Customer Relationship Management System

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1. INTRODUCTION

1.1 OVERVIEW OF THE PROJECT

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Customer Relationship Management (CRM) is a strategic approach that businesses use to manage interactions and relationships with their customers. It involves collecting, analyzing, and utilizing customer data to improve customer service, increase sales, and build long-lasting customer loyalty. CRM systems facilitate the organization of customer information, automate processes, and enhance communication, enabling businesses to provide personalized experiences, optimize marketing efforts, and boost customer satisfaction. By centralizing customer data and fostering customer-centric practices, CRM empowers companies to better understand their clientele and tailor their products and services to meet their needs, ultimately driving growth and profitability.

Customer Relationship Management (CRM) is a multifaceted strategy and technology that goes beyond managing customer interactions. Here's some additional information about CRM:

- **Types of CRM:**
  - Operational CRM: Focuses on improving customer-facing processes, such as sales, marketing, and customer service.
  - Analytical CRM: Involves data analysis to gain insights into customer behavior and preferences, aiding in strategic decision-making.
  - Collaborative CRM: Emphasizes communication and collaboration between various departments to provide a unified customer experience.

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- **Benefits:**

○ Improved Customer Service: CRM helps in addressing customer issues and needs more efficiently.

○ Sales Optimization: Streamlines the sales process and enables sales teams to target leads more effectively.

○ Marketing Effectiveness: Allows for targeted marketing campaigns and personalized customer communication.

- **Customer Retention:**

- Enhances customer loyalty by understanding and fulfilling their requirements.

- **Data-Driven Insights:**

- Provides valuable data and analytics to make informed business decisions.

- **CRM Software:**

- Popular CRM software solutions include Salesforce, Microsoft Dynamics CRM, Zoho CRM, HubSpot CRM, and many more.

- These platforms offer a wide range of features, such as contact management, lead tracking, email integration, reporting, and automation.

- **Integration:**

- CRM systems often integrate with other software, like email marketing tools, e-commerce platforms, and helpdesk software, to provide a seamless experience.

- **Mobile CRM:**

- Mobile apps and access to CRM data on mobile devices enable sales and support teams to work on the go and stay connected with customers.

- **AI and Automation:**

- AI-powered CRM can automate routine tasks, predict customer behavior, and provide recommendations for next best actions.

- **Security and Privacy:**

- Handling sensitive customer data requires strict security measures to protect customer privacy and comply with regulations like GDPR.

- **Scalability:**

- CRM systems should be scalable to accommodate a growing customer base and evolving business needs.

- **Customization:**

- Many CRM solutions allow for customization to tailor the system to specific business requirements.

- **Challenges:**

- Adoption: Ensuring that employees use the CRM system effectively can be a challenge.
- Data Quality: Maintaining accurate and up-to-date customer data is crucial.
- Cost: CRM implementation and maintenance costs can be significant.

CRM is an integral part of modern business, helping companies build strong customer relationships, drive revenue, and adapt to changing market dynamics. It continues to evolve with advances in technology, offering innovative solutions to address customer needs and challenges.

1.2 MODULE DESCRIPTION:

A Customer Relationship Management (CRM) module is a software component or feature that is integrated into a larger CRM system to perform specific functions or manage particular aspects of the customer relationship. These modules are designed to enhance and streamline the CRM system's capabilities, focusing on specific business processes or interactions with customers. Here are some common CRM modules and their descriptions:

- **Sales Module:**
  - The Sales module of a CRM system focuses on managing the sales pipeline and automating the sales process. It helps sales teams track leads, opportunities, and customer interactions. Key features include lead management, opportunity tracking, sales forecasting, and contact management.
- **Marketing Module:**
  - The Marketing module is dedicated to managing marketing campaigns, lead generation, and customer engagement. It includes tools for email marketing, campaign tracking, lead scoring, and marketing analytics.
- **Customer Service Module:**
  - This module is designed to improve customer support and issue resolution. It provides features for managing support tickets, inquiries, and customer complaints. It often includes a knowledge base and service-level agreement (SLA) management.
- **Contact Management Module:**
  - The Contact Management module allows organizations to store and organize detailed customer information. It's a central repository for customer data, including contact details, communication history, and notes.
- **Analytics and Reporting Module:**
  - Analytics and reporting modules provide insights into customer data. Users can create custom reports, analyze customer behavior, and make data-driven decisions. These modules often include dashboards for visualizing key performance indicators.
- **E-commerce Integration Module:**
  - For businesses with online sales, an e-commerce module enables integration with online stores, order processing, and customer data synchronization. It helps track online sales and customer activity.

- **Social Media Integration Module:**
  - With the growing importance of social media in customer engagement, this module connects the CRM system with social platforms. It allows tracking and responding to social interactions and mentions.
- **Workflow Automation Module:**
  - Workflow modules automate and streamline business processes. Users can create custom workflows for tasks like lead routing, approval processes, and customer onboarding.
- **Mobile CRM Module:**
  - Mobile modules enable access to CRM data and functionality on mobile devices. Sales and support teams can work on the go, update records, and access customer information in real time.
- **Inventory and Order Management Module:**
  - This module is relevant for businesses that deal with physical products. It manages inventory levels, order processing, and order tracking in conjunction with customer information.
- **Integration Module:**
  - Integration modules facilitate the connection with other systems, such as email, accounting, or marketing automation tools. They ensure data consistency and reduce manual data entry.
- **Customization and Extension Module:**
  - This module allows users to customize the CRM system to meet specific business needs. It often includes features for creating custom fields, forms, and views.

These CRM modules are typically designed to work cohesively within a CRM system, providing a comprehensive solution for managing customer relationships, sales, marketing, and support. Organizations can select the modules that align with their business requirements and goals, creating a tailored CRM system that best suits their needs.

CUSTOMER MODULE

- Customer needs to request for a quote and raise a ticket at which the project has to be completed at what basis and at what time period
- Once the quote is being uploaded user has to wait for any response at the other end.

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1.3 SYSTEM SPEICFICATION

1.3.1 SOFTWARE SPECIFICATION

Operating system : Windows 10 pro Coding Language : PHP version 5,6,7 Database : MySQL

User Interface Design : HTML Software : XAMPP

Web Browser : Google Chrome

SOFTWARE FEATURES

Features of Projects User Module

- **User Registration (The first-time user can register)**
  - Profile Management
  - Request a Quote
  - Ticketing System
  - Change Password

- **Admin Panel**
  - Dynamic Dashboard
  - Manage Users
  - Manage Tickets
  - Manage Quotes
  - User Visit Graph
  - Check User Access Logs

User Registration (The first-time user can register)

- **Profile Management:**
  - This module helps in managing the no of users getting logged inside the portal.

- **Request a Quote:**
  - This module helps the customer to specify their requirement with options available it also have a query section for customers to specify their additional query which needs to be processed further in their requested organization
- **Ticketing System:**
  - This module helps the customer that once the quote is being ready for the required organization users can raise tickets for the specific o of users can use to serve their particular customers.
- **Change Password:**
  - This module helps to change the user's password in order to avoid any privacy concerns or security related issues.

Admin Panel

- **Dynamic Dashboard:**
  - This module is mainly designed for admin purpose of having on everything of how many users got logged in , how many quotes generated, how many tickets got raised etc….
- **Manage Users:**
  - This module helps the admin to add new users and delete old users based on their validity inside the portal.
- **Manage Quotes:**
  - This module helps the admin of how many quotes got generated at what requirement.
- **Manage Tickets:**
  - This module helps the admin to keep in note about the now of tickets raised on a specific quote and no of tickets being claimed by a specific user
- **User Visit Graphs:**
  - This module helps the admin to view a specific users progress through graph representation somewhat like data visualization.

- **Check User Access Logs:**

  This module helps the admin to keep in track of how many users are getting logged inside the portal.

2. SYSTEM STUDY

2.1 EXISTING SYSTEM

- There exists many CRM which satisfies the client requirements in their specific organization.
- But among those CRM none of them seems to be affordable.
- And handling many customers with different perspectives of ideas seems to quit delaying.
- And the cost of each ticket raised is quite expensive and cannot be affordable by domestic organization.

2.2 PROPOSED SYSTEM

- In this system we tried our level best to produce an affordable CRM to the users.
- User can generate a quote and raise tickets to get their re

2.2.1 ADVANTAGES OF PROPOSED SYSTEM

- User friendly interface
- High Efficiency
- Fast access
- More Safety Utilization
- Cost Savings

3. SYSTEM DESIGN

3.1 FILE DESIGN

System design is the process of planning a new system to complement or altogether replace the old system. The purpose of the design phase is the first step in moving from the problem domain to the solution domain. The design of the system is the critical aspect that affects the quality of the application. System design is also called top-level design. The design phase translates the logical aspects of the system into physical aspects of the system.

3.2 INPUT DESIGN

The data, which is input to a computer – based information system, must be correct. If data is carelessly input and errors enter the system, it will lead to incorrect results whose consequences will be expensive and embarrassing to the designer. In data processing, the data entry operator often makes errors. This can be controlled by input design by using menu, interactive dialogue, consistent format etc.

In this system the users are provided with user friendly pages to give the input and if the user gives any wrong input validations are done and message boxes are provided in the necessary places. The message specified in the message box is specified in a polite and in an informative manner.

System is interactive dialogue, which simplifies the data entry or access, instead of remembering what to enter. User can choose from a list of options and type it in the cursor position. This will reduce the number of corrections while entering the data.

3.3 DATABASE DESIGN

The database design involves creation of tables that are represented in physical database as stored files. They have their own existence. Each table constitute of rows and columns where each row can be viewed as record that consists of related information and column can be viewed as field of data of same type. The table is also designed with some position can have a null value.

The database design of project is designed in such a way values are kept without redundancy and with normalized format. Refer the appendix for screen shots of database design.

3.4 OUTPUT DESIGN

The proposed system is a web oriented system and hence it does not provide any reports. The output results are viewed in the web pages itself. Outputs from the computer system are required primarily to communicate the result of processing to users. They are also used to override a permanent copy of the results for later consultation. The output reports and input documents should be documented in terms of data content .

4. SYSTEM TESTING AND IMPLEMENTATION

4.1 TESTING

Testing is a series of different tests that whose primary purpose is to fully exercise the computer based system. Although each test has a different purpose, all work should verify that all system element have been properly integrated and performed allocated function. Testing is the process of checking whether the developed system works according to the actual requirement and objectives of the system.

The philosophy behind testing is to find the errors. A good test is one that has a high probability of finding an undiscovered error. A successful test is one that uncovers the undiscovered error. Test cases are devised with this purpose in mind. A test case is a set of data that the system will process as an input. However the data are created with the intent of determining whether the system will process them correctly without any errors to produce the required output.

Types of Testing

- Unit Testing
- Integration Testing
- Output Testing
- User acceptance Testing
- Performance Testing
- Output Testing

Unit Testing

All modules were tested and individually as soon as they were completed and were checked for their correct functionality.

Integration Testing

The entire project was split into small program; each of these single programs gives a frame as an output. These programs were tested individually; at last all these programs where combined together by creating another program where all these constructors were used. It give a lot of problem by not functioning is an integrated manner.

The user interface testing is important since the user has to declare that the arrangements made in frames are convenient and it is satisfied. When the frames where given for the test, the end user gave suggestion10 Based on their suggestions the frames where modified and put into practice.

Validation Testing

At the culmination of the black box testing software is completely assembled as a package. Interfacing errors have been uncovered and corrected and a final series of test i.e., Validation succeeds when the software function in a manner that can be reasonably accepted by the customer.

Output Testing

After performing the validation testing the next step is output testing of the proposed system. Since the system cannot be useful if it does not produce the required output. Asking the user about the format in which the system is required tests the output displayed or generated by the system under consideration. Here the output format is considered in two ways. One is on screen and another one is printed format. The output format on the screen is found to be corrected as the format was designed in the system phase according to the user needs. And for the hardcopy the output comes according to the specifications requested by the user.

White box testing

White box testing (also known as Clear Box Testing, Open Box Testing, Glass Box Testing, Transparent Box Testing, Code-Based Testing or Structural Testing) is a software testing method in which the internal structure/design/implementation of the item being tested is known to the tester. The tester chooses inputs to exercise paths through the code and determines the appropriate outputs.

Programming know-how and the implementation knowledge is essential. White box testing is testing beyond the user interface and into the nitty-gritty of a system. This method is named so because the software program, in the eyes of the tester, is like a white/transparent box; inside which one clearly sees.

Definition by ISTQB

- **White-box testing:** Testing based on an analysis of the internal structure of the component or system.
- **White-box test design technique:** Procedure to derive and/or select test cases based on an analysis of the internal structure of a component or system.

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Black box testing

Black box testing, also known as Behavioral Testing, is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional.

This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see.

This method attempts to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structures or external database access
- Behavior or performance errors
- Initialization and termination errors

Definition by **ISTQB**

- **Black box testing:** Testing, either functional or non-functional, without reference to the internal structure of the component or system.
- **Black box test design technique:** Procedure to derive and/or select test cases based on an analysis of the specification, either functional or non- functional, of a component or system without reference to its internal structure.

Acceptance testing

This testing is done to verify the readiness of the system for the implementation. Acceptance testing begins when the system is complete. Its purpose is to provide the end user with the confidence that the system is ready for use. It involves planning and execution of functional tests, performance tests and stress tests in order to demonstrate that the implemented system satisfies its requirements. Tools to special importance during acceptance testing include:

Test coverage Analyzer

Records the control paths followed for each test case.

Timing Analyzer

Also called a profiler, reports the time spent in various regions of the code are areas to concentrate on to improve system performance.

4.2 SYSTEM IMPLEMENTATION

The medical management System begins with the following involves various activities performed together. These are the System Development Life Cycle

i. Recognition of need

It is the first stage of information system development cycle. The preliminary investigation must define the scope of the project and the perceived constrains, opportunities and directives that triggered the project. As for Clinical Management System, I collected the system requirements throughquestionnaires and interviewing student and the staff and the problem they facewhen they visit the universities Clinic. I happen to find the following:

The preliminary investigation include the following tasks:

- Listing problems, opportunities and directives.
- Assess project worth.
- Plan the project.
- Present the project and plan.

Feasibility study

The goal of a feasibility study is to evaluate alternative system and to purpose the most feasible and desirable system for development.

These are the following features:

- Statement of the problem
- Summarizing of findings and recommendations
- Details of findings
- Recommendations and conclusions

I addressed five types of feasibility study in my research, they include the following.

ii Operational Feasibility

The system is operationally feasible.

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1. Time Feasibility

Being a small system and given the period of three months of development, it is time feasible.

2. Economic Feasibility:

A network-based system requires a lot of equipment such as cables, hubs etc. This requires a lot of initial capital to install the network. On the other hand, it allows sharing of resources and information and centralized administration hence cheaper.

3. Technical Feasibility

Since it is not a complex system, we have the technical feasibility of developing the system.

4. Time Feasibility

The system is a small one and hence the time frame of three months allocated for development is enough hence there is time feasibility.

From the above we choose to use a network based database system because as compared to the other strategies, it more feasible. It will contain an interface that is distributed in the network and is connected to a central data-base.

Feasibility study involve cost/benefit analysis. In the process , the cost and benefits are estimated with greater accuracy. If cost and benefit should be quantified to make a good system that is affordable.

iii Analysis

Analysis starts with systems request that describes the problems or desired changes in the system. It identifies the nature and scope of the business opportunity and problem by performing a feasibility study

Design

The Design phase creates a blueprint for the new system that will satisfy all documented requirements. It identifies all necessary outputs, inputs, interfaces and processes. Designs internal and external controls that will ensure:

- Reliability
- Security
- Maintainability
- Accuracy

The design is documented in the systems design specification and presented to the management and users for their review and approval. The involvement of Management and users is to avoid any misunderstanding about what the system will do, how it will do it and how much it will cost.

Implementation

In the implementation phase, the new system is constructed by the programmers and designers and finally

given to the final user. After implementation data is converted into system files, users are trained, and the actual transition to the new system is undertaken.

A Systems Evaluation is later done to determine If the systems operates properly and if the cost of the system and benefits are within expectations

Post implementation and maintenance

During this phase the IT department and staff maintains (corrects the errors and adapt to changes in the environment) and enhances the system. Enhancements provide a maximized return on IT investments

CONCLUSION

I believe I have done enough research on the Project and am ready to start and complete the project over the period specified and also make the Output.

With the help of this project,

In conclusion, Customer Relationship Management (CRM) is an indispensable strategy and technology for businesses. It fosters stronger customer relationships, streamlines operations, and boosts profitability. With evolving technologies and a customer-centric approach, CRM continues to play a vital role in helping organizations understand, serve, and retain their customers effectively.

FUTURE ENHANCEMENT

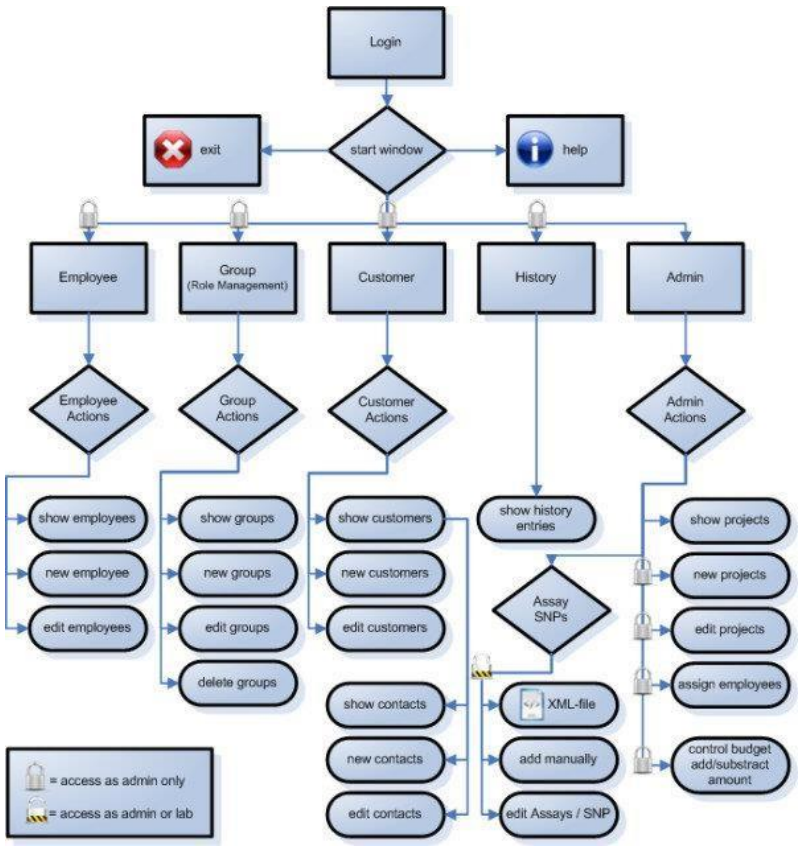
- Artificial Intelligence (AI) and Automation: Enhanced AI-driven insights and automation for customer interactions, lead scoring, and personalized marketing.
- Omnichannel Customer Engagement: Seamlessly integrating communication across all customer touchpoints, including social media and chatbots.
- Data Privacy and Security: Stricter compliance with data protection regulations and secure handling of customer information.
- Predictive Analytics: Advanced predictive analytics for forecasting customer behavior and market trends.
- Augmented Reality (AR) and Virtual Reality (VR): Utilizing AR and VR for immersive customer experiences and product demonstrations.
- Mobile CRM: Continued development of mobile CRM apps to support remote work and mobile customer interactions.

REFERENCES

https://www.sciencedirect.com/science/article/pii/S2212567115005134

https://link.springer.com/article/10.1007/s11365-022-00800-x

FROM DESIGN :



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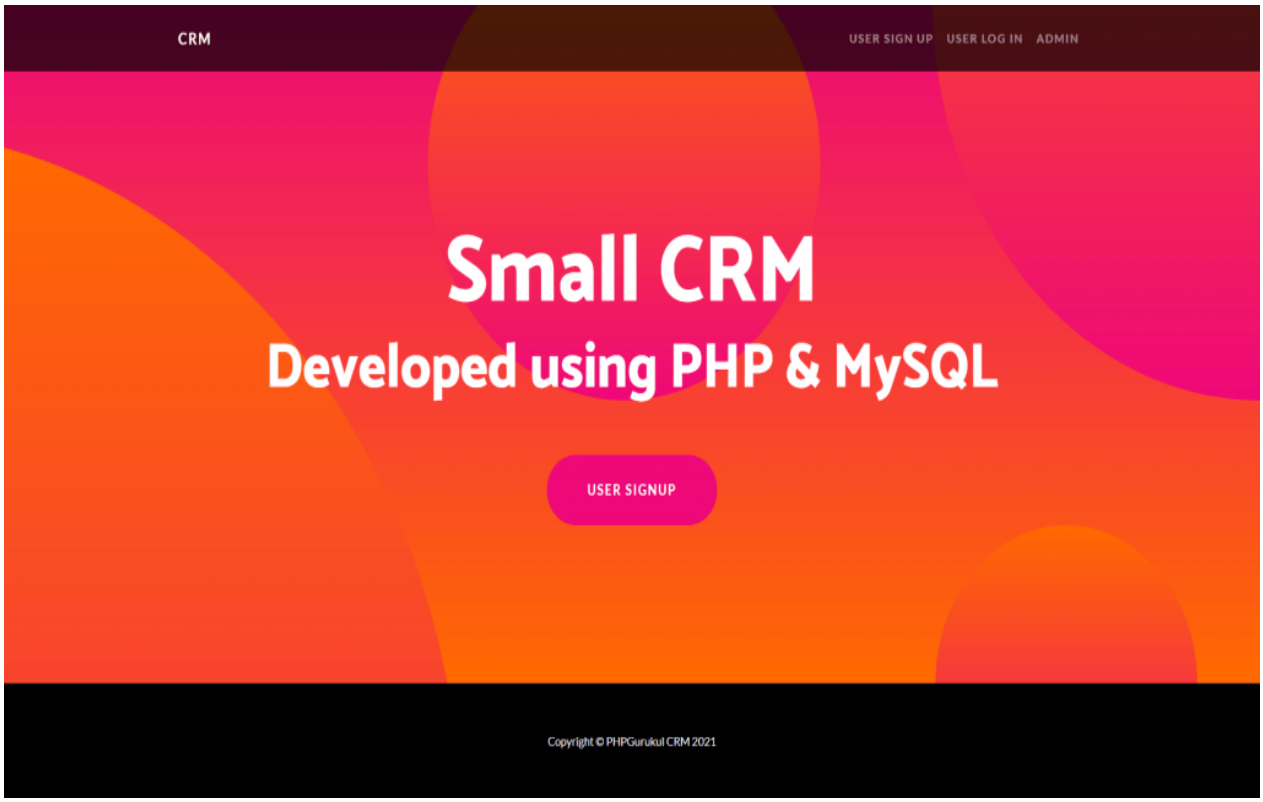
PROJECT SCREENSHOT

HOME PAGE:



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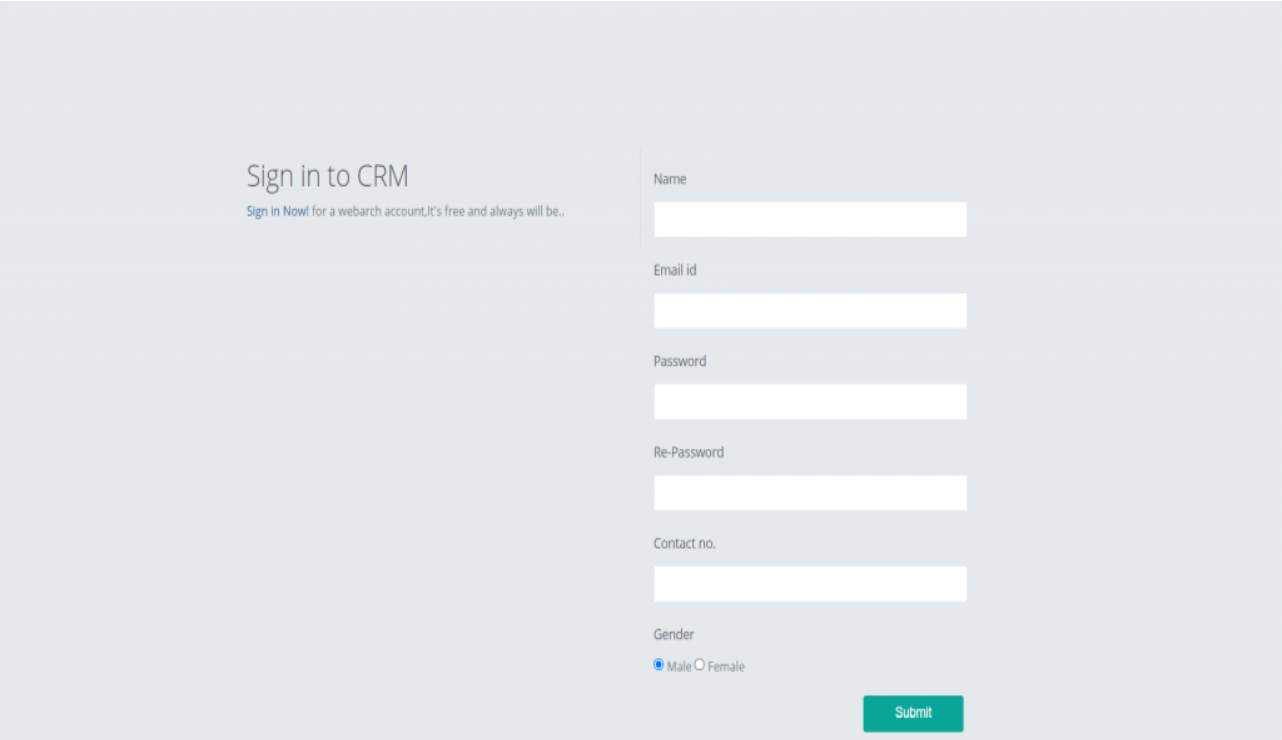
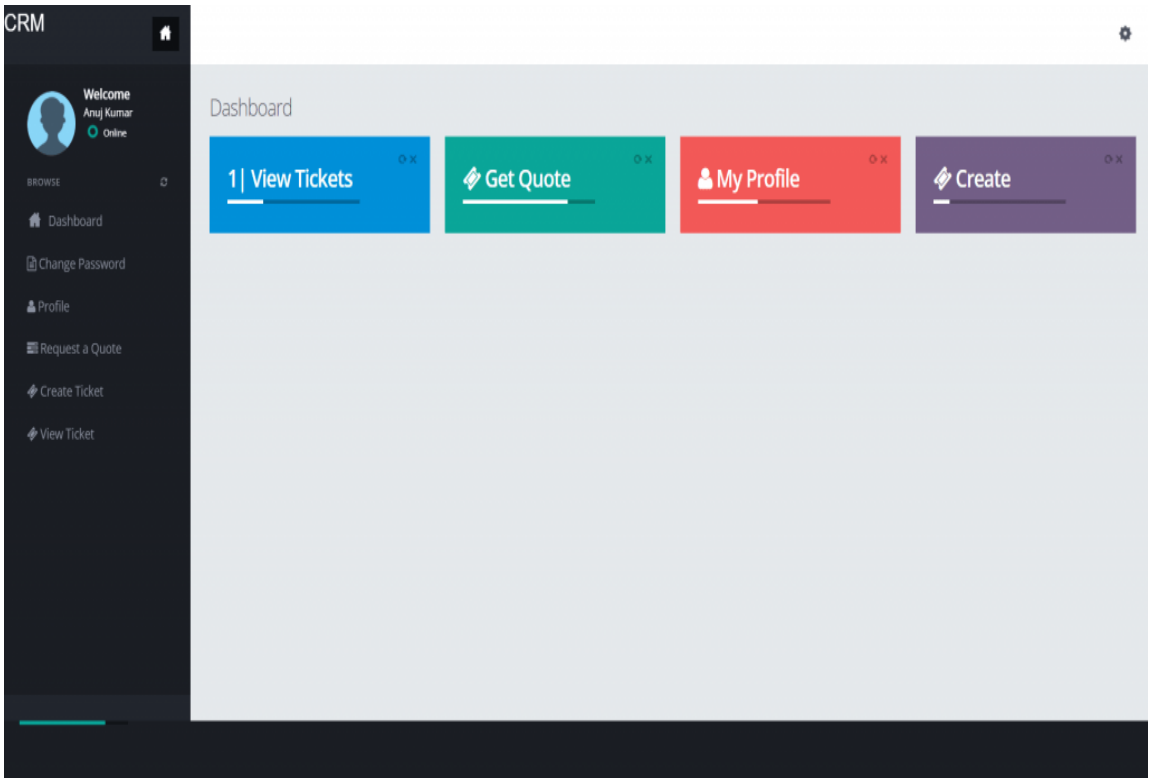
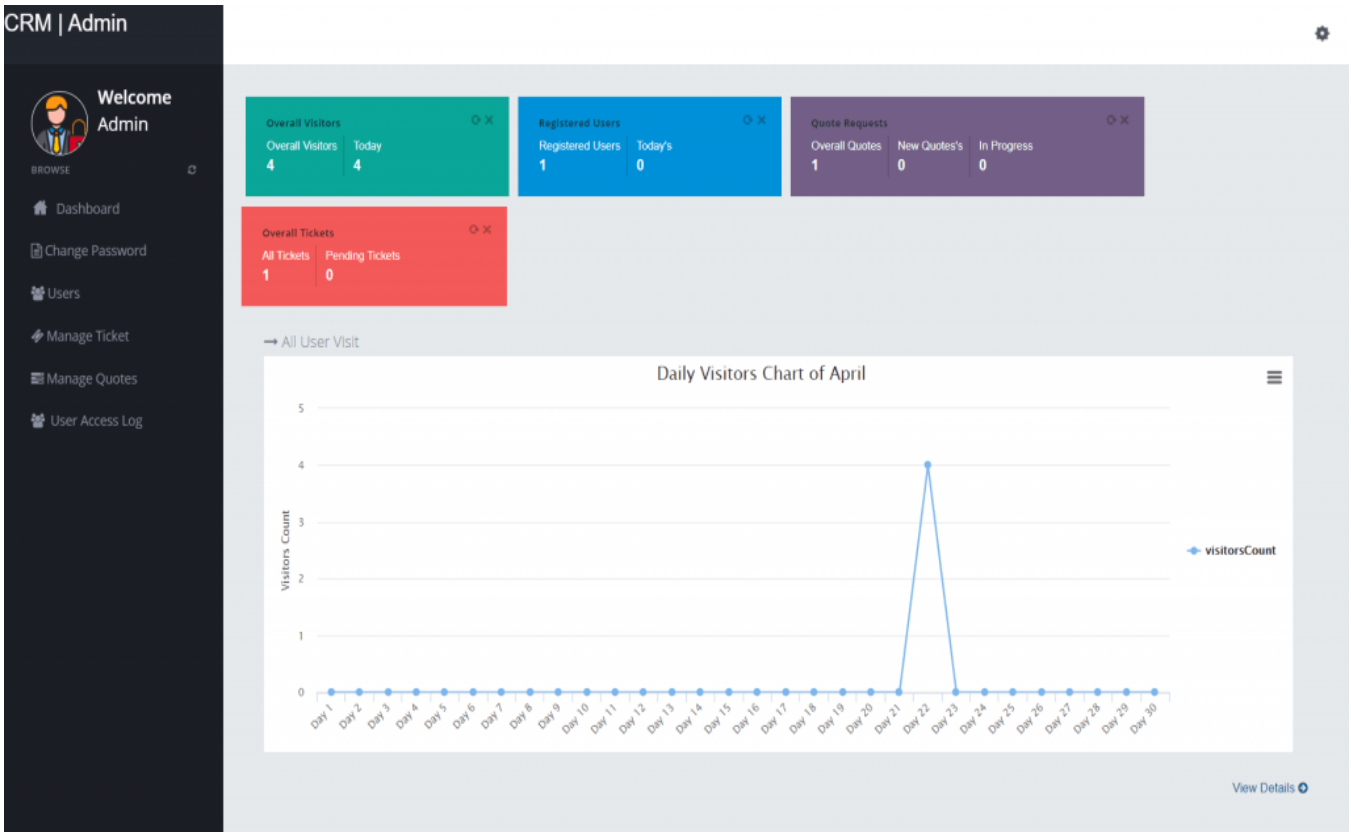


USER MODULE:


CRM
Welcome
Anuj Kumar
Online
BROWSE
Dashboard
Change Password
Profile
Request a Quote
Create Ticket
View Ticket
Dashboard
1| View Tickets
Get Quote
My Profile
Create

ADMIN PANEL:


CRM | Admin
Welcome
Admin
BROWSE
Dashboard
Change Password
Users
Manage Ticket
Manage Quotes
User Access Log
Overall Visitors
Overall Visitors
Today
4
4
Registered Users
Registered Users
Today's
1
0
Quote Requests
Overall Quotes
New Quotes's
In Progress
1
0
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Overall Tickets
All Tickets
Pending Tickets
1
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All User Visit
Daily Visitors Chart of April
Visitors Count
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