A CRM APPLICATION FOR ENGINEERING WORKS

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A CRM APPLICATION FOR ENGINEERING WORKS

1. PROJECT OVERVIEW:

This project is focused on developing an application to manage client information for engineering projects, designed to address the need for streamlined client information management and accurate project cost calculations. The goal is to deliver a comprehensive solution by leveraging efficient data management and automated calculation features. Through this project, we aim to enhance operational efficiency, data accuracy, and user experience and support the long-term goals of engineering project management and client satisfaction.

2. OBJECTIVES:

Business Goals:

- To enhance the efficiency and accuracy of client information management in engineering projects.
- To streamline operational workflows, including fabrication, shed construction, and pipe lining, within a single, cohesive application.
- To reduce manual errors and improve cost estimation accuracy by automating material measurement and pricing calculations.
- To support long-term scalability and adaptability in engineering project management, ensuring the system can accommodate expanding client and project data.

Specific Outcomes:

- **Centralized Client Database**: A centralized repository for all client information, including company details, owner information, and contact details.
- **Automated Cost Calculations**: An automated pricing system that calculates project costs based on material requirements and measurements, ensuring accurate budgeting and invoicing.
- **Workflow Management for Engineering Processes**: Detailed tracking and management capabilities for fabrication, shed construction, and pipe lining processes, including specific tasks like drilling, welding, cutting, and folding.
- **User-Friendly Interface**: A user interface that allows quick data entry, easy access to client and project information, and smooth navigation for project management tasks.

3. SALESFORCE KEY FEATURES AND CONCEPTS UTILIZED

This section highlights the main functionalities and concepts applied within the Salesforce project to achieve efficient client management and workflow automation.

1. **Salesforce Objects**
- Custom Objects: Created for managing client information, worker details, material requirements, and engineering processes.
- Standard Objects: Leveraged to track company information, contact details, and other essential client data.

2. **Data Management**
- Data Import and Export: Utilized Salesforce Data Loader to efficiently import and export client, project, and material data.
- Record Management: Ensures each client, project, and associated engineering work is properly documented and accessible.

3. **Workflow and Process Automation**
- Process Builder: Automates key processes, such as updating project statuses and sending notifications based on specific triggers (e.g., project stage completion).
- Flow Builder: Manages complex workflows within engineering projects, including material tracking and worker assignments.
- Approval Processes: Configured to ensure project approvals are routed to the appropriate team members before proceeding.

4. **Calculations and Pricing Management**
- Formula Fields: Used for automatic calculation of material costs based on measurements and project requirements.
- Customizable Price Books: Supports different pricing models for fabrication, shed construction, and pipe lining, allowing flexibility in billing.

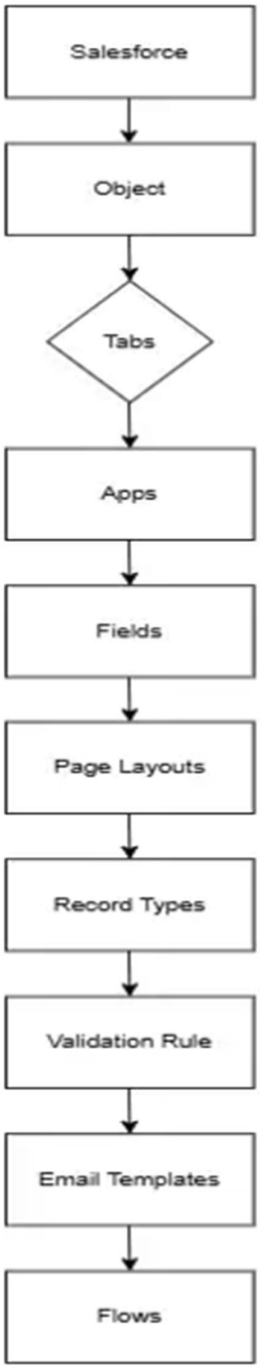
5. **Reporting and Dashboards**
- Custom Reports: Created to track project progress, cost breakdowns, and worker productivity, helping managers make informed decisions.
- Dashboards:Provide a visual summary of active projects, material usage, and budget allocation for quick insights.

6. **Security and Access Control**
- Role Hierarchy and Sharing Rules:Ensures appropriate access to project and client data based on user roles.
- Field-Level Security: Protects sensitive information by restricting access to specific fields in client and project records.

7. **Integration and APIs**
- External System Integration: Connects with external systems for material sourcing and inventory management.
- REST API: Facilitates data exchange with third-party applications to streamline material cost updates and supplier information.

4. DETAILED STEPS TO SOLUTION DESIGN

Project Flow:



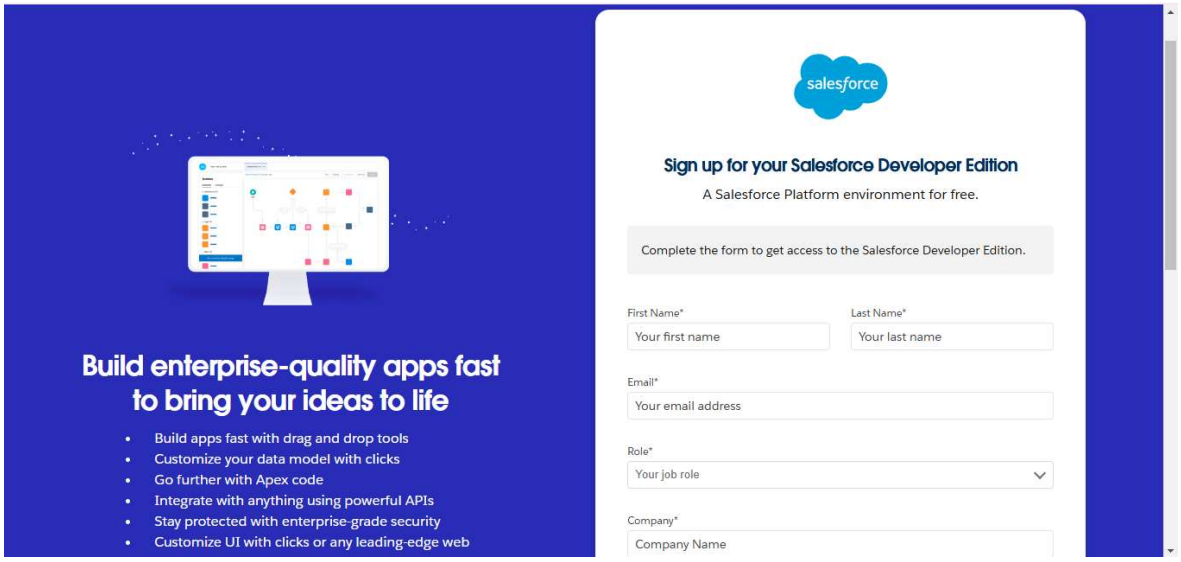
Milestone 1: Salesforce developer account creation

Creating Developer Account

Creating a developer org in salesforce.

1. Go to https://developer.salesforce.com/signup

2. On the sign up form, enter the following details :



1) First name & Last name

2) Email

3) Role : Developer

4) Company : College Name

5) County : India

6) Postal Code : pin code

7) Username : should be a combination of your name and company

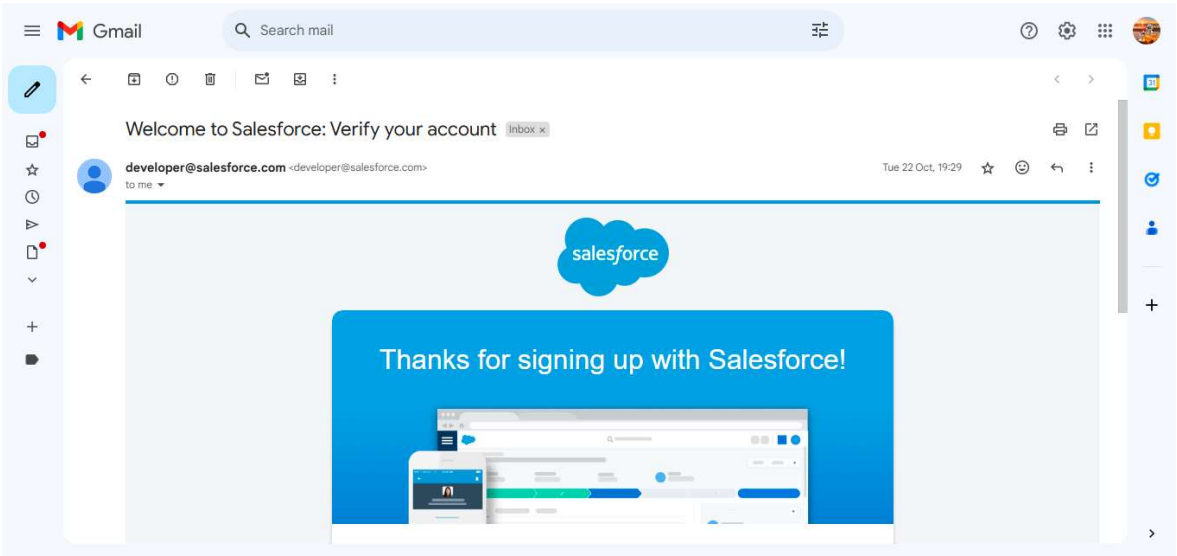
This need not be an actual email id, you can give anything in the format :

username@organization.com

Click on sign me up after filling these.

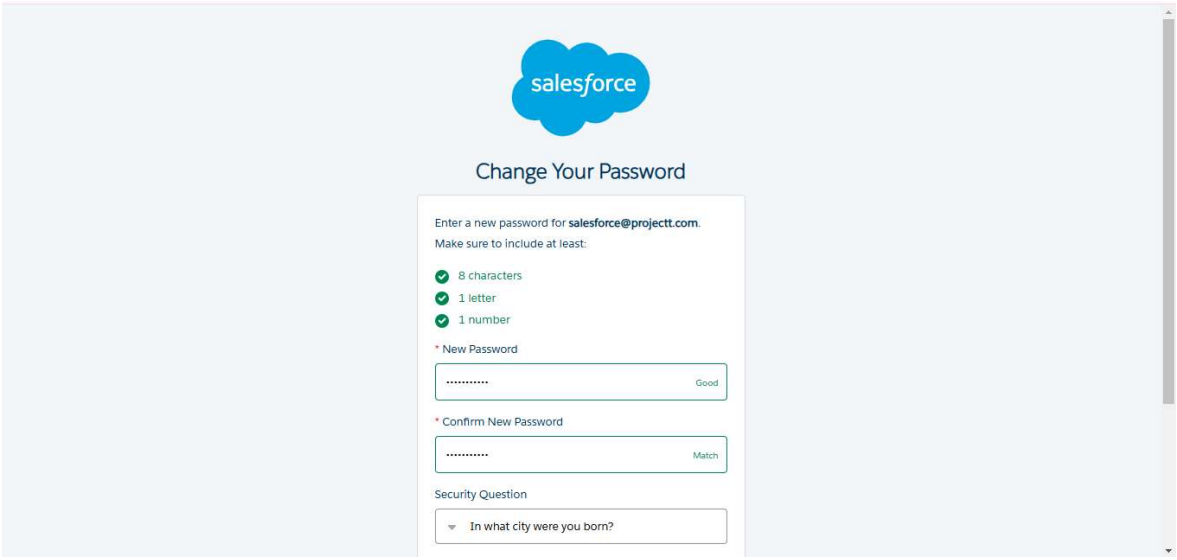
Account Activation

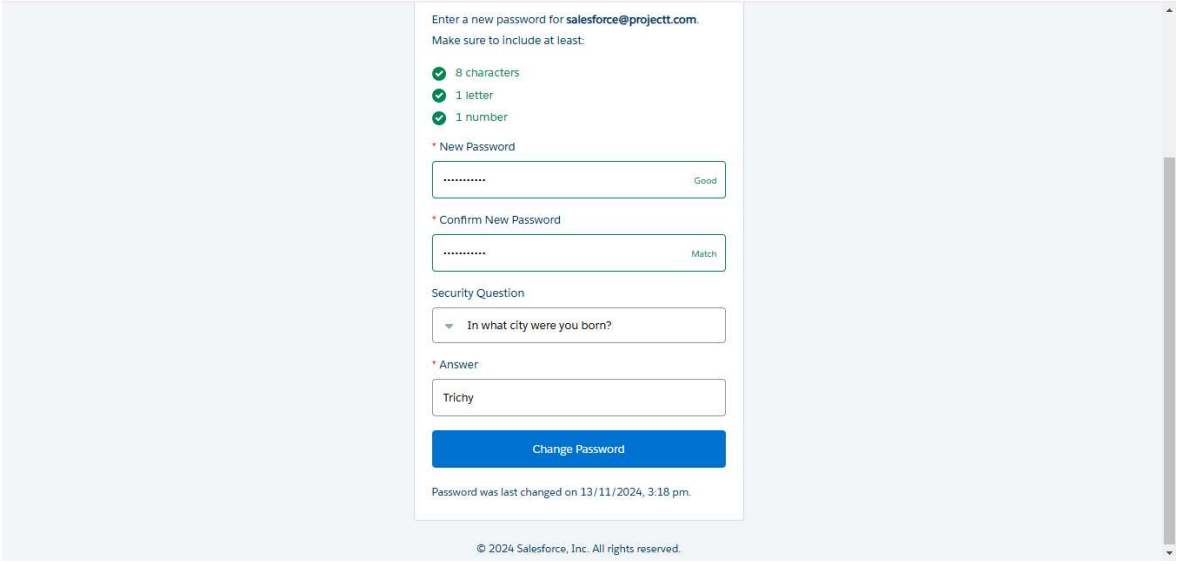
1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 5-10mins.



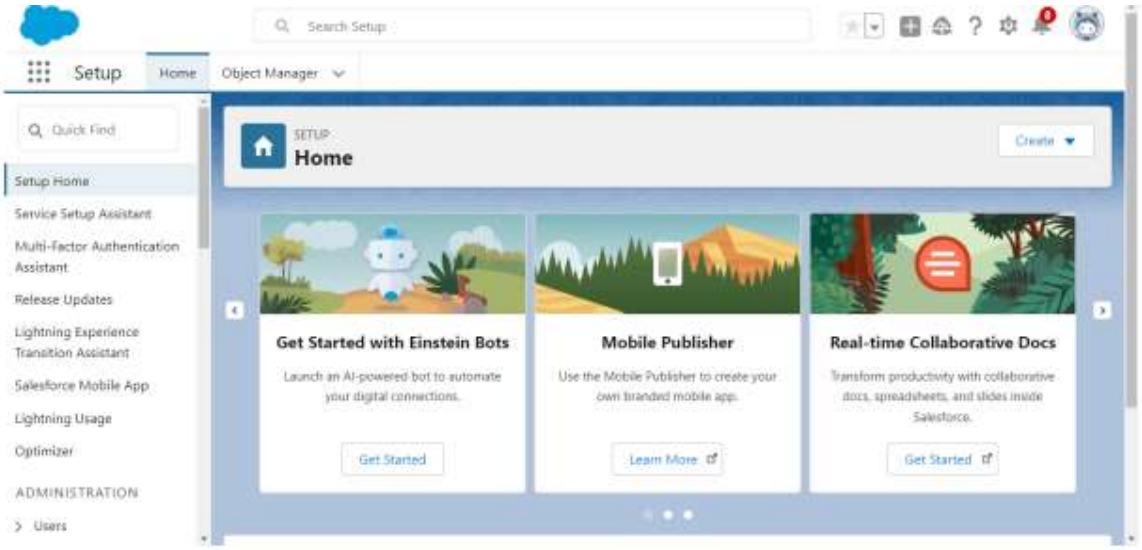
2. Click on Verify Account

3. Give a password and answer a security question and click on change password





4. Then you will redirect to your salesforce setup page



Milestone 2: Object

Create an Object:

Salesforce objects are database tables that permit you to store data that is specific to an organization. What are the types of Salesforce objects.

Salesforce objects are of two types:

1. **Standard Objects**: Standard objects are the kind of objects that are provided by salesforce.com such as users, contracts, reports, dashboards, etc.

2. **Custom Objects:** Custom objects are those objects that are created by users. They supply information that is unique and essential to their organization. They are the heart of any application and provide a structure for sharing data.

Use Case:

Creating an object in Salesforce organization is essential for efficient data management and process automation. By defining custom objects, businesses can structure and store data specific to their needs, enabling streamlined workflows, personalized reporting, and enhanced user experiences. Objects serve as the foundation for organizing and leveraging critical information within Salesforce. As an Admin for TheSmartBridge, It's your responsibility to store the data as per the organization needs.

To Navigate to Setup page:
Click on gear icon → click setup.

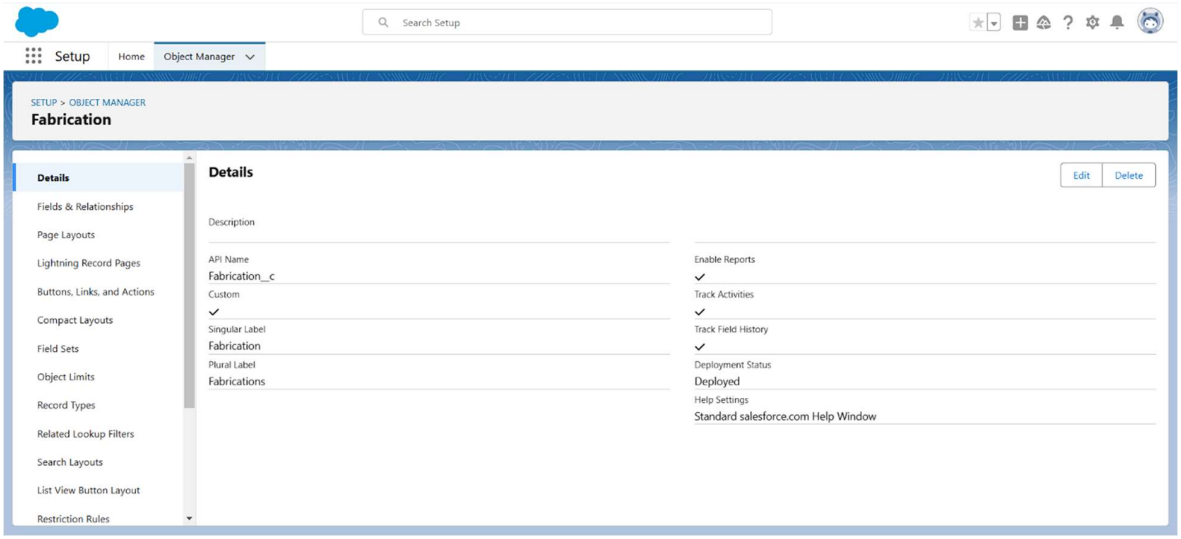
To create an object:

1. From the setup page ? Click on Object Manager ? Click on Create ? Click on Custom Object.
2. On Custom object defining page:
3. Enter the label name ,plural label name ,click on allow reports ,Allow search.
4. Click on save.

Create Fabrication Object

To create an object:

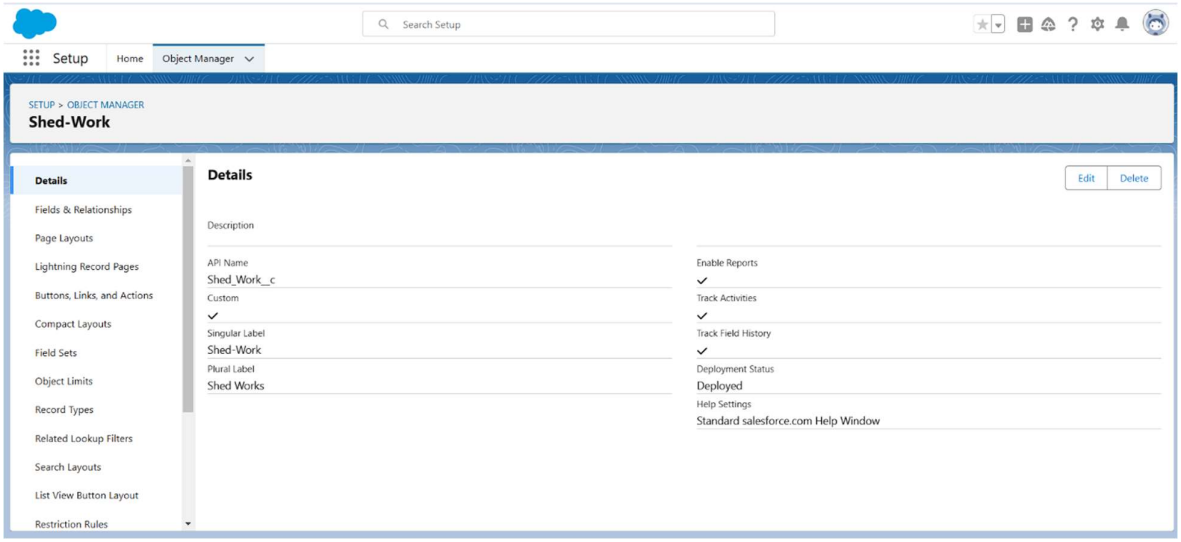
1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
    1. Enter the label name>>Fabrication
    2. Plural label name >> Fabrications
    3. Enter Record Name Label and Format
        - Record Name >> Fabrication Name
        - Data Type >> Text
2. Click on Allow reports and Track Field History,Allow Activities
3. Allow search >> Save.



Create Shed-Work Object

To create an object:

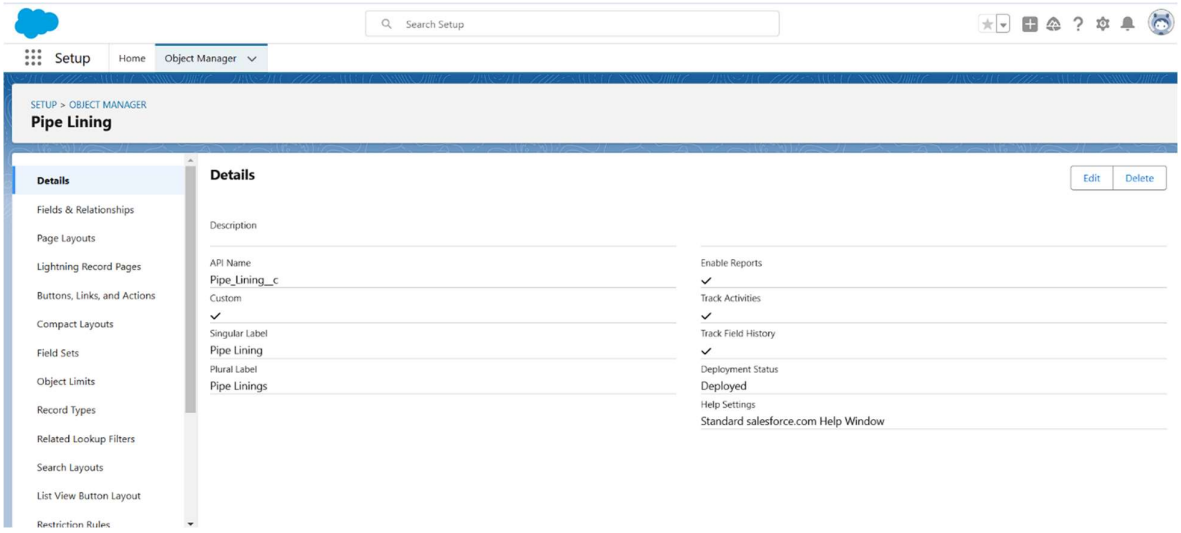
1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
    1. Enter the label name >> Shed-Work
    2. Plural label name >> Shed Works
    3. Enter Record Name Label and Format
        - Record Name >> Shed Work Name
        - Data Type >> Text
2. Click on Allow reports and Track Field History,Allow Activities
3. Allow search >> Save.



Create Pipe Lining Object

To create an object:

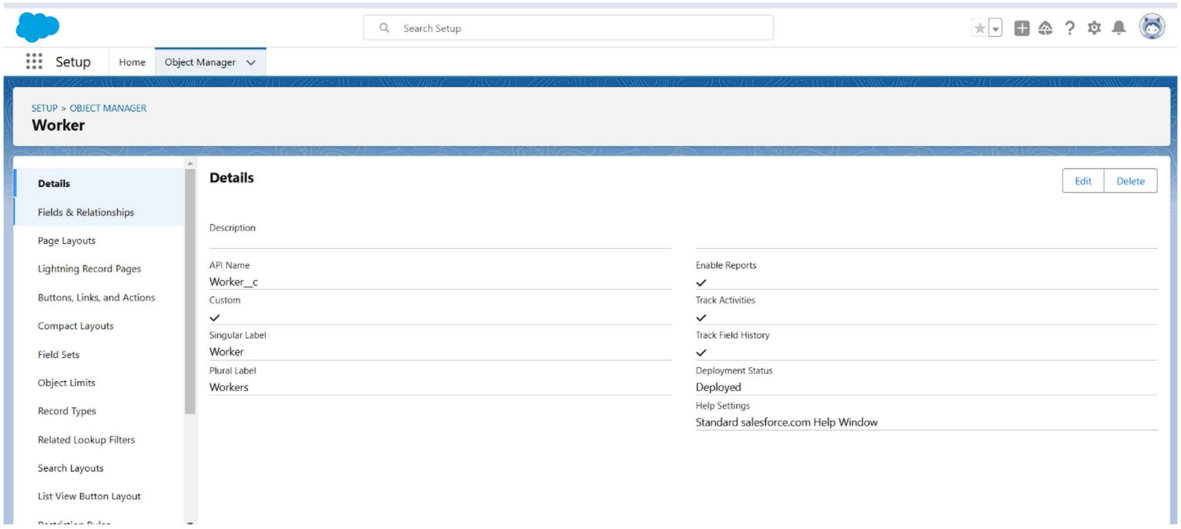
1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
    1. Enter the label name >> Pipe Lining
    2. Plural label name >> Pipe Linings
    3. Enter Record Name Label and Format
        - Record Name >> Pipe Lining Name
        - Data Type >> Text
2. Click on Allow reports and Track Field History,Allow Activities
3. Allow search >> Save.



Create Worker Object

To create an object:

1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
    1. Enter the label name >>Worker
    2. Plural label name >> Workers
    3. Enter Record Name Label and Format
        - Record Name >> Worker Name
        - Data Type >> Text
2. Click on Allow reports and Track Field History,Allow Activities
3. Allow search >> Save.



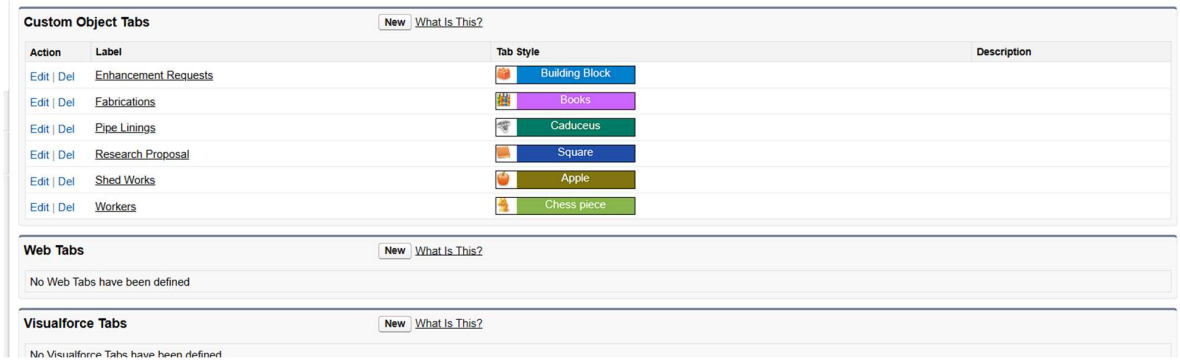
Milestone 3: Tabs

Creating a Custom Tab

To create a Tab:(Fabrication)

1. Go to setup page >> type Tabs in Quick Find bar >> click on tabs >> New (under custom object tab) .
2. Select Object(Fabrication) >> Select the tab style >> Next (Add to profiles page) keep it as default >> Next (Add to Custom App) uncheck the include tab .

3. Make sure that the Append tab to users' existing personal customizations is checked.
4. Click save.



Milestone 4: The Lightning App

Create a Lightning App

To create a lightning app page:

1. Go to setup page >> search “app manager” in quick find >> select “app manager” >> click on New lightning App.

2. Fill the app name in app details and branding as follow
   App Name : Engineering Works
   Developer Name : This will auto populated
   Image : optional (if you want to give any image you can otherwise not mandatory)
   Primary color hex value : keep this default.

3. Then click Next >> (App option page)Set Navigation Style as Standard Navigation >> Next.

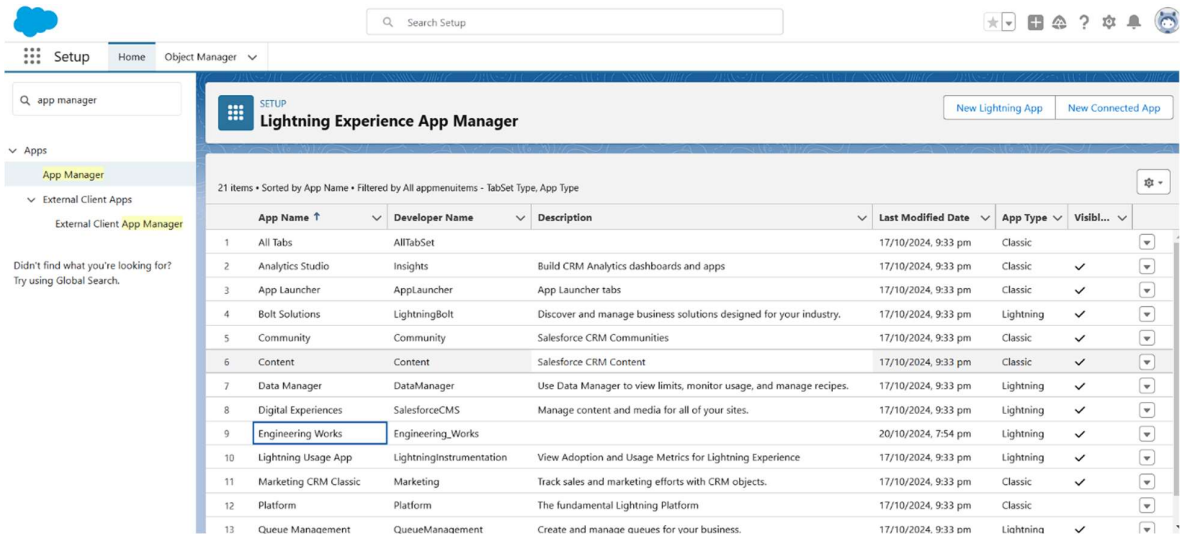
4. (Utility Items) keep it as default >> Next.

5. To Add Navigation Items:

   Search for the item in the (Fabrications, Shed Works, Pipe Linings, Workers) from the search bar and move it using the arrow button >> Next >> Next.

6. To Add User Profiles:

   Search profiles (System administrator) in the search bar >> click on the arrow button >> save & finish.



Milestone 5: Fields

Creation of fields for the Fabrication object

To create fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data Type as a “Text”
4. Click on next
5. Fill the Above as following:
    - Field Label: Name of the Owner
    - Field Name :Name_of_the_Owner
    - Length : 125
    - Required :check box.
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - Field Label : Name of Company.
    - Field Name :Name_of_Company
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Length
    - Field Name : Length
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next

4. Fill the Above as following:
    - Field Label: Breadth
    - Field Name : Breadth
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Width
    - Field Name : Width
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
    - Field Label: Area
    - Field Name : Area
    - Formula Return Type : Select Number
    - Enter Formula :Length__c * Breadth__c * Width__c (Insert this fields using “Insert Field” Option)
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Cost per Meter
    - Field Name :Cost_per_meter
    - Set the Default value to ‘2’
    - Click on Next >> Select the read only checkbox
    - Click on Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Quantity
    - Field Name : Quantity
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
    - Field Label: Amount
    - Field Name : Amount
    - Formula Return Type : Select Currency
    - Enter Formula :Area__c * Cost_per_meter__c * Quantity_c(Insert this fields using “Insert Field” Option)
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Picklist” and Click on Next
4. Fill the Above as following:
    - Field Label: Material Type
    - Field Name :Material_Type
    - Values : Select Enter values, with each value separated by a new line
    - Enter this values in box :
      Iron
      Aluminum
      Metal
      Wood
      Steel
    - Click on Next >> Next >> Save and new.

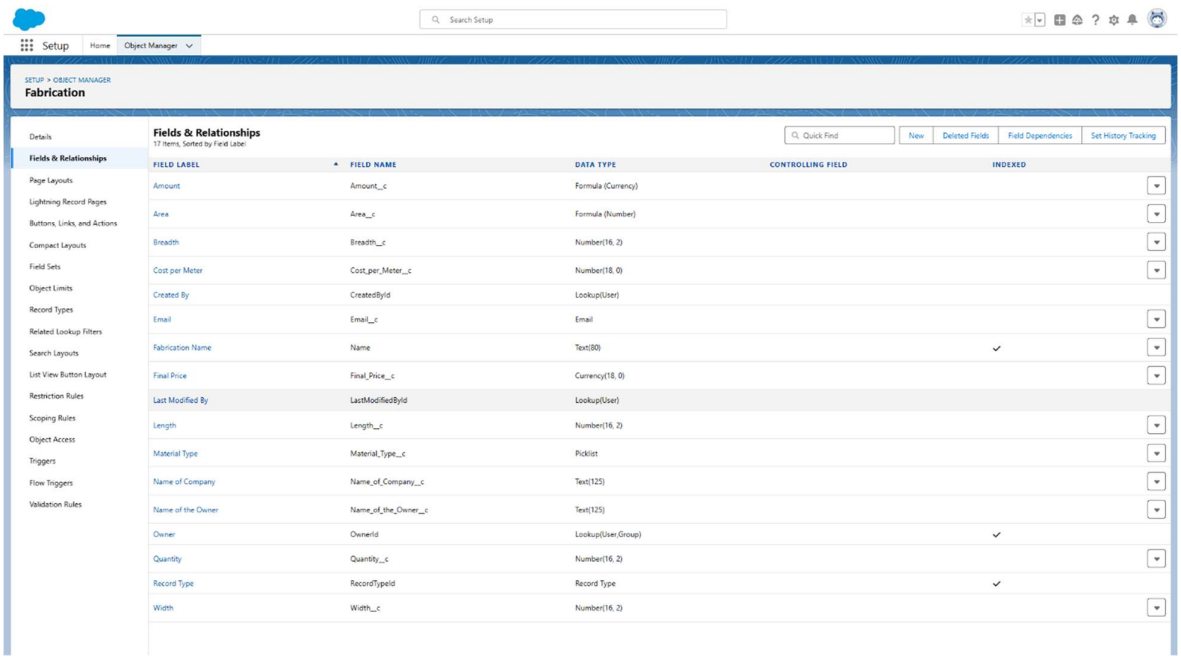
To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New

3. Select Data type as a “Currency” and Click on Next
4. Fill the Above as following:
    - Field Label: Final Price
    - Field Name : Final_Price
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Fabrication) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Email” and Click on Next
4. Fill the Above as following:
    - Field Label: Email
    - Field Name : Email
    - Click on Next >> Next >> Save.



Creation of fields for the Shed-Work object

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - Field Label : Nameof the Company
    - Field Name : gets auto generated
    - Click on required check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - Field Label : Name of the Owner
    - Field Name :Name_of_Owner
    - Click on required check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Breadth
    - Field Name : Breadth
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Width
    - Field Name : Width
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >>click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
    - Field Label: Area
    - Field Name : Area
    - Formula Return Type : Select Number

- Enter Formula :Height__c * Breadth__c * Width__c (Insert this fields using "Insert Field" Option)

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on "Fields & Relationships" >> New
3. Select Data type as a "Formula" and Click on Next
4. Fill the Above as following:
    - Field Label: Area Sheet
    - Field Name :Area_Sheet
    - Formula Return Type : Select Number
    - Enter Formula :Height__c * Breadth__c (Insert this fields using "Insert Field" Option)

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on "Fields & Relationships" >> New
3. Select Data type as a "Number" and Click on Next
4. Fill the Above as following:
    - Field Label: Cost per Meter
    - Field Name :Cost_per_meter
    - Set the Default value to '2'
    - Click on Next >> Select the read only checkbox
    - Click on Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on "Fields & Relationships" >> New
3. Select Data type as a "Number" and Click on Next
4. Fill the Above as following:
    - Field Label: Quantity
    - Field Name : Quantity
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on "Fields & Relationships" >> New
3. Select Data type as a "Number" and Click on Next
4. Fill the Above as following:
    - FieldLabel: Cost per meter sheet
    - Field Name :Cost_per_meter_sheet
    - Set the Default value to '2'

- Click on Next >> Select the read only checkbox
- Click on Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
   - Field Label: Amount
   - Field Name : Amount
   - Formula Return Type : Select Currency
   - Enter Formula :Area__c * Cost_per_meter__c * Quantity_c(Insert this fields using “Insert Field” Option)
   - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
   - FieldLabel: Amount Sheet
   - Field Name :Amount_Sheet
   - Formula Return Type : Select Currency
   - Enter Formula :Cost_per_meter_sheet__c * Area_Sheet__c * Quantity_c(Insert this fields using “Insert Field” Option)
   - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Picklist” and Click on Next
4. Fill the Above as following:
   - FieldLabel: Material Type
   - Field Name :Material_Type
   - Values : Select Enter values, with each value separated by a new line
   - Enter this values in box :

   Iron
   Metal
   Steel

   - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.

2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Picklist” and Click on Next
4. Fill the Above as following:
    - Field Label: Material Type Sheet
    - Field Name :Material_Type_Sheet
    - Values : Select Enter values, with each value separated by a new line
    - Enter this values in box :

    Plastic
    Metal
    Rubber

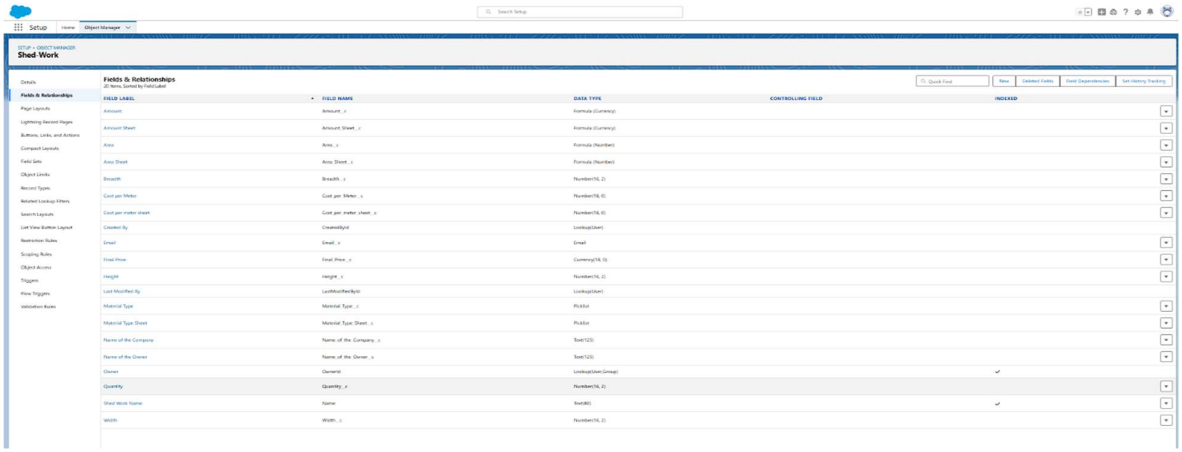
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Currency” and Click on Next
4. Fill the Above as following:
    - Field Label: Final Price
    - Field Name :Final_Price
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Shed-Work) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Email” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Email
    - Field Name : Email
    - Click on Next >> Next >> Save.



Creation of fields for the Pipe Lining object

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - Field Label : Name of the Company
    - Field Name : gets auto generated
    - Click on required check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - FieldLabel : Name of the Owner
    - Field Name :Name_of_Owner
    - Click on required check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Height
    - Field Name : Height
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Width
    - Field Name : Width
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - Field Label: Diameter
    - Field Name : Diameter
    - Length : 16
    - Decimal Value : 2
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
    - Field Label: Area
    - Field Name : Area
    - Formula Return Type : Select Number
    - Enter Formula : PI() * Height__c * Diameter__c (Insert this fields using “Insert Field” Option)

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Cost per Meter
    - Field Name :Cost_per_meter
    - Set the Default value to ‘2’
    - Click on Next >> Select the read only checkbox
    - Click on Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Quantity
    - Field Name : Quantity
    - Length : 16
    - Decimal Value : 2

- Required :check box
- Click on Next >> Next >> Save and new

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Formula” and Click on Next
4. Fill the Above as following:
    - Field Label: Amount
    - Field Name : Amount
    - Formula Return Type : Select Currency
    - Enter Formula :Area__c * Cost_per_meter__c * Quantity_c(Insert this fields using “Insert Field” Option)
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Picklist” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Material Type
    - Field Name :Material_Type
    - Values : Select Enter values, with each value separated by a new line
    - Enter this values in box :

    Iron

    Metal

    Aluminum

    - Click on Next >> Next >> Save and new.

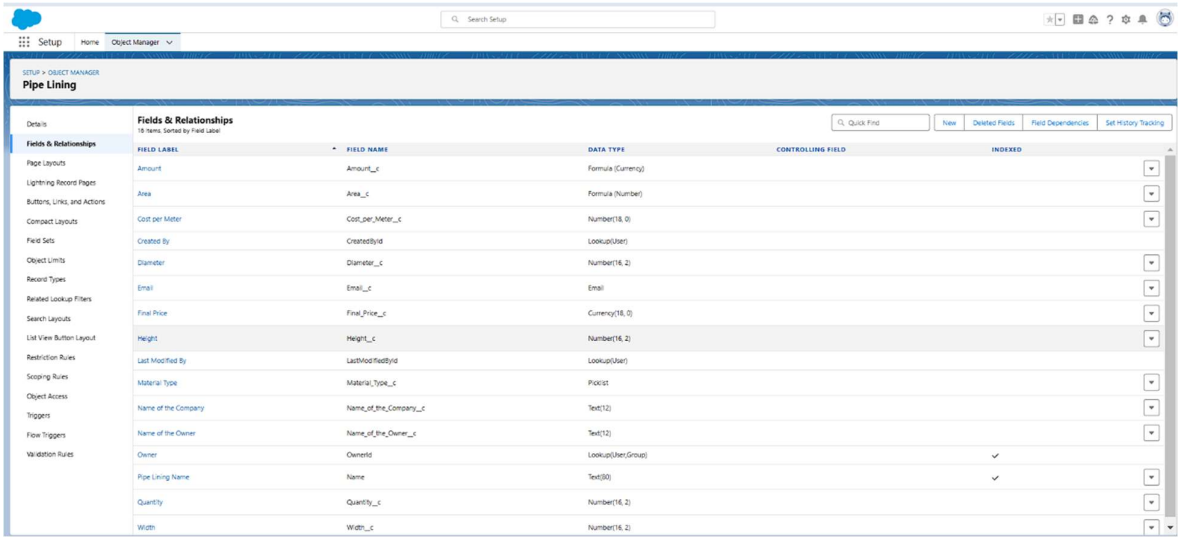
To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Currency” and Click on Next
4. Fill the Above as following:
    - Field Label: Final Price
    - Field Name :Final_Price
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Pipe Lining) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Email” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Email

- Field Name : Email
- Click on Next >> Next >> Save.



Creationof fields for the Worker object

1. Go to setup >> click on Object Manager >> type object name(Worker) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Text” and Click on Next
4. Fill the Above as following:
    - FieldLabel : Worker Name
    - Field Name : gets auto generated
    - Length : 125
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Worker) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Number” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Phone Number
    - Field Name :Phone_Number
    - Length : 10
    - Required :check box
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

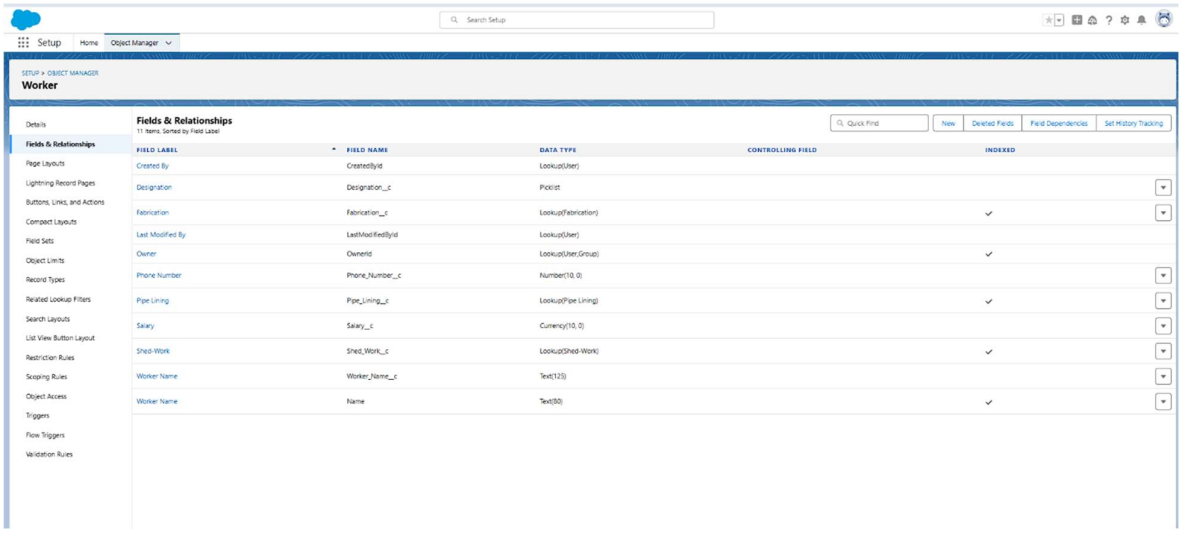
1. Go to setup >> click on Object Manager >> type object name(Worker) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New

3. Select Data type as a “Picklist” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Designation
    - Field Name : Designation
    - Values : Select Enter values, with each value separated by a new line
    - Enter this values in box :

    Accountant
    Welder
    Driller
    Pitter
    Manager
    - Click on Next >> Next >> Save and new.

To create another fields in an object:

1. Go to setup >> click on Object Manager >> type object name(Worker) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select Data type as a “Currency” and Click on Next
4. Fill the Above as following:
    - FieldLabel: Salary
    - Field Name : Salary
    - Length : 10
    - Required :check box
    - Click on Next >> Next >> Save and new.



Creation of Lookup fields

Creation of Lookup Field on Worker Object :

1. Go to setup>> click on Object Manager >> type object name(Worker) in the search bar >> click on the object.

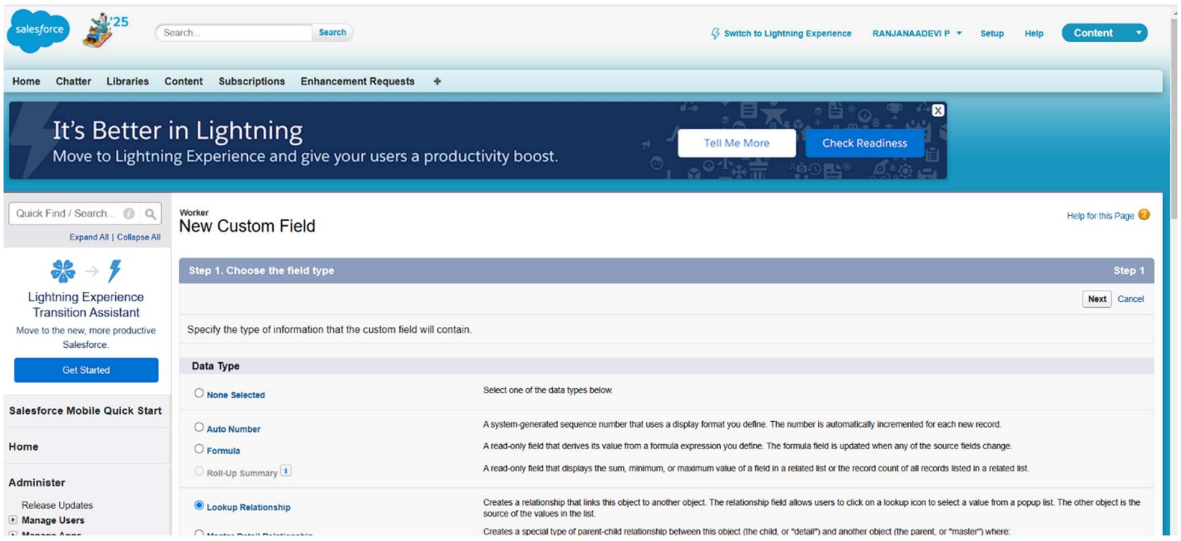
2. Now click on “Fields & Relationships” >> New
3. Select lookup relationship
4. Select the related object “Fabrication” and click next.
5. Field Name : Fabrication
6. Field label : Auto generated
7. Next >> Next >> Save.

Creation of Lookup Field on Worker Object :

1. Go to setup >> click on Object Manager >> type object name(Worker) in the search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select lookup relationship
4. Select the related object “Shed-Work” and click next.
5. Field Name : Shed-Work
6. Field label : Auto generated
7. Next >> Next >> Save.

Creation of Lookup Field on Worker Object :

1. Go to setup >> click on Object Manager >> type object name(Worker) in the search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select lookup relationship
4. Select the related object “Pipe Lining” and click next.
5. Field Name : Pipe Lining
6. Field label : Auto generated
7. Next >> Next >> Save.



Milestone 6: Creation of Page Layouts

To create a Page Layout in Fabrication Object for Drilling

1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Page Layouts >> click New.
3. Enter details as
    - Page Layout Name : Drilling Page Layout.
    - Click on Save.
4. Drag and Arrange the field as shown below.
5. Click Save.

To create a Page Layout in Fabrication Object for Welding

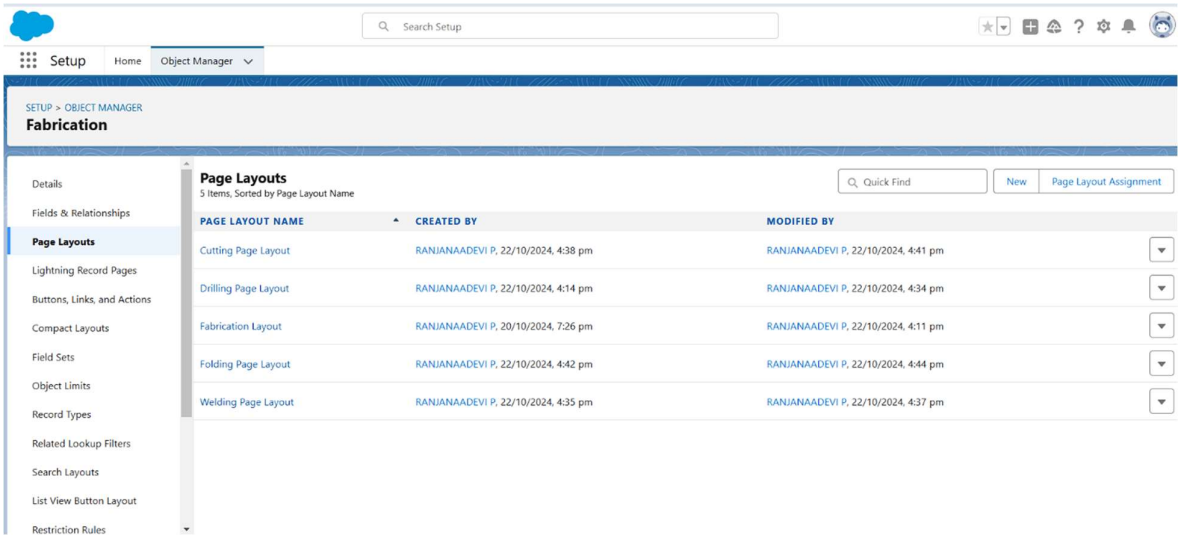
1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Page Layouts >> click New.
3. Enter details as
    - Page Layout Name : Welding Page Layout
    - Click on Save
4. Drag and Arrange the field as shown below
5. Click on save.

To create a Page Layout in Fabrication Object for Cutting

1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Page Layouts >> click New.
3. Enter details as
    - Page Layout Name : Cutting Page Layout
    - Click on Save
4. Drag and Arrange the field as shown below
5. Click Save.

To create a Page Layout in Fabrication Object for Folding

1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Page Layouts >> click New.
3. Enter details as
    - Page Layout Name :Folding Page Layout.
    - Click on Save .
4. Drag and Arrange the field as shown below
5. Click Save

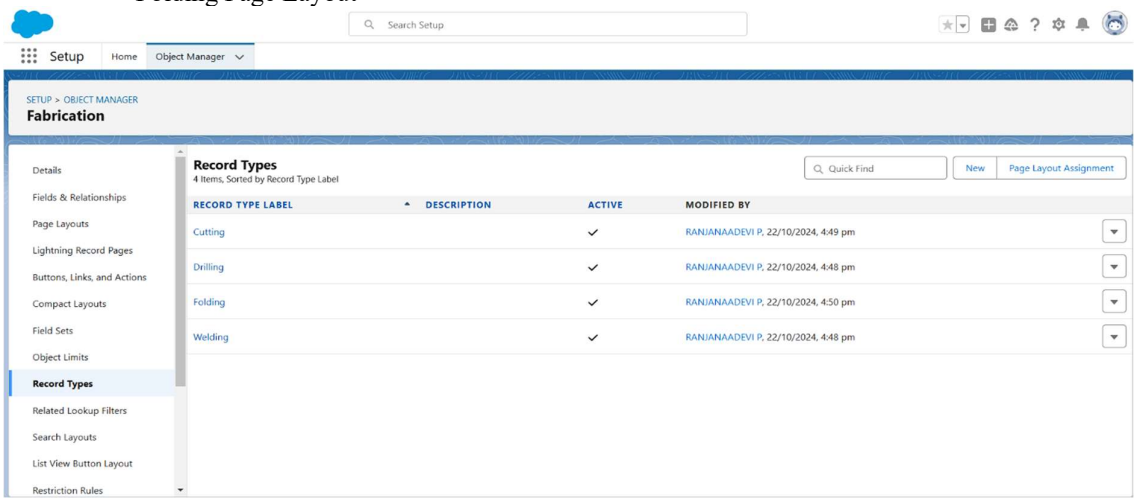


Milestone 7: Creation of Record Types

1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Record Types >> click New.
3. Enter the details : For Record Types
    - Exisiting RecordTypes :Master
    - Record Type Label : Drilling
    - Record Type Name : Drilling
    - Active : Tick checkbox

4. Click on Next
5. In Assign Page Layout
    - Apply one layout to all profiles : Select Drilling Page Layout

6. Click on Save
   Similarly, Create the Record Types on Welding Page Layout, Cutting Page Layout and Folding Page Layout

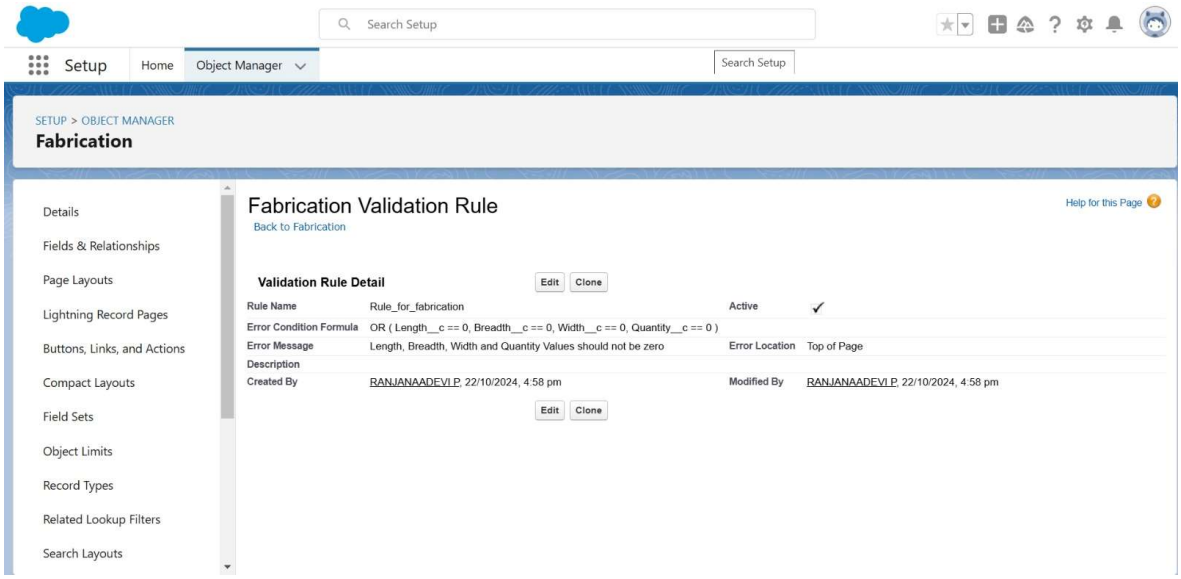


Milestone 8: Validation Rule

To create a validation rule to an Fabrication Object:

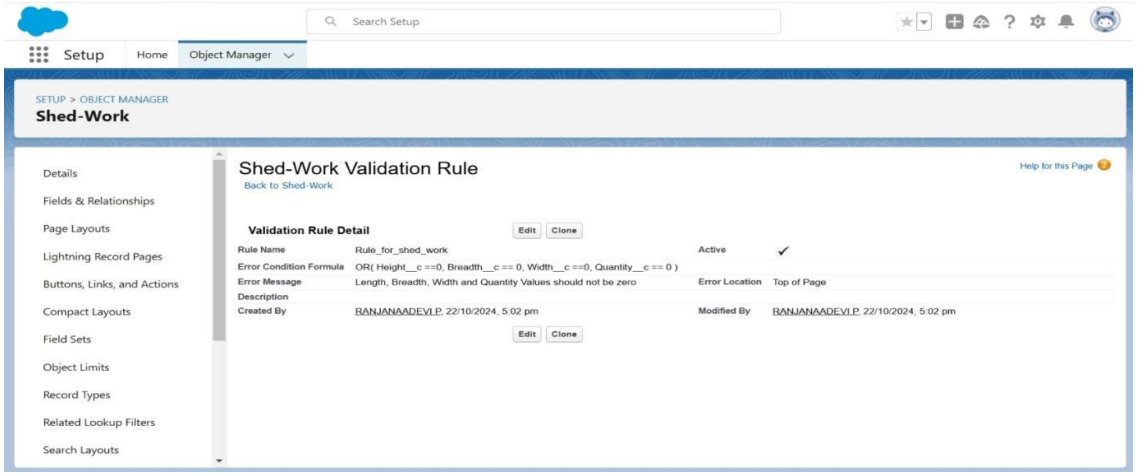
1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the validation rule >> click New.
3. Enter the Rule name as “Rule_for_fabrication”.
4. Insert the Error Condition Formula as :
   OR(Length__c == 0, Breadth__c == 0, Width__c ==0, Quantity == 0)
5. Enter the Error Message as “Length, Breadth, Width and Quantity Values should not be zero”, select the Error location as Top of Page and click Save.

Fabrication Validation Rule:

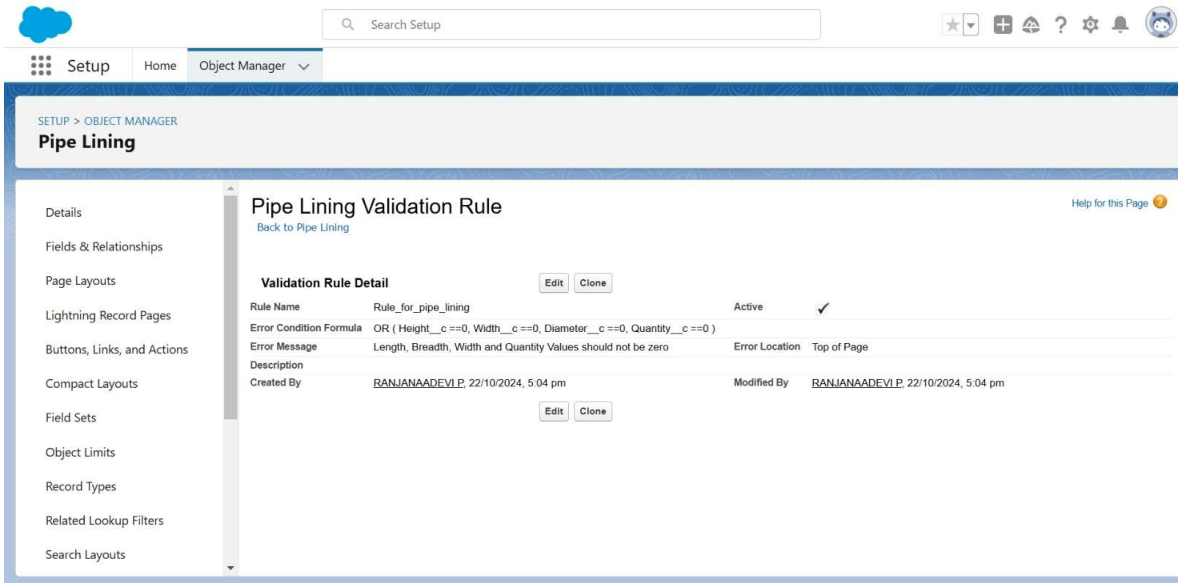


Create the Validation Rule for Shed-Work and Pipe Lining Object Similarly by following the Activity 1 Steps.

Shed-Work Validation Rule:



Pipe Lining Validation Rule:



Milestone 9: Email Templates

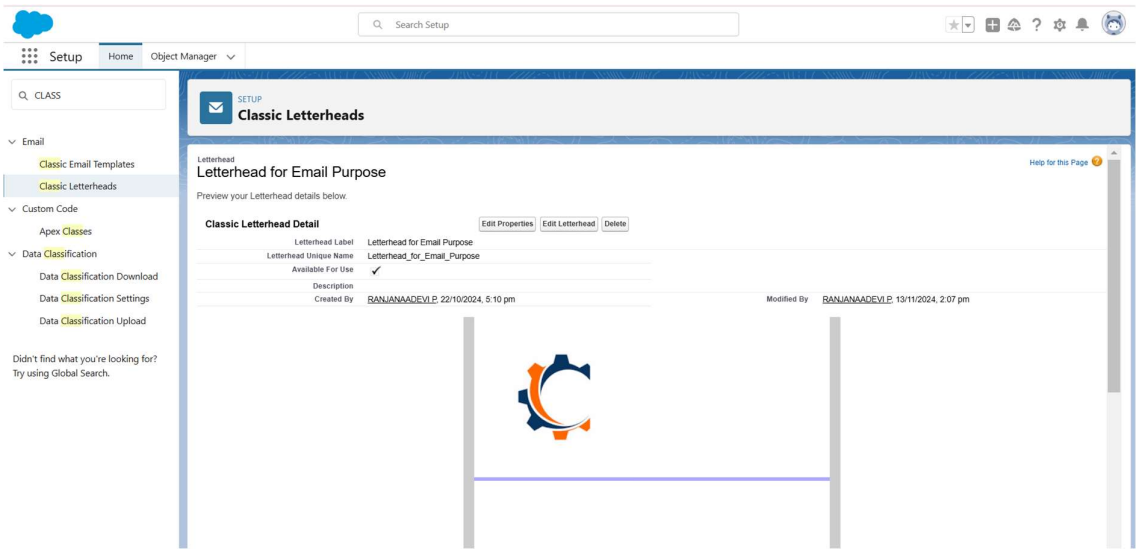
Upload Logo into Salesforce

1. Go to the setup page >> In quick find box search for Salesforce Branding >> Click on Edit.
2. In Loading Page Logo >> Choose File >> Select the image and click open >> Click on Save.
   Logo:

Creation of Letterhead for Email purpose.

1. Go to the setup page >> In quick find box search for Classic Letterheads >> Click on New Letterhead.
2. Check Available for use box.
3. Letterhead Label : Letterhead for Email Purpose
4. Letterhead Unique Name : Auto-populated
5. Click on Save >> Now click on Letterhead for Email Purpose then Edit Letterhead.
6. Click on select logo >> Now select the logo and click save.

Letter Head for Email Purpose:



Create Email Template.

To create Email Template:

1. Go to setup in quick find box enter email template >> click on classic Email Template.
2. Click on >> New Email Template===>HTML (using Classic Letterhead)
   Folder : Unfiled public Classic Email templates

Click on available for use

3. Email Template Name is “Bill Template”
4. Template Unique Name : Auto populated
5. Subject : “Fabrication Templates
6. Email body :

Hello
{!Fabrication__c.Name_of_the_Owner__c}{!Shed_Work__c.Name_of_the_Owner__c}{!Pipe_Lining__c.Name_of_Owner__c} ,
I hope everything is going well in {!Fabrication__c.Name_of_Company__c}{!Shed_Work__c.Name_of_Company__c}{!Pipe_Lining__c.Name_of_Company__c} Company. I have been attached the required items for the work to be done. Please verify them.
length = {!Fabrication__c.Length__c}{!Shed_Work__c.Height__c}{!Pipe_Lining__c.Height__c}
breadth = {!Fabrication__c.Length__c}{!Shed_Work__c.Breadth__c}, width = {!Fabrication__c.Width__c}{!Shed_Work__c.Width__c}{!Pipe_Lining__c.Width__c}, area = {!Fabrication__c.Area__c}{!Shed_Work__c.Area__c}{!Pipe_Lining__c.Area__c}, The Final Price = {!Fabrication__c.price__c}{!Shed_Work__c.Price__c}{!Pipe_Lining__c.Price__c}.

Thanks & Regards,
Engineering Works.

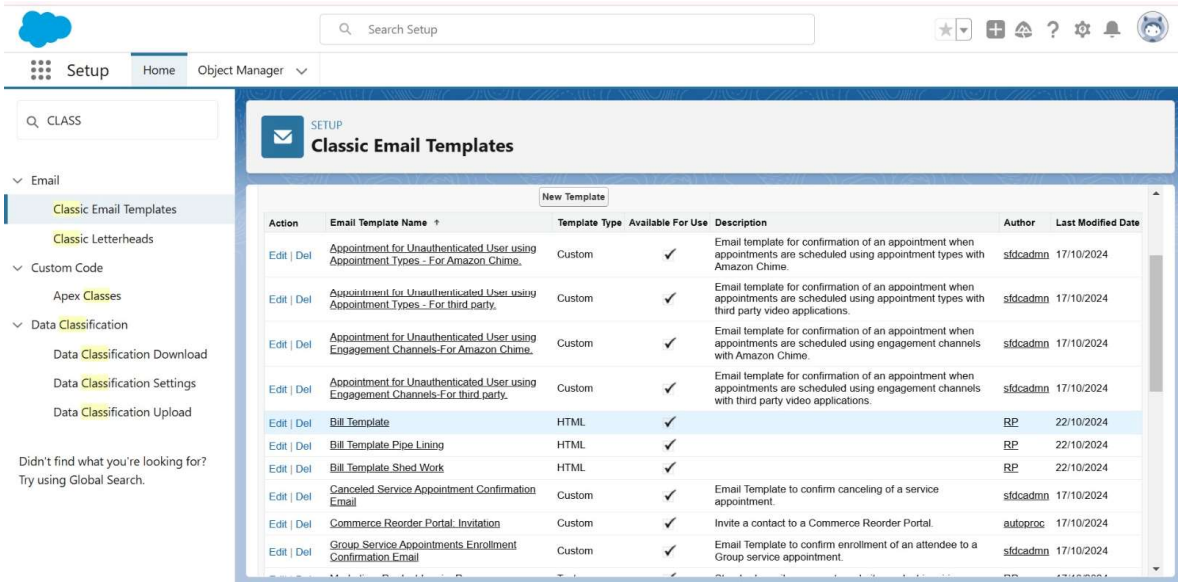
7. Save

Similarly Create an Email Template for Shed-work Object and Pipe Lining Object.

Create Email Alert.

1. Go to setup in quick find box enter email Alert >> New Email Alert
2. Description : Email Alert for Fabrication Object
   Unique Name : Auto-Populated
   Object : Fabrication
   Email Template : select the template that is for fabrication Object
   Recipients : User: Integration User, User : System Administrator, user : Security User
3. Click Save
   Similarly create for Pipe-Lining and Shed-Work objects

Final output for classic Email Templates:



Milestone 10: Flows

Create Flow to calculate Final Price on Fabrication Object based on Material Type

1. Go to setup >> type Flow in quick find box >> Click on the Flow and Select the New Flow.
2. Select the record Triggered flow. Click on create.
3. Under Object select ”Fabrication”. Click on A record is created or updated.
4. Set Entry Conditions : None
5. Select Actions and Related Records
6. Under record trigger flow click on “+” icon and select Send Email Alert.

7. In New Action Select Fabrication Template.
8. Label : Mail
9. API Name : Mail

10. Record ID : {!$Record.Id}
11. Click Done.
12. Under record trigger flow click on "+" icon and select Decision
    For New Decision :
    - Label : Material
    - Api Name : Material
    For Outcome Details :
    - Label : Iron Material
    - Outcome API Name : Iron_Material
    - Condition Requirements to Execute Outcome : Condition Requirements to Execute Outcome

    - Resource : {!$Record.Material_Type__c}
    - Operator : Equals
    - Value : Iron
    In the Outcome Order click '+' Icon and create another four outcomes for Aluminum, Metal, Wood, Steel(for each outcome keep the respective value)
    - For Aluminum >> Value : Aluminum
    - For Metal >> Value : Metal
    - For Wood >> Value : Wood
    - For Steel >> Value : Steel
13. Under Iron Material click on "+" icon and select Update Related Record.
    - Label : For Iron
    - API Name : For_Iron
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

    - Field : Final_price__c
    - For Value click on New resource
    - In Resource Type : Select Formula
    - API Name : IronCost
    Data Type : Number
    Decimal Places : 2
    Formula : {!$Record.Amount__c} * 2
    - Click Done

15. Under Aluminum Material click on "+" icon and select Update Related Record.
    - Label : For Aluminum
    - API Name : For_Aluminum
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow

- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

  Field : Final_price__c
- For Value click on New resource
- In Resource Type : Select Formula
- API Name : AluminumCost

Data Type : Number
Decimal Places : 2
Formula : {!$Record.Amount__c} * 1.8

- Click Done

16. Under Metal Material click on "+" icon and select Update Related Record.
    - Label : For Metal
    - API Name : For_Metal
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

      Field : Final_price__c
    - For Value click on New resource
    - In Resource Type : Select Formula
    - API Name : MetalCost

    Data Type : Number
    Decimal Places : 2
    Formula : {!$Record.Amount__c} * 1.6

    - Click Done

17. Under WoodMaterial click on "+" icon and select Update Related Record.
    - Label : For Wood
    - API Name : For_Wood
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

      Field : Final_price__c
    - For Value click on New resource
    - In Resource Type : Select Formula
    - API Name : WoodCost

    Data Type : Number
    Decimal Places : 2
    Formula : {!$Record.Amount__c} * 1.4

    - Click Done

18. Under Steel Material click on "+" icon and select Update Related Record.
    - Label : For Steel
    - API Name : For_Steel
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

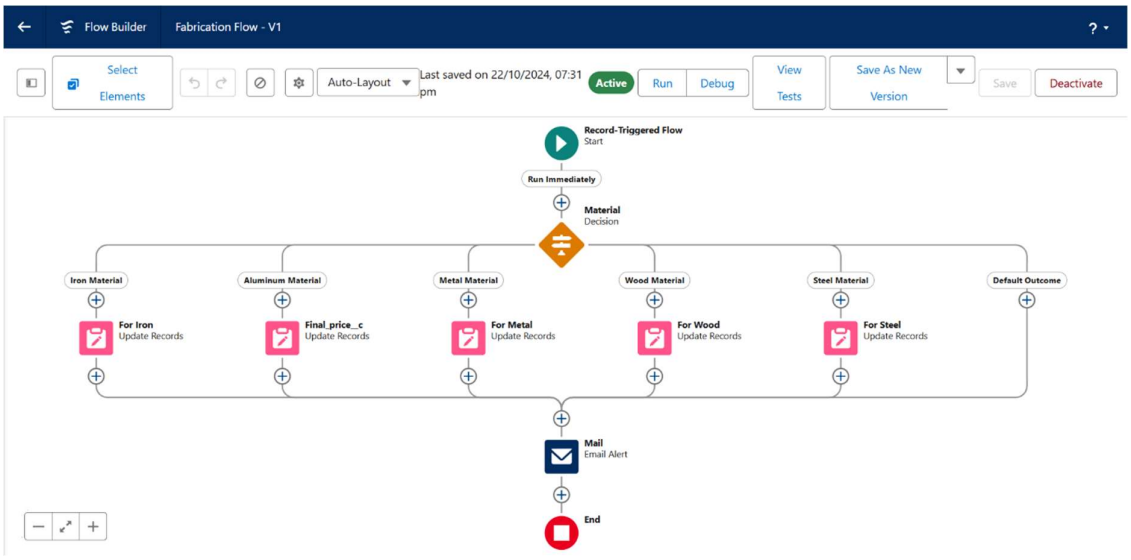
      Field : Final_price__c
    - For Value click on New resource
    - In Resource Type : Select Formula
    - API Name : SteelCost

    Data Type : Number

    Decimal Places : 2
    Formula : {!$Record.Amount__c} * 1.2
    - Click Done

19. Click on Save
    - Flow Label : Fabrication Flow
    - Flow API Name : Fabrication_Flow
    - Click Save and then active

20. The Flow will like this :



Create Flow to calculate Final Price on Shed Work Object based on Material Type

1. Go to setup >> type Flow in quick find box >> Click on the Flow and Select the New Flow.
2. Select the record Triggered flow.Click on create.
3. Under Object select “Shed Work”. Click on A record is created or updated.
4. Set Entry Conditions : None
5. Select Actions and Related Records
6. Under record trigger flow click on “+” icon and select Send Email Alert.
7. In New Action Select Fabrication Template.
8. Label : Mail
9. API Name : Mail
10. Record ID : {!$Record.Id}
11. Click Done.
12. Under record trigger flow click on “+” icon and select Decision

For New Decision :

- Label : Material
- Api Name : Material

For Outcome Details :

- Label : Iron Material
- Outcome API Name : Iron_Material
- Condition Requirements to Execute Outcome : Condition Requirements to Execute Outcome
- Resource : {!$Record.Material_Type__c}
- Operator : Equals
- Value : Iron

In the Outcome Order click ‘+’ Icon and create another four outcomes for Metal1, Steel(for each outcome keep the respective value)

- For Metal1 >> Value : Metal
- For Steel >> Value : Steel

13. Under Iron Material click on “+” icon and select Update Related Record.
    - Label : For Iron
    - API Name : For_Iron
    - How to Find Records to Update and Set Their Value : Select Use the Shed-Work record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : IronCost

Data Type : Number
Decimal Places : 2

Formula : {!$Record.Amount__c} * 2

- Click Done

15. Under Metal1 Material click on "+" icon and select Update Related Record.
    - Label : For Metal1
    - API Name : For_Metal1
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : Metal1_Cost

Data Type : Number
Decimal Places : 2
Formula : {!$Record.Amount__c} * 1.8

- Click Done

16. Under Steel Material click on "+" icon and select Update Related Record.
    - Label : For Steel
    - API Name : For_Steel
    - How to Find Records to Update and Set Their Value : Select Use the fabrication record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : SteelCost

Data Type : Number
Decimal Places : 2
Formula : {!$Record.Amount__c} * 1.5

- Click Done

17. The flow for rods has been completed in shed-work. Now, lets write the flow for sheet of the shed based on material type.

18. Click the '+' Icon which is between decision and Email alert then select select Decision

19. For New Decision :
    - Label : Sheet Material
    - Api Name : Sheet_Material

For Outcome Details :

- Label : Metal2 Material
- Outcome API Name : Metal2_Material
- Condition Requirements to Execute Outcome : Condition Requirements to Execute Outcome
- Resource : {!$Record.Material_Type__c}
- Operator : Equals
- Value : Metals

In the Outcome Order click '+' Icon and create another four outcomes for Rubber, Plastic(for each outcome keep the respective value)

- For Rubber >> Value : Rubber
- For Plastic >> Value : Plastic

20. Under Iron Material click on "+" icon and select Update Related Record.

- Label : For Metal2
- API Name : For_Metal2
- How to Find Records to Update and Set Their Value : Select Use the Shed Work record that triggered the flow
- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : Metal2Cost

Data Type : Number

Decimal Places : 2
Formula : {!$Record.Amount__c} * 1.8

- Click Done

21. Click Done

22. Under Rubber Material click on "+" icon and select Update Related Record.

- Label : For Rubber
- API Name : For_Rubber
- How to Find Records to Update and Set Their Value : Select Use the Shed Work record that triggered the flow
- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : Rubber_Cost

Data Type : Number
Decimal Places : 2

Formula : {!$Record.Amount__c} * 1.8

- Click Done

23. Under Plastic Material click on "+" icon and select Update Related Record.
    - Label : For Plastic
    - API Name : For_Plastic
    - How to Find Records to Update and Set Their Value : Select Use the Shed Work record that triggered the flow
    - Set Filter Conditions : None—Always Update Record
    - Set Field Values for the Fabrication Record

Field : Final_price__c

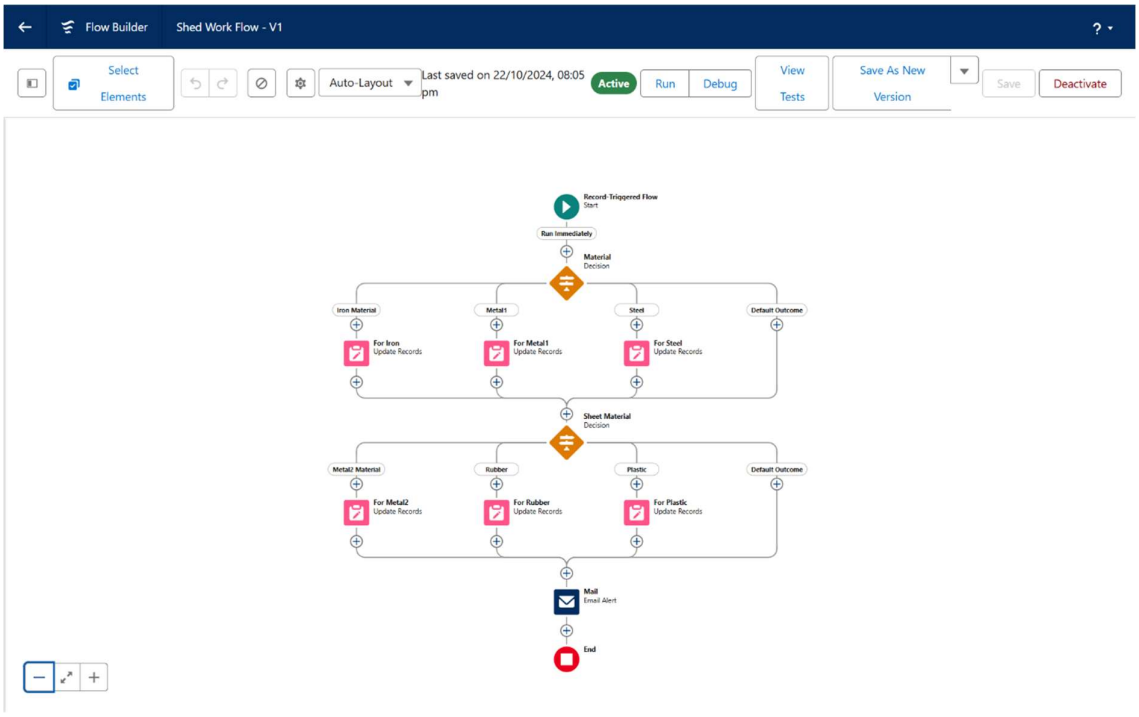
- For Value click on New resource
- In Resource Type : Select Formula
- API Name : PlasticCost

Data Type : Number
Decimal Places : 2
Formula : {!$Record.Amount__c} * 1.5

- Click Done

24. Click on Save
    - Flow Label : Shed Work Flow
    - Flow API Name : Shed_Work_Flow
    - Click Save and then Actiavte

25. The Shed Work Flow would look like this:



Create Flow to calculate Final Price on Pipe Lining Object based on Material Type

26. Go to setup >> type Flow in quick find box >> Click on the Flow and Select the New Flow.
27. Select the record Triggered flow.Click on create.
28. Under Object select “Pipe Lining”. Click on A record is created or updated.
29. Set Entry Conditions : None
30. Select Actions and Related Records
31. Under record trigger flow click on “+” icon and select Send Email Alert.
32. In New Action Select Pipe Lining Template.
33. Label : Mail
34. API Name : Mail
35. Record ID : {!$Record.Id}
36. Click Done.
37. Under record trigger flow click on “+” icon and select Decision

For New Decision :

- Label : Material
- Api Name : Material

For Outcome Details :

- Label : Iron Material
- Outcome API Name : Iron_Material
- Condition Requirements to Execute Outcome : Condition Requirements to Execute Outcome
- Resource : {!$Record.Material_Type__c}
- Operator : Equals
- Value : Iron

In the Outcome Order click ‘+’ Icon and create another four outcomes for Aluminum, Metal(for each outcome keep the respective value)

- For Aluminum >> Value : Aluminum
- For Metal >> Value : Metal

38. Under Iron click on “+” icon and select Update Related Record.

- Label : For Iron
- API Name : For_Iron

- How to Find Records to Update and Set Their Value : Select Use the Pipe Lining record that triggered the flow
- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : IronCost

Data Type : Number

Decimal Places : 2

Formula : {!$Record.Amount__c} * 2

- Click Done

39. Click Done

40. Under Aluminum click on "+" icon and select Update Related Record.

- Label : For Aluminum
- API Name : For_Aluminum
- How to Find Records to Update and Set Their Value : Select Use the Pipe Lining record that triggered the flow
- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

Field : Final_price__c

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : Aluminum_Cost

Data Type : Number

Decimal Places : 2

Formula : {!$Record.Amount__c} * 1.8

- Click Done.

41. Under Steel Material click on "+" icon and select Update Related Record.

- Label : For Metal

- API Name : For_Metal
- How to Find Records to Update and Set Their Value : Select Use the Pipe Lining record that triggered the flow
- Set Filter Conditions : None—Always Update Record
- Set Field Values for the Fabrication Record

Field : Final_price

- For Value click on New resource
- In Resource Type : Select Formula
- API Name : MetalCost

Data Type : Number

Decimal Places : 2

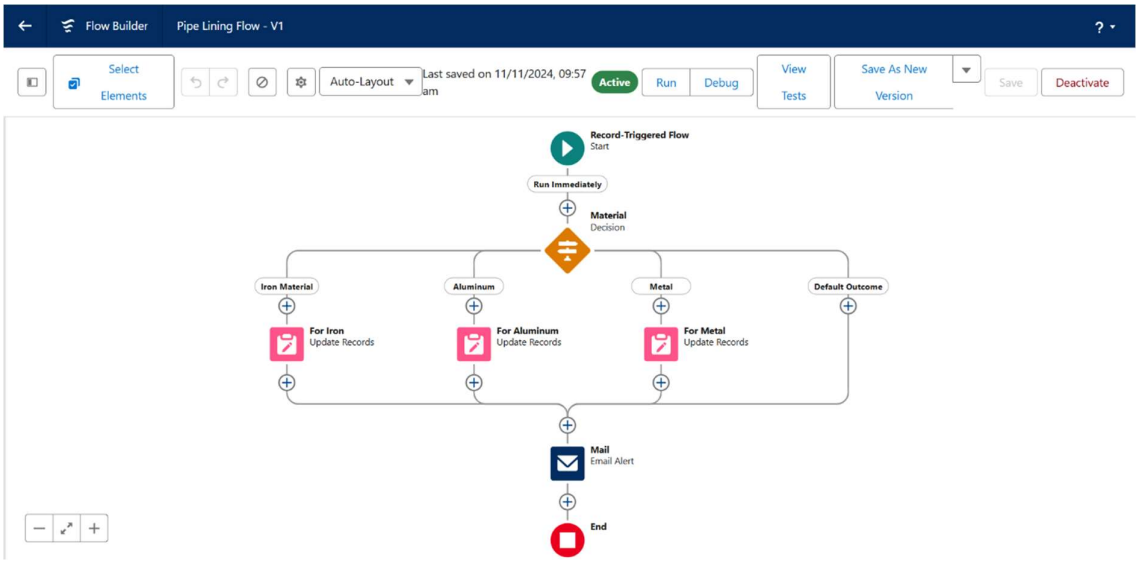
Formula : {!$Record.Amount__c} * 1.5

- Click Done

42. Click on Save

- Flow Label : Pipe Lining Flow
- Flow API Name : Pipe_Lining_Flow
- Click Save

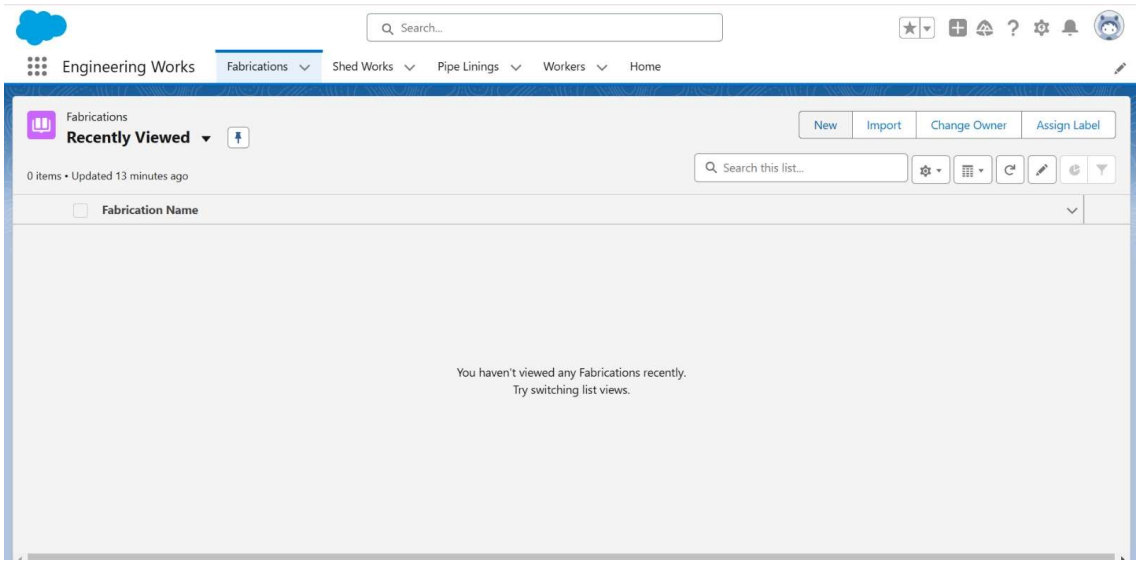
43. The Flow will be like this :



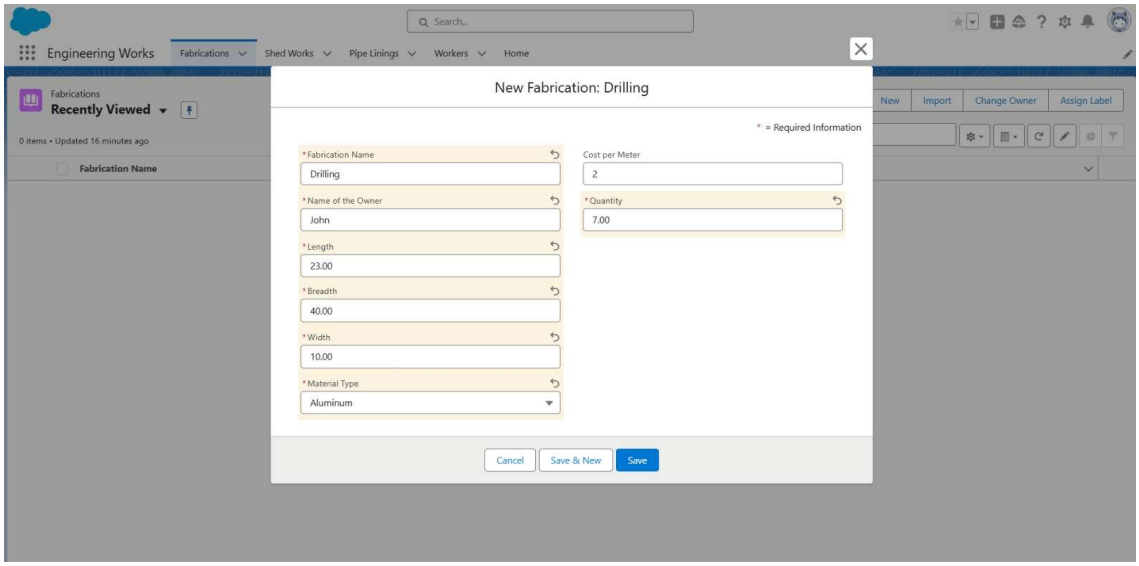
5.FINAL OUTPUT

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.

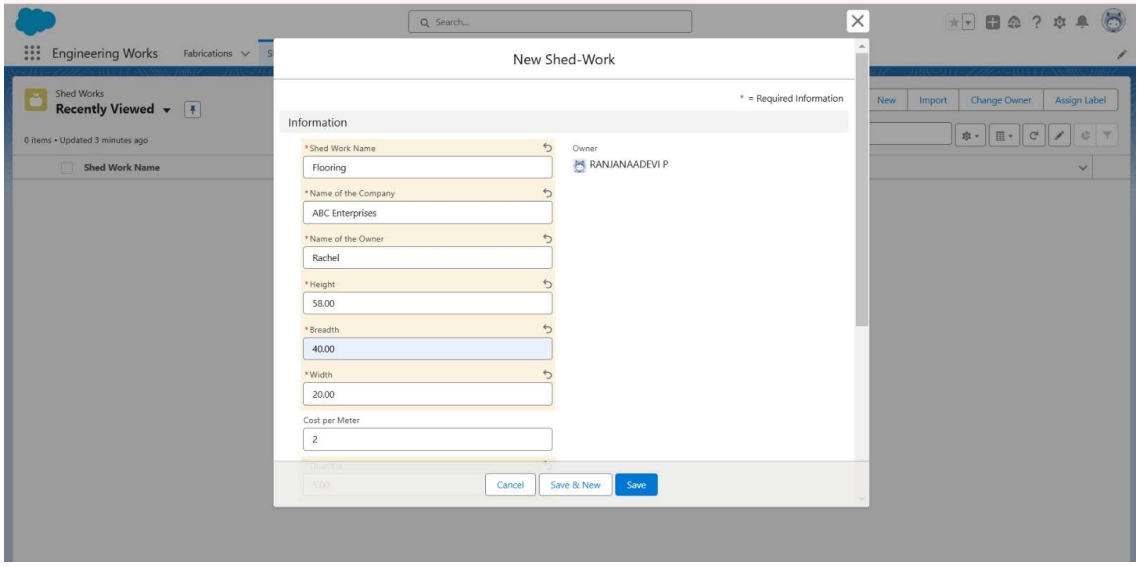
1.Add New fabrication



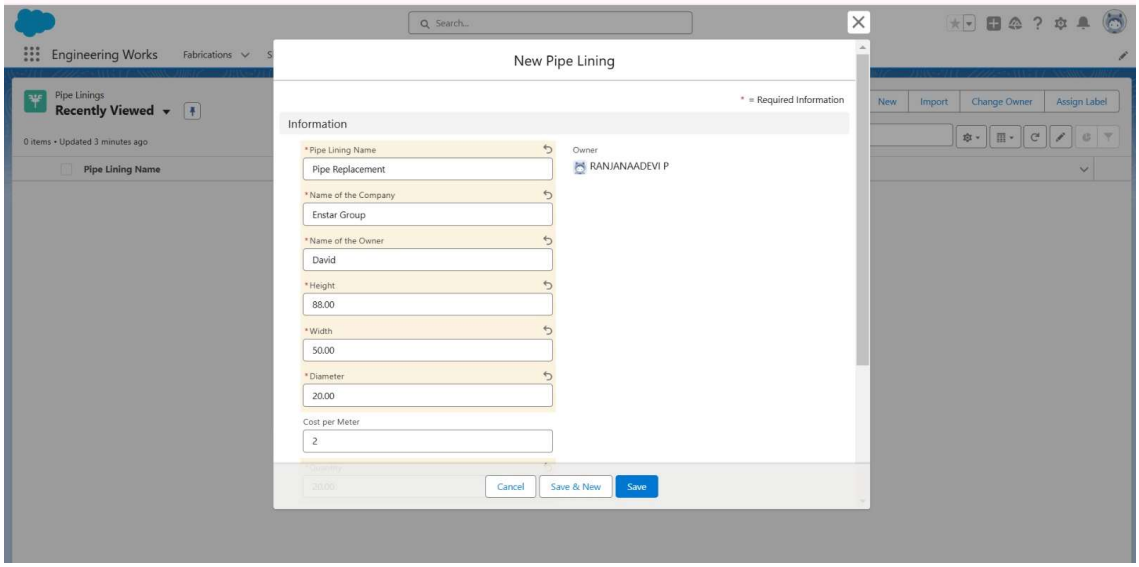
2.New fabrication:Drilling



3.New Shed-Work



4.New Pipe Lining



CONCLUSION

Summary of Achievements:

This Salesforce project successfully streamlined the management of client and project information within the engineering domain. Key accomplishments include:

- Centralized Client and Project Data: All client details, worker information, and project-specific data are now stored and easily accessible in one location.
- Automated Pricing Calculations: The application accurately calculates costs based on material requirements and measurements, reducing manual errors and saving time.
- Enhanced Workflow Management: The automated processes for fabrication, shed construction, and pipe lining allow for efficient tracking and management of tasks like drilling, welding, and cutting.
- Improved Reporting and Decision-Making: Custom reports and dashboards provide real-time insights into project progress, budget allocations, and resource usage, supporting better decision-making.
- Secure and Scalable Solution: The role-based security model and integration capabilities ensure the system is both secure and scalable, ready to handle additional data as the business grows.

These achievements align with the project's objectives, delivering a robust solution for managing engineering projects and enhancing operational efficiency.