# DATABASE MANAGEMENT SYSTEM APPLICATION (CASE STUDY: TWISBLESS)

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***ABSTRACT***

*Wide range of same products and services can be produced by diverse brands. This is certainly a challenge for businesses in Indonesia. Marketing for each brand needs to be more concerned. PT Talenta Wirama Berkat (Twisbless) helps its client in marketing area. But, Twisbless has a problem that Twisbless still process their data in semi-manual mode. Database Management System Application has been built to solve the problem with focus on database management. This application was designed and built using PHP, MySQL, and phpMyAdmin. This application consists of several modules. Based on testing of all features, the application is align with the plan.*

***Key words:*** *Customer Relationship Management, database, modules*

## 1. INTRODUCTION

A wide range of products and services in today's society can be presented by many kinds of brands. An example, for baby formula products, produced by a variety of brands such as Morinaga, SGM, Frissian Flag, Lactogen, and others. As for foreign language education, can be facilitated by brands such as Wall Street, Lembaga Bahasa dan Pendidikan Profesional LIA (LBPP LIA), English First (EF), etc. With so many competitors, it would be a challenge for businesses in Indonesia to promote their products, so support to each brand in terms of marketing, needs more attention.

One company that is able to support the business in terms of marketing is PT Talents Wirama Blessing (Twisbless). Twisbless will help companies to market their products or brands such as creating and managing event marketing campaign (Twisbless, 2011). One of the strategies that Twisbless needs to support the entire business is database management system application that also involved a Customer Relationship Management (CRM). The usefulness of CRM in general is to get new customers and build relationships more closely with customers. The customers definitely a prime target of marketing. CRM will be better if supported by a database management solution. That solution will be built through CRM Database Management Applications Twisbless. The application could store the data of customers who attended the events held by Twisbless. In addition, Twisbless also could send information directly to its customers through text message, e-mail, and Twitter. Twisbless also has to understand what the needs of their customers, and this is facilitated by data based on questionnaire result.

## 2. THEORETICAL BACKGROUND

### 2.1. Twisbless

Twisbless established in September 2009, Twisbless is an Integrated Marketing Services Company. They integrate all of client marketing effort into one cohesive Marketing campaign to deliver the best services. Their scope of Integrated Marketing Services consists of developing idea & concept of Integrated Marketing Campaign, Event Organizer, and Community Builder and Organizer. As experts in Integrated Marketing Services, Twisbless is involved in every stage upon client selection of events, from advising and building the first

concept to completion offering continual functional, and support such as budgeting to productivity to establishing and maintaining business relationships from community and develop data base management for community development. Twibless has a website at www.Twisbless.com (Twisbless, 2011).

### 2.2. Customer Relationship Management

Customer Relationship Management (CRM) is a strategy used to learn more about customers' needs and behaviors in order to develop stronger relationships with them. Good customer relationships are at the heart of business success. There are many technological components to CRM, but thinking about CRM in primarily technological terms is a mistake. The more useful way to think about CRM is as a strategic process that will help to understand your customers' needs and how you can meet those needs. This strategy depends on bringing together lots of pieces of information about customers and market trends (Dyche, 2002).

The idea of CRM is that it helps businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers. With an effective CRM strategy, a business can increase revenues (Kumar, 2006).

### 2.3. DBMS and SQL

A database management system (DBMS) is a program that lets one or more computer users create and access data in a database. The DBMS manages user requests and requests from other programs. In handling user requests, the DBMS ensures the integrity of the data and security. The most typical DBMS is a relational database management system (RDBMS). A standard user and program interface is the Structured Query Language (SQL). There are many databases that support the use of SQL to access their data, among them is MySQL. This database is commonly used by programs that run on websites, as well as being listed as one of the system requirements for certain web software like blogging or CMS (Kolfer, 2005).

### 2.4. HTML

HTML stands for HyperText Markup Language. HTML consists of a series of short codes (tags) typed into a text-file. The text is then saved as a html file, and viewed through a browser. This browser reads the file and translates the text into a visible form, hopefully rendering the page as the author had intended (Farid, 2002).

### 2.5. PHP

PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML (Basuki, 2010).

### 2.6 Model View Controller

The Model View Controller (MVC) pattern is the most used pattern for today's world web applications. At present there are more than a dozen PHP web frameworks based on MVC pattern such as Codeigniter. The MVC pattern separates an application in 3 modules: Model, View and Controller: The model is responsible to manage the data; it stores and retrieves entities used by an application, usually from a database, and contains the logic implemented by the application. The view (presentation) is responsible to display the data provided by the model in a specific format. It has a similar usage with the template modules present in some popular web applications, like wordpress, joomla. The controller handles the model and view layers to work together. The controller receives a request from the client, invoke the model to perform the requested operations and send the data to the View. The view format the data to be presented to the user, in a web application as an html output (Myler, 2008).

### 2.7. XAMPP

X (*Cross*) Apache MySQL PHP Perl (XAMPP) is a free and open source cross-platform web server solution stack package, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages. It is used as a development tool, to allow website designers and programmers to test their work on their own computers without any access to the Internet (XAMPP, 2011).

### 2.8. Gammu

Gammu is the name of the project as well as name of command line utility. It is written in C and built on top of libGammu. Gammu command line utility provides access to wide range of phone features, such as call listing, SMS and MMS retrieval, phonebook listing, etc. The Gammu package is also include Gammu SMS Daemon, Gammu library and Python bindings which can be used to develop an application to access mobile phone (Gammu, 2011).

## 3. SYSTEM DESIGN

In this application, modules that support are made only in the scope of data collection, data members report, questionnaires, and events. In addition, this application could send information to members via text message (SMS), e-mail, and Twitter (blaster).

### 3.1 Database Design

Database for this application consists of 27 tables and also there are 7 tables from add-on applications, Gammu. Tables from other applications are used in the process of sending text message. A list of all tables used in this application can be seen in Table 1, while relational database application diagram (without Gammu's tables) can be seen in Figure 1.

These tables were designed (with the approval of Twisbless) to hold customer's data. Those data will be the source for the application to generate more complete and specific reports. Those reports will assist Twisbless in their marketing strategies.

Sending invitations, promotions etc to customers by Twisbless also be more in line with the target brands, because this application could show specific target market. In addition, all promotions delivered through social media (twitter) and text messages can also be on target so it will reduce unnecessary cost. The questionnaire tables will also be the basis for Twisbless to know the desires and the level of satisfaction of their customer, which ultimately helps in improving Twisbless next events.

### 3.2. Website Application Design

This web application will be build with XAMPP version 1.7.3 and CodeIgniter version 2 (PHP framework). This application consists of four levels of users, ie guests, members, employees and administrator. Figure 2 shows a block diagram for levels of users. From that diagram, it can be seen that guests can visit the Twisbless homepage, could send a message to the Twisbless, and register to become a member.

Table 1. List of tables

| No | Table Name | Function |
|---|---|---|
| 1 | Album | album data |
| 2 | Captcha | captcha data |
| 3 | City | city data |
| 4 | Client | client data |
| 5 | Contact_us | incoming data |
| 6 | Event | event data |
| 7 | Event_client | client on the events data |
| 9 | Event_competition _champion | champions list from event competition |
| 10 | Event_member | member on the events data |
| 11 | Event_member_child | member's childen on the events data |
| 12 | Event_ticket | ticket on the event data |
| 13 | Event_vendor | vendor on the event data |
| 14 | Gallery | gallery data |
| 15 | Hobby | hobby data |
| 16 | Industry | industry data |
| 17 | Job_specialization | job specialization data |
| 18 | Job_status | job status data |
| 19 | Last_table | store the last data in particular table(s) |
| 20 | Member | member data |
| 21 | Member_child | member's childen data |
| 22 | Questionnaire _question | questionnaire data |
| 23 | Questionnaire _answer | questionnaire answer data |
| 24 | Questionnaire _respone | questionnaire response from members data |
| 25 | Region | region data |
| 26 | User | user data |
| 27 | Vendor | vendor data |
| 28 | Deamons (Gammu) | running system data |
| 29 | Gammu (Gammu) | gammu version data |
| 30 | Inbox (Gammu) | inbox data |
| 31 | Outbox (Gammu) | outbox data |
| 32 | Phones (Gammu) | phone data |
| 33 | Sentitems (Gammu) | sentitems data |
| 34 | Outbox_multipart (Gammu) | outbox multipart data |

When a user login as a member, the user will get additional features such as a page to edit their profile and also to fill several questionnaires for the events that their went to.

When a user login as employees, the user has more features than members such as view data members, events, client, vendor,

and questionnaires. Administrators have the highest privilege in this application.

Administrators could edit data of member, event, clients, vendors, and questionnaires. Administrators could also send a message or information to all members, clients and vendors through text messages, e-mail and Twitter simultaneously. The main flowchat of this application can be seen in Figure 3.

## 4. SYSTEM TESTING

In the database has been set up pertinent data to support web application testing process on CRM Database Processing Applications Twisbless. The first page of the application can be seen in Figure 4. On this page, both members and employees can login Twisbless. Guest can register as a member, read the profile of Twisbless, events that organized by Twisbless, photos, and could send a message or a suggestion.

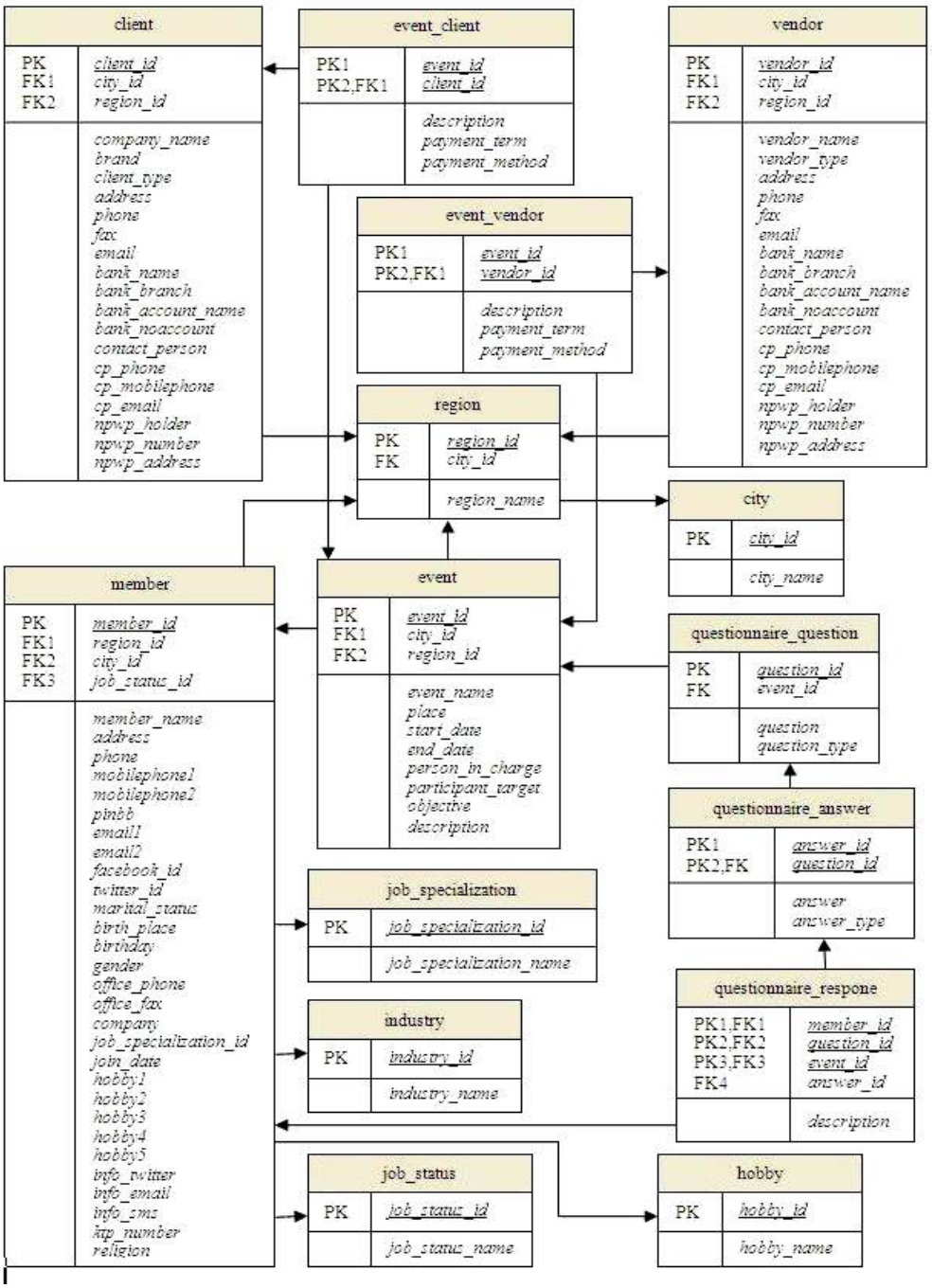


Figure 1. Relational database diagram

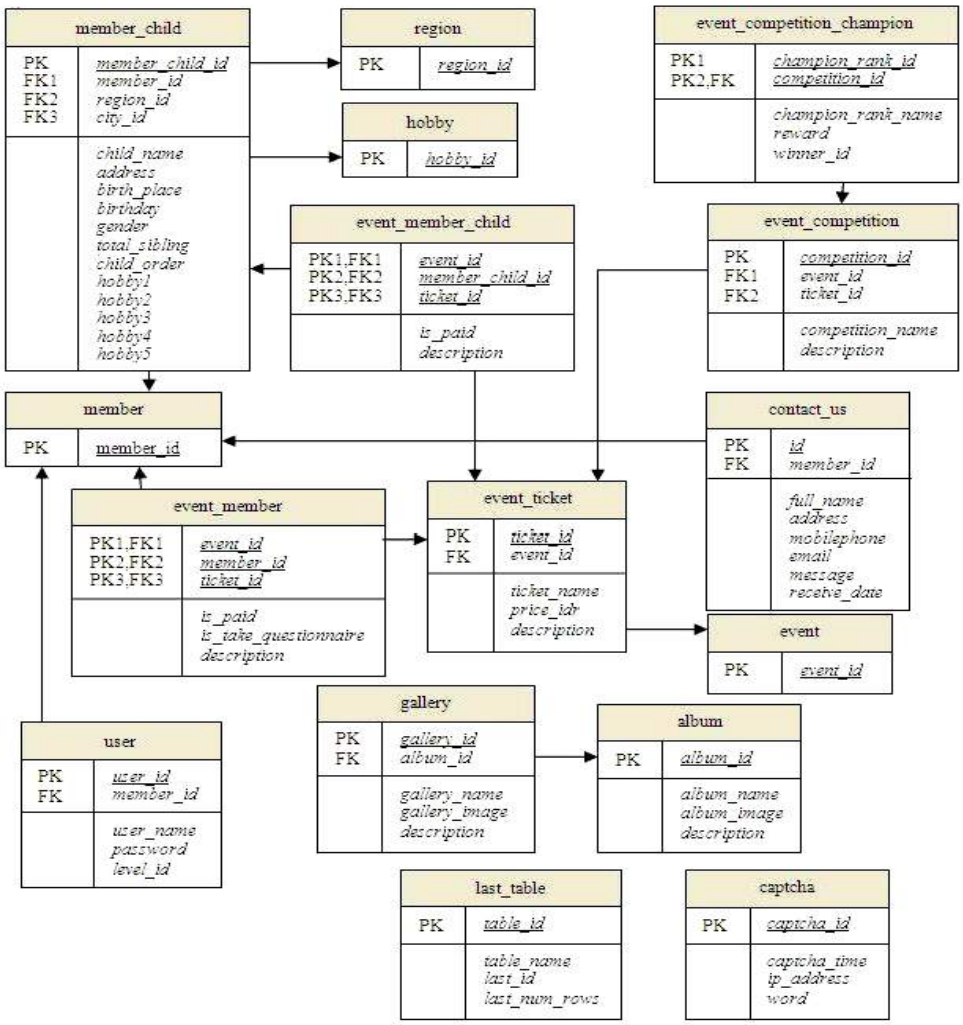


Figure 1. Relational database diagram (cont.)

### 4.1. Member System Testing

Members could edit their profile and fill out a questionnaire from the events that they went to.

### 4.2. Employee System Testing

Features for employees are ability to look at the data of members, events, client, vendor, and questionnaires. Figure 6 shows the features for employees.

Employees also could search specific members based on several parameters. Figure 7 is an example of search result of members that have birthday in January. From the search results, employees could also download those results in Microsoft Excel format.

Employees also could see the full report of a questionnaire in the form of graphs. They can choose the type and size of the graph. Figure 8 shows a sample of questionnaire graphic. Furthermore, employees also could create charts according member's age groups and several specific parameters.

### 4.3. Administrator System Testing

Administrator has all employees' features and some features, such as maintaining data members, events, client, vendor, and questionnaires of Twisbless. Figure 9 shows all features for administrator. Administrator could search specific dataof members such as birthday, attended event etc.

Administrator also has feature to create a questionnaire for an event. Administrators could determine the number and types of questions of a questionnaire. Figure 10 shows the questionnaire page.

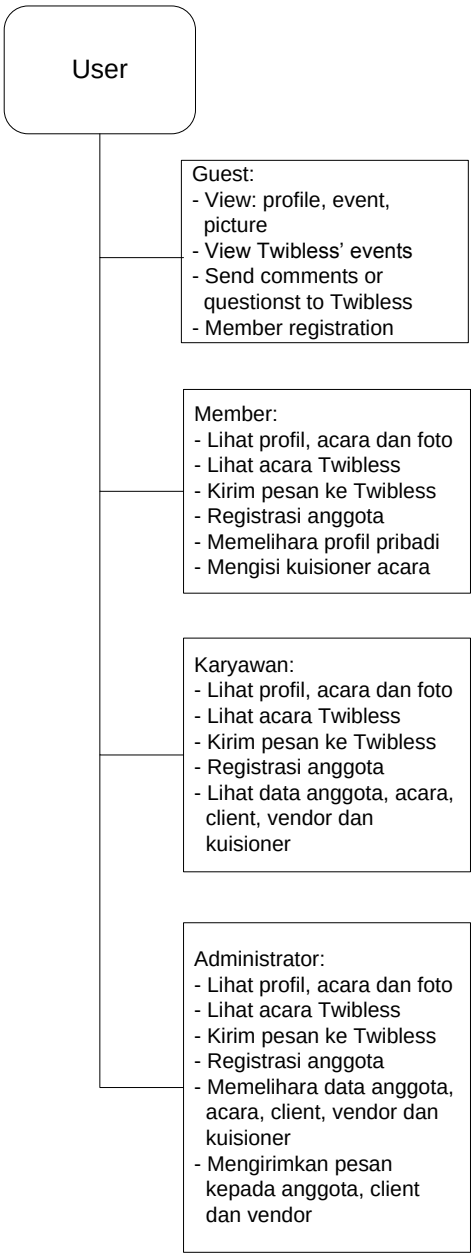


Figure 2. Block diagram for levels of users

Furthermore, administrator has special access rights to send information to all members or members with specific criteria through three medias; text message, e-mail, and Twitter. Using text message and e-mail, the administrator also could send information to all clients and vendors. Figure 11 shows the page to send information through social media Twitter.

## 5. CONCLUSION

In conclusion, based on the result of several test, all the features of this application are running in accordance with the design including the results of the graphic based on types and categories. All the information that send via twitter and test message also goes according to design.

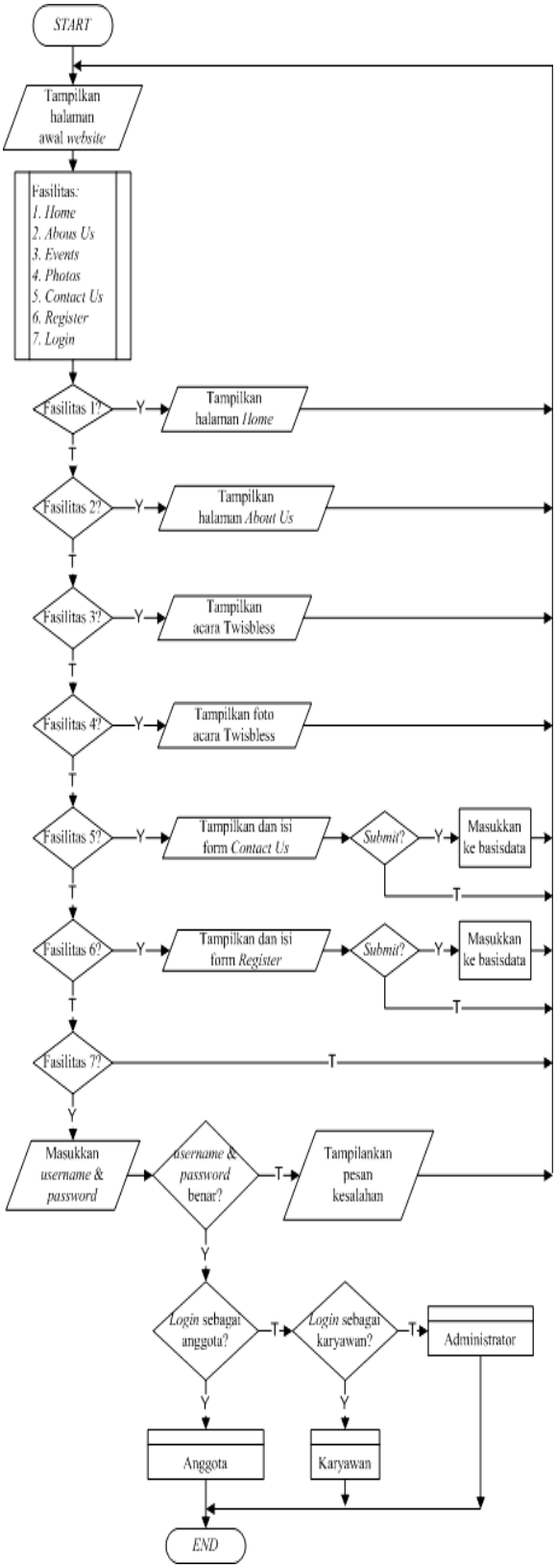


Figure 3. Main flowchart

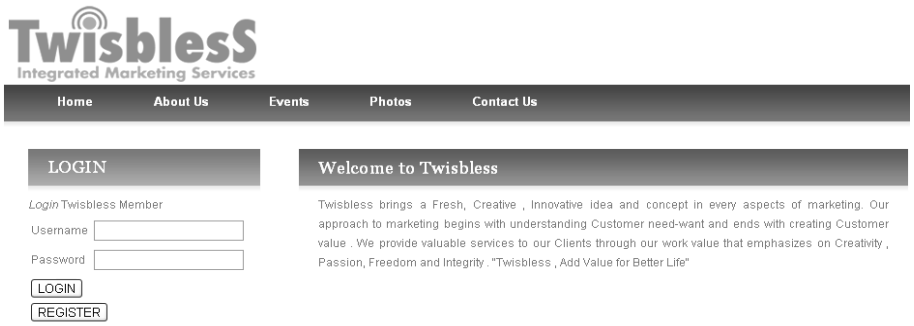


Figure 4. Homepage of the application


Figure 5. Member's page


Figure 6. Employee features

| NO | MEMBER ID | NAME | BIRTH PLACE | BIRTHDAY | |
|---|---|---|---|---|---|
| 1 | TBM0112 | Jonanthan G | Bandung | 02 Jan 1971 | Detail |
| 2 | TBM0170 | Herlika | Bandung | 19 Jan 1992 | Detail |
| 3 | TBM0175 | Mustika | Jakarta | 10 Jan 1980 | Detail |
| 4 | TBM0178 | Maya Anggraini | Jakarta | 28 Jan 1978 | Detail |
| 5 | TBM0194 | Fenny | Jakarta | 01 Jan 1980 | Detail |
| 6 | TBM0210 | V Kusumo Redjeki | Jakarta | 24 Jan 1980 | Detail |
| 7 | TBM0261 | Nuryadili | Jakarta | 08 Jan 1987 | Detail |
| 8 | TBM0271 | Nurul Lisnawati | Jakarta | 10 Jan 1984 | Detail |
| 9 | TBM0318 | Anay Eko Wibowo | Jakarta | 01 Jan 1977 | Detail |
| 10 | TBM0331 | Nani Muliyani | Jakarta | 31 Jan 1980 | Detail |

Figure 7. Search result of members in employee's view page

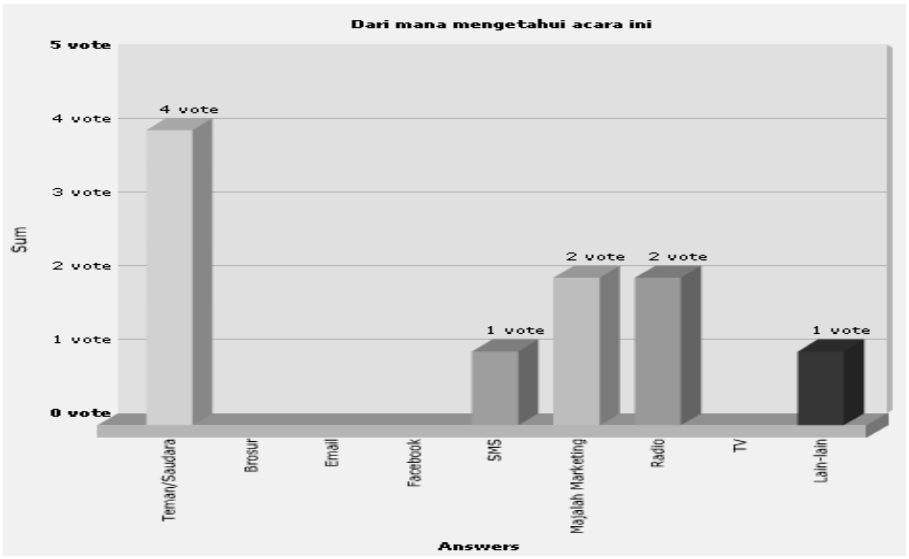


Figure 8. Sample of questionnaire graphic


Figure 9. Application administrator features

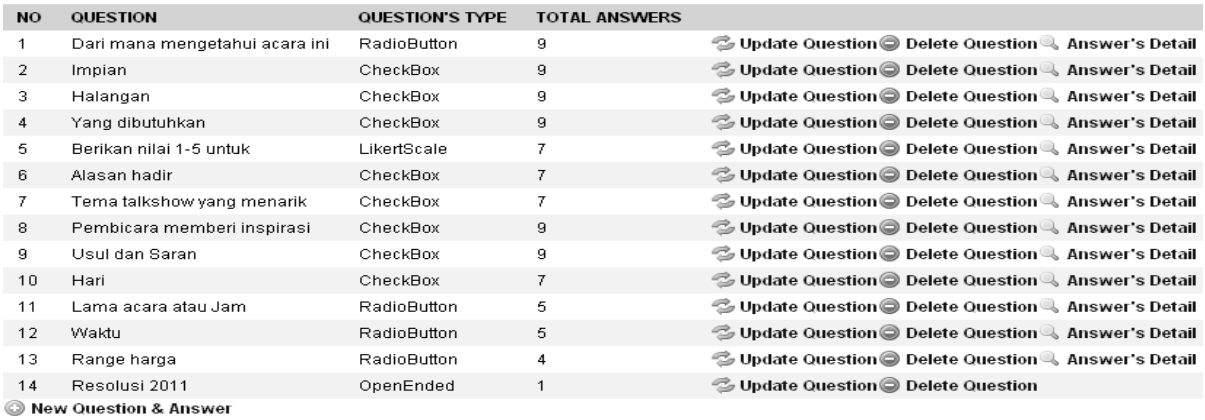


Figure 10. Questionnaire page

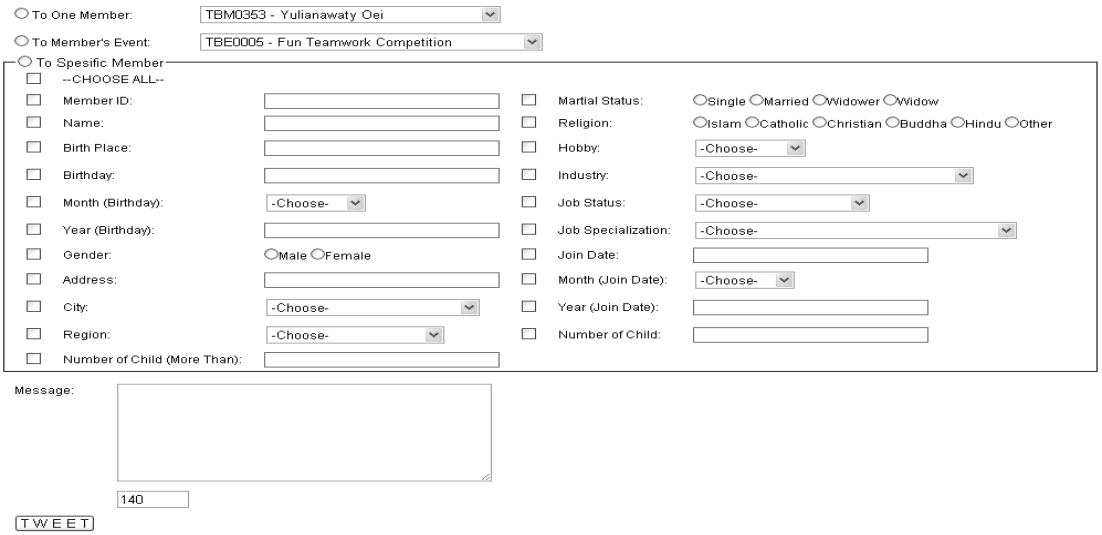


Figure 11. A page to send information through Twitter

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