

Analysis of Customer Segmentation based on Recency, Frequency, and Monetary at PT Pegadaian in Padang City as Basis on the Analysis of Segmentation and Developing CRM Strategies

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Abstract: Today the customer has made an important asset for most organizations. The survival of a company can be supported by developing the company's relationships with its customers. Customer loyalty can be maintained with an increased understanding of the company to their needs as individuals by identifying potential customers and develop the company's relationship with customers. Not all customers have the same contribution to the business, and to maximize the business benefits, it is necessary to evaluate the value of the customer prior to the design of an effective marketing strategy. So is the state-owned company PT Pegadaian. Pegadaian which is engaged in the financial sector is trying to perform the method of RFM (Recency, Frequency, Monetary) to surpass its competitors namely banks and other financial institutions.

This study aims to:

- 1) to determine the profile of the customers in each segment generated
- 2) to assess Pegadaian customer segmentation gold saving based on the aspects Recency, Frequency and Monetary
- 3) define CRM strategy can be carried out in accordance with the segments and customer profiles on each segment. The population in this study is a transaction of gold savings customers Pegadaian at outlet Pasar Baru Padang. Data obtained from secondary data. The method of analysis was conducted using cluster analysis using SPSS program. Descriptive research results show that gold saving the customer's profile of Pegadaian gld savings mostly female than male with an aged of 26-45 years, worked as Self Employed, Housewife and Private Employees. The results of cluster analysis were five clusters that based on the aspects of Recency, Frequency and Monetary. Recommended strategies are distinguished based on customer profiles and characteristics per clusters.

Keywords :- Customer Segmentation, RFM, CRM.

I. INTRODUCTION

Today the customer has made an important asset for most organizations. The survival of a company can be supported by developing the company's relationships with its customers (Ziafat, 2014). Based on the Pareto principle, known as the 80/20 rule, 20 percent of customers accounted for 80 percent of the company's sales, it demonstrates the importance of maintaining customer loyalty to increase its income (Aizcorbe, 2007). Customer loyalty can be maintained with an increased understanding of the company to their needs as individuals by identifying potential customers and develop the company's relationship with customers. Not all customers have the same contribution to the business, and to maximize business profits, need to evaluate the value of the customer prior to the design of an effective marketing strategy. The value of each customer needs to be identified before making investments to develop relationships with customers (Hyun, 2016).

By implementing Customer Relationship Management, the company can also identify the characteristics of customers and customer segmentation. The benefits of customer segmentation are to know the behavior of customers and implement the marketing strategy or proper marketing so that companies benefit (Ebrahim and Reza, 2012). Customer segmentation in this study using a model RFM (Recency, Frequency, Monetary). Recency means the length of the period of time since the last purchase, Frequency means the number of purchases within a certain period and Monetary means the amount of money spent within a specified time period. RFM technique effectively achieve Customer Relationship Management because this technique is one of the important means to measure the profitability of customer value (He, X, and Li, 2016). The company was recently on-demand service providers of various needs of Go-Jek Indonesia proved successful use of data mining using techniques RFM (Recency, Frequency, Monetary). Likewise, with Indonesia state-owned company Pegadaian. Pegadaian engaged in the financial sector have tried to perform this RFM method to surpass its competitors namely banks and other financial institutions that own Pegadaian have a competitive advantage compared to its competitors.

II. BACKGROUND STUDY

Pegadaian is a state-owned company in the Indonesian financial sector which operates in three business lines of the company that is financing, gold and various services. Brokers have never done measuring customer buying behavior with this RFM models. In using this RFM models, researchers used historical data of Padang West Sumatera Pegadaian company especially gold savings products. Namely gold saving service and sale of gold to the deposit facility at an affordable price. This service provides convenience for the public to invest in gold (Pegadaian, 2017). RFM measurement in this study using clustering assumes that if the customer is located in the same cluster, it is considered the same customer behavior with existing customers in the cluster. The clustering will be called segmentation. Clustering in this study using the clustering method that divides the data into multiple segments.

III. RESEARCH PURPOSES

The purpose of this study are:

- to determine the profile of the customers in each segment is generated
- to assess customer segmentation gold saving Pegadaian are based on the aspects Recency, Frequency and Monetary
- define a CRM strategy that can be adapted to segment and profile customers in each segment

IV. FORMULATION OF THE PROBLEM

This study focused on answering the following research questions:

- What is the profile of customers in each segment were generated?
- How Pegadaian gold saving customer segmentation based on the aspects Recency, Frequency and Monetary
- How CRM strategy that can be done in accordance with the segments and customer profiles in each segment?

V. LITERATURE REVIEW

A. Segmentation

The marketing strategy consists of three stages of segmentation, targeting, positioning. Market segmentation is basically a strategy to understand the structure of the audience, targeting is the question of how to choose, select and reach a targeted audience. The next process is to perform positioning is a strategy to enter the consumer brain window so that it can form a good perception in the minds of consumers (Morissa, 2011).

B. Objective Segmentation

There are 5 benefits obtained by segmenting the market (Kasali, 1998):

- Designing products that are more responsive to market needs.
- Analyzing the market.
- Finding opportunities.
- Mastering the superior and competitive position.

- Determining an effective communication strategy and efficiently. If we know exactly who our segment, then we will know how to communicate well with them.

C. Segmentation Based on RFM

RFM Model was first introduced by Arthur Hughes and has been widely used by manufacturing industries, retail and service industries. RFM Model is a model that distinguishes important customers of large data by three variables.

Model RFM segmentation technique is the most frequently adopted that consists of three sizes: Recency, Frequency and Monetary (Kumar, 2006):

- *Recency* means the length of the period of time since the last purchase,
- *frequency* means the amount purchased in a certain period and
- *Monetary* means the amount of money spent within a specified time period

Customer segmentation is divided into six characteristics based on the RFM according research of Tikaridha Hardiani (2015) as follows:

Class Customers	Characteristics
<i>superstar</i>	a. Customers with a high royalty. b. Monetary values have a high. c. Has a high frequency. d. Has the highest transaction.
<i>Golden customer</i>	a. Monetary value which has the second highest. b. A high frequency. c. Has an average transaction
<i>Typical customer</i>	Has an average value of the Monetary and average transaction.
<i>Occational customer</i>	a. Monetary value of the second lowest after the dormant customers. b. Recency lowest value c. Highest Transactions
<i>Everyday shopper</i>	a. Having an increase in transactions. b. Lower transaction. c. Monetary values have moderate to low.
<i>Dormant customer</i>	a. Has a frequency and Monetary lowest. b. Recency lowest value

Table 1:- Segmentation Based on RFM

D. Customer Relationship Management

Kotler and Keller (2009) stated that Customer Relationship Management is the most important concept in modern marketing. More broadly, CRM is the process of managing the detailed information about customers to maximize the customer loyalty. CRM is the whole process of building and maintaining profitable relationships with customers to deliver value and superior customer satisfaction.

E. Components Customer Relationship Management

Luke (2001), said that the success of CRM is determined by three main factors, namely, people, processes and technology to optimize the organization's relationship with all types of customers. CRM division into three main components, namely:

➤ *Technology*

The first role of technology in CRM is to build a database of customers ranging from the operating system up to the transaction. This is called operational CRM. Second, is to analyse what the most potential customers, the program is often followed, frequency of purchase, place of purchase, and others including customer profitability, trend analysis, segmentation, propensity modelling and so on. This is called analytical CRM. The third is to carry out sales activities, marketing and customer service by integrating different communication channels. This is called collaborative CRM.

➤ *Man (people)*

According to Luke (2001) Man is the number one factor, because the actual CRM is how to manage the relationship or the relationship between people so that the required "personal touch" or personal touches and humane. Necessary "attitude" and the spirit of the businesses or to more proactively explore and get to know its customers better in order to better satisfy them.

➤ *Process*

namely process systems and procedures that help people to be able to establish a close relationship with customers. Organizational structure, operational policies and punishment reward system should reflect what will be achieved with CRM. CRM implementation will change the business processes that have been there before. Both business processes that involve customers directly or indirectly. In CRM entire functions of existing businesses should focus on the customer.

F. CRM Strategy Development Process

➤ *Business Strategy*

Business strategy should be considered first to determine how customer strategy should be developed and how it should evolve over time.

➤ *Customer Strategy*

The business strategy is usually the responsibility of the directors and CEO.

➤ *Value Creation Process*

The process of value creation is an important component of CRM for translating business and customer strategy into specific value proposition statement that shows what value should be delivered to the customer.

➤ *Value Received Customers*

Value received by customers of the organization refers to the concept of the benefits that enhance the customer offer.

➤ *Multichannel Integration Process*

Multichannel integration process is arguably one of the most important processes in CRM for taking the output of a business strategy and value creation processes and translate them into value-added activities with customers.

➤ *Information Management Process*

Information management processes related to the collection and use of customer data and information from all points of customer contact to produce the appropriate marketing response.

VI. THEORETICAL FRAMEWORK

Based on the formulation of the problem, the purpose of the study and the review of the literature that has been proposed, a customized theoretical framework can be created to support the following research:

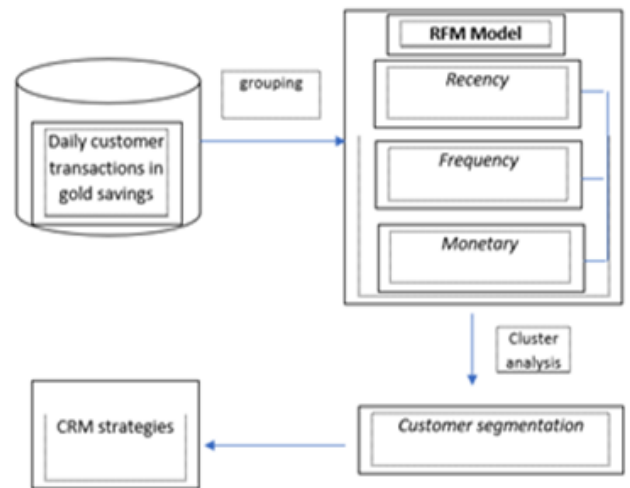


Fig 1:- Theoretical Framework

Based on Figure 1 shows that the initial data collected in the form of daily transactions Pegadaian gold savings customers, and then divided into groups of data from the Recency, Frequency and Monetary using RFM models as shown in Table 2 below:

Preliminary data	Final data
The last date of the transaction (type: date)	Recency
The number of transactions	Frequency
Total balance	Monetary

Table 2:- Data Selection

Recency of the customer is calculated based on the difference between the analysis period to the date of the last transaction the customer (expressed in days). Frequency counting is done by summing transactions (drag and deposit) made every customer during the study period. Monetary while the balance amount of customers in the study period. The next stage by using SPSS (STATISTICAL PACKAGE FOR SOCIAL SCIENCES)

by cluster analysis that will result in the cluster and will establish a customer segmentation and profiling later in the subsequent search for what strategy is right for each of the customer segments.

VII. METHODOLOGY

The study design used in this study is a quantitative study with descriptive approach. The data used in quantitative research in the form of monthly data in the form of numbers that can be calculated / measured. Data were collected in the form of secondary data refers to information gathered. Resources are obtained from the relevant agencies, namely Pegadaian and Bank Indonesia and other sources both journals, papers, internet, and other scientific papers related to this research. In this study used secondary data sources is a daily transaction data of customers during the last two years (2016-2018) and gold savings Pegadaian customer profile obtained from the Pegadaian outlet Pasar baru. Collecting data using several methods: (1) literature study (2) Observation Data (3) Documentation.

The analysis technique used to conduct this research that cluster analysis using SPSS (Statistical Package for Social Sciences). Cluster analysis is a technique of multivariate analysis has two key objectives for classifying objects based on similar characteristics. Clustering is the process of grouping a set of physical objects into similar groups. The cluster is a collection of data objects that are similar to one another in the same cluster and different from the objects in other clusters (Han & Kamber, 2001).

VIII. PRESENTATION OF DATA, ANALYSIS AND DISCUSSION OF FINDINGS

Data obtained from 211 respondents are processed using cluster analysis. Cluster analysis is a multivariate technique that has the main purpose to classify objects / cases-based characteristics. Cluster analysis to classify objects so that any objects that have similar properties (closest similarity) will be grouped into one cluster (group) of the same. The process of hierarchical clustering using the procedure. This method will be described with Dendrogram. The output of the cluster that is formed is as follows:

Information	cluster 1	cluster 2	cluster 3	cluster 4	cluster 5
Frequency (time)	4 x	4 x	13 x	11 x	11 x
Monetary (IDR)	976,189	1,701,355	2,287,557	1,997,526	32,165,801
Recency (Day)	87 days	420 days	70 days	368 days	165 days
Value Recency (R), Frequency (F), Monetary (M)	F ↓, R ↑, M ↓	F ↓, R ↓, M ↓	F ↑, R ↑, M ↑	F ↑, R ↓, M ↓	F ↑, R ↑, M ↑

Table 3:- Cluster analysis Membership (Dendogram)
Source: Processed Data SPSS (STATISTICAL PACKAGE FOR SOCIAL SCIENCES) 2018

Based on Table 3 shows that respondents in this study is divided into five clusters, as for the distribution of cluster 5. In this study, cluster 1 consists of 134 respondents. Average frequency of customers to make transactions as much as 4 times in the last two years. Judging from the average monetary value of customers save money in the form of gold amounting to IDR 976,189 and followed recency value customers at the final transaction is for 87 days or 2 months. Customers in cluster 1 has a characteristic frequency value which is below average but recency pretty good. When viewed from the profile of the respondents in terms of gender, age, education, past and work of cluster 1 note that respondents in cluster 1 is based on gender is mostly female with the number of respondents was 101 persons (75%). Respondents were commonly found in cluster 1 are works as a self-employed as many as 42 people (31%) and private employees as many as 28 people (20.8%), aged 26-45 years as many as 81 people (60%) as well as many high school graduates are educated past 90 people (67%). Members in this cluster covers

approximately 64% of the total customer Pasar baru outlets as many as 135 people.

Cluster2 consisted of 45 respondents. The average frequency of customers to make transactions as much as 4 times, meaning customers do transactions bit Pegadaian are still below the average transaction. Judging from the average monetary value of customers save money in the form of gold amounting to Rp. 1,701,355 which means the monetary value is still below the average. Recency value customers in this cluster 2 is for 420 days or more a year. This indicates that customers do not actively trade with the Pegadaian. Based on respondents' profile in terms of gender, age, education and employment lastnote that respondents in cluster 2, mostly female with the number of 33 people (73%), work as private employees as many as 15 people (33%), age of 26-45 years and most educated graduates. Members in cluster 2 covers approximately 21% of the total customer Pasar baru outlets as many as 44 customers. It can be concluded that the cluster 2, the customer has the characteristics of a low-frequency value,

low monetary value and recency values were also low but better transaction amount. The group on cluster 2 is to be regarded as dormant customers are customers who do not actively trade in the Pegadaian. These customers are very rarely visited Pegadaian and conduct transactions bit.

Cluster 3 consisted of 15 respondents. Average customer transactions 13 times where customers make transactions quite often in the last two years within 4 months. In terms of monetary average customers save money in the form of gold amounting to Rp. 2,287,557 means that customers on a cluster of three has a monetary value above the average monetary value, in terms of the frequency of customer transactions on a cluster of three more often than customers in cluster one and two. Recency value customers in this cluster within 70 days or 2 months where the value is quite high. The respondents who participated in this study based on gender is mostly female with the number of 10 people (67%), aged 26-45 years, living as a housewife, private sector employees and students / students each as much as 5 (33%). Members in cluster 3 includes approximately 7% of the total customer Pasar baru outlets as many as 15 customers. It can be concluded that in cluster 3, the customer has the characteristics of a high-frequency value, the average monetary value and recency great value. The group on cluster 3 can be said to be a loyal customer but do not have a high value. Those transactions do quite often but less profitable transactions, for Pegadaian. This group is likely trying to establish a relationship with the Pegadaian. They could increase to customers "gold".

Cluster 4 consists of 12 respondents. Average customer transactions 11 times, this means that customers make transactions quite often. Judging from the monetary value of the average value of Rp. 1,997,526 which is below the average monetary value, while the value of recency is for 368 days or more a year. Customer very rarely do the transaction, has the monetary value of which is still below the average balances and transactions in nominal terms. Respondent profile in terms of gender, age, education and employment mostly female with the number 9 (75%), professional uniform that student / student, a housewife and a self-employed as many as 9 people (75%), aged 26-45 years and most educated graduates. The group is classified as the category of low deposit but high in frequency saving. Members in cluster 4 includes approximately 6% of the total customer Pasar baru outlets as many as 12 customers. It can be concluded that in cluster 4, the customer has the characteristics of a high-frequency value, low monetary value and recency value that is too low.

Cluster 5 consists of five respondents. The average customer transaction 11 times, this means that customers make transactions quite often. Judging from the monetary value of the average value is very high, amounting to Rp. 32,165,801, while the value of recency is for 165 days or approximately 5 months. This means that customers fairly actively associated with Pegadaian and a high monetary value. Based on respondents' profile in terms of gender, age, education and employment last mostly female with a

total of 4 people (80%), work as private employees as many as four people (80%), aged 26-45 years and most educated graduates. Customers in this cluster have a tendency to trade fairly active nature that is four months and has a high deposit savings. Members in cluster 5 includes a little of the total customer Pasar baru outlets are only 5 people customers. It can be concluded that in cluster 5, the customer has the characteristics of a high-frequency value, high monetary value and recency values are also quite high. The group on cluster 5 is arguably the most loyal customers or potential customers are customers with high loyalty, has a monetary value that height and have a high frequency of transactions.

➤ *CRM Strategy Recommendations on each Cluster*

In establishing the CRM strategy should be based on RFM segmentation of data and customer profiles (Aviliani, 2011). By combining segmentation and customer profiles, will acquire customers more precise targets and to allocate resources for a more effective marketing strategy.

Customers in cluster 1 has the characteristics of a low-frequency value, a high recency and monetary are below the average. This group is the largest group of customers Pasar baru and roughly is the most representative of all customers as outlets many as 135 people (64%). Because it is a group most of all parts of the customers at the outlet Pasar baru, this group needs special attention because if not preserved and built a relationship with this group, it will have the potential of this group will be dropped cluster become customers dormant (inactive) or even go out of Pegadaian. In this cluster, customers mostly work as self-employed that have micro businesses around Pasar baru outlet. From the aspect of technology, seen from the monetary value is still low and the frequency of transactions is still low, the marketing strategies that can be done is to educate customers that their savings in gold it is very good for investment. Education about the importance of saving the gold is needed to improve customers' financial literacy. In addition, another way to do this is by upselling or cross-selling with products through web-based applications (web), email, or a notification SMS (Short Message Service), which can support these services. Interaction via SMS may include product information, promotions and even offer gold mortgage program to purchase consumer goods such as electronics purchases such as refrigerators, washing mesi, mobile phones and others. From the aspect of Process, Pegadaian can hold a financial consultation or discussion forum for the micro how to improve their businesses and provide business tips for customers SMEs and build a community building to build a relationship with the People nasabah. Dari aspect, the role of customer service was instrumental in making the personal touch to customers who do not actively trade in this first cluster. Customer Service must have competence in communicating with the customer so that the customer more often transact at the Pegadaian. role customer service plays an important role in making the personal touch to customers who do not actively trade in this first cluster. Customer Service must have competence in communicating with the customer so that the customer

more often transact at the Pegadaian. role customer service plays an important role in making the personal touch to customers who do not actively trade in this first cluster. Customer Service must have competence in communicating with the customer so that the customer more often transact at the Pegadaian.

In cluster 2, the customer has the characteristics of a low-frequency value, low monetary value and recency value that is too low. The group on cluster 2 is to be regarded as dormant customers are customers who do not actively trade in the Pegadaian. These customers are very rarely visited Pegadaian and conduct transactions bit. This group can not be improved if the transaction, the company will only pay for this customer. They only utilize limited to its function as a place to store gold. Marketing efforts such as the introduction of new products and features associated with intensive gold savings, in other words up selling strategy should be improved. Customers in this cluster is the most private employees, financially more promising. Because the customer is the dominant private sector employees, which may rarely trade to the outlet, the Pegadaian has recently been transformed to digital services. Customers can transact without having to come into the office, only through mobile phones. Services like this can be used to educate customers in order to increase customer transactions. In addition to digital services, to increase the frequency of customer savings, field services such as pick up service may be advisable also to increase the frequency of customer savings. In addition, SMS notification as a promotional tool can also be done for customers in these two clusters. Considering customers in this cluster is pretty much amounted to 21% of total customer outlet Pasar baru,

In cluster 3, the customer has the characteristics of a high-frequency value, the average monetary value and recency values are high. The group on cluster 3 can be said to be a loyal customer. They do quite often with Pegadaian transactions. This group is likely trying to establish a relationship with the Pegadaian. They could have become customers of the "gold". To increase the value of the monetary customer in this cluster where customers evenly with the work of Students, Housewives and Private employees who have the characteristics of high deposits, Pegadaian can offer a loyalty program such as giving points when saving a certain amount, giving certain gifts if it is to save a certain amount so the lure customers to further increase the value of the transaction.

In cluster 4, the customer has the characteristics of a high-frequency value, low monetary value and recency value that is too low. The group on cluster 4 is almost similar to the cluster 2, the difference between the frequency of customer transactions in cluster 4 were more active than in the cluster 2. Group 4 is arguably the customer occasional ie customers who have a low monetary value of a second after the dormant customers on cluster 2. Improvement transaction value seems to be the focus of marketing objectives so that they become more

active. In this cluster is still dominated by Students, Housewives and Self with a transaction value lower than cluster 3. Therefore, Up selling is a strategy that should be relied upon to work on the cluster to increase the value of customer transactions. Other than that,

In cluster 5, the customer has the characteristics of a high-frequency value, high monetary value and recency of high value. The group on cluster 5 is arguably the prime customers or prime customers are customers with high loyalty, has a monetary value that height and have a high frequency of transactions. These customers usually called priority customers. Customers in this cluster comparatively very little only 2% of the total customer outlet Pasar baru. Potential customers ini should be appreciated and should be maintained even need to be improved. Do not let this customer will drop clusters or even away from the Pegadaian. To that end, the appreciation of priority customers such as this can provide excellent service gift such as auto approval of the loan from Pegadaian without survey and verification, or free places for Hajj / Umrah. Loyalty program through gift giving to clients in this cluster can also be performed. In addition, the personal approach by visiting the customer's home and giving a birthday cake during a birthday customers. Other than that.

IX. SUMMARY OF FINDINGS:

Based on the formulation of the problem in this study, it can be concluded as follows: Based on customer profiles generated on each segment, known in cluster 1, respondents were many female aged 26-45 years and worked as a self-employed and educated past high school graduates. Groups of self-employed and private employees here have a tendency to not be too active properties and low deposits in saving, judging from the average value of the frequency of customers in this cluster are only transact four times in the last two years and a low monetary value. In cluster 2, most of the respondents were female, aged 26-45 years, living as a private employee with recent education graduates. Groups of self-employed and private employees here have a tendency to not be too active properties and low deposits in savings, seen from the nominal value of the average transaction is still below the average. Then on cluster 3, respondents who many are women aged 26-45 years and works equally as housewives, private sector employees and student / student. Housewife groups, private sector employees and students / students in this cluster have a tendency to trade active properties and has a high deposit savings. In cluster 4, most of the respondents were female, aged 26-45 years, and the profession uniform as a student / students, housewives and self-employed and educated graduates. groups of students / student, a housewife and self-employed in this cluster have a tendency to trade active properties but has a low deposit savings. Recently in cluster 5, the majority of respondents are women aged 26-45 years and most educated graduates. private employee groups dominate in this group, and the relatively high deposit.

Pegadaian gold saving customer segmentation based on aspects of recency, frequency and monetary are as follows: Customers in cluster 1 has the characteristics of a low-frequency value, a high recency and monetary are below the average. In cluster 2, the customer has the characteristics of a low-frequency value, low monetary value and recency value that is too low. In cluster 3, the customer has the characteristics of a high-frequency value, the average monetary value and recency values are low. In cluster 4, the customer has the characteristics of a high-frequency value, low monetary value and recency value that is too low. In cluster 5, the customer has the characteristics of a high-frequency value, high monetary value and recency values are also quite high.

CRM strategy can be carried out according to segments and customer profiles for each segment are as follows: In the first cluster, a marketing strategy that can be done is to educate customers that their savings in gold it is very good for investment. In addition, another way to do this is by upselling or cross-selling with products through web-based applications (web), email, or a notification SMS (Short Message Service), which can support these services. In the second cluster, marketing efforts such as the introduction of new products and features associated with intensive gold savings, in other words up selling strategy should be improved. Education about the importance of saving gold is also very necessary to improve their financial literacy. Digital services to increase the frequency of savings from customers, field service such as pick up service may be advisable also to increase the frequency of customer savings. In addition, SMS notification as a promotional tool can also be done for customers in these two clusters. In cluster 3, can offer a loyalty program like giving points when saving a certain amount, giving certain gifts if it is to save a certain amount so that lure customers to further increase the value of the transaction. In cluster 4, can do reward programs that reward in the form of points or reward when customers often conduct transactions when saving in the amount besar. Terakhir, in cluster 5 which is a prime customer, appreciation of the priority customers such as this can provide excellent service gift such as auto approval of the loan from Pegadaian without survey and verification, or free places for Hajj / Umrah. Loyalty program through gift giving to clients in this cluster can also be performed. In addition, the Pegadaian can make discount partnership in cooperation with the merchant / store or a specific hotel to provide discounts to loyal customers by giving a membership card Pegadaian against these customers.

X. RECOMMENDATION:

This study has limitations in the selection of the object and the study sample. The samples in this study is limited to the customer outlet Pasar baru alone, it would be great if the sample was taken as encompassing customers across branches and outlets in the city of Padang so that research results can broaden the scope of research. In addition, very little research on the results of the cluster because the scope of the study is only one small area.

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