

A Modular Approach to Customer Relationship Management (CRM) Systems

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Abstract: Customer loyalty within the service industry is critical. A customer relationship management (CRM) system allows for good management of all the transactional data and interactions between the customer and the organization. Readily available CRM systems offer a fixed collection of features in their application packages. Through our project, we aim to provide customizable features for individual organizations. Different modules were created for various needs identified in the CRM markets: leads display screens, email/website leads integration, statistical display, social media integrations, and email marketing. CRM was implemented using a web application deployed on the organization's server, which has helped 4 organizations with 1000+ leads collectively till now.

Keywords: Customer Relationship Management, CRM, CRM implementation, CRM strategy, marketing, relationship

I. INTRODUCTION

Customer relationship management (CRM) is a progressive technology that uses a set of comprehensive processes to manage relations with potential and present customers across all domains like marketing, sales, and services regardless of their channel of service. Handling leads and customer service requests have been the tedious task of business owners in the past, and handling various leads un-organized has subsequently affected customer satisfaction and customer acquisition as a whole.

II. LITERATURE REVIEW

Companies and organizations in all sectors, require loyalty from potential and present customers to maintain and improve their financial performance and corporate weight in the market. In a highly competitive environment in major production and service markets, companies need to have healthy relationships with their customers to maintain customer loyalty. [1]

The implementation of CRM through the company service website can make it easier for new customers and old customers to obtain the latest information about the company. In addition, information services built in the CRM can reduce costs in terms of promoting the company. [2]

Sample analysis has proven that social media has a significant positive impact on the operational efficiency of SRM and CRM practices. The evidence from studies also suggests that social media networks built into a company's supply chain relationships can be a source of strategic knowledge resources that create competitive advantages. [3]

After the implementation of CRM, there are improvements in terms of service and business processes, there has also been a significant reduction in service times. Through the implementation of CRM, companies can reach customers on a wider scale, as well as provide business activities like promotion, product introduction, explanation, and control schedule reminders for the customers. [4]

Managers should strive to affect customer retention, they should focus on creating committed customers. Firms need to strive to maximize customer share, creating effectively committed customers using a loyalty program and sending direct mailings that provide economic incentives. Firms strive to maximize customer share, creating effectively committed customers using a loyalty program and sending direct mailings that provide economic incentives are recommended. [5]

Organizing around CRM exerts significant direct effects on customer retention as well as significant indirect

effects on sales growth through retention. This result highlights the fact that organizational elements involved in implementing CRM can effectively serve as enablers of successful CRM applications and programs. Focusing on key customers and managing knowledge have significant effects on customer satisfaction. [6]

CRM is a complex and challenging domain, but as the academic community starts to develop and implement a comprehensive and integrated CRM research agenda, customers, organizations, shareholders and other relevant stakeholders should be able to better realize the considerable potential benefits of effective CRM practice. [7]

A research model can be used to measure and evaluate the impact (measured in firm performance) that the implementation and use of CRM can have on companies in certain sectors or functional or geographical groupings, all based on the degree of introduction and use of CRM in these companies. [8]

There are certain implementation gaps that can occur when using a CRM, including the employee-process gap, when an employee may not be fully aware of the business processes and their implications in a broader spectrum, and the technology- employee gap refers to the knowledge of CRM tools implemented by the company and the possession of the skill- set/resources needed to operate said tools. [9]

CRM was implemented using the PHP language as the main development language. It was developed as a web application, stored in 1 folder, and hosted by the organization's web server. The folder system is the same as below:

- CRM: Root folder of the CRM system.
- CSS: This folder contains the CSS file for the CRM.
- assets: This folder contains the image used in the CRM.
- Js: This folder is used to store the entire javascript file to be used.
- includes: this folder is used to store header and footer files that have reference to the CSS and js files.
- index.php: This is the default page when the user visits the website

III. METHOD

3.1 System Analysis

System analysis is critical in the development cycle of a project, as a mistake at this stage can result in errors in the implementation parts of the CRM system. System requirements are important to know in the early stages of a project, in order that the system is built according to the needs of the involved organizations.

For this project, the requirements correspond to the different modules that are offered to the company/organization purchasing the CRM system. The modules offered are as follows:

1. Leads display screen
2. Email/Website Integration
3. Statistical/Chart Display
4. Social Media Integration
5. Social Media & Email Marketing

3.2 System Design

We create a model that is used to describe the results of the system analysis in the form of a system overview, data flow diagram, and database design.

The system overview is shown in figure 1. The diagram illustrates the users of CRM, employees of the registered organization will be able to access the CRM through login. Social media leads will be directly introduced into the database through an automation tool called "Zapier". CRM users will be able to view and edit leads from the web application platform. These changes are directly reflected in the database. The number of leads closed, and customer reviews for users can be seen in the charts section, available to the department head through assigned login credentials.

An additional module for predicting future sales and lead generations was proposed in the system design. This machine learning model would take the past data from the database as training data for preparing the model that predicts the trends for sales numbers. The database design was designed to manage how data is stored logically in a Database Management System (DBMS). The records generated through social media, the company's website, and other sources will be stored in a SQL database on the organization's server.

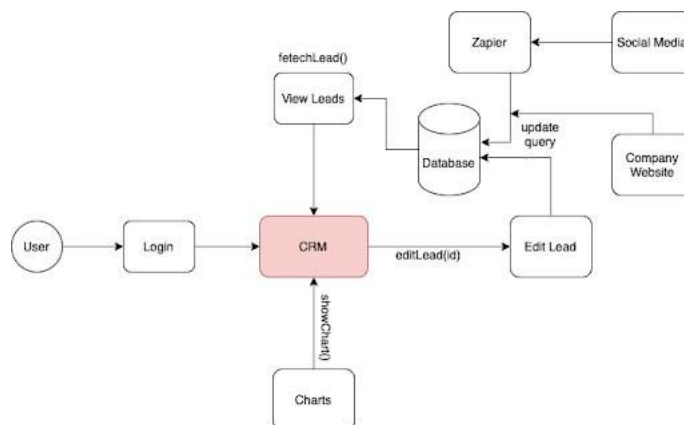


Fig. 1. System Overview

3.3 System Implementation

Based on the requirements outlined in system analysis and system design created for the CRM, the system was developed. The coding for the web application for the CRM was done in the PHP programming language. Trials were conducted regularly to ensure that the system is built according to the needs outlined in the system analysis phase and that it follows the system design developed previously. Different modules developed:

A. Leads Display Screen

All the leads and customer queries that a company receives are displayed on a single screen in the form of a list, which allows for easier access for the support and marketing teams.

Leads generated from marketing sources that websites and social media platforms are also automatically integrated into the list provided corresponding sources are available.

B. Email/Website Integration

Company websites are a great source of promotion and customer interaction, CRM should be able to direct all contact from the customer to the leads display allowing for unified storage and ease of access

C. Statistical/Chart Display

The number of leads closed per time and customer reviews should be shown in a graphical format for quick reports on trends. Possible improvement areas can be identified from graphical representations.

Employee performances and KPIs can be derived for marketing and support teams from customer interactions and customer reviews received through the CRM.

D. Social Media Integration

Social media marketing is an important factor in the growth and retention of customers for an organization [3]. Leads generated from social media marketing campaigns and lead gen forms are directly integrated into the CRM using social media APIs.

E. Email Marketing

Special marketing deals, newsletters, and other types of marketing campaigns are carried out through registered emails in the CRM. Automated email responses and updates can be set up through the CRM.

IV. PROJECT IMPLEMENTATION

Employees that are registered in the CRM are able to log-in using their provided credentials.



Fig. 2. Login Page

All past data can be viewed in a graphical display. Using visual display helps in better interpretation of data and understanding of sales and customer trends

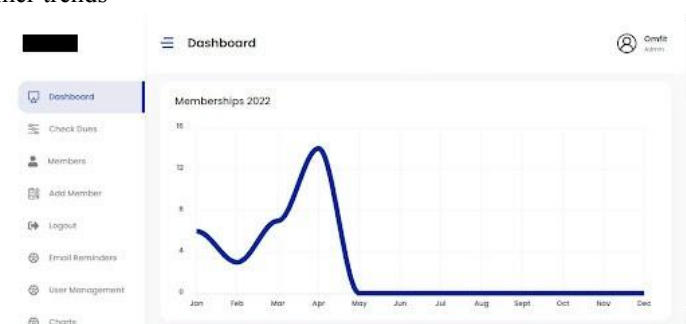


Fig. 3. Graphical Display

All the leads generated from various platforms are compiled together for the Lead display screen. Lead generations may include but are not limited to the organization's website, social media campaigns, and advertisements.

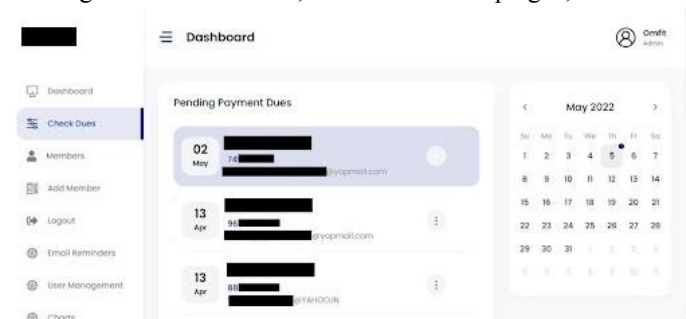
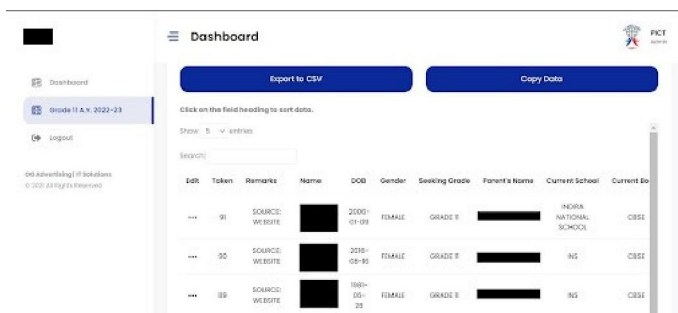


Fig. 4. Leads Display Screen

Organizations that have their websites integrated into the CRM are able to compile all customer complaints and queries to the CRM, that are generated on their website.



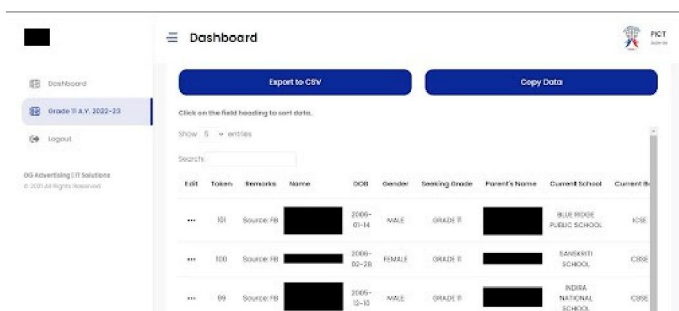
Fig. 5. Website Integration



Edit	Token	Remarks	Name	DOB	Gender	Seeking Grade	Parent's Name	Current School	Current Bo
---	91	SOURCE WEBSITE	[REDACTED]	2000-01-08	FEMALE	GRADE 5	[REDACTED]	INDIRA NATIONAL SCHOOL	CBSI
---	90	SOURCE WEBSITE	[REDACTED]	2018-08-05	FEMALE	GRADE 5	[REDACTED]	ING	CBSI
---	89	SOURCE WEBSITE	[REDACTED]	1989-05-28	FEMALE	GRADE 5	[REDACTED]	ING	CBSI

Fig. 6. Leads generated from website integration

Organizations with social media integration enabled and having media advertisement accounts can launch advertisement campaigns and review the impact and outreach of all previous campaigns hosted by the CRM.

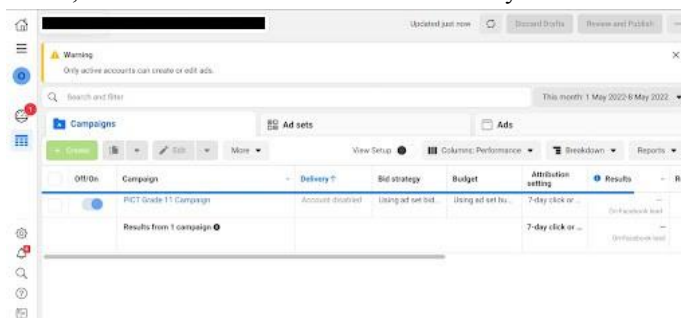


Edit	Token	Remarks	Name	DOB	Gender	Seeking Grade	Parent's Name	Current School	Current Bo
---	92	Source: FB	[REDACTED]	2000-01-14	MALE	GRADE 5	[REDACTED]	BLUR HOSE PUBLIC SCHOOL	CBSI
---	90	Source: FB	[REDACTED]	2000-02-28	FEMALE	GRADE 5	[REDACTED]	SANDWATI SCHOOL	CBSI
---	89	Source: FB	[REDACTED]	2000-03-10	MALE	GRADE 5	[REDACTED]	INDIRA NATIONAL SCHOOL	CBSI

Fig. 7. Leads generated from social media

Social media websites that provide direct lead-gen forms can be implemented through the CRM, this is facilitated by the Zapier tool used to connect social media ads and the CRM system.

Email notifications and advertisements can be generated by the CRM and can be automated to send out emails to registered and potential customers, to increase outreach and facilitate timely reminders for existing users.



Off/on	Campaign	Delivery	Bid strategy	Budget	Attribution setting	Results
On	PCT Grade 11 Campaign	Accelerated	Using ad set bid.	Using ad set bid.	7-day click or...	On Facebook lead...

Fig. 8. Ad campaign for social media



App & event
App: Facebook Lead Ads
Event: New Lead
Facebook Lead Ads OG AD Connect #4

Fig. 9. Social media lead generation form using "Zapier" tool

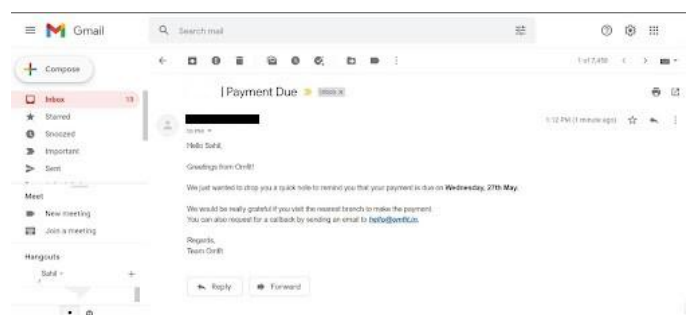


Fig. 10. Email Notifications

V. RESULTS

The Customer Relationship Management system developed as a result of this project has been deployed for 4 organizations. Collectively these organizations have used CRM to offer services to 1000+ customers.

Features are provided according to the needs and requirements of the organization, some of them are:

- Add/Remove Lead: It's used for adding or removing leads from the database.
- Dashboard: The dashboard shows basic charts and other useful data for the organization
- Logout: The logout button provides an option to opt out of the system or to switch user profiles
- Other Organization specified features: Other features are requested by the client according to their requirements. Those features can be -
- Email Reminders, Leads Sorting
- Lead Exporting, User profile management

VI. CONCLUSIONS AND FUTURE SCOPE

The CRM system has been deployed for helping with various types of requests including management of gym memberships, and college admission queries integrated from the educational institute's website to creating ad campaigns for other institutes to increase the institute's outreach. The CRM provides an excellent compilation tool for all the leads and customer queries and complaints from all platforms.

This project has certain limitations at its present stage. The CRM is designed to be implemented to be deployed on the organization's server. While this provides faster access and complete control of the CRM as a whole, it limits the use of the CRM for companies or organizations that do not currently have their own servers to deploy the CRM system on.

Further improvements and future scopes available for the CRM system could be, offering the CRM as a Software-as-a-Service package, it would allow for smaller organizations and companies fresh into the market to access the CRM for their use. Having an automated reply system or a Chat- bot integration for websites that offers solutions for frequent queries, and may also redirect the customer to required teams bypassing the CRM queue.

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