

Increasing Loyalty Using Customer Relationship Management: A Case on Co-working Space Company

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Abstract

Increased competition in the ever tight business competition makes the companies more intense in thinking about business strategies, especially to retain customers and provide satisfaction to customers. Failure to realize customer loyalty will result in customers not using the product or service for a long period. The application of Customer Relationship Management (CRM) is very effective in managing influential business strategies to maximize customer loyalty. But with the rapid development of technology, customers want fast and accurate service. Organizations have begun to use information technology in implementing business strategies Engaged in coworking space rental services coworking space, meeting room who have problems managing loyal customer data. Starting from the incoming customer data every customer comes, mapping loyal customers and promotions provided does not match the segmentation impact on returning customers doing coworking space not following the expected target. In building customer loyalty information systems using this CRM approach, data collection methods using the method of observation and interviews, system development method used is a waterfall, and the output of this system is a system that can manage customer data, map loyal customers, and promotions given according to segmentation. Our acceptance test shows that all functions work well and have an overall high acceptance rate of 85.71%. These results indicate that it is very helpful with customer loyalty information systems. Even though there are some suggestions given during the test, suggest adding a payment feature, recommend adding the conversion feature to the document (.pdf) in the report section.

Keywords:

customer loyalty information systems, customer relationship management, customer data.

1. Introduction

Increased competition in the ever tight business competition makes the companies more intense in thinking about business strategies, especially to retain customers and provide satisfaction to customers. Failure to realize customer loyalty will result in customers not using the product or service for a long period, the customer switches to another company (Rahmat 2018). The business strategy of managing company relationships with customers is the main strategy of every company in increasing loyalty, preventing customers from moving to other companies, thus implementing CRM was deemed very effective (Fauzi and Harli 2017). CRM activities orbits in the process of managing detailed information about each customer and managing influential business strategies to maximize customer loyalty (Gamayanto and Christian 2018). Moreover, the company's report suggested that CRM to be very effective for increasing customer loyalty (Abdolhosseini Khaligh, Miremadi, and Aminilari 2012). Even to some extent, the implementation of CRM in addition to influencing customer satisfaction and loyalty in an organization is also able to increase competitiveness against other similar organizations (Long et al. 2013). At this time customers want fast, accurate, and high-quality services. All that affects customer satisfaction and loyalty so that the voice of the organization gets the trust of the customer (Padeli et al. 2019). In implementing CRM, organizations have begun to use information technology in implementing CRM business strategies to establish good relationships with customers so that customers use products and services over a long time and do not turn to competing companies (Wicaksono and Patrie 2019). Another study conducted at Ogan Ilir's creative home that by implementing CRM in information systems can increase customer loyalty (Amatullah et al. 2018).

One problem that is often faced by an organization is customer loyalty, as it is one of the keys to the success and excellence of an organization (Ranabhat 2018). Although there has been a lot of research in the education sector (Badwan, Shobaki, and Naser 2017), banking (Sari, Daryanto, and Saptono 2018), automotive or car dealership (Ningsih, Suharyono, and Yulianto 2016), health or hospital to increase patient satisfaction and loyalty (Gusriansyah, Zulkarnain, and Alwie 2018) and SMEs (Damayanti et al. 2019) on implementing CRM strategies by applying technology that can increase customer loyalty, until now there has not been much study which emphasizes about the technical aspects with regards to member point, promos for loyal customers and birthday promos. This is an important issue because of the failure in implementing CRM to increase customer loyalty can cause customers to move to other products/services.

In this study, we took a co-working space company called EDUPLEX. At EDUPLEX, there is a problem in the package registration process, where the customer has to fill in repeated data every time registering a package, causing the customer not to fill in or there are different customer data every time they register, causing data redundancy. Customer data are very important, not getting complete information about each customer personally resulting in difficulties in providing strategic information provided by the organization (Kosasi 2015). Another problem at EDUPLEX is the inability to create market segments (professionals or students) because of the data inconsistencies. This resulted in customers not knowing the promotional information provided. Based on the problems that exist in EDUPLEX this study was conducted to resolve the problems that exist in EDUPLEX will be built customer loyalty information systems implementing a web-based CRM approach which can be member registration, package registration, member point, promotions given according to EDUPLEX, market segment and mapping of loyal customer data so reporting visit and customer data is easier and faster.

2. Research method

Data collection is done to get the requirements needed in the software engineering process and can be done by doing interviews and observations (Ibrahim, Turrahma, and Lestari Ruskan 2019). The stages carried out in this study consisted of both of those. The interview took place in the office EDUPLEX which is located in Bandung, Jawa Barat, Indonesia. The first two interviews were conducted on Tuesday 28 January 2020, and Friday 7 February 2020. For the next interview conducted on Wednesday 26 February 2020. Each interview takes an average of 2 hours. At each meeting, we highlight various topics such as business processes, organizational profiles with organizational structures, their vision and mission, problems, or needs in business processes that need to be addressed. In addition to interviews, observations were held which took place in the same place starting from 28 January to 20 February 2020. To find out more findings that were not mentioned by interviewees. The findings are recorded and validated by the parties EDUPLEX.

2.1. Business Process Identification and System Objective

The process of identifying business processes is the stage that needs to be done to find out the processes that occur in an organization, especially in software development (Nurmadewi and Mahendrawathi 2019). Business processes that are running on EDUPLEX starting from the customer coming or contacting them to ask for the package provided. Customers who will use the workspace must register as a member. After the customer uses the workspace the customer fills up feedback. Then CEO and Hub Manager conduct product evaluations and research which will then be submitted to Marketing for promotion.

We Identify the gap or problems that occur within the business process identification, as depicted in Table 1.

Table 1. Problem Found during Business Process Identification

No.	Problems Found	Description
1.	Customers data	Repeated data charging every customer comes to visit EDUPLEX so there are differences in customer data, and incomplete customer data.
2.	loyal customer information	difficulties to map loyal customers to the company because the data is not integrated
3.	Promotion	Different treatment is only done to monthly members

Problems found during the identification of business processes determined to help focus in efforts to create a good system and increase opportunities to achieve goals which can be seen in Table 2.

Table 2. Objectives of the integrated loyalty information system

No.	Objectives	Description Problem No.-	Solving
1.	A web-based system that can be accessed by all customers and all sections in conveying information and reporting.	1, 2, 3	
2.	The purpose of this system is to overcome problems related to customer loyalty, promotional information provided according to market segments.	2, 3	
3.	Can be achieved to manage all shared workspace rental activities	1	

2.2. System Design

System design is a model of presenting the results of the analysis that has been done so that it can be understood by the parties involved (Vareilles et al. 2015). In information systems, databases are considered as one of the main pillars (Kurnianda 2018). For example in this study, table structure descriptions are presented in Table 3, Table 4 and Table 5

Table 3 Database Design Member Table

No	Attribute	Data Type	Length	Index	Remarks
1	id	Number	5	PK	Integer
2	name	Text	100		Varchar
3	institution	Text	50		Varchar
4	email	Text	50		Varchar
5	no_handphone	Text	20		Varchar
6	birth_date	Date	20		Date
7	gender	Enum	10		'Male', 'Female'
8	photo	Text	255		Varchar
9	point	Text	20		Varchar
10	username	Text	50		Varchar
11	password	Text	30		Varchar

The registration table is used to store rental data co-working and meeting rooms. The following is the registration database design.

Table 4. Database Design Registration Table

No	Attribute	Data Type	Length	Index	Remarks
1	id	Number	5	PK	Integer
2	id_member	Number	5	FK	Integer

No	Attribute	Data Type	Length	Index	Remarks
3	id_package	Number	5	FK	Integer
4	status	Text	30		Varchar
5	visit	Date	20		Date

The visit table is used to store data on visiting members who make rentals a *co-working* dan *meeting room*. Following is the visit database design.

Table 5. Database Design Table Visit

No	Attributes	Data Type	Length	Index	Remarks
1	Id	Number	5	PK	Integer
2	Id_regist	Number	5	FK	Integer
3	Id_member	Number	5	FK	Integer
4	Id_package	Number	5	FK	Integer

From the member table, registration table, and visit table, when the customer registers will be saved in the member table when the customer registers their package a point change will occur on the member table and the visit table will automatically record the visit data.

2.2.1. Actor's Identification

Actor identification is carried out to find out the actors involved and their roles (Elza Fadli Hadimulyo, Welly Purnomo 2012). Based on the analysis of the actors involved are CEO, Hub Manager, Client Assistant, Marketing, Customers of each actor has their respective roles. Of the five actors involved in the running system, all actors can access the system according to their respective roles. There are additional actors, namely the administrator's role as an actor who manages employee data (user). As in this study, actor identification is presented in Table 6

Table 6. Actor's Identification

No	Aktor	Proses	Mentioned in
1	Customer	a) Register member b) To do a registration package, booking c) Can add points every time you make a transaction d) Get a reward after becoming a loyal customer e) manage <i>feedback</i> f) Get a birthday promo	W1NS4, W1NS1Q2, OB2, OB3
2	CEO	a) manage reports, see the report, print out the report	W1NS1, OB6, OB10
3	Hub Manager	a) manage report visit data, as see a report, print out the report b) manage package data, as added a package, change package, and delete package	W1NS5, W1NS5Q10 OB5

No	Aktor	Proses	Mentioned in
4	Client Assistant	a) manage member data b) manage <i>feedback</i>	WINS2, WINS1Q12, OB1, OB2, OB3
5	Marketing	a) manage promotion b) broadcast delivery	WINS3, WINS2Q1

Note: $W[n][NSn]Q[n]$ the actor mentioned in the interview to- $[n]$ people interviewed $[NSn]$ and question number $Q[n]$. while $OB[n]$ obtained during the observation.

The main actor of this system development system is Client Assistant and marketing. Client Assistant is the main actor because the client assistant which manages customer data starting from registering customers and knowing loyal customers. Marketing becomes the main actor due to managing promotions.

2.2.2. Functional Analysis

In software development, functional analysis of the basic processes of the system design process (Viola et al. 2012). Analysis of software requirements is one step for software development, Software development is carried out to produce functions that will be owned by the software which will be developed taking into account all software requirements (Henderson-Sellers and Edwards 1990). Based on functional analysis, it can be concluded that the system used is the user management module, the promotion management module, the package management module, the member management module, the management module feedback, visit management module, registration management module, report column module, and delivery module broadcast. as explained in Table 7.

Table 7. Functional Analysis

No	Functions	Actors	Process	Solving Objectives No.
1	Manage users	Administrator	Add user data a. Change user data b. Delete user data and c. See user data	1, 2, 3
2	Manage promotions	Marketing	a. Add promotion b. Change promotion c. Delete promotion d. See promotion	3
3	Manage packages	Hub Manager	a. Add package b. Change package c. Delete package d. See package	2, 3
4	Manage members	Client Assistant	a. See member data b. Change member data	1
		Customer	a. Register member b. See points c. exchange points	
5	Manage feedback	Customer	a. Add feedback b. Change feedback c. See feedback	2
		Client Assistant	a. See feedback	
6	Manage visit	Customer	a. See billing	2, 3
		Client Assistant	a. See visit data	
7	Manage Regist	Customer	a. Regist b. History c. Booking d. cancellation	2, 3
8	Broadcast delivery	Marketing	a. See broadcast b. Add broadcast	3

No	Functions	Actors	Process	Solving Objectives No.
9	Manage report	Hub Manager, CEO	a. See report b. Print out report	2, 3

2.3. System Development

Implementation of web-based software is based on the PHP programming language the editor is Visual Studio and using a MySQL database Web Server in the Laragon application, Google Chrome / Mozilla Firefox as a Web browser media, framework Laravel for PHP, and template aStar for front end dan Matrix Admin for the back end.

3. Results and Discussions

The design and manufacture of the system in this study was completed in three months which in the testing phase uses two techniques that is system testing dan UAT, where this test is to determine the category of success in testing, quality testing, testing implementation, and conclusions from the test results.

3.1. Customer Loyalty System of EDUPLEX

On the registration page, we can see there is a registration process, booking which starts when the customer will rent a workspace and can choose an available package, after registering billing will appear and get points.

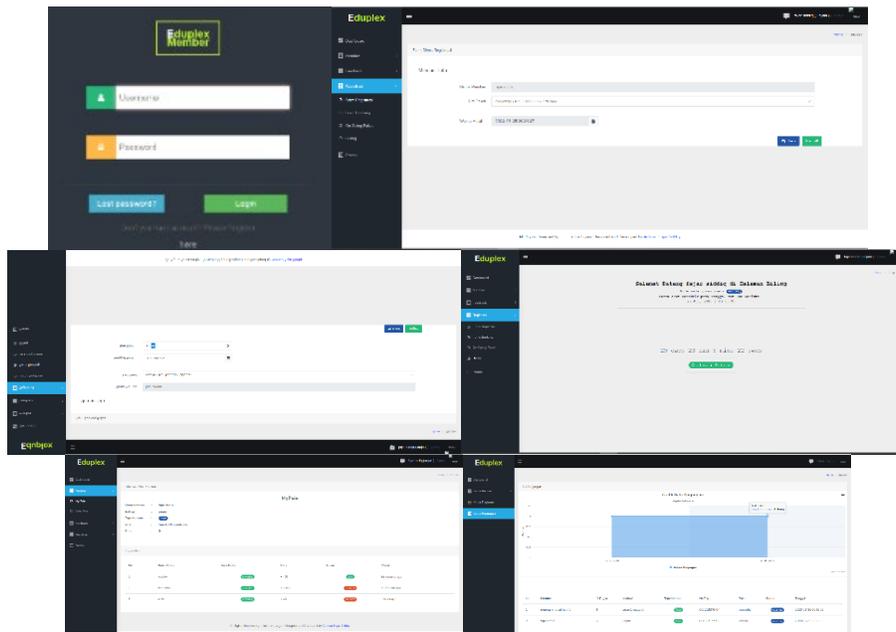


Figure 1. Customer Loyalty Information System with CRM Approach

There is also manage promotion consists of functions of add promotion, change promotion, see the promotion, and delete promotion. An analysis feature is available on the system which allows loyal customers to receive a reward in the form of a promotion package of using the coworking space. Function add promos done for add promotion give to customer, function change promotion used for change promotion data if there are differences or fault promotion, function sees promotion used to see promotion which has added or change, while function deletes promotion used to delete promotion which is no longer used. We did system tests to see whether the system works perfectly in following the user requirements. We explained 2 of them (exchange points and booking) as seen in Table 8 and Table 9.

Table 8. Test Case Exchange Point

Use Case ID	SK-08
Use Case Name	Exchange point
Test Scenario	Test the use case manage member on function exchange point

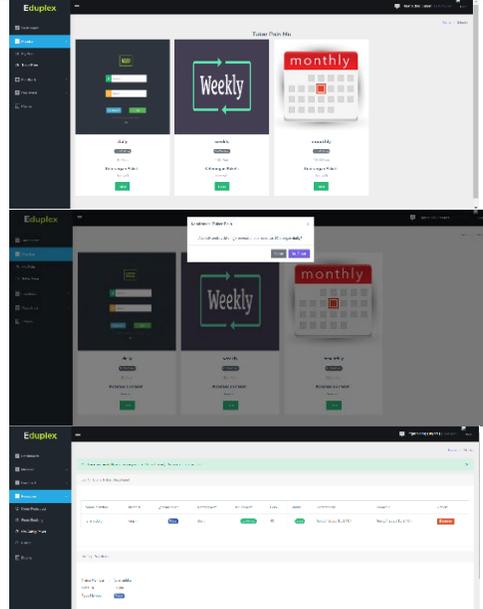
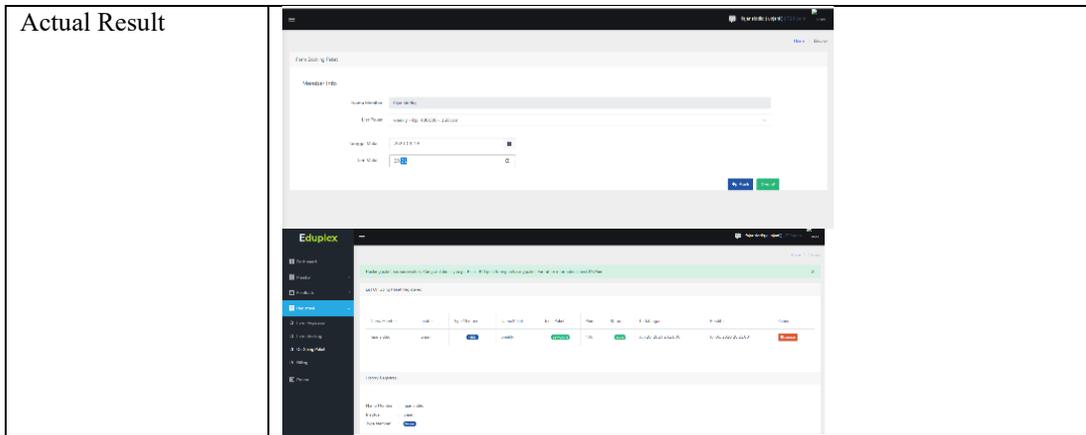
Test Case	exchange point with package point which is smaller than the member point
Pre-Condition	Don't have an ongoing package billing
Test Steps	Enter the points exchange page
	Choose packages to be exchanged for points
	Press button exchange
	Press button yes, exchange
Expected Result	Enter the package history page, display message “you have successfully exchange point”
Post Condition	Data successfully added
Status (Pass/ Fail)	PASS
Actual Result	

Table 9. Test Case Booking

Use Case ID	SK-023
Use Case Name	Booking
Test Scenario	Test the use case manage registration on function booking
Test Case	Enter data with format and complete
Pre-Condition	Don't have an ongoing billing package
Test Steps	Enter the booking page
	Fill in booking data
	Press the registration button
Test Data	Fill in package <weekly- 40.000- 168 jam>
	Fill in start date <2020-06-28>
	Fill in start time<20.21>
Expected Result	Enter the history page, display “package has been successfully booked”
Post Condition	Data added successfully
Status (Pass/ Fail)	PASS



3.2. The Acceptance Test

Users are asked to do a system test to verify that application in line with expectations (Athanasoulis and Chountalas 2019). For user testing this is done with 28 test scenario to 6 type users (1) customers, (2) CEO, (3) Hub Manager, (4) Client Assistant, (5) Marketing, (6) Administrator UAT results can be seen in the Table 10

Table 10. User Acceptance Test Customer Loyalty Information System with a CRM Approach

No	User/Tester	Acceptance Rate	Notable comments
1.	Customers	(25 out of 28) 89,28 %	“I still don't understand the features”
2.	CEO	(23 out of 28) 82,14%	“Good system can help the company”
3.	Hub Manager	(23 out of 28) 82,14%	“There is a report management module that can help in analyzing customer data every month”
4.	Client Assistant	(24 out of 28) 85,71%	“Adding a payment module will be a very good thing”
5.	Marketing	(26 out of 28) 92,86%	“Promotions that can be carried out according to market segments”
6.	Administrator	(23 out of 28) 82,14%	“can make it easier to process employee data”
Average Acceptance		85,71%	

The acceptance test results obtained produce some of the highest percentage acceptance rates ie. in the marketing portion of 92,86%. These results indicate that the division is very helpful with the customer loyalty information system, although some users still experience difficulties in adjusting to the new system, especially in the member point function. Some suggestions were also made during the test as Client Assistant suggested adding a payment feature, CEO and Hub manager recommend adding the conversion feature to documents (.pdf) in the report section.

4. Conclusions

This study can be concluded that in building customer loyalty information systems using this CRM approach, data collection methods using the method of observation and interviews at EDUPLEX, system development method used is a waterfall, and This study can be concluded that the system can help in the process manage all customer data in person, not occur differences in customer data who will rent workspaces and the company can find out customer loyalty can be given a promotion for customer loyalty to EDUPLEX. This system can be also used for the customer to give feedback to EDUPLEX if there are deficiencies. user acceptance test which states that the system is running well based on the results of the acceptance test obtained produces a percentage acceptance rate ie 85,71%, with the

highest level of marketing department acceptance 92,86%. These results indicate that it is very helpful with customer loyalty information systems. Even though there are some suggestions given during the test such as the Client Assistant section suggests adding a payment feature, the CEO and Hub manager recommend adding the conversion feature to the document (.pdf) in the report section. We can confirm that the implementation of CRM can reduce customer desire to switch to another organization and increase customer loyalty to the organization (Rashwan, M. Mansi, and Hassan 2019). Quality of service by applying an approach CRM can affect customer loyalty(Ibrahim et al. 2020).

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