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Predictions of Potential Customer Decisions Web-based

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***Abstract*—** *Potential customers have a certain quality standard that will affect the performance of the company that does not depend on a company alone, but the company is dependent on customers who have potential. Problems that occur now along with changes from time to time in determining the decision to predict whether the customer is included in the potential category to be offered other products or the customer is not included in the potential category to be offered other products that a company has. How to determine this time has a change not only see the funds he has in a bank but can be seen from various other indicators that are interrelated with one another. Insurance is a need to guarantee self-protection and property from future disasters that may not necessarily be detected in the present. Insurance companies are very certain to have big data, important data for companies to find out what prospective customer criteria should be offered with products owned by the insurance company., This application was built to help insurance company agents to be able to make decisions customer criteria as can be offered by the company's products. The programming language used in this study uses a Web-based application that is PHP with the Codeligneter Framework in making the application. With this application, a division can be used to make decisions to find out potential prospective customers and prevent debits from participating in a program the company is holding.*

***Keywords*—** *Insurance, Customer, Codeligneter.*

I. INTRODUCTION

Utilization of a customer's bank data can be used as data on potential prospects in predicting those customers in the category of potential or not potential. The changing times that were initiated by the government to move towards a better direction made these conditions cause increasingly intense competition in all economic sectors both for profit and for services. The increasing intensity of competition and the number of competitors in the same sector requires companies to always pay attention to the needs and desires of consumers and try to meet consumer expectations by providing the best service than that of competitors in the same sector. Thus, only companies that have quality and uniqueness in an innovation can compete and have a special place in their customers' hearts. The higher level of competition in the business world requires management to always make accurate breakthroughs to be able to maintain their customers to remain loyal consumers. Maintaining existing customers is better than finding new customers and what the company must do is to maintain loyal customers to continue to trust the company. Consumer satisfaction and loyalty is fundamental to continuity and he growth of a company so that it still exists in a sector.

As a company engaged in the field of retaining consumers, companies engaged in these fields must be able to choose the most appropriate and measured form of policy and technology to achieve the goals that the company has planned. This can affect the accuracy, accuracy, and ability of the company in providing services to consumers. Services are basically centered on efforts to meet the needs and desires of consumers as well as the accuracy of the delivery of information to balance the expectations and complaints of consumers to be given the right solution and the best. The services provided to consumers are a reflection of the good or bad of a company in the eyes of consumers. Thus, service is one of the factors that can boost a company's market share in order to continue to exist in the business world.

The concept of data mining is part of the concept of information technology related to data and information. [1] states the concept of data mining as a process or modeling technique that uses analysis with a large variety of data to get patterns and relationships between variations of the data. The presence of data mining is motivated by the problem of data explosion or data explosion experienced by many organizations that have collected data for many years such as (purchase data, sales data, customer data, transaction data, and other data). It can be imagined the size of the data that can be obtained later if this process has been running for several years and is very detrimental to the company if from these data not obtained an information that will bring profit to the company. Many companies have a lot of data but are poorly informed to increase the company's profits.

The use of data mining methods in Indonesia is more widely used in the banking, industrial and service sectors. In the banking business, for example, data mining is used to help offer banking products, especially those related to offering credit to customers, for decision making whether the customer has the potential to open deposits or not [2]. The problem of using data mining in banking arises because not many banking sectors have applied the right data mining method and there are still many who use conventional or traditional systems in offering banking products to customers even though many conventional systems have been sacrificed in their completion. The traditional marketing system here is defined as a marketing system that always focuses on how to get a lot of

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customers without knowing and understanding how the characteristics of these customers in buying products owned by the banking [3]. While the conventional marketing system is defined that the bank will contact customers one by one to offer banking products or classify all customers who have paid off their credit into marketing targets (specifically for credit offers) to take credit with the next tenor. A study revealed that of 100% of customers contacted by the bank, maybe only 10% of customers are really serious about paying attention to offers made by the bank. Literally means that 90% of the funds needed to contact these customers will be wasted. This has caused the bank's operational costs in offering banking products to customers to increase. This problem is one of the problems that can be overcome by data mining methods from the many potential problems that exist. Data mining methods can mine credit card shopping transaction data to see which buyers are indeed potential to buy products in the banking program. Maybe not up to 100% of the data that can be used is valid data to offer products from these banks, but if you can filter only 20% of the data that is less valid, then 80% of the data is valid data. Problems with the supply system for customers who still use the conventional system also affect the pattern of bank services to customers. The bank will provide the same banking service or product offer to all customers as seen from estimates only. Though not necessarily all of these customers need or want the same banking product because they have different backgrounds. This is closely related to customer relationship management carried out by the bank to customers. If the bank does not know the needs and desires of the customer, of course, customer loyalty to the bank will decrease or even be forgotten. A simple definition of data mining is the extraction of important or interesting information or patterns from existing data in a large database. In scientific journals, data mining is also known as Knowledge Discovery in Databases (KDD) [4]. Data mining is an interdisciplinary research field which is essentially a combination of machine learning, statistics, and databases.

Programming language is a communication tool used between humans and computer devices. In an age like today the development of technology has been very rapid growth. The programming language itself has become a prima donna to create an application that is useful for developments in various sectors both the government sector, banking, services, communication, to the retail sector. The programming language itself is divided into three parts namely low level programming language (low level programming language), middle level programming language (middle level programming language), and high level programming language (high level programming language). At present the most experienced development in all sectors is the high-level programming language. Noted since the emergence of C language created by Dennis Ritchie, which later became the foundation of several programming languages such as Java (James Gosling), C ++ (Bjarne Stroustrup), PHP (Rasmus Lerdorf), and so on. The popularity of the web today is inseparable from the role of a web server as an application that provides data transmission services based on hypertext transfer protocol (HTTP). Web servers, also known as HTTP servers, are computers that have been set up and configured to store resources so that they can be accessed by clients who want to access these web pages easily.

Based on the description above, an application was made to be used by a division of a banking company in predicting potential WEB-based potential customer decisions. With this application. it is expected that related divisions can more easily offer a product that the company has.

II. Literature Review

A. Potential Customers

The definition of a potential customer is a person who has the ability in financial terms who can entrust the management of his money to the bank for use in banking business operations which thereby expect monetary rewards for deposits from these customers on company performance. With the right and directed marketing strategy, it is expected that the costs incurred to maintain potential customers are more appropriate with the loyal nature of these customers to increase the profits derived by the company.

B. Interactive Web Based Applications

It has a meaning that is an application that can be accessed via the internet and in times like today it turns out that more and more widespread use has reached all economic sectors. Many of the developing companies from various sectors are using Web-Based Applications in planning their resources and to manage their companies in making profits and managing loyal customers to continue to trust the products owned by a company. Web Based Applications can be used for a variety of different purposes with various existing platforms. For example, Web-Based Applications can be used to create invoices and provide an easy way to store data in a database. This application can also be used to manage inventory because this feature is very useful. Not only that Web-Based Application can also work monitoring in terms of display systems. Even the number of Web-Based Applications is now countless and can be ordered and adjusted to the needs of consumers with various criteria. The WEB-based System Development Lifecycle defines a methodology for improving software quality and the overall development process [5]. Web server application that is able to compress responses from the server to the client so that it can improve the efficiency of data communication via the web [6].

Data mining is the activity of finding interesting patterns of large data that is stored in databases, data warehouses, or other storage facilities. Data mining can be classified into two categories namely descriptive data mining and predictive data mining [7]. Data mining is often referred to as Knowledge Discovery in Database (KDD) whose job is to extract patterns or models from data using a specific algorithm [8]. According to Jonathan Sarwono [9] "Descriptive Method is a form of data collection that aims to test theories, construct facts, show relationships between variables, provide descriptions, statistics, estimate and predict the results. The ability of data mining to find valuable business information from a very large database can be analogous to mining the decisions of potential customers from a trusted source land.

III. Method and Materials

A. Identification

Based on potential prospective customer data, the data is taken in 2016-2017 which always experiences an increase in the number of its customers, customer data is taken from a state-owned bank in Indonesia. The customer data has been processed using the chosen algorithm with more results maximum than the other algorithm.

According to research conducted by Hasnan Syah Ahmad and Anita Ratnasari [10] in their research shows that from this system model is designing a payment information system providing facilities that can be used by users including data input, data search and student payment reports to help Administrative Officer (TU) in dealing with obstacles encountered in conducting transactions, so that the information system is expected to be able to solve problems related to administration and student needs.

Based on the influence of the absence of information about customer criteria such as what can be categorized as Potential and Non-Potential, then a study was made to get the best algorithm and after the algorithm was obtained an application was made to realize the search for Potential or Non-Potential Customer categories.

B. Analysis

In this step, the analysis used to explain the business processes of the research used is using Use Cases and Activity Diagrams. UML is also one way to facilitate the development of sustainable applications [11].

a) Use Case

Use case diagrams are a description of the effects of the functionality expected by the system. Use cases are certainly very helpful when planning a requitment on a system, then communicating the design of the application to consumers, and also designing test cases for various features that exist on the system.

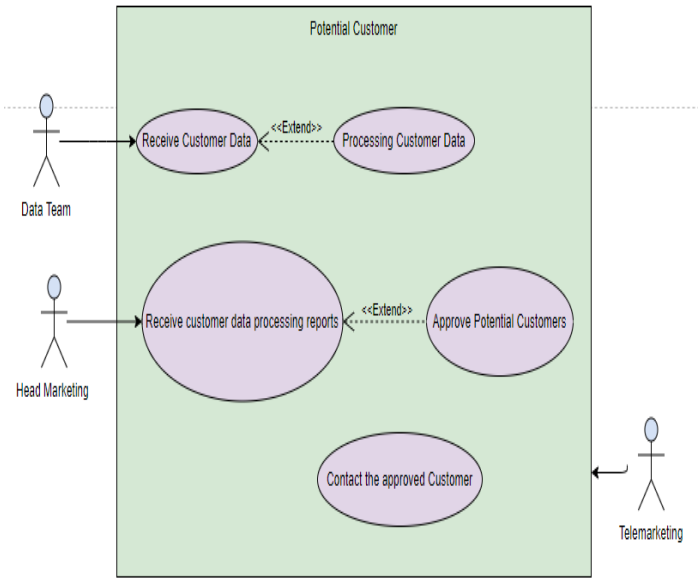


Figure 1. Potential Customer Use Cases

b). Activity Diagram

Activity diagram is something that explains the flow of activities in the program that is being designed, how the flow process starts, the decisions that might occur, and how the system will end. Activity diagrams can also explain parallel methods that might occur in several executions.

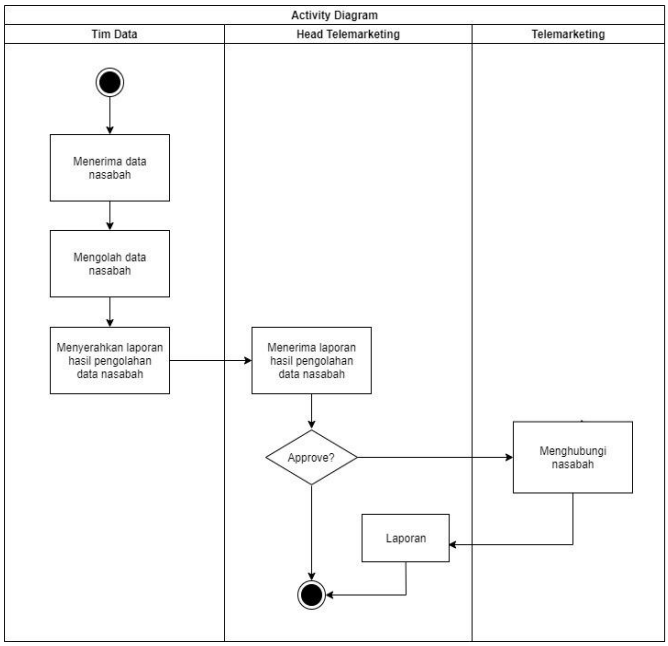
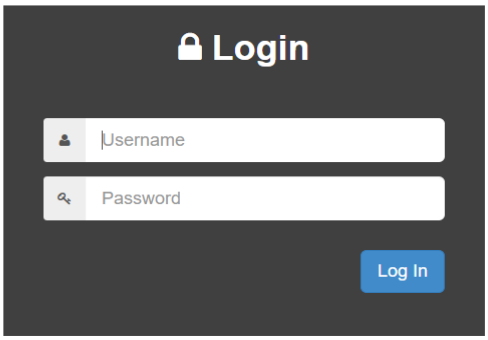


Figure 2. Potential Customer Activity Diagram

IV. Result and Discussion

A. Login Display

The login page displays on the system by displaying two textboxes for entering username and password as well as a login and cancel button.



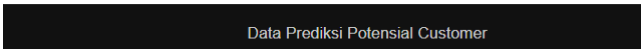


Figure 3. Start Page Views

B. Display Customer Data Upload

Displays customer data that has been obtained for upload.

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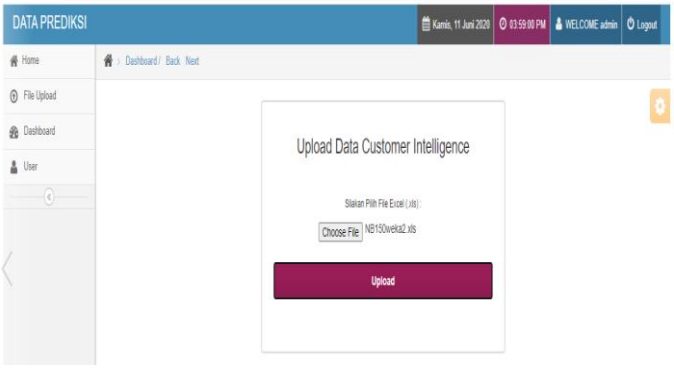


Figure 4. Customer Data Upload

C. *Display of Customer Prediction Data*

Results of data that has been processed.

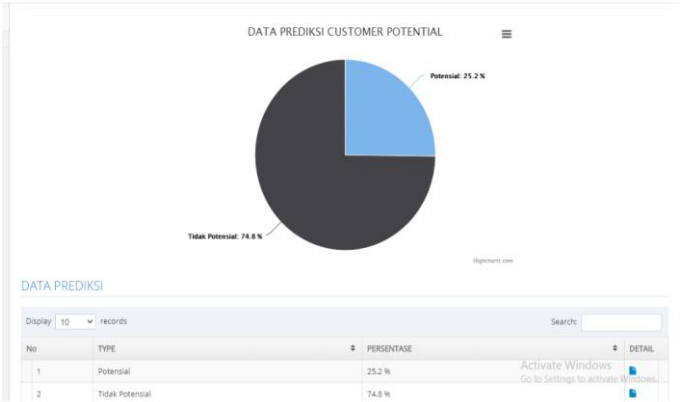
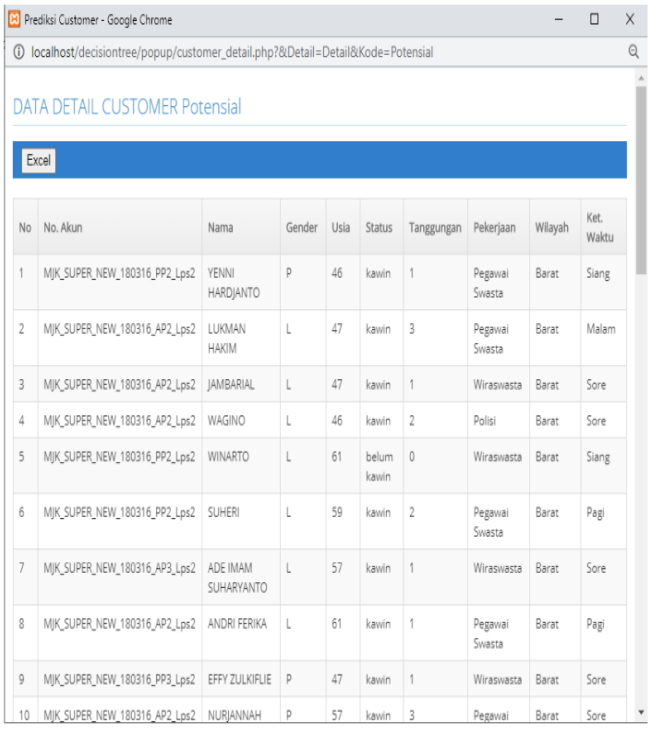


Figure 5. Customer Prediction Data

D. *Display Customer Detail Data*

Complete data of potential customer variables

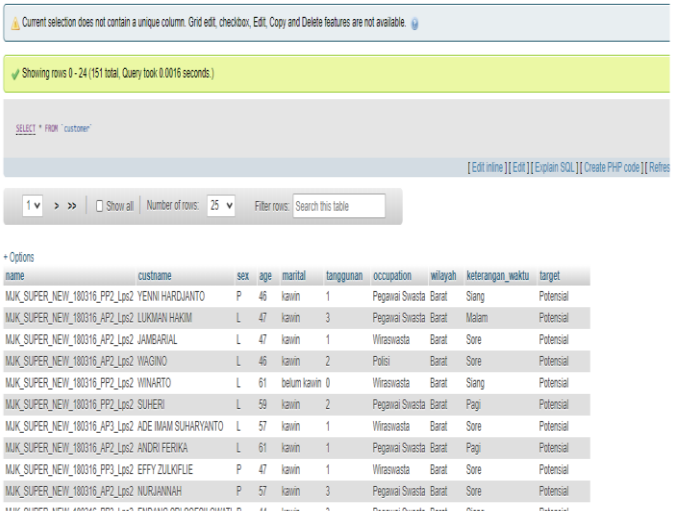


No	No. Akun	Nama	Gender	Usia	Status	Tanggungan	Pekerjaan	Wilayah	Ket. Waktu
1	MJK_SUPER_NEW_180316_PP2_Lps2	YENNI HARDJANTO	P	46	kawin	1	Pegawai Swasta	Barat	Siang
2	MJK_SUPER_NEW_180316_AP2_Lps2	LUKMAN HAKIM	L	47	kawin	3	Pegawai Swasta	Barat	Malam
3	MJK_SUPER_NEW_180316_AP2_Lps2	JAMBARIAL	L	47	kawin	1	Wiraswasta	Barat	Sore
4	MJK_SUPER_NEW_180316_AP2_Lps2	WAGINO	L	46	kawin	2	Polisi	Barat	Sore
5	MJK_SUPER_NEW_180316_PP2_Lps2	WINARTO	L	61	belum kawin	0	Wiraswasta	Barat	Siang
6	MJK_SUPER_NEW_180316_PP2_Lps2	SUHERI	L	59	kawin	2	Pegawai Swasta	Barat	Pagi
7	MJK_SUPER_NEW_180316_AP3_Lps2	ADE IMAM SUHARYANTO	L	57	kawin	1	Wiraswasta	Barat	Sore
8	MJK_SUPER_NEW_180316_AP2_Lps2	ANDRI FERIKA	L	61	kawin	1	Pegawai Swasta	Barat	Pagi
9	MJK_SUPER_NEW_180316_PP3_Lps2	EFFY ZULKIFLIE	P	47	kawin	1	Wiraswasta	Barat	Sore
10	MJK_SUPER_NEW_180316_AP2_Lps2	NURJANNAH	P	57	kawin	3	Pegawai	Barat	Sore

Figure 6. Customer Data Detail

E. *Display of Potential and Non-Potential Customer Data Menu Pages*

The potential and non-potential customer data page below can be seen all potential and non-potential customer data that has been entered into the system.



name	custname	sex	age	marital	tanggunan	occupation	wilayah	keterangan_waktu	target
MJK_SUPER_NEW_180316_PP2_Lps2	YENNI HARDJANTO	P	46	kawin	1	Pegawai Swasta	Barat	Siang	Potensial
MJK_SUPER_NEW_180316_AP2_Lps2	LUKMAN HAKIM	L	47	kawin	3	Pegawai Swasta	Barat	Malam	Potensial
MJK_SUPER_NEW_180316_AP2_Lps2	JAMBARIAL	L	47	kawin	1	Wiraswasta	Barat	Sore	Potensial
MJK_SUPER_NEW_180316_AP2_Lps2	WAGINO	L	46	kawin	2	Polisi	Barat	Sore	Potensial
MJK_SUPER_NEW_180316_PP2_Lps2	WINARTO	L	61	belum kawin	0	Wiraswasta	Barat	Siang	Potensial
MJK_SUPER_NEW_180316_PP2_Lps2	SUHERI	L	59	kawin	2	Pegawai Swasta	Barat	Pagi	Potensial
MJK_SUPER_NEW_180316_AP3_Lps2	ADE IMAM SUHARYANTO	L	57	kawin	1	Wiraswasta	Barat	Sore	Potensial
MJK_SUPER_NEW_180316_AP2_Lps2	ANDRI FERIKA	L	61	kawin	1	Pegawai Swasta	Barat	Pagi	Potensial
MJK_SUPER_NEW_180316_PP3_Lps2	EFFY ZULKIFLIE	P	47	kawin	1	Wiraswasta	Barat	Sore	Potensial
MJK_SUPER_NEW_180316_AP2_Lps2	NURJANNAH	P	57	kawin	3	Pegawai Swasta	Barat	Sore	Potensial

Figure 7 Display Data Menu Page

V. CONCLUSION

The WEB application created using the Codeigneter and PHP framework is quite good in the appearance and synchronization produced and this application is very helpful for divisions that use to find out whether the customer is a potential customer or a non-potential customer.

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