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THE CONSTRUCTION OF CUSTOMER RELATIONSHIP MANAGEMENT INFORMATION SYSTEM AT PT ADMA

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ABSTRACT

PT Abdi Daya Mitra Abadi (ADMA) is an outsourcing company that moves in services of providing security, drivers, cleaning service, and front office. As well as serving provision of security equipment such as batons, handcuffs, walkie-talkies, etc. PT ADMA only uses Company Profile that contains short information of the company and its only product services when doing promotional products. As the result, clients and prospective clients know less about the complete information on PT ADMA and all products owned by PT ADMA.
Based on these problems, PT ADMA requires a Customer Relationship Management (CRM) information system. CRM type used is Analytical CRM. CRM construction use analytical methods of CRM framework. The construction processes of this system used the waterfall software paradigm. The analysis and the modeling used is Object Oriented modeling using the Unified Modeling Language (UML). The construction software system used the PHP programming language and MySQL as the database.

Testing that performed in this study using Alpha and Beta testing. Based on the test results, CRM information system website that built facilitate the company in promoting the products, become media information and can facilitate client to view and order the latest products without coming directly to PT ADMA.
Keywords : Customer Relationship Management, Analytical CRM, Framework CRM, Unified Modeling Language

1. INTRODUCTION

PT Abdi Daya Mitra Abadi (ADMA) outsourching company is moving in the field of security services providers , the driver , cleaning service , and the front office .As well as serving the provision of security equipment like (sticks , handcuffs , handy talky , etc .) .Pt admah currently has 110 workers ready to work and 335 workers (security , the driver , cleaning service , and the front office that has been placed in some state companies and private in west java. PT ADMA clients including Dinas Kesehatan Kota Bandung, Dinas Kesehatan Provinsi Jawa Barat, Dinas Perkebunan Kota Bandung, Diskominfo Kota Bandung, Satpol PP Kota Bandung.

Based on interviews conducted with the father of andi as marketing manager of pt admah , current conditions in the company is marketing in the process of admah pt admah found problems in promoting the product services offered .Because when do the promotion of using only information that contains a brief profile company pt admah just services and products .As a result clients or prospective clients less know detailed information about products and the entire pt admah owned by pt admah .Other facts show that the client prospective clients only order products and services without knowing who promoted another security equipment .It is obtainable from a list of prospective clients december 2014 that is from 5 (five) prospective clients have received a letter offering services and products company profile , only one who performs reservations.

Reserving procedures under way in pt admah namely parties clients or prospective clients is still in difficulties in conducting reserving the product depending on the needs.Because the procedures reservations only done if clients call their pt admah by telephone that a portion of marketing can visit directly into the company of prospective clients to explain the product that clients can do reserving.As a result prospective clients not doing reservations and clients do not to increase the number of reserving.It is seen from the data reserving 2012 up to 2014 namely clients extending the contract but not add more the product of a booking before.While clients who potential client namely extending the contract in later years and the additional amount of products in the form of services or products of security equipment.

Other problems namely in the process of service , clients are still difficulties in complaints , criticism , and advice facilities because the absence of criticism and suggestions that can accommodate from clients .As a result many clients who do not extend the contract with pt admah cooperation because the services rendered less satisfactory .It is seriously impact on the number of clients pt admah

there are 27 clients of the year 2012 , 2013 there were 20 clients , and left 16 clients until 2014 .

Based on the problem at hand current in pt admah, then pt admah would need an information systems customer relationship management (crm) that would facilitate marketing in promoting the product services and security equipment make it easier for clients in an ordering the product services, security equipment and make it easier for clients in conveying complaints, criticisms and suggestions which may be used by marketing to construct and maintain a good relationship with a client.

2. CONTENT RESESEARCH

2.1 Customer Relationship Management

Customer Relationship Management (CRM) Strategy is to be implemented by widely for set the relationships between the company and customers , client, and prospective customers. There are three stages in crm, namely:

1. Acquire

Acquire is a stage acquire customers. Through this stage can give an assessment to consider a company with a first impression on the company.

2. Enhance

Enhance is a process which the company build a good relationship with customers. By listening to complaints from customers and receive advice from customers is one of an effective way in building relationships with customers .In this stage there are two things must be considered:

a. Cross selling, namely is one of strategy in identify customers to increase sales .For example, appendages offer packages to customers.

b. Up Selling, that is the strategy the increase in the quantity of the package.For example, the package offers a larger quantity equal.

3. Retain

Retain is the stage where the company tried to mampertahankan relationships with customers, in other words get customers and then maintain relations with them .To connect with continuous and maintain relationships with customers, and companies should use the view that uses customer by providing services and the application of supporters.

Framework is a framework that can be used to develop a system of crm .The gist of crm information technology revolution is web-based technology which the company given the opportunity to choose how the company interact with customers. This web-based technology allows companies to build a good relationship with customers than ever before with manual way. The use of web have the ability to respond to direct the request of customers and provide the needs of customers with interactive in addition the company can take advantage of low cost with quality services.

This research proposed a conceptual framework which aims to apply crm successfully based on, the previous studies, and experience .Framework integrate three main construction phase namely the implementation of crm, crm main components, and crm success factors .A framework it began to stage pra-implementasi where the organization should get support from the top of management to apply crm before entangle in the implementation of the truth.

Based on the commitments that adequate by the top management of the process could be continued to assess readiness organization in terms of human, technology, and organization (processes) ability to apply crm, hence, crm strategy must be developed, conformable, and communicated to the staff. An arrow reflect the implementation process flows. Crm strategy have to be included into the act of by applying crm project focusing on factors in the success in every other component of crm. As a result, the implementation of each factor success must be measured to ensure the success of project implementation crm.

The final step framework focuses on measuring the financial impact of CRM implementation and on marketing performance to ensure realizing the objective of a CRM strategy and to assess the possible influence of other external factors. Arrow rise reflects the feedback and lessons learned from the implementation of which is based on the measurement of CRM success factors and measure project performance after fully implemented CRM as a process. The following can be seen in Figure 1.



Figure 1. Framework CRM

1. Customer Strategy Layer: Layer beginning where the company determines the strategy to reach customers. This layer has an attribute inside-out and outside-in. Inside-out, which means that the strategy comes from the company itself and applied to the customer, and the outside-in, which means the strategy adopted by the company based on suggestions or criticism given by the customer

2. Customer to Customer Layer: This layer describes how customers share information about the company to other people or other companies.

3. Layer Customer Experience: Layer which is the accumulated experience of the company's customers.

At this stage the system will show which customers have established cooperative relationships with the company and have a high loyalty with the provisions of the regulations already meet future customer specified period.
4. Operational CRM Channels Layer: This layer is a stage of communication and interaction between the company and the customer.
5. Layer People and Eco-system: show the competent human resources to run the CRM system to be built.
6. Lean & Agile Processes Layer: This layer deals with all business processes related to the customer.

2.2 Analysis Systems

Analysis system is a stage of decomposition of the whole system aims to understand the system, know the system deficiencies, and determine the needs of systems Marketing Manager at PT ADMA. By analyzing the problem and analyzing procedures the system is running, it can be used as a basis for the design and improvement of the system to be built in order to be an effective system

2.3 Analysis Problem

PT ADMA has some problems such as:
1. Marketing is still difficult to promote because promotional products company profile only use products that contain only services so that clients are less informed and the entire product PT ADMA.
2. Clients and prospective clients are still having trouble ordering products as needed because the booking procedure is only done through the phone to the client's marketing company that will come to order the product.
3. Client difficult to submit complaints, criticisms, and suggestions for the lack of service facilities criticisms and suggestions so that the service less than satisfactory, and the client does not perform a contract extension.

2.4 Analysis Stages CRM

Stages of Customer Relationship Management (CRM) is applied to business processes PT ADMA, the implementation has three (3) stages to be carried out, among others:
1. Acquire Stage
Acquire stage is the stage of getting new clients. Company acquire new clients by giving a good impression to prospective clients of the company by providing the best services of the company so that prospective clients are interested in doing the booking and transactions with the company.
At this stage PT ADMA will get new clients by:
a. Offer Products Services (promotion)
This facility is in the form of product promotion services to prospective clients by providing the detailed information through its website.
b. Company Info
This facility is used to simplify the way clients and visitors in search of information about the company. This company information such as company profile and experience of the company's cooperation with other companies. This facility is expected to clients and prospective clients can have more confidence to cooperate with the company.
c. Member List
Users list is a facility designed to facilitate clients and prospective clients. This facility registration form to become a member. By signing up to become a member of the client or prospective client can use the facilities of orders for products and equipment, and facilities to submit complaints, critic and suggestions.
2. Enhance Stage
At this stage of Enhance PT ADMA will build a good relationship to its clients by providing the following facilities:
a. Facility Complaints
This facility can only be used by clients who have signed up to become a member on the website. Complaints facility is done by selecting the type of complaint which will be delivered and write the contents of the complaint on the form provided. Incoming complaints will be checked by marketing so as to facilitate marketing to know the progress of the handling of client complaints. This facility is expected to facilitate the client to make a complaint without having to come directly to the company.
b. Means Suggestions
This facility is a place for clients to submit comments and suggestions for the company in the form of shortcomings that still exist either in the product or service. This facility is expected to create a company quickly menaggapi all the criticism given the client so that the company can examine ourselves to the deficiencies of the company. The suggestions of the clients can also be used by companies to improve service to clients and the improvement of product quality in order to better service, which is expected to build better relationships with clients.
c. Cross Selling
Cross selling is one way to offer other products to clients in order to increase sales. Facilities offered in the form of additional security equipment to the client.
d. Up Selling
Up selling is a way to increase sales of products and services of security equipment through the addition quantity. Facilities offered in the form of products and services of security equipment are the same as the quantity more.
3. Retain Stage
This stage the company will retain its clients by always providing the best service owned companies, especially in the services offered in particular by:
a. Gift

Facilities gift is a personalized service for the provision of the prize without distinction to all clients. This gift-giving can be goods as a parcel for the celebration of Eid-ul-Fitr, Eid al-Adha, or other celebrations such as Christmas and New Year.

2.5 Analysis Framework CRM

This section will explain the framework that can be developed further to run CRM information system that will be built or often called by the framework. Framework in CRM consists of several layers to build applications with this CRM approach. Here is the CRM framework PT ADMA proposed, can be seen in figure 2 and table 1.

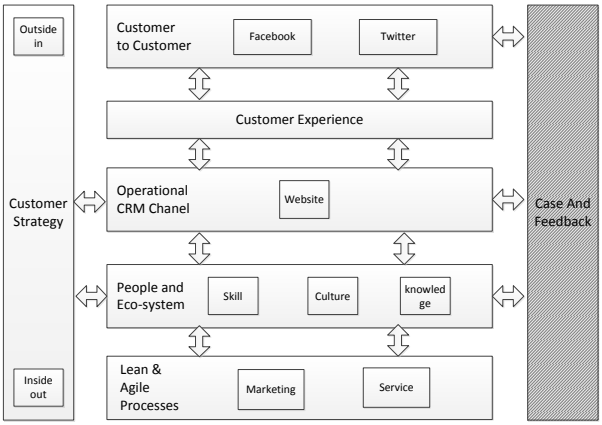


Figure 2. Framework CRM PT ADMA

Framework that is used is the framework that has been tailored to the needs of a company that is customer-related activities and will be the foundation on which applications are built, the following is an explanation of the framework of CRM on the CRM system PT ADMA.

1. Layer Customer Stategy

Layer early to determine how to reach the client. At this stage in the CRM system will be built based on the web, this is done because by utilizing web technology CRM concept can be implemented optimally. Inside-out is done by showing the website look attractive and offer products that are available on the website. While the outside-in is done with receiving complaints, criticism and suggestions from clients who will apply the company.

2. Layer Customer to Customer

This layer describes how customers share information about the company to other people or other companies, namely by clicking tomboh share Facebook and Twitter.

3. Layer Customer Experience

Layer which is the accumulated experience of the company's clients. At this stage the system will display the member which has worked with the company and have a high loyalty to the provision members who have successfully re-ordering product ordering services or ordering equipment.

4. Operational CRM Layer Channels

Layer Channel CRM to communicate and interact with clients or members. At this stage the system will provide the means to communicate from the start the booking stage to complaints by filling out a complaint form.

a. The website, which means the company to introduce themselves, promote products and services of security equipment, orders for products and submit complaints from clients.

5. Layer People and Eco-system

The most important layer is competent human resources that Marketing must have:

a. Skill: the ability to serve the needs of clients.

b. Knowledge, which have good knowledge about all things related to the client, company and product services.

c. Culture, which is a good habit to serve the needs of clients in the client.

6. Layer Lean And Agile Processes

This layer is the stage of implementing CRM activities related to all business processes related to clients that marketing and service.

Table 1. Layer Component Framework Proposed

Layer framework	Komponen		
Layer customer strategy (pendekatan dengan klien)	*Outside In*	*Inside Out*	
	Klien dapat memberikan saran atau komentar dalam hal pelayanan ataupun produk jasa.	Melakukan penawaran produk dan memberikan informasi tentang produk lain.	
Layer customer to customer	*Facebook* dan *Twitter*		
(cara klien berbagi informasi tentang PT ADMA)	Komponen *facebook* dan *twitter* merupakan sarana bagi klien untuk berbagi informasi tentang PT ADMA kepada perusahaan lain.		
Layer customer experience (pengalaman klien)	*Layer customer experience* (pengalaman klien)		
	Komponen yang menjelaskan pengalaman klien selama bekerjasama. Pengalaman klien ditampilkan dalam daftar rekanan dan history pemesanan.		
Layer operasional chanel (tahapan berkomunikasi dengan klien)	*Website*		
	Komponen usulan merupakan sarana perusahaan untuk memperkenalkan diri serta mempromosikan produk, melakukan pemesanan di web dan menyampaikan keluhan, kritik dan saran.		
Layer people and eco-system (bagian yang berkompeten untuk menjalankan sistem informasi CRM)	*Skills*	*Knowledge*	*Culture*
	Komponen usulan dalam layer ini yaitu marketing mempunyai kemampuan dalam pengelolaan database dengan menggunakan MySQL	Komponen usulan ini menjelaskan pengetahuan dari staff maketingr mengenai aplikasi komputer, fungsionalitas komputer serta pengetahuan dalam menggunakan internet internet.	Komponen usulan ini menjelaskan kebiasaan yang baik terhadap klien dalam melayani klien tersebut
Layer lean dan *agile* proses (proses bisnis yang berhubungan dengan klien)	Marketing dan *Service*		
	Komponen usulan untuk *layer lean* dan *agile* proses yaitu proses komplain yang dilakukan secara *online* melalui *website* yangakan dibangun.		

2.6 Analysis of Non-Functional Requirements

Analysis of non-functional PT ADMA currently have hardware specifications that can be seen in table 2.

. Table 2. Hardware Available

No	Perangkat Keras	Spesifikasi
1	Processor	Intel Core 2 duo
2	Monitor	Resolusi 1360x768
3	VGA	Intel HD Graphics 4000
4	RAM	2 GB
5	Hardisk	500 GB
6	Keyboard	Logitech
7	Mouse	Logitech
8	Printer	Epson hitam dan warna
9	Koneksi internet	Kecepatan 3Mbps

Hardware specifications required can be seen in Table 3.

Table 3. Hardware Required

No	Perangkat Keras	Spesifikasi
1	Processor	Mininal 2.8 GHz
2	Monitor	Minimal Resolusi 1024x768
3	VGA	Minimal 256MB
4	RAM	Minimal 512MB
5	Hardisk	Minimal 40GB
6	Keyboard	Standar keyboard
7	Mouse	Standar mouse
8	Printer	Epson hitam dan warna
9	Koneksi internet	Minimal Kecepatan 128Kbps

2.6.2 Analysis Software Required

PT ADMA currently has a software specification that can be seen in Table 4.

Tabel 4. Software Available

No	Perangkat Lunak	Spesifikasi
1	Sistem Operasi	Microsoft Windows 7 Ultimate
2	Web Server	-
3	Database	-
4	Bahasa Pemograman	-

The software required specifications can be seen in Table 5.

Table 5. Software Required

No	Perangkat Lunak	Spesifikasi
1	Sistem Operasi	Microsoft Windows XP/7/8/Server 2003/Server 2007
2	Web Server	Apache
3	Database	MySQL
4	Bahasa Pemograman	PHP

Berdasarkan analisis yang telah dilakukan terhadap perangkat lunak yang ada di PT ADMA. Perangkat lunak yang dibutuhkan belum memenuhi spesifikasi perangkat lunak untuk pembangunan sistem informasi Customer Relationship Management yang akan dibangun.

2.6.3 Analysis User Requirement

Based on the analysis that has been carried out on the existing software in the PT ADMA. The software required software do not meet the specifications for the development of Customer Relationship Management information system to be built and understanding of computer users. The existing personnel to run the system information can be seen in Table 6.

Tabel 6. Employee On Systems Running

No.	Pengguna	Tanggung Jawab	Kemampuan
1	Marketing	1. Mempromosikan produk jasa 2. Bertanggung jawab dan memproses perpanjangan kontrak kerja sama 3. Melakukan pengawasan dan evaluasi kinerja bagian marketing	1. Dapat mengoperasikan komputer 2. Mengerti cara menggunakan aplikasi berbasis website
2	HRD	1. Merekrut anggota baru 2. Mengurus dokumen-dokumen persyaratan dan perijinan 3. Mengarsipkan administrasi karyawan dan anggota	1. Dapat mengoperasikan komputer 2. Mengerti cara menggunakan aplikasi berbasis website

.

The user needs to run the system this information must have the characteristics shown in Table 7.

Table 7. Characteristics Of User Requirements

No.	Pengguna	Tanggung Jawab	Kemampuan	Hak Akses
1	Marketing	1. Mempromosikan produk jasa secara *online* dan *offline* 2. Bertanggung jawab dan memproses perpanjangan kontrak kerja sama 3. Melakukan pengawasan dan evaluasi kinerja bagian marketing	1. Dapat mengoperasikan komputer 2. Mengerti cara menggunakan aplikasi berbasis website 3. Mengerti cara menerima pesanan dari *member*	Konfirmasi pemesanan produk, keluhan, kritik dan saran, mengelola data produk, data klien dan data *user*.
2	HRD	1. Mengelola data anggota belum bekerja dan data pencapaian kerja anggota 2. Melakukan pengawasan dan evaluasi kinerja bagian HRD	1. Dapat mengoperasikan komputer 2. Mengerti cara menggunakan aplikasi berbasis website	mengelola data anggota belum bekerja, dan data pencapaian kerja anggota
3	*Member*	Melakukan pemesanan dan melakukan keluhan, kritik dan saran.	Mampu mengoperasikan komputer, dan dapat melakukan *browsing* dan memiliki pengetahuan tentang internet	Melihat data produk, detail produk, melakukan pemesanan, melihat *history* pemesanan, memberikan keluhan, kritik dan saran.
4	Pengunjung	-	Mampu mengoperasikan komputer, dan dapat melakukan browsing dan memiliki pengetahuan tentang internet	Melihat produk, detail produk, melihat profil perusahaan, daftar sekarang, dan mendaftar sebagai *member*.

Based on the analysis that has been done. Users who will use this information system already meets the characteristics of the user's needs.

2.6.4 Analysis Of Software Requirements

Software requirements specification in the information system to be built consists of functional software requirements specification (SKPL-F) and the software requirements specification of non functional (SKPL-NF). Software requirements specification can be seen in Table III.8. and Table 9.

Table 8. SKPL Functional

No.	Kode	Deskripsi Kebutuhan
1	SKPL-F-01	Sistem dapat menyediakan fasilitas login.
2	SKPL-F-02	Sistem dapat menyediakan fasilitas lupa password
3	SKPL-F-03	Sistem dapat menyediakan fasilitas daftar baru
4	SKPL-F-04	Sistem dapat menyediakan fasilitas pengolahan profil.
5	SKPL-F-05	Sistem dapat menyediakan fasilitas pengolahan data klien.
6	SKPL-F-06	Sistem dapat menyediakan fasilitas pengolahan data produk.
7	SKPL-F-07	Sistem dapat menyediakan fasilitas pengolahan data user.
8	SKPL-F-08	Sistem dapat menyediakan fasilitas pengolahan data pemesanan.
9	SKPL-F-09	Sistem dapat menyediakan fasilitas pengolahan data *history* pemesanan.
10	SKPL-F-10	Sistem dapat menyediakan fasilitas pengolahan data pelayanan.
11	SKPL-F-11	Sistem dapat menyediakan fasilitas pengolahan data *history* pelayanan.
12	SKPL-F-12	Sistem dapat menyediakan fasilitas pengolahan data anggota belum bekerja.
13	SKPL-F-13	Sistem dapat menyediakan fasilitas pengolahan data penempatan kerja anggota.

Tabel 9. SKPL Non Functional

No.	Kode	Deskripsi Kebutuhan
1	SKPL-NF-01	Sistem ini digunakan oleh *member*, marketing, dan HRD.
2	SKPL-NF-02	Sistem ini dibangun berbasis web.
3	SKPL-NF-03	Sistem ini harus terhubung dengan koneksi *internet*.

2.7 Analysis Of Functional Requirements

Modeling analysis used in the construction of CRM information system using UML (Unified Modeling Language). Stages of modeling in the analysis of functional requirements include identification of actors, use case diagrams, use case scenario, activity diagram, sequence diagram, and class diagram.

2.7.1 Identification Actor

Actors involved in the information system CRM can be seen in Table III.10. and tables III.11

Table 10. Identification Actor CRM Information System (back end)

No.	Aktor	Deskripsi
1	Marketing	Mengelola dataklien, mengelola data pemesanan, mengelola data produk, mengelola data*user*, dan mengelola data pelayanan.
2	HRD	Mengelola data anggota belum bekerja dan mengelola data penempatan kerja anggota

Table 11. Identification Actor CRM Information System (front end)

No.	Aktor	Deskripsi
1	*Member*	Melakukan pemesanan, komplain, kritik dan saran.
2	Pengunjung	Melihat informasi seputar perusahaan dan promosi produk jasa.

2.7.2 Use Case Diagram

Use Case Diagram is a construction to describe the relationship between actors with activities contained in the system, use case describes what processes exist in the system and how it relates to the actor. Use case diagram is a combination of the use case use case front end and back end. Use case diagrams can be seen in Figure 3 and Figure 4.

1. Use Case Diagram Front End

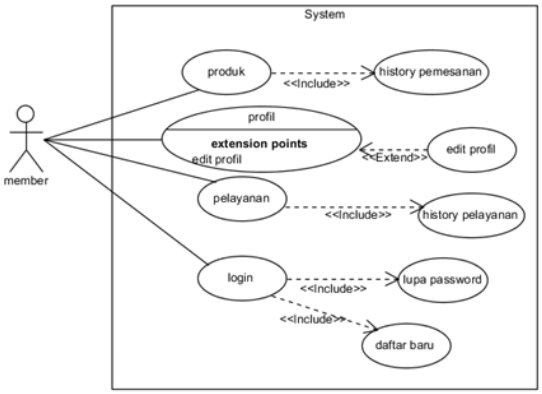


Figure 3. Use Case Diagram Front End

2. Use Case Diagram Back End

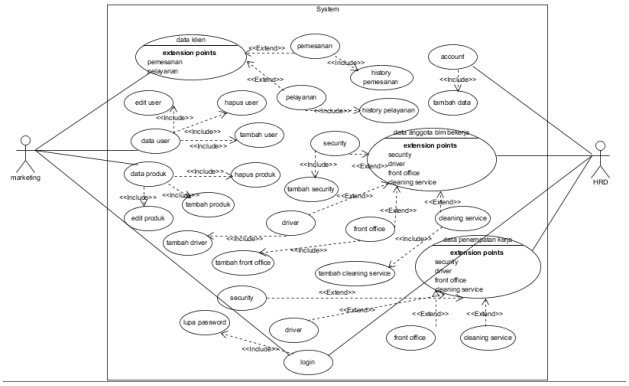


Figure 4. Use Case Diagram Back End

2.7.3 Use Case Scenario Front End

Use Case Scenario aims to describe the sequence of steps in the business process well done and the actors of the system made the system against the actor can be seen in Table 12.

Tabel 12. Use Case Scenario Login

Identifikasi	
Nama	*Login*
Tujuan	Melakukan *login*
Deskripsi	Melakukan *login* ke dalam sistem
Aktor	*Member*, Marketing, Pengunjung, HRD
Kondisi Awal	Menampilkan halaman *login*
Kondisi Akhir	-
***Scenario* Utama**	
Aksi Aktor	**Reaksi Sistem**
Memasukan *username* dan *password*	
	Validasi *username* dan *password*
	Menampilkan halaman utama
***Scenario* alternatif (jika gagal)**	
Aksi Aktor	**Reaksi Sistem**
	Menampilkan pesan *Username* atau *Password* Salah.
	Menampilkan halaman *login*

2.7.4 Activity Diagram Login

Activity diagrams model the workflow of the order of activities in a process that refers to the existing use case diagram. Activity This diagram

shows the activity of the user to enter the user menu page and can be seen in Figure 5.

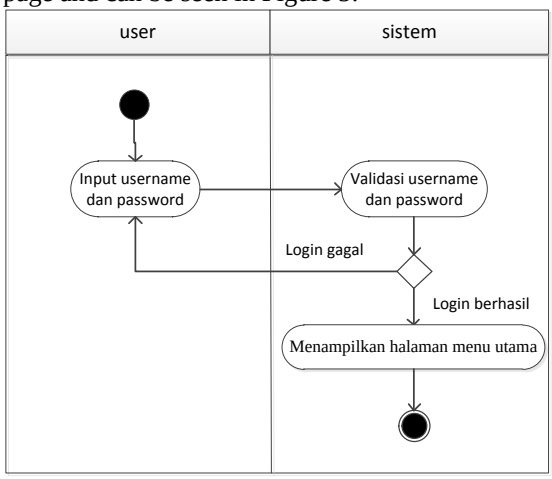


Figure 5. Activity Diagram Login

2.7.5 Sequence Diagram Login

Sequence diagram illustrates the interaction between each object in every use case in a time sequence. This interaction by sending data between objects that interact. Login sequence diagram can be seen in Figure 6.

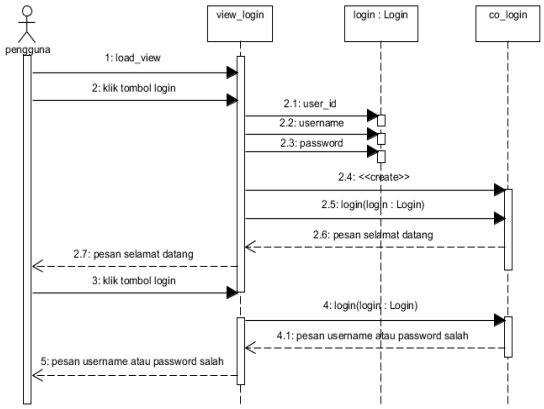


Figure 6. Sequence Diagram Login

2.8 System Design

System design is a process that describes how a system is built to meet the needs of the analysis phase.

2.8.1 Relationship diagram

Relationship diagram is a diagram illustrating the relationship between tables in the database system. Relationship diagram in the CRM system to be built can be seen in Figure 7.

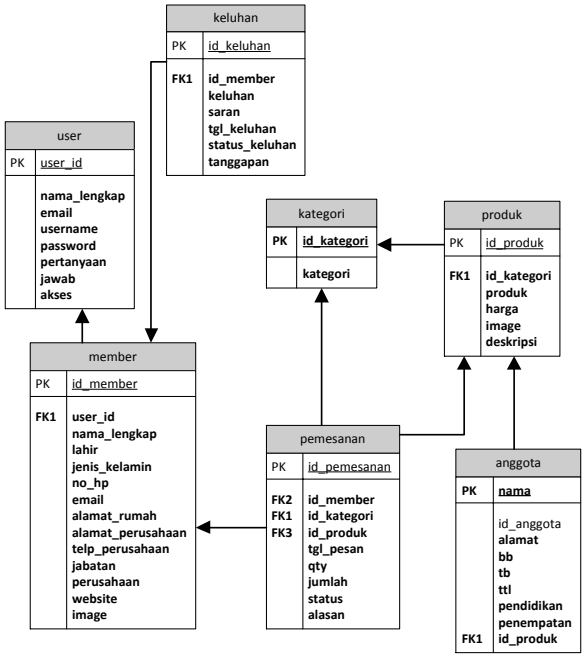


Figure 7. Relationship Diagram System CRM PT ADMA

2.8.1 Designing CRM Applications

CRM application design is the application of analysis of the concept of CRM and CRM analytical framework on designing the menu and interface design.

2.8.1.1 Designing Menu Member

Member menu design is designing a menu created for the user with access rights as a Member. Designing menus for Members can be seen in Figure 8.

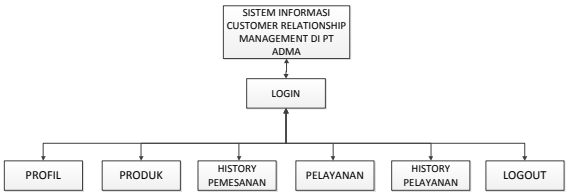


Figure 8. Designing Menu Member

2.8.2 Designing Interfaces

The interface is a display of an application program that acts as a medium of communication that is used as a medium for dialogue between the user program. The system built is expected to provide antarmuika display that is easily understood and used by the user. Enhance stage is a process by which companies establish a good relationship with the client that is applied in the design of the interface member, can be seen in Figure 9.

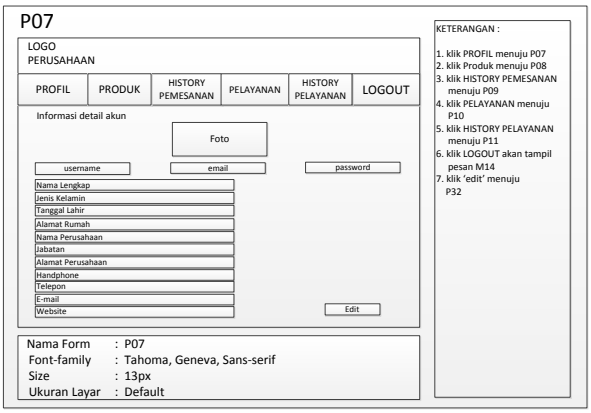


Figure 9. Designing Interfaces

2.8.3 Semantic Network

Describe the semantic network connectivity menu from one page to another. Members semantic networks in CRM information systems can be seen in Figure 11.

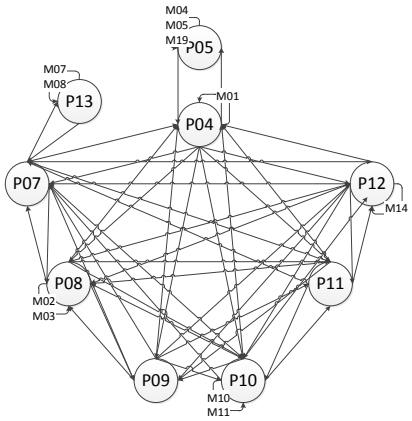


Figure 10. Semantic Network Member

2.8.4 Designing Method

The design is a design method that is carried out to establish the detailed algorithms that would otherwise into a system. The design method that exist in the CRM information system in PT ADMA as follows:

Designing Method Login

1. The design of the login method is a process that is done the user to log into the system. The design of the login method can be seen in Figure 12.Nama Class : login

Method name : co_login

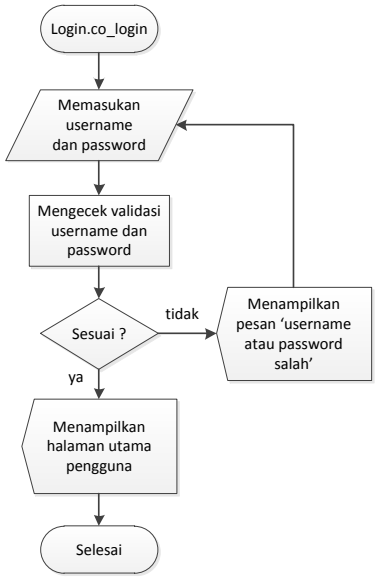


Figure 11. Login.co_login

2.9 Implementation System

Implementation system is done after the design is completed and will be implemented in the programming language to be used.

2.9.1 Implementation Interface

Implementation the interface is done with every page program made in the form of program files.



Figure 12. Interface Home

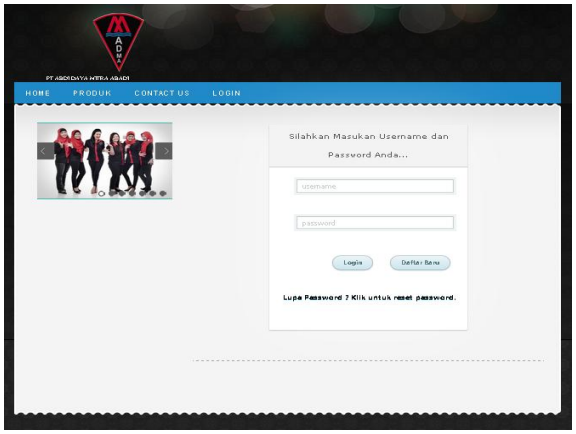


Figure 13. Interface Login

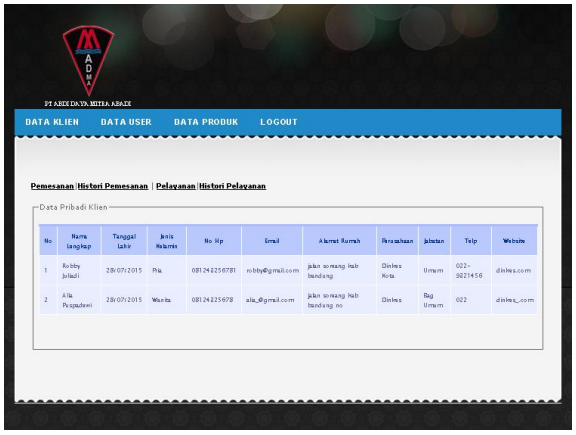


Figure 14. Interface Data Client

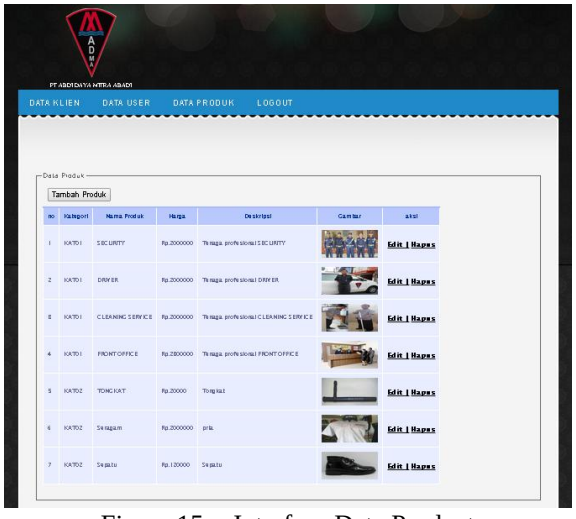


Figure 15. Interface Data Product

2.10 Testing System

System testing is done to find errors in a system built and know the system has been built in accordance with the objectives of the system design. The method used in this test is the Black Box testing that focuses on the functionality requirements of the system built.

2.10.1 Testing Alpha

Alpha testing is done by using the Black Box, the tests performed by observing the results of execution through test data and functional check of the software. Alpha testing at customer relationship management information system built test scenarios consist of alpha, alpha test cases and results, and conclusions alpha testing.

Based on the results of alpha testing with test cases that have been planned can be concluded as follows:

1. If the data is entered correctly, then the system will output the functional line with expectations.
2. If the data is entered incorrectly, the system will display an error message.

In other words that the construction of this system is error-free and physically functional release the results as expected.

2.10.2 Testing Beta

Beta testing is testing conducted objectively which tested directly into the field that the company concerned regarding user satisfaction with the content of the points is the fulfillment of the original purpose of development of information systems and customer relationship management system interface of the website's customer relationship management information. Beta testing is done by conducting interviews to all users who use this information system is based on the permissions of each user. The interview consisted of open-ended questions to be asked of the user and in accordance with the permissions system.

Based on interviews of all users involved in the system can be concluded that the system is easy to understand and use. In general, customer relationship management information system can help all users of the system in doing jobdesknya respectively.

3. CLOSING

Based on the description that has been discussed in previous chapters as well as the process that has been followed in making this final task, then obtained some of the following:

1. The information system customer relationship management (CRM), which is constructed to facilitate marketing to promote products and services of security equipment to get new clients.
2. The information system customer relationship management (CRM), which is built to facilitate clients ordering service products to increase product sales.
3. The information system customer relationship management (CRM), which is constructed to facilitate the marketing in retaining clients by providing services faslitas complaints, criticisms and suggestions.

Based on the conclusions that have been described, it is expected the information system customer relationship management (CRM) in PT ADMA can be developed further by means of:
1. Adding a chat facility that you can use the client and the company.

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