Project Document

CRM APPLICATION TO ENGINEERING WORKS

Project Overview

# An application is required to efficiently manage client information for engineering projects, encompassing details such as company information, owner details, contact information, worker details, and their respective requirements for materials, including measurements. Additionally, the application should automatically calculate the price based on the specified materials and measurements. The available works in Engineering Works comprise Fabrication, Shed Construction, and Pipe Lining. Within the Fabrication work, various processes are involved, namely Drilling, Welding, Cutting, and Folding. Similarly, the shed-work involves the construction of the sheds, and Pipe Lining involves pipe repairing and replacing. These processes are integral to the fabrication workflow and need to be accurately tracked and managed within the application

# Objectives

**Efficient Client Information Management:**

* Develop a system to effectively capture and store essential client details, including company information, owner details, contact information, and worker details.

**Material Requirement Tracking:**

* Implement a feature to accurately record the specific materials and measurements required for each project.

**Automated Cost Calculation:**

* Create an algorithm to automatically calculate the total project cost based on the specified materials, measurements, and predefined pricing standards.

**Engineering Works Management:**

* Design a module to manage the various engineering works, namely Fabrication, Shed Construction, and Pipe Lining.

**Process Tracking:**

* Implement a system to track the specific processes involved in each engineering work, including Drilling, Welding, Cutting, Folding, Shed Construction, Pipe Repairing, and Pipe Replacing.

# Salesforce Key Features and Concepts Utilized

**Salesforce Features:**

* **Workflow Rules:** To automate tasks like sending notifications, updating record statuses, or triggering calculations based on specific criteria.
* **Process Builder:** To create more complex automation processes, including branching logic, multiple steps, and custom actions.
* **Approval Processes:** To streamline approval workflows for project proposals, purchase orders, and change orders.
* **Formula Fields:** To calculate values based on other fields, such as total material cost or labor hours.
* **Validation Rules:** To enforce data quality and consistency, such as ensuring that required fields are filled in or that measurements are within acceptable ranges.
* **Reports and Dashboards:** To visualize key performance indicators, track project progress, and identify potential issues

**Detailed Steps to Solution Design**

**Detailed Requirements:**

* **Client Information:** Company name, address, contact details, project manager details.
* **Project Details:** Project name, description, start date, end date, budget.
* **Material Requirements:** Material type, quantity, unit of measurement, price per unit.
* **Labor Requirements:** Worker name, role, hourly rate, hours worked.
* **Workflow Tracking:** Ability to track the progress of different work phases (e.g., fabrication, shed construction, pipe lining).
* **Cost Calculation:** Automated calculation of total project cost based on material costs, labor costs, and other overhead costs.
* **Reporting:** Generate various reports, such as project status reports, cost reports, and material usage reports.

**Testing and Validation**

**Functional Testing:**

* + Verify that all core functionalities work as expected.
  + Ensure accurate data entry and retrieval for client information, project details, material requirements, and measurements.
  + Confirm correct calculation of prices based on materials and measurements.
  + Test the seamless integration of different work types (Fabrication, Shed Construction, Pipe Lining) and their respective processes.

**Non-Functional Testing:**

**Performance Testing:**

* + Evaluate system response times under various load conditions.
  + Assess the application's scalability and ability to handle large datasets.

**Usability Testing:**

* + Conduct user interface tests to ensure intuitive navigation and user-friendly design.
  + Verify the clarity and effectiveness of error messages and feedback mechanisms.
  + **Security Testing:**
  + Assess the application's vulnerability to security threats, such as unauthorized access and data breaches.
  + Implement security measures to protect sensitive client information.

## Key Scenarios Addressed by Salesforce in the

## Implementation Project

**Client Management:**

* Storing and managing client information (company, owner, contacts)
* Tracking project-specific details (work type, processes, materials, measurements)

**Work Order Management:**

* Creating and managing work orders for different engineering works (Fabrication, Shed Construction, Pipe Lining)
* Assigning workers to specific work orders
* Tracking the progress of each work order

**Material Management:**

* Defining a catalog of materials and their respective pricing
* Calculating material costs based on measurements and quantities

**Financial Management:**

* Generating invoices based on completed work orders and material costs
* Tracking payments and outstanding balances

# Conclusion

* This Engineering Works Project automates the calculation of area whenever a record is created or updated, utilizing parameters such as length, breadth, and width, as well as quantity and cost per meter.
* The final amount is then determined based on the area and material type.