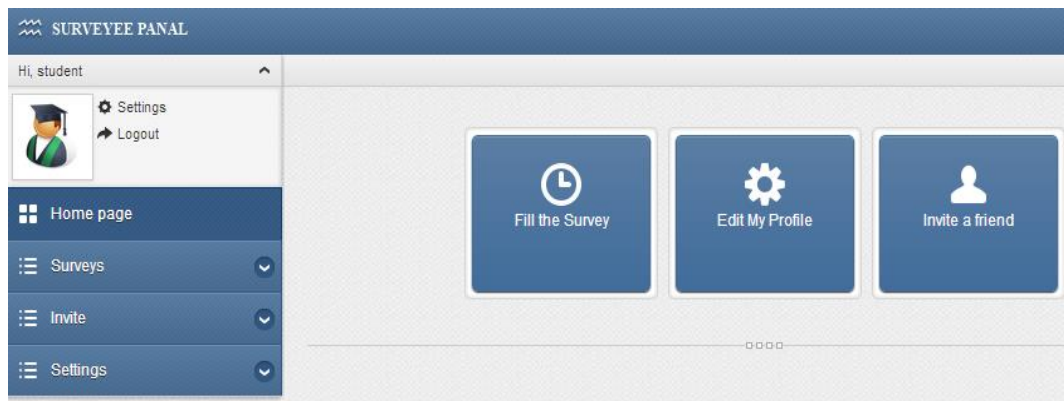


Figure: 3.43 Surveyor home page

The graphical user interface of the system is designed as handheld-computer-friendly. The home page of surveyee in handheld-computer hides the menu bar according to the resolution of the handheld-computer. The “handheld-computer-friendly menu” creates shortcut for the system frequent used items for easy and fast access as shown in figure 3.44. The handheld-computer snapshot was taken by using iPad 2 (9.5 inch) with iOS 7’s Safari Web browser.

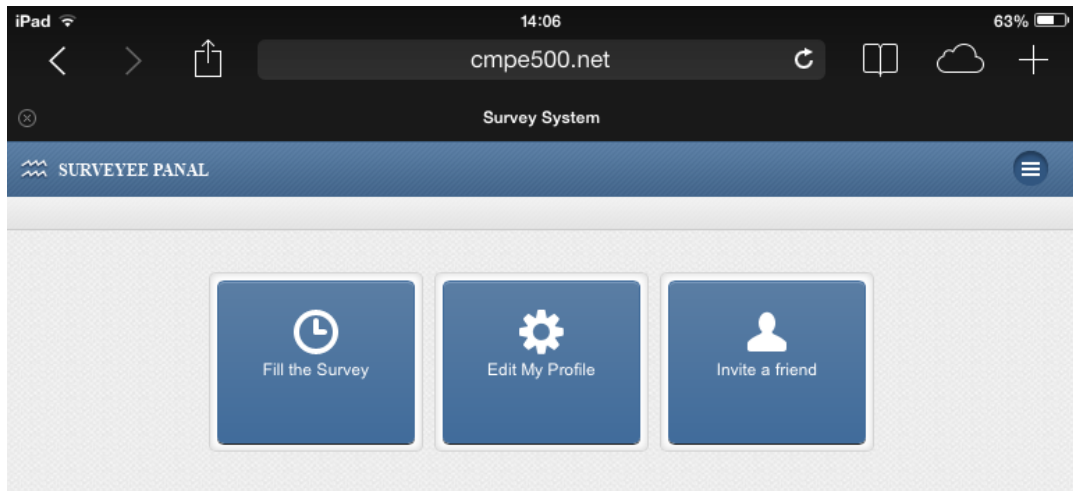



Figure 3.44: Surveyee handheld-computer-friendly menu

Surveyee can access to the main bar by clicking on the top-right icon () as shown in figure 3.45.

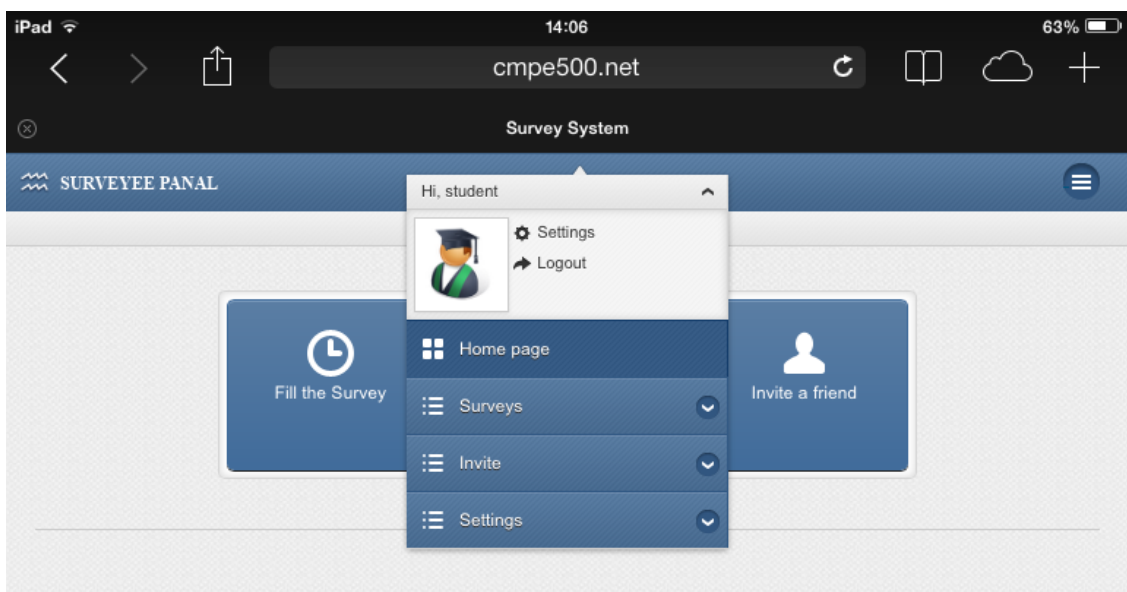


Figure 3.45: Surveyee handheld-computer-friendly bar

The second way of controlling the system is done by the menu bar which has all the components of the system. The Surveyee menu bar items are consist of “home page”,

“Survey”, “Invite” and “Settings” as it is shown in figure 3.46 and will be explained in the following sections.

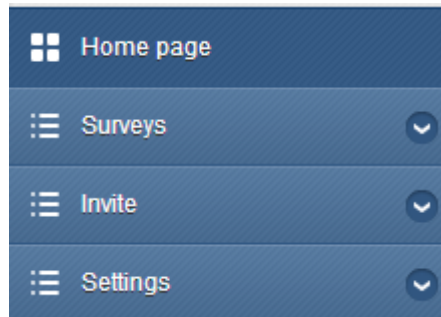


Figure 3.46: The surveyee menu bar

3.2.3.1 “Home page”

The first item of the menu bar is called the “home page”, which it redirects the surveyee to the home of the surveyee panel which is shown in figure 3.43.

3.2.3.2 “Surveys”

Surveyee is responsible of given responses for the surveys. Surveyee can view old surveys by clicking on to “old Surveys” as shown in figure 3.47.

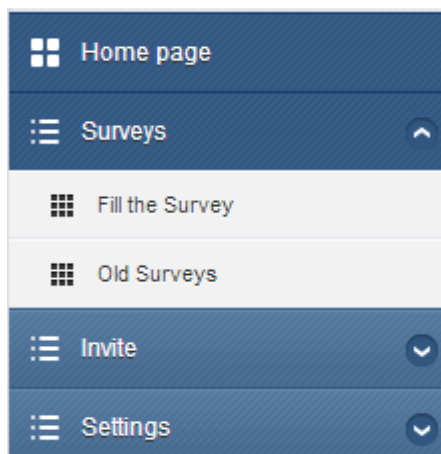



Figure 3.47: “Surveys”

3.2.3.2.1 “Fill the survey”

In order to check for available surveys, surveyee must click on the “Fill the Survey”, then the list of available surveys will be displayed for the surveyee as shown in figure 3.48.



Surveys			
#	Survey Name	Start Date	End Date
10	Merhaba Anket	30/05/2013	30/05/2014
28	University Faculty Satisfaction	02/11/2013	02/11/2013

Figure 3.48: List of available surveys

When surveyee clicks on the survey name, the survey will be open and the questions in the survey will be displayed. Surveyee must choose or write the response and click on continue to save the response for each question then survey must click on save button at the end of survey as shown in figure 3.49. After clicking on the save button, the surveyee will be redirected to the home page of surveyee panel.

The image shows a survey interface with three main sections. The first section has a blue header with a question: "How effective is the leadership of your department chair?". Below the header are five radio button options: "Extremely effective", "Very effective", "Moderately effective", "Slightly effective", and "Not at all effective". A green "Continue" button is positioned below these options. The second section has a blue header with the text: "If you have any questions/comments please do not hesitate to write it". Below this header is a text input field with the placeholder text "Please Write your answer here:". A green "Continue" button is located below the input field. The third section is a simple white box with a blue "Save" button.

Figure 3.49: Survey filling-out

3.2.3.2.2 “Old Surveys”

Surveyee can view “old surveys”. Surveyee should click on the old survey to view the old surveys. The list of “Old Surveys” will be displayed as shown in figure 3.50.

The survey name, start date and end date will be displayed

Old Surveys			
#	Survey Name	Start Date	End Date
1	23/5/2013	23/05/2013	23/05/2013
2	Ali	23/05/2013	23/05/2013
3	Asdasdas	23/09/2012	23/09/2012
5	Anket	30/05/2013	30/05/2014
6	Çağrı	30/05/2013	30/05/2013
10	Merhaba Anket	30/05/2013	30/05/2014
12	Tessst	31/05/2013	31/05/2013
19	Real survey	05/06/2013	05/06/2013
20	Survey test126	06/06/2013	06/06/2013
28	University Faculty Satisfaction	02/11/2013	02/11/2013
31	Second db test	10/11/2013	10/11/2013

Figure 3.50: List of “Old Surveys”

To view the responses as it is shown in figure 3.51, surveyee must click on the survey name.

How effective is the leadership of your department chair?

Extremely effective

Very effective

Moderately effective

Slightly effective

Not at all effective

How much do you feel your department chair values your input in making decisions?

A great deal

Figure 3.51 “Old Survey” responses

3.2.3.3 “Invite a friend”

Surveyee can invite another member to the survey system. Surveyee should click on to “Invite a friend” button as shown in figure 3.52.

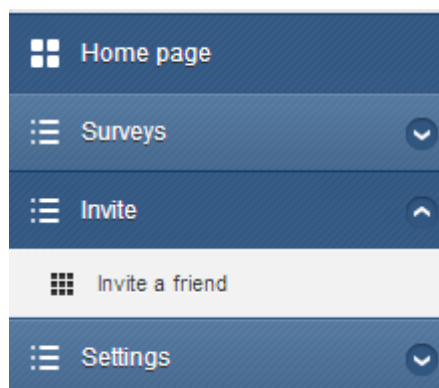


Figure 3.52 “Invite a friend”

After clicking on to “Invite a friend” the invitation form will be displayed as shown in figure 3.53. Surveyee should fill the form by writing the name and e-mail address of the person that wants to invite. After filling the information, surveyee must click on to ‘Add’ button as shown in figure 3.53. Surveyee will be redirected to the home page of the surveyee panel and an e-mail will be send to the user.

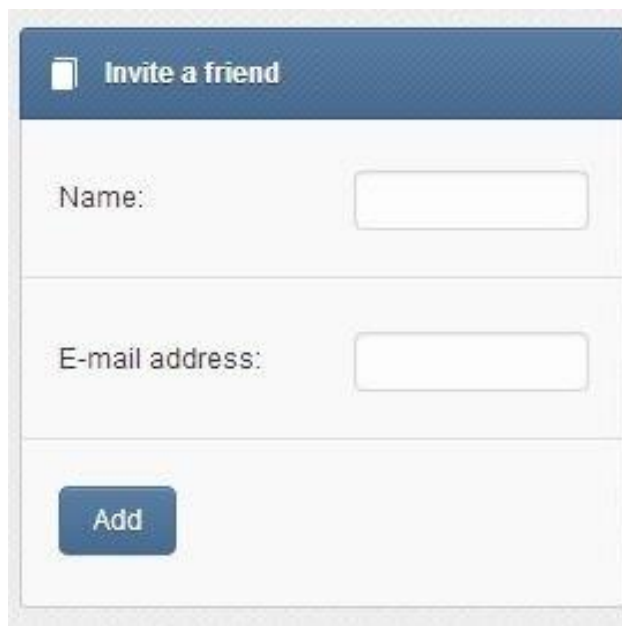
The image shows a web form titled "Invite a friend" in a dark blue header bar. Below the header, there are two input fields: "Name:" followed by a text box, and "E-mail address:" followed by another text box. At the bottom left of the form is a blue button with the text "Add".

Figure 3.53: “Invite a friend”- invitation form

3.2.3.4 “Setting”

The surveyee can edit his/her own profile information including e-mail, password and name. Administrator should click on to “Edit My Profile”. In the edit form as shown in figure 3.54, surveyee can make a change and then click on to “Edit” button to store the new information to the system.

Info!
If you will not change your password leave it empty!

Edit My Profile

Name:	<input type="text" value="dabia"/>
Second name:	<input type="text"/>
Surname:	<input type="text" value="Alfaisal"/>
E-mail address:	<input type="text" value="dabia@mail.com"/>
Manager E-mail "If available" :	<input type="text"/>
Old password:	<input type="text"/>
New password:	<input type="text"/>
Address:	<input type="text" value="Iraq"/>

Edit

Figure 3.54: Surveyee profile managements

3.2.4 Surveyor section

Surveyor is responsible of creating surveys to the categories they belongs to.

Surveyor is responsible of monitoring the reports of surveys they created. Surveyor

panel contains (create Survey, Active Surveys, monitor reports, monitor graphical report and edit own profile). The first page after the surveyor completes his/her login will be the “Surveyor panel” as it is shown in figure 3.55.

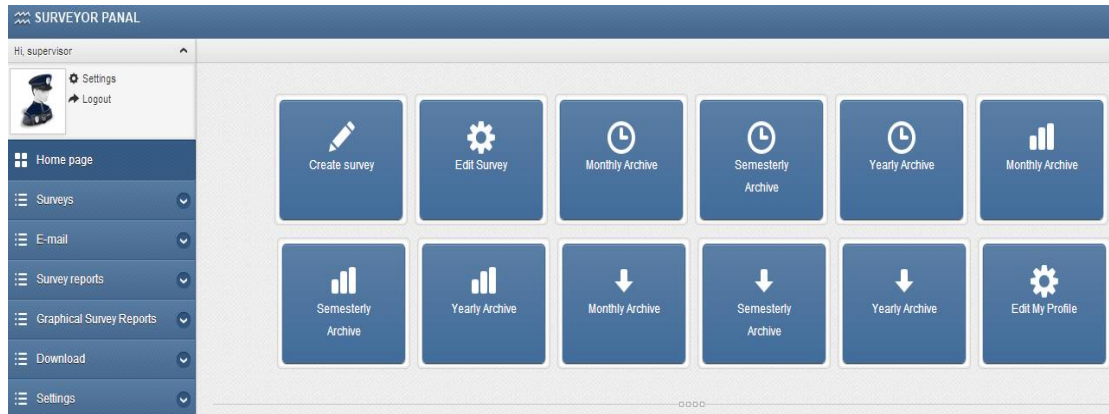


Figure: 3.55: Surveyor home page

The graphical user interface of the system is designed as handheld-computer-friendly. The home page of surveyor in handheld-computer hides the menu bar according to the resolution of the handheld-computer. The “handheld-computer-friendly menu” creates a shortcut for the system frequent used items for an easy and fast access as it is shown in figure 3.56. The handheld-computer snapshot was taken by using iPad 2 (9.5 inch) with iOS 7’s Safari Web browser.

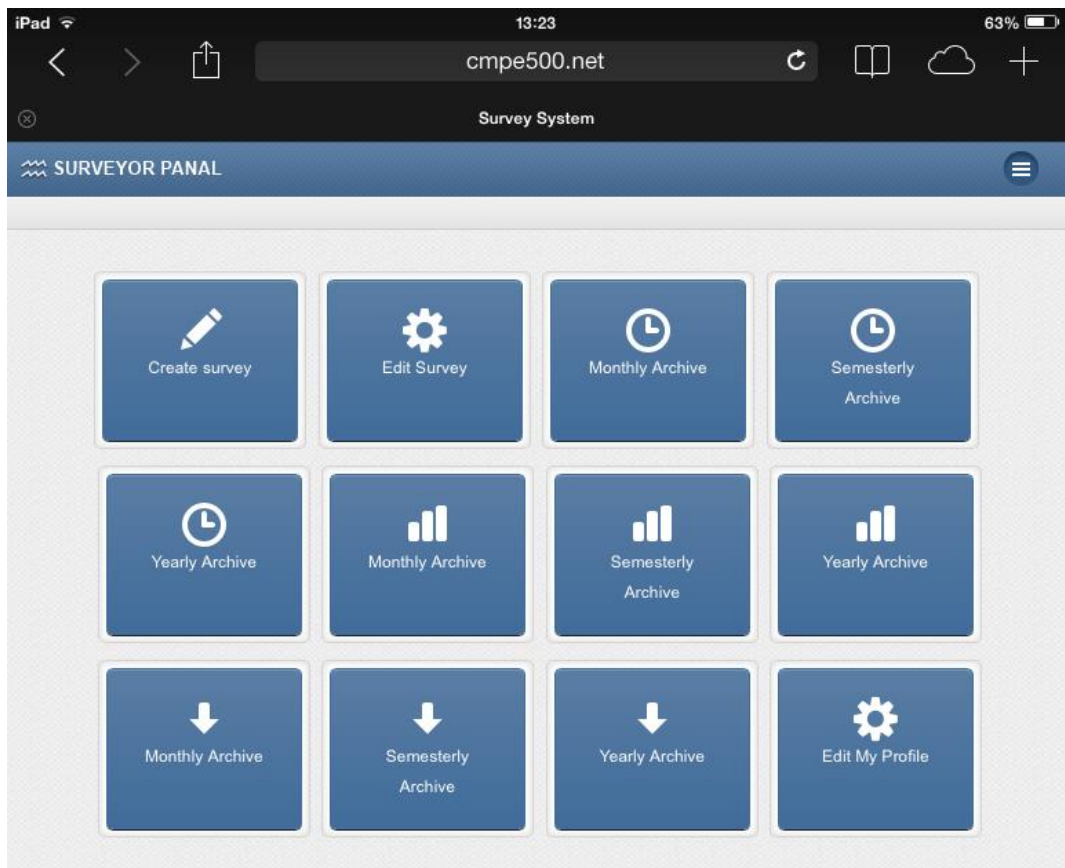



Figure 3.56: Surveyor handheld-computer-friendly menu

Surveyor can access to the main bar by clicking on the top-right icon () as it is shown in figure 3.57.

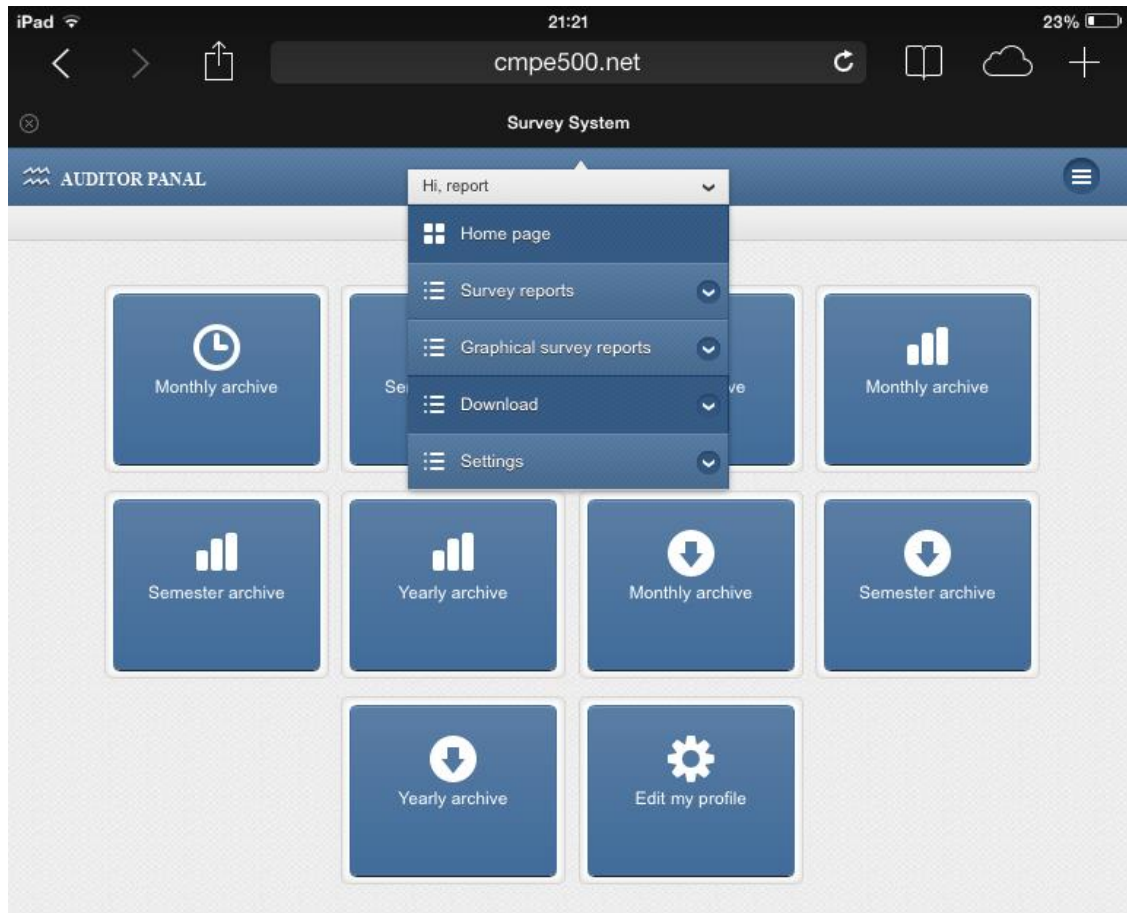


Figure 3.57: Surveyor handheld-computer-friendly bar

The second way of controlling the system is done by the menu bar, which has all the component of the system. The surveyor menu bar items are “home page”, “Survey”, “E-mail”, “Survey reports”, “Graphical survey reports”, “download” and “Settings” as it is shown in figure 3.58 and each of these will be explained in the following sections.

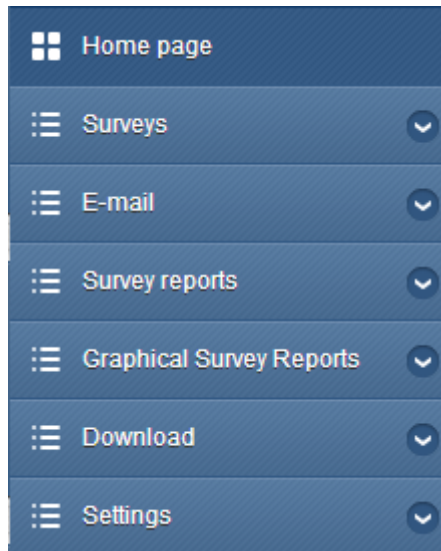


Figure 3.58: The surveyor menu bar

3.2.4.1 “Home page”

The first item of the menu bar is the “home page” which redirects the surveyor to the home page of the surveyor panel which it is shown in figure 3.55.

3.2.4.2 “Surveys”

Surveyor is responsible of creating surveys, activate surveys and monitor his/her reports. As it is shown in figure 3.59 the survey items are consist of “Create survey”, “Add multiple Choice question”, “Add Comment Box question”, “Edit Survey” and “Inactive Surveys” which these will be explained in the following sections.

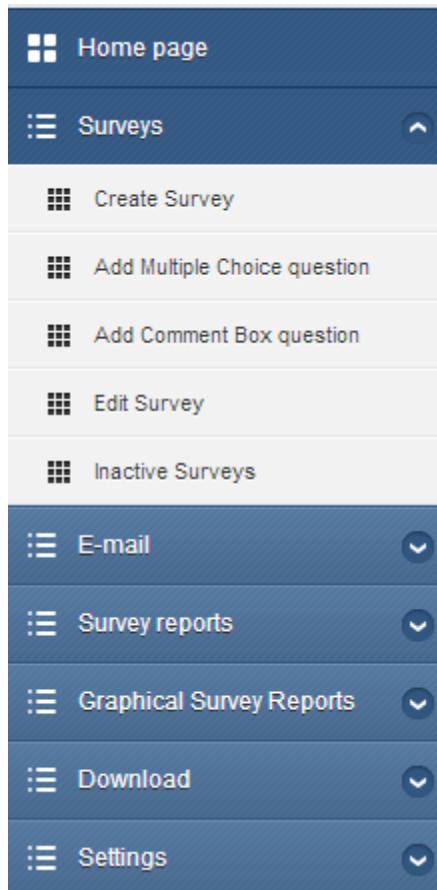


Figure 3.59 Survey

3.2.4.2.1 “Create Survey”

In order to create a survey, surveyor must click on to “Create Survey”. As it is shown in figure 3.60, survey creation form will be opened and surveyor should enter the Survey name, start date and finish date. Then he/she will click on the continue button to start entering the questions.

The image shows a web form titled "Create Survey". It has a dark blue header with the title in white. Below the header, there are three rows of input fields. The first row is labeled "Survey Name:" and contains the text "Almuni Student Survey". The second row is labeled "Start:" and contains the date "08/12/2013". The third row is labeled "End:" and contains the date "20/12/2013". At the bottom of the form is a blue button with the text "Continue" in white.

Figure 3.60: Survey creation management

Surveyor should enter the question and add Responses for the question as shown in figure 3.61. Surveyor can click on to 'delete' button to delete one of the responses. Surveyor can click on to 'Add new response' button to add a new response. Surveyor can give order to question by entering order number. Surveyor can click on to 'add question' button to add a new question. Surveyor can click on to 'Save with this question' to save survey with the last entered question. Surveyor may click on to 'Save before this question' to save the survey without last question entered.

The image shows a web interface for creating a survey question. At the top, there is a dark blue header with a white document icon and the text "Add question". Below this, the form is organized into several sections:

- Survey Name:** A text input field containing "Master Student Survey".
- Question:** A text input field containing "how effective is the headship of your chair?".
- Responses:** A text input field containing "Extremely effective".
- Responses:** A second text input field containing "Very effective", with a small orange "Delete" button to its right.
- Add new response:** A blue button.
- Question order number:** A text input field containing "1".
- Action buttons:** A row of five buttons at the bottom: "Add question" (blue), "Add new piping question" (blue), "Preview" (blue), "Save with this question" (orange), and "Save before this question" (orange).

Figure 3.61: Survey creation management - Create question

Surveyor can click on to 'preview' button to see how the survey looks which this is shown in figure 3.62.

The image shows a preview of two survey questions. Each question is presented in a blue header bar with a question icon and the text of the question. Below each header is a list of radio button options.

Question 1: How effective is the headship of your chair?

- Extremely effective
- Very effective
- Moderately effective

Question 2: How much do you feel your department chair values your input in making decisions?

- A great deal
- A lot
- A moderate amount
- A little

Figure 3.62: Survey creation management – Preview

Surveyor can add new piping question by clicking on to “add new piping question”. Piped question is the question that depends on the previous response of the surveyee to decide which question to display next. As shown in figure 3.63, the piping question entry form will be displayed and surveyor will choose the pipe question and then pick one of the responses and write the piped question with its responses. So that when surveyee picks the pipe question response the piped question will appear otherwise the question will be hidden from the surveyee. Surveyor can click on to ‘Add new response’ button to add new response or click on to ‘Delete’ button to delete response. Surveyor can click on to ‘Add question’ button to add another

question. Surveyor can click on to ‘Add new piping question’ to create another pipe question. Surveyor must click on to ‘Save with this question’ to save the survey.

Create question piping

Survey Name:

Choose the Survey:

Choose the response that will direct to the related question.:

Question:

Responses:

Responses:

Figure 3.63: Survey creation management - Piping question

3.2.4.2.2 “Add multiple choice question”

To add multiple choice question, surveyor should click on to “Add multiple Choice question” as shown in figure 3.59. By clicking on to “Add multiple Choice question” the multiple choice entry form will be demonstrated as shown in figure 3.64. Surveyor must choose which survey multiple choice question will be added from “Choose the survey” then write the question with its responses and click add to add the question to the survey.

The screenshot shows a web interface for adding a multiple-choice question to a survey. At the top, there is a blue header with the text "Add Multiple Choice question". Below this, the form is organized into several sections:

- Choose the Survey:** A dropdown menu currently showing "Almuni Student Survey".
- Question:** A text input field containing "Please chose your interest".
- Responses:** A list of three response options, each in a text input field: "Hunting", "Painting", and "Scuba diving". Each of the last two options has a small orange "Delete" button to its right.
- Additional Response:** A green button labeled "Add new response" is located below the existing response list.
- Question order number:** A text input field containing the number "0".
- Add:** A blue button at the bottom left of the form.

Figure 3.64: Survey creation management – Add Multiple Choice question



3.2.4.2.3 “Add Comment box question”

To add “Comment Box” question surveyor should click on to “Add Comment box question” as shown in figure 3.59. By clicking on to “Add Comment box question” button the Comment box question entry form will be opened as shown in figure 3.65. Surveyor should choose which survey comment box question should be added from the “Choose the survey” then write the question and click on the add icon to add the question to the survey.

The screenshot shows a web interface for adding a comment box question to a survey. The title bar is blue and contains the text 'Add Comment Box question'. The main area is white and contains three rows of input fields. The first row is labeled 'Choose the Survey' and has a dropdown menu with 'Alumni Student Survey' selected. The second row is labeled 'Question:' and has a text box with the text 'Your opinion about what university should improve immediately'. The third row is labeled 'Question order number:' and has a text box with the number '0'. At the bottom left of the form is a blue button labeled 'Add'.

Figure 3.65: Survey creation management – Add Comment Box question

3.2.4.2.4 “Edit Survey”

Surveyor can click on to “Edit Survey” icon as shown in figure 3.59 to edit the existing surveys. By clicking on to “Edit Survey”, the list of available surveys will be displayed as shown in figure 3.66. Surveyor can click on the delete icon () to delete the survey or click on edit icon () to edit the end date of the survey in case surveyor would like to close the survey earlier as it is shown in figure 3.67.































Edit survey			
ID	Survey name	Edit	Delete
2	Ali		
5	Anket		
6	Çağrı		
10	Merhaba Anket		
11	Tessst		
12	Tessst		
13	Asda		
31	Second db test		
35	Final test		
47	Almuni Student Survey		
48	Zxczc		
49	Hmghjg		
50	Withoout		
53	Writing test		

Figure 3.66 Edit Surveys

The image shows a web form titled "Create Survey". It has a dark blue header with a white document icon and the text "Create Survey". Below the header, there are three rows of input fields. The first row is labeled "Survey Name:" and contains a text box with the value "Almuni Student Survey". The second row is labeled "Start:" and contains a date picker with the value "09/12/2013". The third row is labeled "End:" and contains a date picker with the value "20/12/2013". At the bottom left of the form is a blue button with the text "Continue".

Figure 3.67: Survey end date edition

To edit a question, delete a question or change the question's order number surveyor should click on the survey name as it is shown in figure 3.66. The edit survey form will be opened as shown in figure 3.68. Surveyor can click on to delete icon () to delete question. Surveyor can reorder the question by filling the question order number. Surveyor must click on to edit icon () to edit question.







Edit survey					
ID	Survey name	Type	Edit	Delete	Question order number
109	How effective is the headship of your chair?	Normal questions			<input type="text" value="0"/>
121	Please chose your interest	Multi Choice Question			<input type="text" value="0"/>
122	Your opinion about what university should improve immediately	Comment Box			<input type="text" value="0"/>

Figure 3.68 Edit survey form

The question edit form will be opened as it is shown in figure 3.69. Surveyor can edit the question and the responses. Surveyor can click on to ‘Add new response’ button to add new response. Surveyor must click on ‘Edit’ to update the question

The screenshot shows a web interface for editing a survey. At the top, there is a dark blue header with a document icon and the text 'Edit survey'. Below the header, the interface is divided into several sections:

- Question:** A text input field containing the question 'How effective is the headship of your chair?'.
- Responses:** Three separate text input fields, each containing a response: 'Extremely effective', 'Very effective', and 'Moderately effective'.
- Buttons:** A green button labeled 'Add new response' and a blue button labeled 'Edit'.

Figure 3.69 question editing

3.2.4.2.5 “Inactive surveys”

Surveyor can keep surveys in inactive mode and activate them later on. On the other hand, in a case that the Internet connection cuts off or the browser might close accidentally the survey will be stored in inactive mode. By clicking on to “Inactive Surveys” the inactive surveys list will be opened as it is shown in figure 3.70.

Surveyor can click on to active icon (✓) to activate the survey or to edit icon (✎) to create new question as it is shown in figure 3.61.







Inactive Surveys			
ID	Survey name	edit survey	Active
55	Almuni Student Survey		
56	Master Student Survey		
57	Under graduate Student Survey		

Figure 3.70 Inactive Survey list

Surveyor can click on the survey name to edit, order and delete question as shown in figure 3.68.

3.2.4.3 “E-mail”

The second item of the menu bar is “E-mail” as shown in figure 3.71. Surveyor uses this item to send an e-mail all category surveyee.

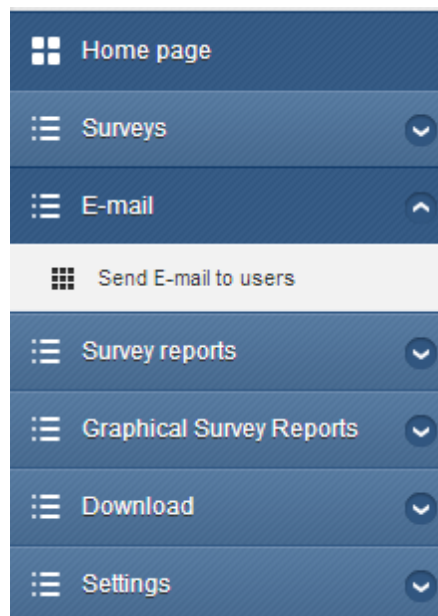


Figure 3.71 E-mail management

By clicking on to “Send E-mail to users” the e-mail forms will be opened to allow the surveyor to send e-mail to all users as shown in figure 3.72. This item has three parts: The first part is the title part where administrator creates a title for the e-mail;

secondly the description part the place where administrator enters all the information that need to be send to users; lastly, the editing tools (the administrator can use this section to organize the text size, color, style and other related text design). After filling the necessary information administrator must click on to ‘send’ button to send e-mail to the users then the administrator will be redirected to the home page.

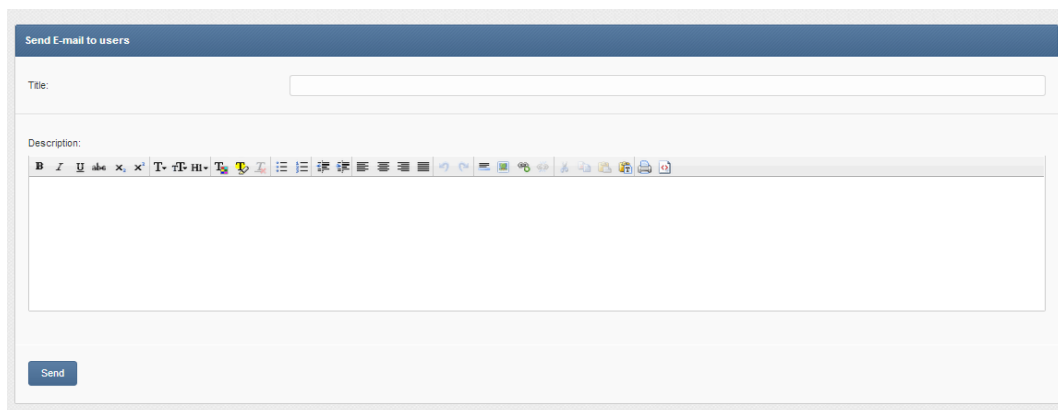
The image shows a web interface for sending emails to users. At the top, there is a blue header with the text "Send E-mail to users". Below the header, there is a "Title:" label followed by a text input field. Underneath that is a "Description:" label followed by a rich text editor. The rich text editor has a toolbar with various icons for text formatting (bold, italic, underline, text color, background color, text size, font face, bulleted list, numbered list, indent, outdent, link, unlink, image, video, table, undo, redo) and a large text area for writing the email content. At the bottom left of the form, there is a blue button labeled "Send".

Figure 3.72 E-mail management form

3.2.4.4 “Survey Report”

The next items are “Survey Report”, Graphical Survey Report” and “download” and will be explained in detail in the auditor section.

3.2.4.5 “Setting”

The surveyor can edit his/her own profile information including e-mail, password or name. Surveyor should click on to “Edit My Profile”. In the edit section as shown in figure 3.73, surveyor can make the changes then click on to ‘Edit’ button to store the new information to the system.

Info!
If you will not change your password leave it empty!

Edit My Profile

Name:

Second name:

Surname:

E-mail address:

E-mail address 2:

Old password:

New password:

Address:

Figure 3.73: auditor profile managements

Chapter 4

COMPARISON WITH RELATED WORK

In this chapter, we have focused on the related works. There are other systems which work on surveys likewise. Each has its own features and benefits. Some of these systems are “SurveyMonkey”, “Survs” and “Eastern Mediterranean University Surveys” and these will be compared with our system that will be stated below.

The first related system is “SurveyMonkey” [13]. The home page of “SurveyMonkey” is shown in figure 4.1. This system is one of the popular systems that helps to create, distribute and analyze the surveys.

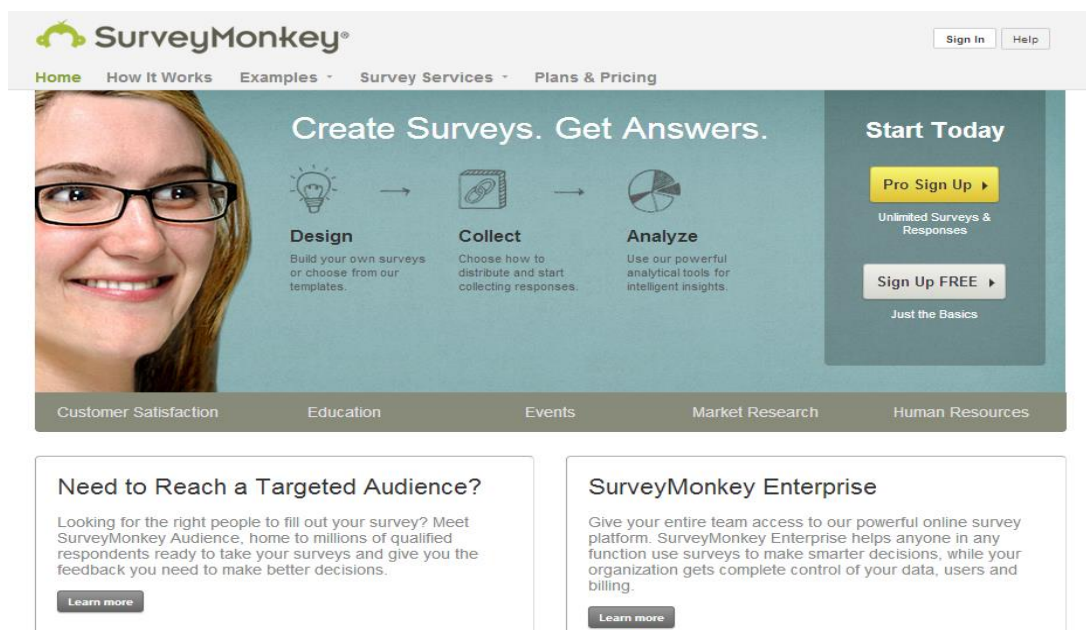


Figure 4.1: “SurveyMonkey” Home page

The “SurveyMonkey” system is designed to be a global system and to be used by many users around the world. “SurveyMonkey” is currently using by the Department of Computer Engineering at Eastern Mediterranean University for ABET

accreditation related surveys. This is another reason for selecting “SurveyMonkey” for comparison. “SurveyMonkey” has been used by many leading Web services like Facebook, Samsung and Kraft [13]. The system is based on two types of users (survey creator and survey responder). Using “SurveyMonkey” survey creator can distribute the survey to many audiences as possible; surveyor creator can buy responders if they need to reach more audience [13].

The second system from the related systems is called the “Survs”[11]. The home page of “Survs” is shown in figure 4.2. This is another leading system which is designed for surveys.

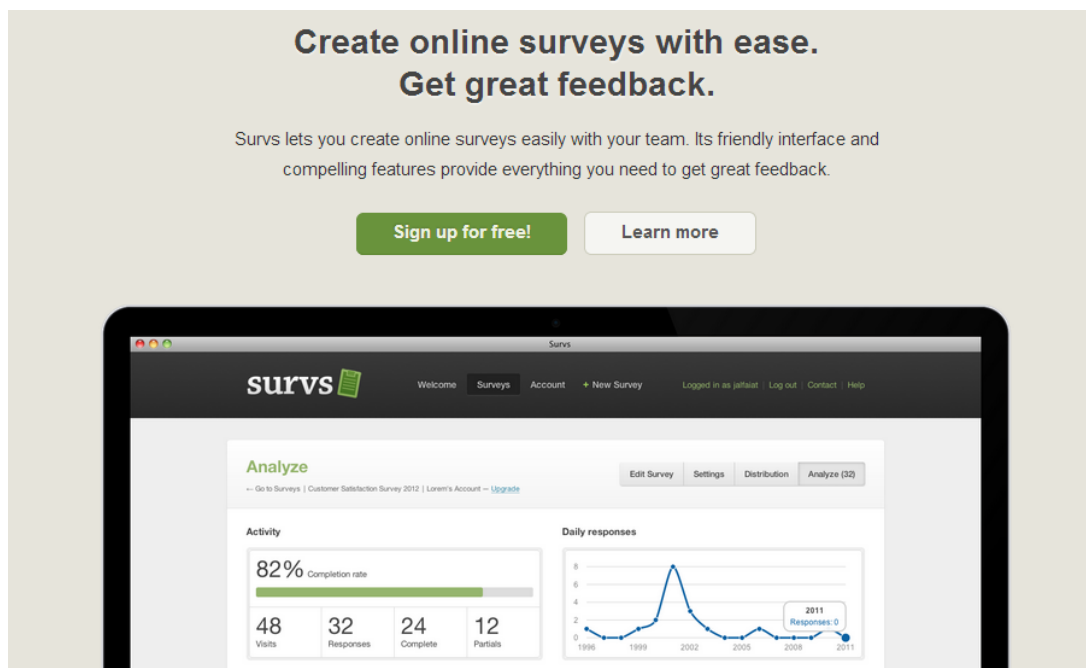


Figure 4.2: “Survs” Home page

The “Survs” system is very similar to “SurveyMonkey”. Many popular Web sites such as Nestlé, Spotify, DHL, Kenwood and Last.fm uses “Survs” as a Web service

provider [14]. The system considers to create survey and then distribute it for many audiences, yet the numbers of audience is valuable not the audience type.

The third related system is called that “Eastern Mediterranean University Surveys” [15]. The home page of the “Eastern Mediterranean University Surveys” is shown in figure 4.3. This is our local system used in Eastern Mediterranean University.



Figure 4.3 “Eastern Mediterranean University Surveys” Home page

The system has simple graphical interface which makes it simpler and easier to use. The “Eastern Mediterranean University Surveys” system is using by the Eastern Mediterranean University in order to collect needed information. The system has only two user types (survey creator and survey responder). Finally, that was all the information provided to us about the Eastern Mediterranean University Surveys system.

When we attended to compare our system with the mentioned sample of survey systems, the initial point that is taken into consideration is the characteristics of our

system. Our system was designed not only to collect responses but also to measure the reliability of the response given by surveyee and this was done by calculating the average time needed to respond for a question which can be compared to the individualized time of the surveyee.

“SurveyMonkey” and “Survs” tries to reach to as many as possible audiences; in our system we built a membership with a surveyee, which provides superior responses. The memberships we created afforded us information about the surveyee and create a connection between the surveyor and the surveyee. We also attended to create groups of our users, we have called these groups “categories”. Categories help the surveyor to create survey for one group or type of student. Previously mentioned systems had two user types; the survey creator and the responder. In our system we created four different user types (i.e. administrator, auditor, surveyor and surveyee) each performed different task to a division of labor in the system.

Furthermore it is always better to use our own system, because it is safer to store the data locally for many reasons. One of the reasons why it is important to store our data locally is that we want to keep our data private. Second reason is that, using a vendor is always riskily since the vendor can decide to erase the data, stop providing service or even change to different line of services. Terms of use of “SurveyMonkey” states that they are not responsible of failure to store, loss or corruption of user content, and they may change its service [16]. Terms of use of “Survs” states that they may terminate user access to the site at any time, without a reason and without a notice [17].

Finally, it was taken into consideration that the system will be used in handheld-computer. Thus the graphical user interface of the system is handheld-computer-friendly which makes it easy to create survey or respond to it.

Chapter 5

CONCLUSION

As a conclusion, the Department of Computer Engineering has some responsibilities to do regular surveys, that are generally required by the ABET accreditation. Some of these surveys are “Exit Survey” and “Course Outcome Surveys” which are done every semester and “Alumni Survey” and “Employer Survey” which are done every two years. The main problems while working with these kind of surveys are as follows; finding and adding new surveyee to the existing list of surveyee; after student graduates it’s hard for surveyor to track students information; keep surveyee’s information updated with the last statuses (e.g. bachelor, master, PhD); and having only two user types (i.e. surveyor and surveyee) makes it hard to create, control and monitor the surveys. The characteristics of our system were designed to overcome the difficulties that has faced by the Department of Computer Engineering at Eastern Mediterranean University. The system also included useful features other than the features included in the system to overcome the difficulties. Some of the main features of our system are as follows:

- Powerful users’ management is developed by including dynamic categorization and division of labor technique in the system in order to distribute a survey to the right responder in easy, fast and effective way. Dynamic categorization system is included to enhance the users’ management system. We divided the surveyees into different categories. Surveyee can enroll in one or more categories. Furthermore, they can leave and/or join other category/ies. For example they can

leave and join other categories; student can change statuses rapidly, for example; a student can graduate from Bachelor degree and start a Master program which this means that a change in category is needed. Another example is that when a PhD student starts to work, he/she should belong to two categories (e.g. Phd and Employee) and this time again an update in category is needed. Moreover to enhance the users' management system, four types of users (i.e. Administrator, auditor, surveyor and surveyee) are used to help to control the system in a better way and this is division of labor

- In users' management, system has three different types of registration which have helped the surveyor to have up-to-date information about the surveyee. These types are as follows:
 - E-mail invitation: Using invitation system enabled the user to invite another user to the system which enhanced the member based of the system.
 - Administrator could create a user. This helped the administrator to enter the knowing or the current student list to the system.
 - Registration through the registration form that exist on the home page. There are two advantages of using this registration type. The first advantage is that surveyee can enroll his/her self to the system. Second one is through the registration form surveyor (or any other user) can suggest new member to the system.

Administrator should approve the surveyee before he/she could use the system. which keeps the membership based part of the system healthy.

- Time tracking for responds that enhances the reliability of responses by knowing the time spent by the surveyee while reading and responding to each question.
- Skip logic: Using skip logic helped the surveyor to respond to the surveyee responses; which means that unnecessary questions has skipped and that has been decided by according to the surveyee responses. This has helped the surveyor to use the time efficiently.
- The graphical user interface of the system is handheld-computer friendly which this has provided an opportunity to participate easily in the system by using any available handheld-computer.
- If the user current action interrupted for any reason (e.g. during survey creating or during survey responding), after login to the system again, they had the chance to continue what they were working on without losing any data.
- Real time result: the survey report can be monitored in real time.
- Informing by e-mail: A new survey created an automatically e-mail and sent it to all of the corresponding surveyee in order to inform them.
- Manual e-mail: Administrator and surveyors could send e-mail to surveyee.
- Automatically open/close surveys: Surveys automatically turned the available surveyees in the chosen date by the surveyor and they automatically closed in the same way.
- Graphical and textual survey reports: System created two different representations automatically of the survey report as a graphical representation and textual representation.
- Individualized reports: System provided report for each surveyee.
- Information about active surveys: System provided information about the active surveys such as the number of surveyees which have participated in the survey.

Additionally our system is designed for the Department of Computer Engineering at Eastern Mediterranean University; however, the system can also be used by other organizations or institutes.

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