CRM APPLICATION FOR TEXTILE INDUSTRY WITH WORKFLOW AND LEAVE REQUEST MANAGEMENT

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Abstract - The purpose of our project is to develop a web based application to create a Customer Relationship Management (CRM) Application with workflow and leave request management for Textile industry. CRM is very important for small scale industries and business sectors. We provide CRM application with workflow management to small scale organization (Textile industry) with the additional features such as maintaining orders and managing leave requests. CRM plays a vital role in communication of information within the members of organization and outside the organization. Small scale business organizations are interested to do their business online so they are interested to use the CRM, but existing CRM provides some unwanted services at unnecessary costs, but the company needs only necessary services. So the motive of the project is to provide the proper workflow and some additional features such as maintaining orders and managing leave requests to the small scale business sectors (Textile industry).

Keywords - Customer Relationship Management (CRM)

I . INTRODUCTION

- To Explain CRM, you must understand its history. CRM stands for customer relationship management. Customer relationship management is a tool, strategy, or process that improves businesses better organize and access customer data. CRM was eventually evolved into databases stored on individual computers. It is a software for Managing your business's relationships with customers. In order to compete with any industry, you need a well developed CRM software.

- It's a software that connects your different departments into one system. Every user has easy access to the real-time data. This not only allows for unparalleled coordination across teams and departments, but also makes it possible for businesses to improve their customers with something extra ordinary. Compare that to restricted practically of previous analogue and inheritance system ,and you have got one thing with the feasibility to revolutionize the approach you connect with the customers.

- In our project we developed a CRM for a Textile industry with workflow and leave request management. In which we connects each department and provide them a workflow. In this project, we have Admin side and employee side application.

- Both admin and employee where provided with user id and password .Where Admin maintain the data and provide workflow for the employees. The employee can able check their profile for the work given by the admin, after the work completed, he/she need to update their work status in the profile , So that Admin can able to view the workflow.

- Admin side application have 6 Modules.

   * Dashboard

   * Organization

      - Employee

      - Job

      - products

      - Workflow

  * Leave request

  * orders

  * Payrolls

  * Revenue

- The dashboard shows the details like name,employee id , address, date of birth etc.., The organization module itself have 4 Modules (Employee,Job,Product,Workflow). The workflow is used to provide the flow of work to the employee , like which product we are working for and who are the people working for the product. In the leave request management , The admin can able to grant or reject the leave request from the employee. The order module maintain by the admin . Payroll maintains pay of employees and revenue shows the expenses and profit of organization.

- Employee side application have 3 modules.

      * Dashboard

      * Task

      * Leave request

- The dashboard shows the employee details like name of the employee, employee id , address etc ..., Task shows the work provided by the admin and he/she need to update his/her work. Leave request module can be used for leave applications.

II. FUNCTIONAL ARCHITECTURE

CRM application for textile industry with workflow and leave request management gives small scale industries and business sectors a very good opportunity to scale their business to next higher level and productivity in an efficient way.

Module 0: Creating User Interface (UI) and Data storage

- NetBeans like IDE is always utilized by every back-end developer's tool kit.
- Node.js is used as a back-end for building servers.
- Bootstrap is a free front-end framework for faster and easier web development and it includes HTML and CSS are used to add and create or edit forms, buttons, colors ,fonts as well as optional JavaScript plugins.
- These plugins make the user interface very user friendly and cleaner to use.
- And another front-end Ember.js is an open source, free JavaScript client-side framework used for developing web applications and it allows building client side JavaScript applications by giving a unique solution which contains data management and an application workflow.
- MySQL is a database management system and to add, access and process data in a computer. And it provides comprehensive support for every application development needed.
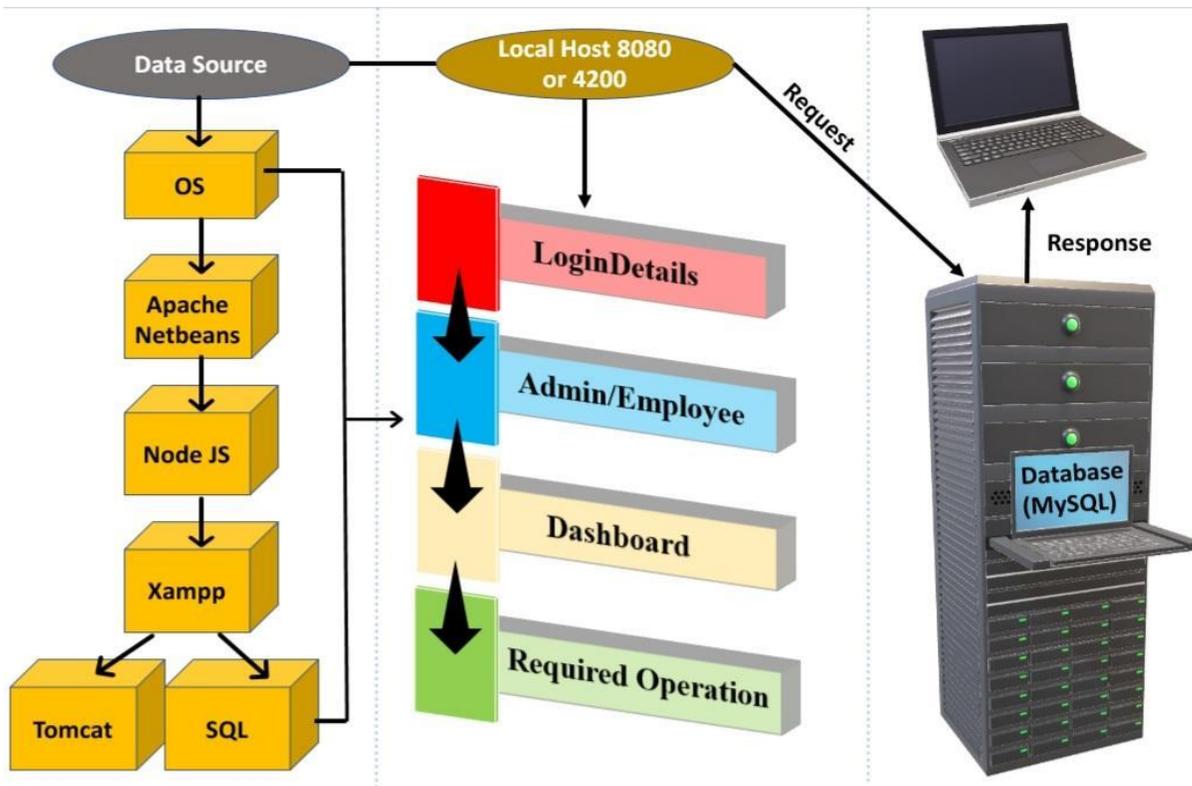
Figure 1. System Architecture

Module 1: Login Details

- In this module, the username and password for both the admin and employee are entered and if the entered data is valid, then it moves to the home page or else it shows the user that the entered data is invalid.
- If the username and password are correct then the user gets approved and redirects to dashboard section.

Module 2 : Admin Side Application

- In this module, the admin can able to view ,assign and access different set of sections like revenue, payroll, dashboard, leave request and organization.
- In the dashboard section, the admin can able to view his/her schedule, details etc.
- In the revenue section, the admin can able to view the revenue details of the company.
- The revenue section gives the details total revenue, Tax , Tax Excluded, Total investment, profit.
- In the payroll section, the admin can able to view the payment details of the employee. It gives the payroll details of employee with specified date and year.
- In the organization section, the admin can able to view the workflow, details of the product, the status of the job/task assigned to the employee and the details of the employee.

- In the organization section there are workflow, jobs, products ,employee.
- In Workflow section admin gives the basic workflow details to start the process.
- In the job section, the admin assigns the required job to the respective employees.
- In the Product section , the admin gives product details with their selling price and investment price.
- In the employee section , the address of employee ,name , designation, DOB, desired password are inserted.
- In the order section, the admin can able to view the details and status of the, products.
- In the leave request section, the admin can able to approve or reject the leave request of the employee.
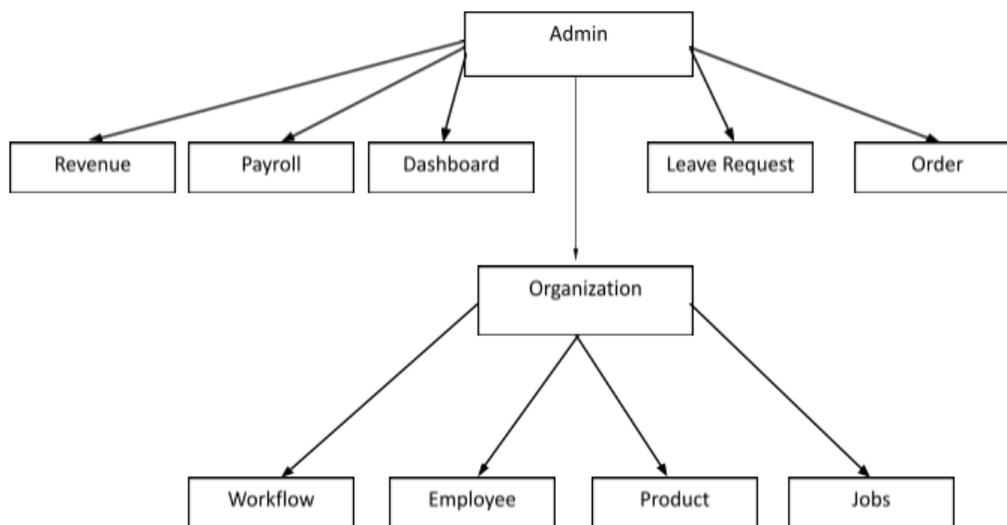
Figure 2. Admin side application

Module 3 : Employee side Application

- In this module, the employee has a different set of sections like e-dashboard, e-leave request and task.
- In the e-dashboard section, the employee can able to view the work assigned for them.
- In the e-leave request section, the employee can request for leave and in the task section, the employee can able to inform the status of the assigned task to the admin.
- The employee has to update in the system whenever he finishes a work assigned to him so that the workflow is continued without any interference.
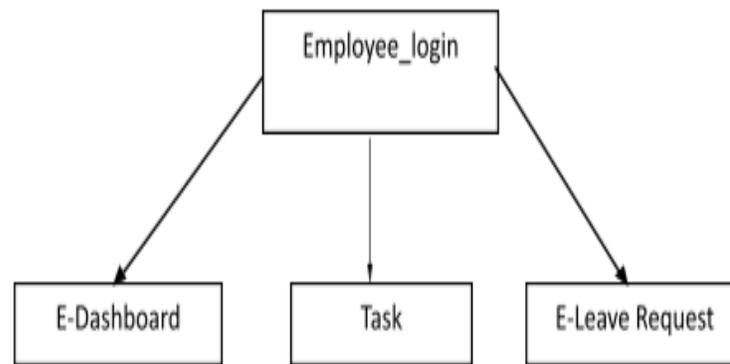
Figure 3. Employee side application

III.   Related Work

- Textile industry is mainly divided into 3 groups: upstream, intermediate and downstream industrial groups. East Java industries are segregated in the downstream group and its supply chain process is dependent on the upstream group. Downstream group is directly in contact with customer relations and it is easy to communicate information between customer and the industry. All the information collected in the industry is demand on product value which is a crucial factor and information is needed to implement their business work. In the textile industry, understanding and consumer behavior will make it better , more competitive and more sustainable. Supply chain management is a management of material, data, capital flow and cooperation between companies along the supply chain. Downstream group consist of small and medium industrial scale having independent market information .Supply chain management is method of controlling the operational activity with other organizations for business events. CRM (Customer Relationship Management) is a process of understanding the problems of customers and to find the solution to solve the problem with some business needs. CRM is complex in maintaining the customers data to implement the relationship between the customer needs.

- CRM is used to maintain the order preference of customers to check the business strategy and supply chain activities in the textile industry. Application of data mining can be used as making decisions on CRM towards customer value and customer experience of application. End customer behavior is a very important source of information in supply chain activity within the organization and it is helped to maintain the good relationship between the organization and the customers. K-means algorithm is using 5 clustered forms and 10 input fields and the cluster forms variations in data. The diversity of data is done with the cluster containing low levels of variation and with other clusters shown as a high level of variations. In a group, the higher performance of the cluster size then lower the variability and lower the performance of cluster size then the higher the variability within the group.

- Data mining is the iterative process of data and discussion of valid new models and understanding the very large data of customers.

IV.   Proposed System :

The motive of the project is to provide the proper workflow and some additional features such as maintaining orders and managing leave requests to the small scale business sectors (Textile industry). In this project ,we combine all divisions of work together for small scale industries with effective cost.

➤ *Expected Outcome :*

Getting the flow of the task from the user (organization) and creating users based on the roles in the organization. By these we can create a workflow of the tasks and track the position of the tasks being handled. And in our CRM , we can manually add or remove any unwanted task and leave request management, and also connect all departments in the industry ,in previous CRM we didn't have an order module.

V.   MERITS OF THE PROJECT :

➤ Displaying actionable data.

➤ Turning data into actionable insights.

➤ Facilitating team communication.

➤ Managing Contacts, Sales Management.

➤ Creating and improving a bond with the existing customers.

➤ Maintaining customer loyalty with personalized experiences.

➤ Extending brand loyalty through word of mouth.

➤ Increasing profitability, productivity, and customer service.

● In our CRM , we can manually add or remove any unwanted task and leave request management, and also connect all departments in the industry ,in previous CRM we didn't have an order module.

VI.   TEST CASE

Test Case	Description	Test Step	Expected Result	Status / Expected Outcome
Functionality	*Username should accommodate upto 20 characters.*	*Input upto 20 characters*	*All 20 characters in the request should be appropriate*	*Pass or Fail*
Security	*Verify password rules are working*	*Create a new password in accordance with rules*	*The user's password will be accepted if it adheres to the rules*	*Pass or Fail*
Usability	*Ensure all links are working properly*	*Have users click on various links on the page*	*Links will take users to another web page according to the on page URL*	*Pass or Fail*

Table 1. **Test Case based on Web Page Link and Login Details**

VII.   IMPLEMENTATION AND WORKING :

➢ **Operating System**   : Windows XP ,7,8,10,11,Linux,Mac OS

➢ **Programming Language** : Java SE 1.7

➢ **Frontend**   : HTML , CSS , Bootstrap , Ember.js

➢ **Backend**   : Java Servlet

➢ **Browser**   : Mozilla, Google Chrome

➢ **Tools used**   : Apache Tomcat 9, Xampp server, Node.js   14.0, JDK 1.8, Apache NetBeans 13

● A Web application (Web app) is an application that's hold on on a distant server and delivered over the net through a browser interface.

● In our CRM, there are 3 modules which consist of Login details, Admin side application and Employee side application modules, and additionally we consider user interface and data storage as a module.

➢ Login module consists of username and password text box. Here, both admin and employee can get into CRM by entering their employee id and respective password.

➢ For admin, after entering into CRM it will show organization, dashboard, request, orders, revenue and payroll in screen.

➢ In dashboard, the details of admin will be shown. The details like name, date of joining, date of birth, age, address will appear in the dashboard.

➢ Admin can assign respective work to employee with the task id and workflow id.

➢ After assigning work, admin can track the status of workflow.

➢ Employee can also request for leave from their end to admin. Admin can approve or reject the leave request.

➢ In existing CRM, the password is accepted in format of combination of numbers and alphabets.

➢ For improving the security purpose in our CRM, now password is acceptable with minimum of one upper case letter, one special character,combination of numbers and alphabets.

➢ For employee, after entering into CRM it will show dashboard, task and leave request.

➢ In dashboard, the details of the employee will be shown. In task section, employees can able to view the task   assigned by the admin and in leave request section, employee can able to apply for the leave.

VIII.   CONCLUSION :

In our CRM, many divisions of work for textile sector have been combined and it reduces unwanted sections, the enhanced product is easy to use, economical. Therefore, this web application is used to provide workflow management and leave request for textile industry with the use of CRM application.

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