Project Title: A CRM APPLICATION TO ENGINEERING WORKS

College Name: **MAILAM ENGINEERING COLLEGE**

Code: **4216**

Department of Computer Science and Engineering

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ProjectName:A CRM APPLICATION TO ENGINEERING WORKS

Hardware Requirements:

- Windows 8 Machine: Ensure compatibility with modern applications and adequate performance.

Software Requirements:

- Two Web Browsers Installed: Having multiple browsers allows testing and ensuring compatibility across different platforms.

System Requirements:

- Bandwidth of 30 Mbps: Sufficient for handling data transactions, updates, and smooth operation of the application.

Application Overview:

The application aims to efficiently manage client information for engineering projects. It encompasses various details such as:

- Company Information: Include details about the engineering firms, their business scope, and project portfolios.
- Owner Details: Maintain records of the owners associated with the projects.
- Contact Information: Contact details for all stakeholders involved, including phone numbers and email addresses.
-

- Worker Details:
  Track worker assignments, their skills, availability, and roles in projects.

- Material Requirements: Document the materials required for projects, including measurements.

Functionalities:

1. Automatic Price Calculation:
   - Calculate prices based on specified materials and measurements.
   - Include cost estimation modules for precise financial planning.
2. Engineering Work Categories:
   - Fabrication: Involves Drilling, Welding, Cutting, and Folding.
   - Shed Construction: Managing the entire shed construction process.
   - Pipe Lining: Covers pipe repairing and replacing tasks.

Fabrication Workflow:

- Processes Involved:
  - Drilling: Track the drilling tasks, equipment used, and time required.

- Welding:
  Document welding tasks, materials used, and safety measures.

- Cutting: Manage cutting operations, types of cuts required, and precision levels.
- Folding: Record folding tasks, machinery used, and folding techniques.

Shed Work and Pipe Lining:

- Shed Construction: Track construction phases, materials used, and completion status.
- Pipe Lining: Document pipe repair and replacement tasks, materials, and techniques.

Tracking and Management:

- Project Management: Oversee all ongoing projects, their statuses, and deadlines.
- Resource Allocation: Efficiently allocate resources and materials to different projects.
- Workflow Integration: Seamlessly integrate different workflows and processes to enhance efficiency.

Salesforce Key Features and Concepts Utilized

Organizing:

Creating a sales plan and assigning responsibilities to team members

Sales strategy:

Building and implementing strategies that are easy to understand and execute.

Customer relationship management:

Maintaining meaningful relationships with key customers **Sales analytics:**

Analyzing data from past campaigns to create better and more optimized campaigns.

Coaching:

Helping sales representatives improve their performance and reach their true potential.

Forecasting:

Planning for the road ahead to ensure proper inventory and staff levels, and to plan for compensation.

Detailed steps to solution design

Step 1: Creating Developer Account and Activation Creating a developer org in salesforce.

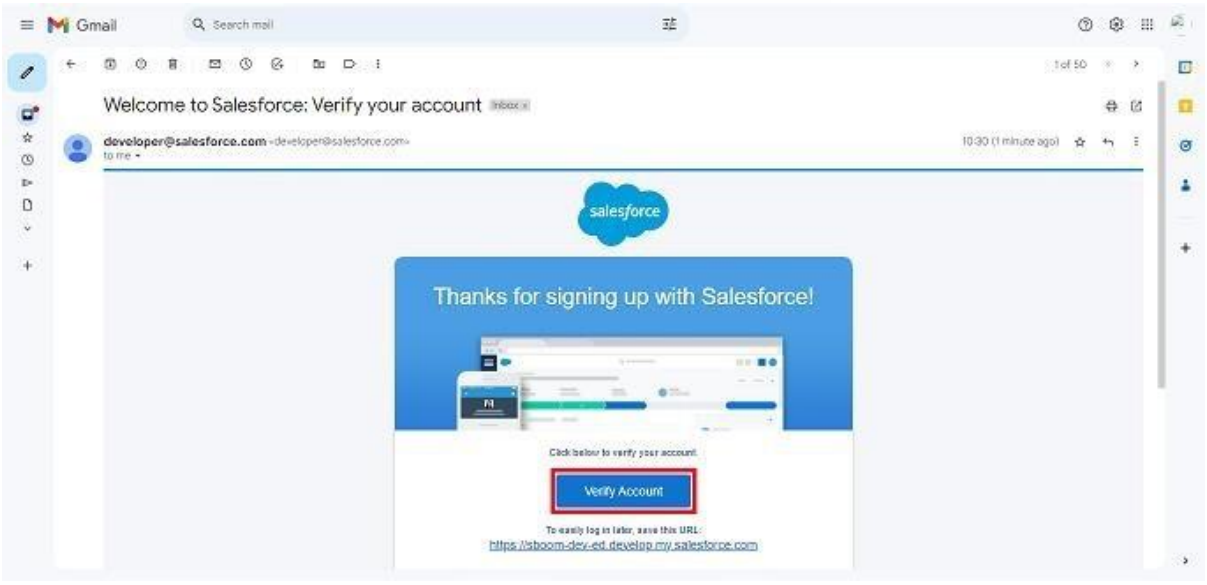
To Activate the account, click on the verify account. Give a password and answer a security question and click on change password.

Give a password and answer a security question and click on change password. Then you will redirect to your salesforce setup page.

Smart Internz

SMARTBRIDGE

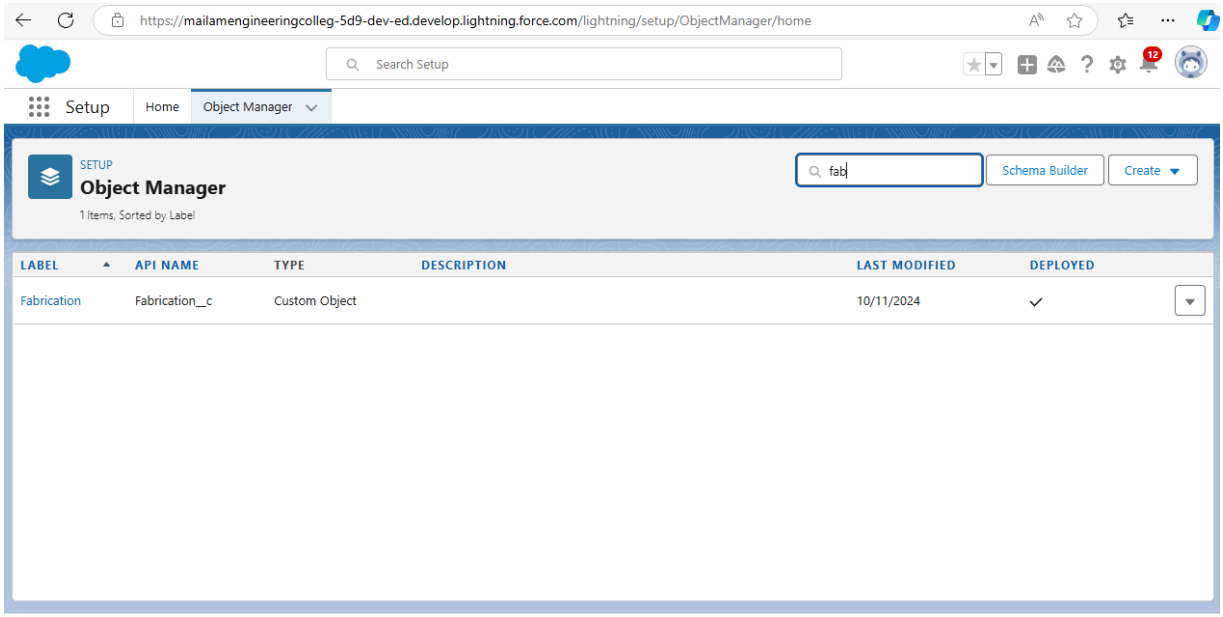
salesforce PARTNER



Step 2: Create of objects

Create fabrication object, shed-work object and pipe lining object,worker object.

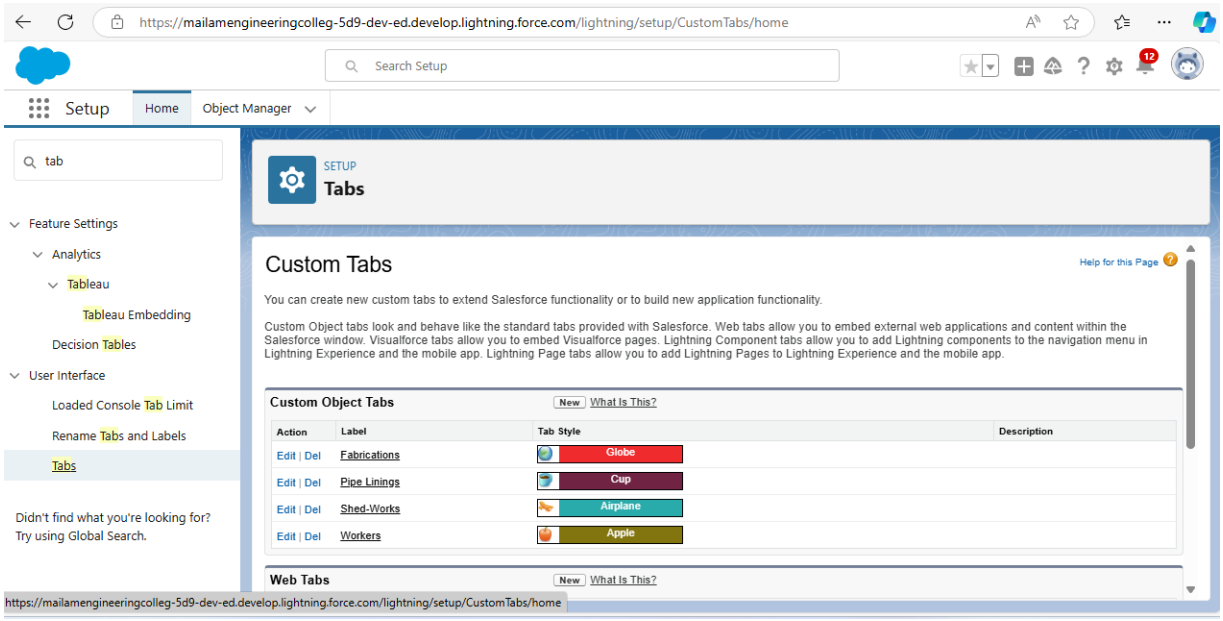
From the setup page >> Click on Object Manager >>Click on Create >> Click on Custom Object



Enter the label name for the appropriate object. Then enter the Plural label name.

Enter Record Name Label and Format Record Name and Data Type.

Step 3: Creating a Custom Tab



A tab is like a user interface that is used to build records for objects and to view the records in the objects.

Step 4: Create a Lightning App

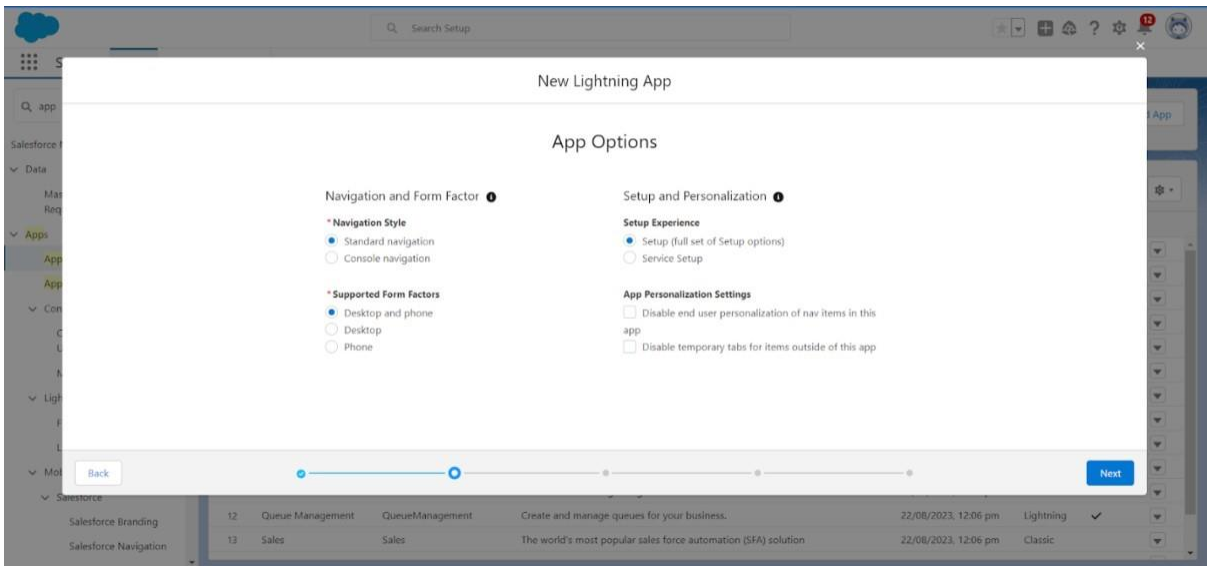
An app is a collection of items that work together to serve a particular function.

To create a Tab:(Property)

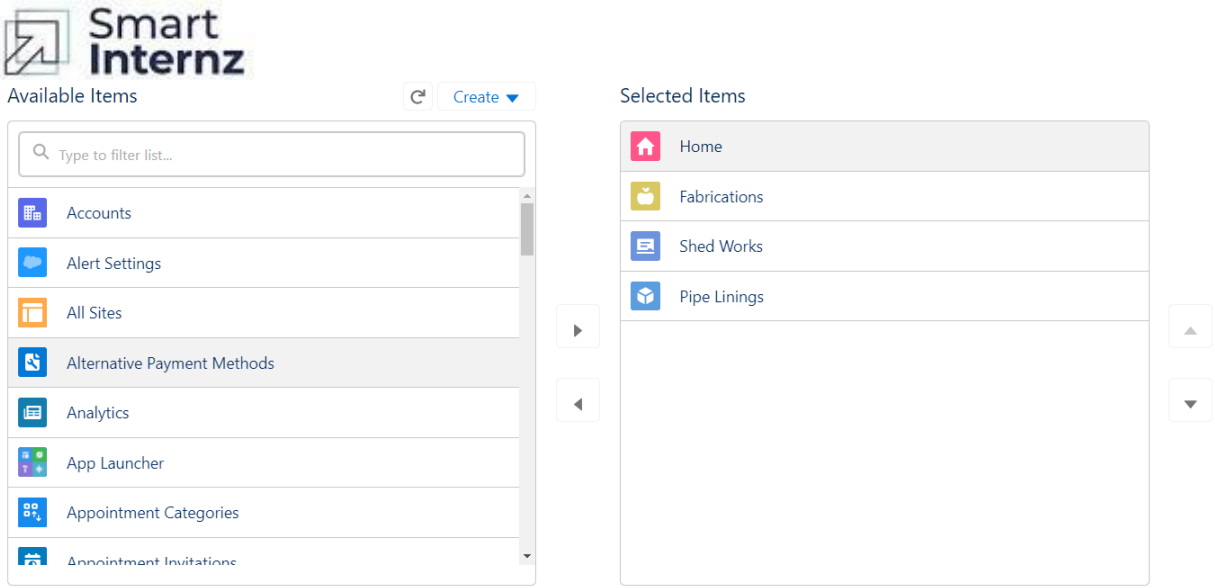
Goto set up page. Search tabs on quick find bar click new under custom tab.

The first step is to select object property and tab style.

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



Create a lightning app with an App Name of “Lease Management”



Step 5: Field Creation

Creation of fields for the fabrication object, shed-work object and pipe lining object,worker object.

Go to setup then click on Object Manager to type object name(fabrication) in search bar and click on the object.

Field Label: Name of the Owner

Field Name : Name_of_the_Owner

Length : 125

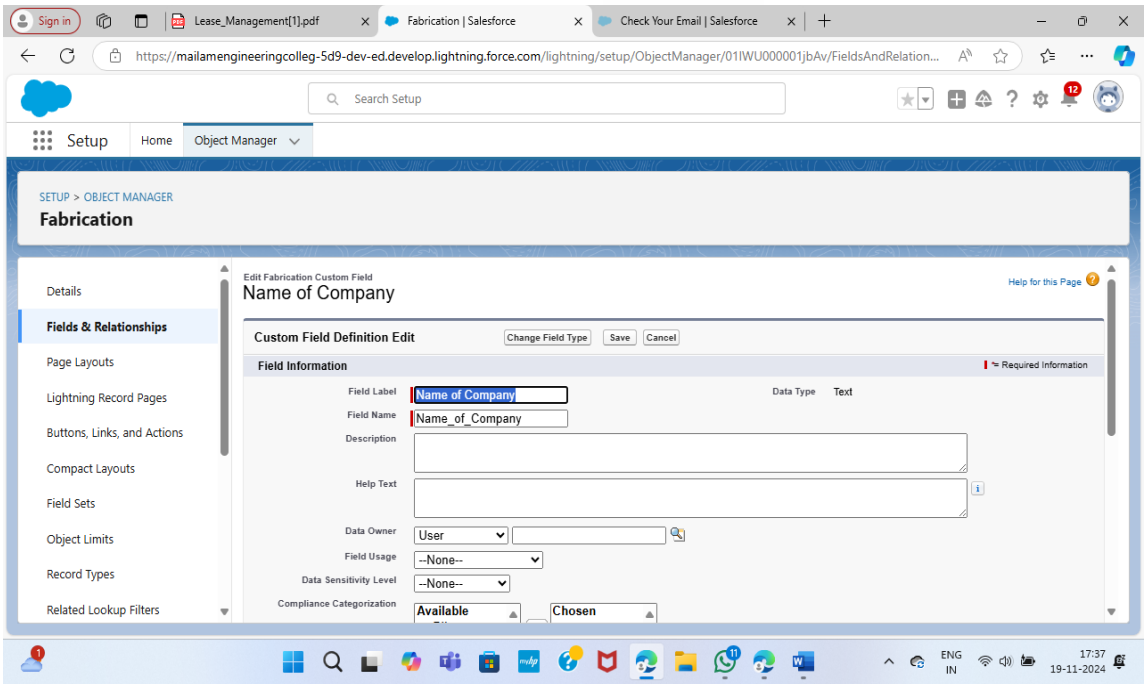
Required :check box

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

Field Label : Name of Company

Field Name : Name_of_Company

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

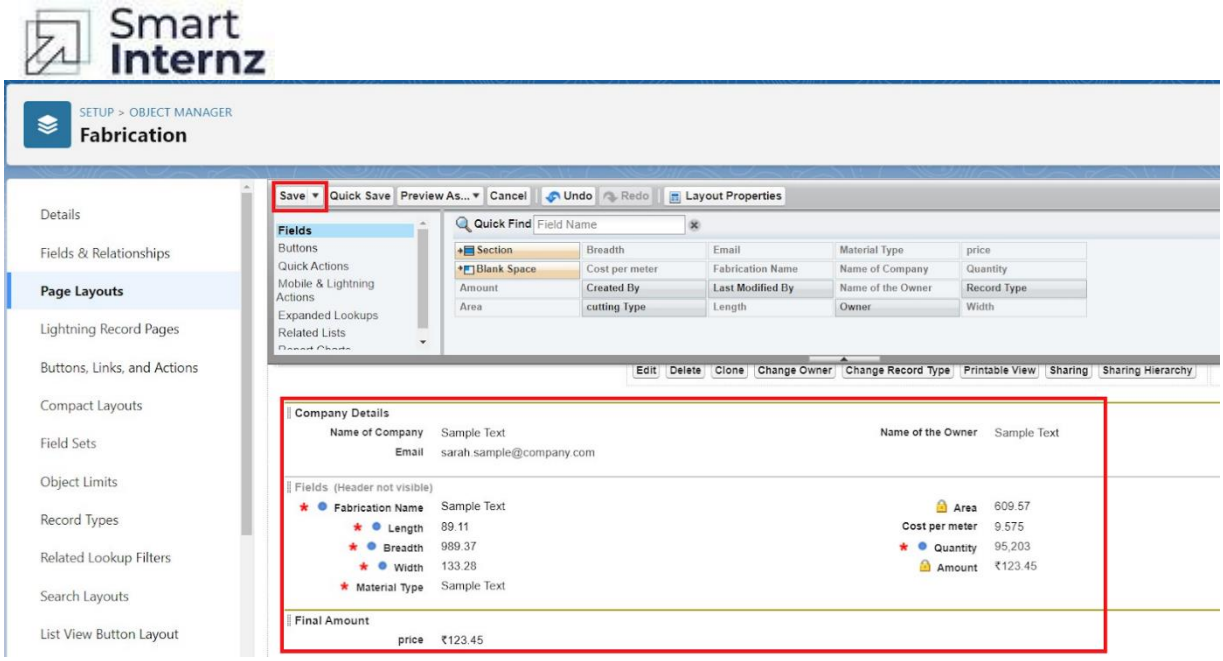


Step 6: Creation of Page Layouts

To create Four Page Layouts (For Drilling, For Welding, For Cutting, For Folding)

1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Enter details as
   - Page Layout Name : Drilling Page Layout
   - Click on Save

Drag and Arrange the field as shown below



Step 7: Creation of Record Types

For the Fabrication Object to create 4 Record Types (Drilling, Welding, Cutting, Folding)

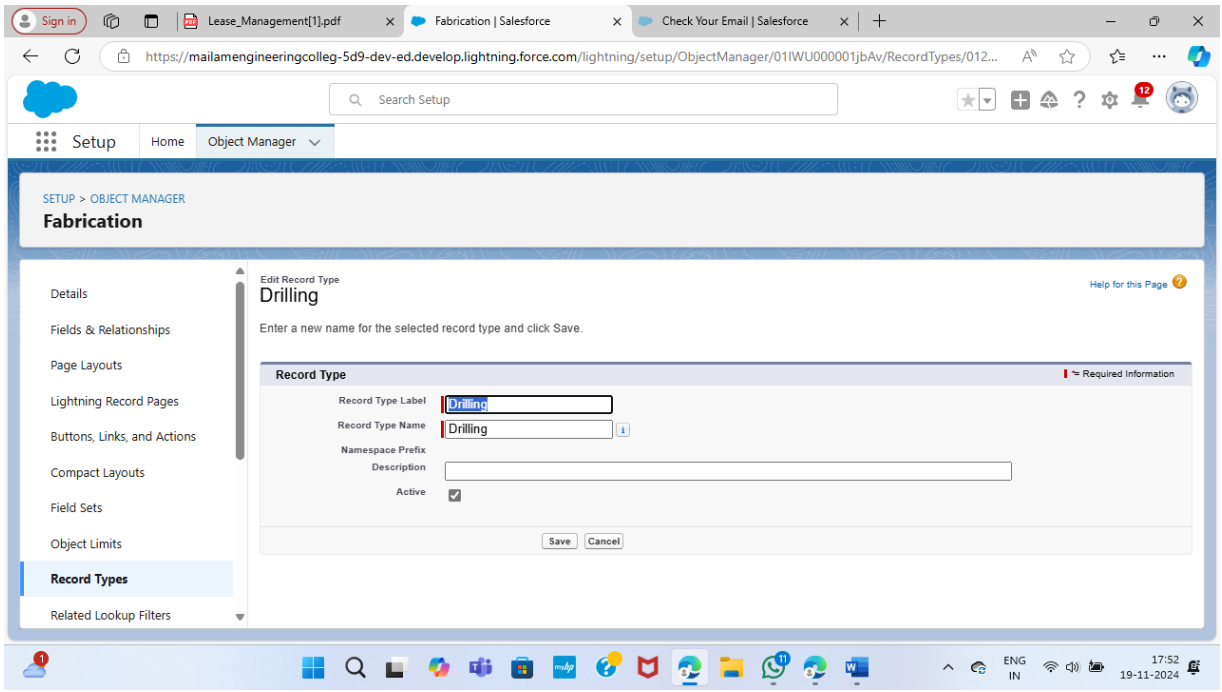
1. Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.
2. Click on the Record Types >> click New.
3. Enter the details : For Record Types

- Existing Record Types : 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

Step 8: Validation rules

Go to the setup page >> click on object manager >> From drop down click edit for Fabrication object.

Click on the validation rule >> click New.

Enter the Rule name as “Rule_for_fabrication”.

Insert the Error Condition Formula as : OR(Length__c == 0, Breadth__c == 0, Width__c ==0, Quantity == 0)

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.

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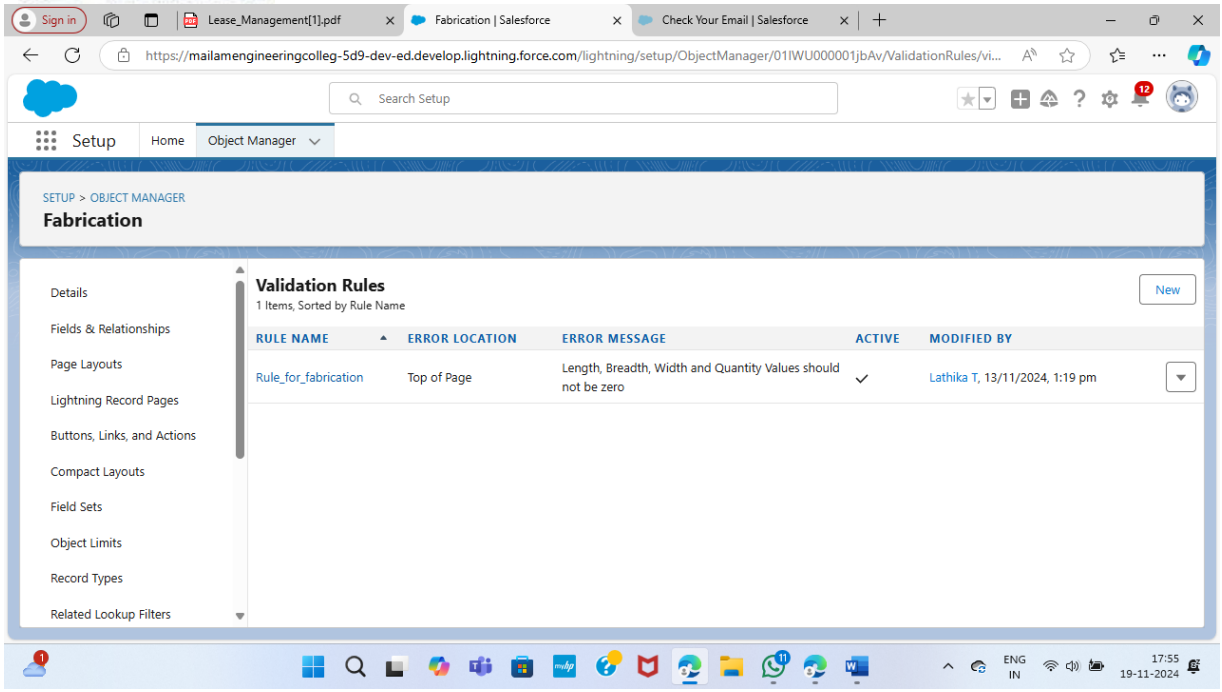


Step 9: Email templates

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.

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.

1. Create Email Template For Fabrication

Go to setup in quick find box enter email template >> click on classic Email Template.

Click on >> New Email Template===>HTML (using Classic Letterhead)

Folder : Unfiled public Classic Email templates

Click on available for use

Email Template Name is “Bill Template”

Template Unique Name : Auto populated

Subject : “Fabrication Template”

Email body :

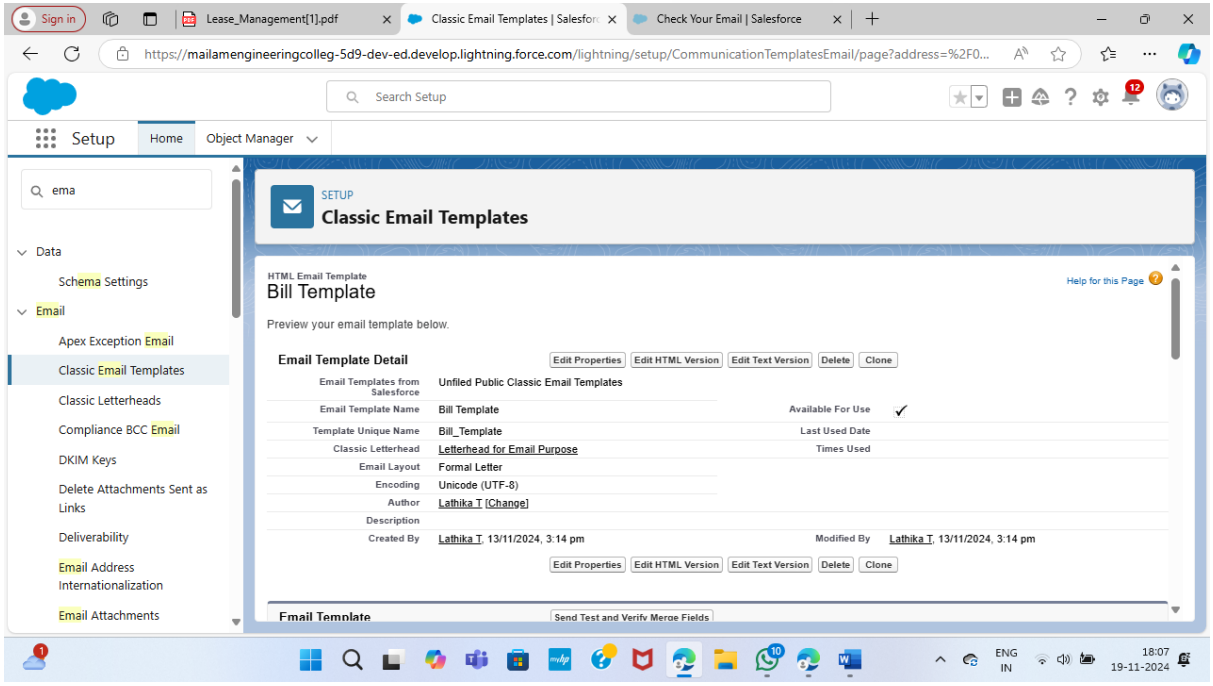
Hello {!Fabrication__c.Name_of_the_Owner__c}{!Shed_Work__c.Name_of_the_Owner__c}{!Pipe_Lining__c.Name_of_Owner__c} ,

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.

Save



2. Create Email Template For shed work

Go to setup in quick find box enter email template >> click on classic Email Template.

Click on >> New Email Template===>HTML (using Classic Letterhead)

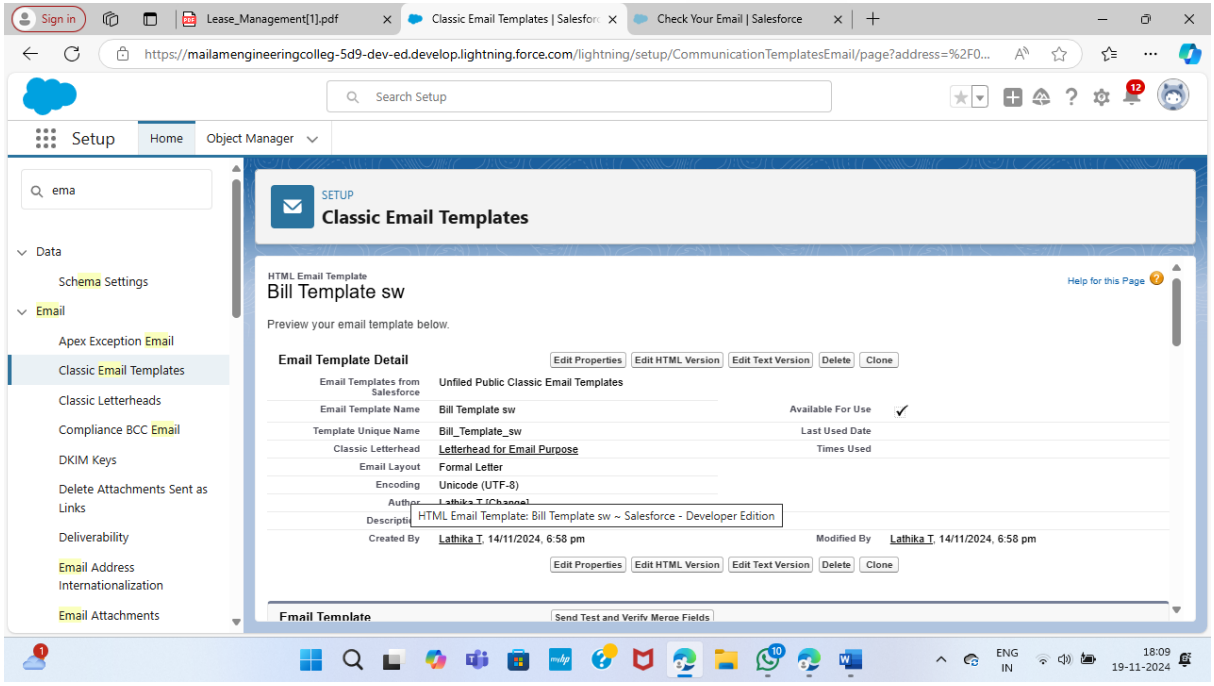
Folder : Unfiled public Classic Email templates

Click on available for use

Email Template Name is “Bill Template”

Template Unique Name : Auto populated

Subject : “Fabrication Template”



3. Create Email Template For pipe lining

Go to setup in quick find box enter email template >> click on classic Email Template.

Click on >> New Email Template===>HTML (using Classic Letterhead)

Folder : Unfiled public Classic Email templates

Click on available for use

Email Template Name is “Bill Template”

Template Unique Name : Auto populated

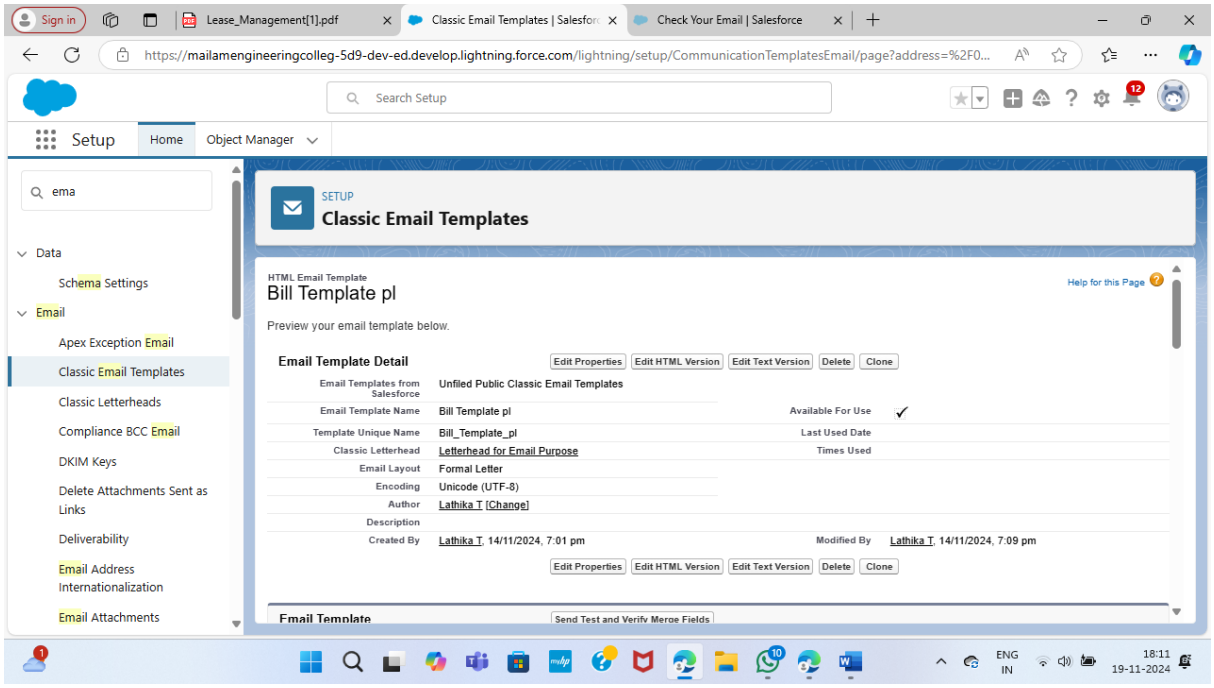
Subject : “Fabrication Template”

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.



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

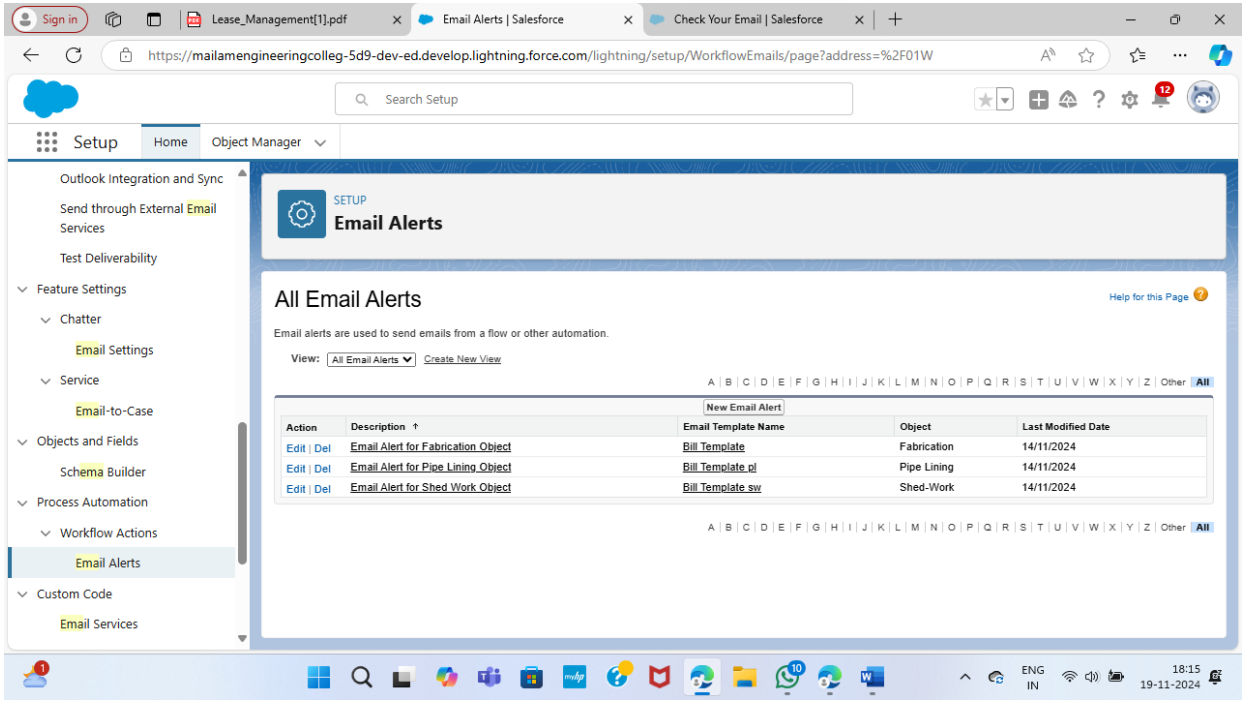
Object : Fabrication

Email Template : select the template that is for fabrication Object

Recipients : User: Integration User, User : System Administrator, user : Security User

Click Save

Similarly create for Pipe-Lining and Shed-Work objects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Email Alerts | Salesforce
Check Your Email | Salesforce
https://mailamengineeringcolleg-5d9-dev-ed.develop.lightning.force.com/lightning/setup/WorkflowEmails/page?address=%2F01W
Search Setup
Setup
Home
Object Manager
Outlook Integration and Sync
Send through External Email Services
Test Deliverability
Feature Settings
Chatter
Email Settings
Service
Email-to-Case
Objects and Fields
Schema Builder
Process Automation
Workflow Actions
Email Alerts
Custom Code
Email Services
SETUP
Email Alerts
All Email Alerts
Help for this Page
Email alerts are used to send emails from a flow or other automation.
View: All Email Alerts
Create New View
A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Other | All
New Email Alert
Action
Description
Email Template Name
Object
Last Modified Date
Edit | Del
Email Alert for Fabrication Object
Bill Template
Fabrication
14/11/2024
Edit | Del
Email Alert for Pipe Lining Object
Bill Template pl
Pipe Lining
14/11/2024
Edit | Del
Email Alert for Shed Work Object
Bill Template sw
Shed-Work
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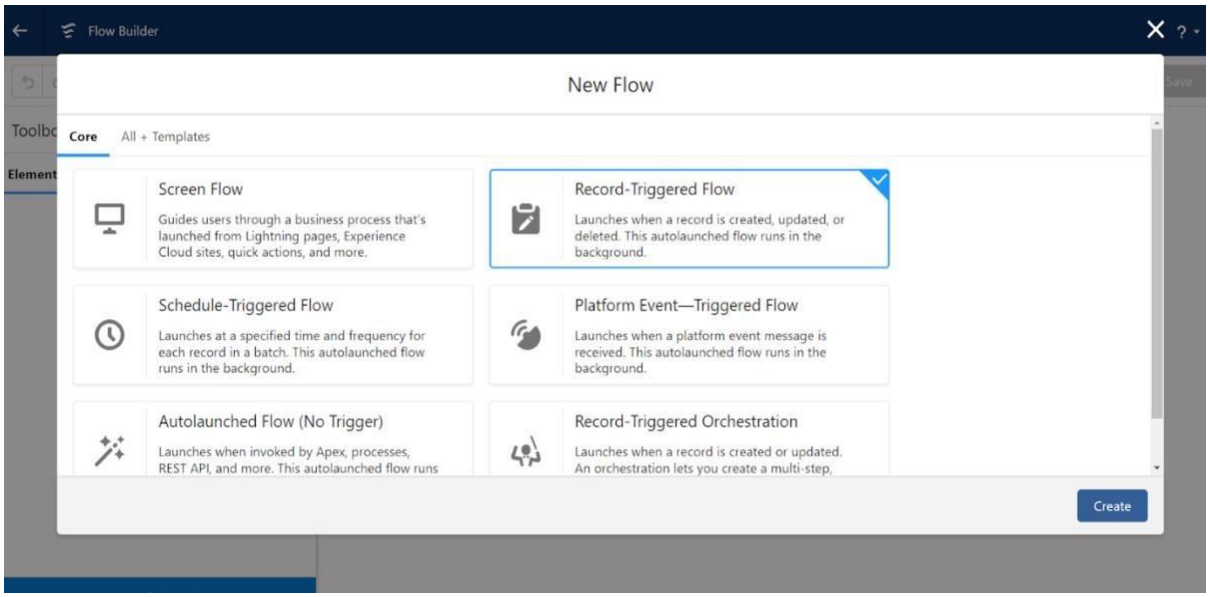
19-11-2024

Step 10: Flows

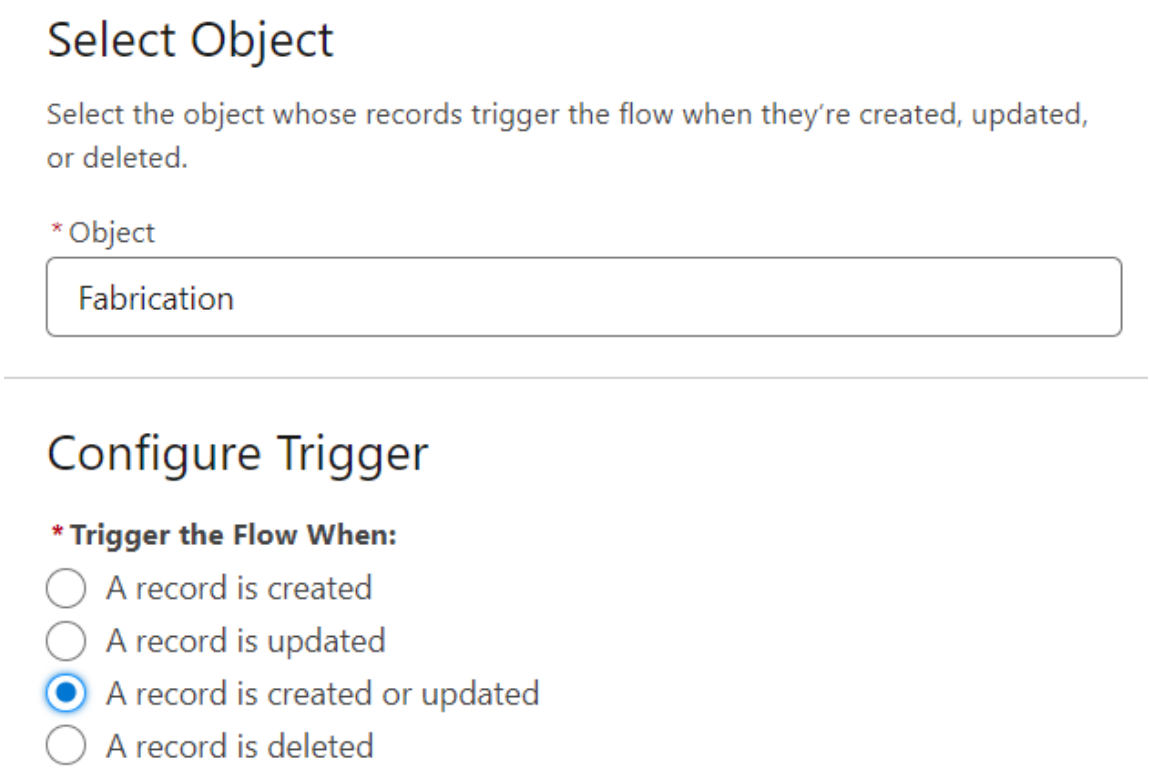
In Salesforce, a flow is a tool that automates complex business processes. Simply put, it collects data and then does something with that data. Flow Builder is the declarative interface used to build individual flows.

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

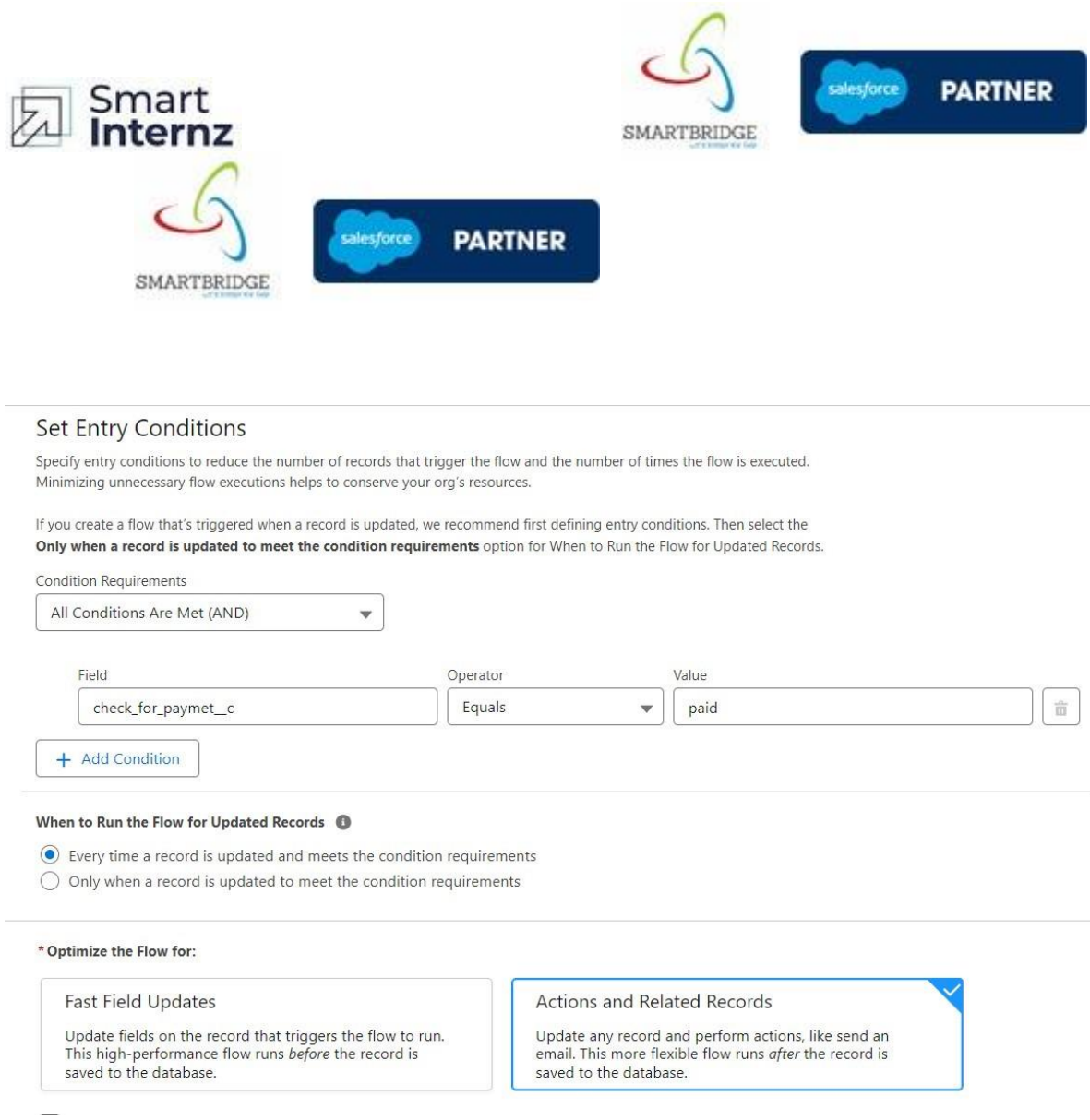
1. Go to setup then type Flow in quick find box Click on the Flow and Select the New Flow.
2. Select the record Triggered flow. Click on create.



Under Object select ”Fabrication”. Click on A record is created or updated.

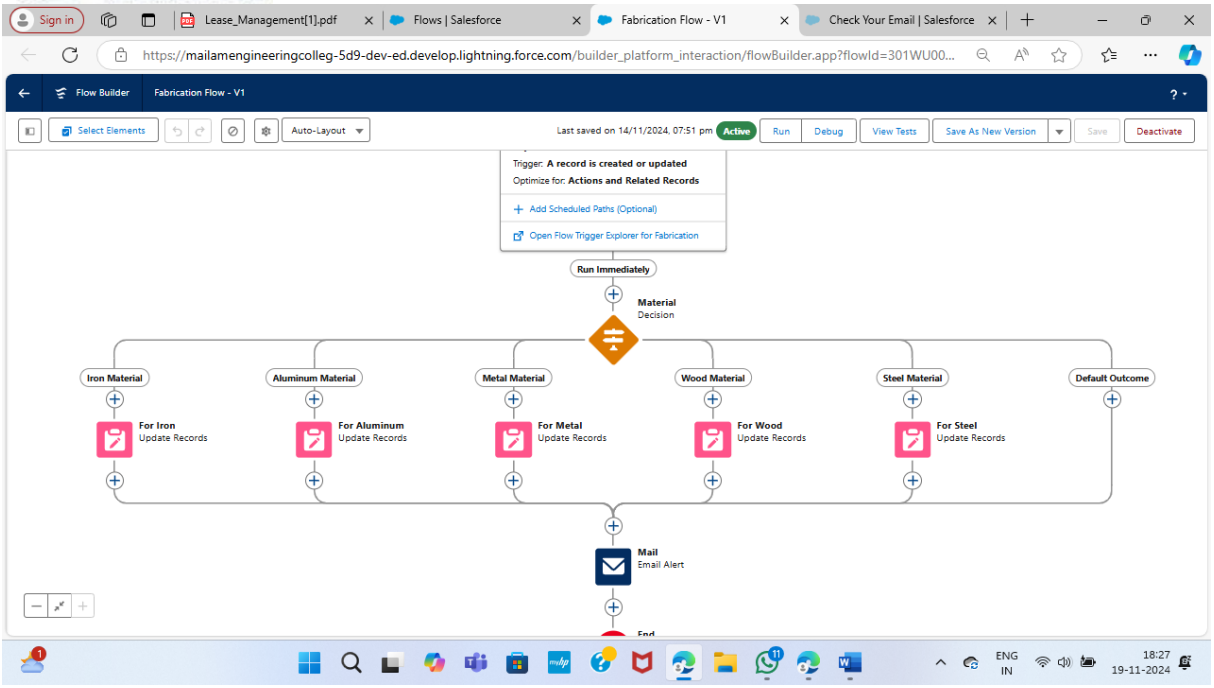


Set Entry Conditions : None
Select Actions and Related Records

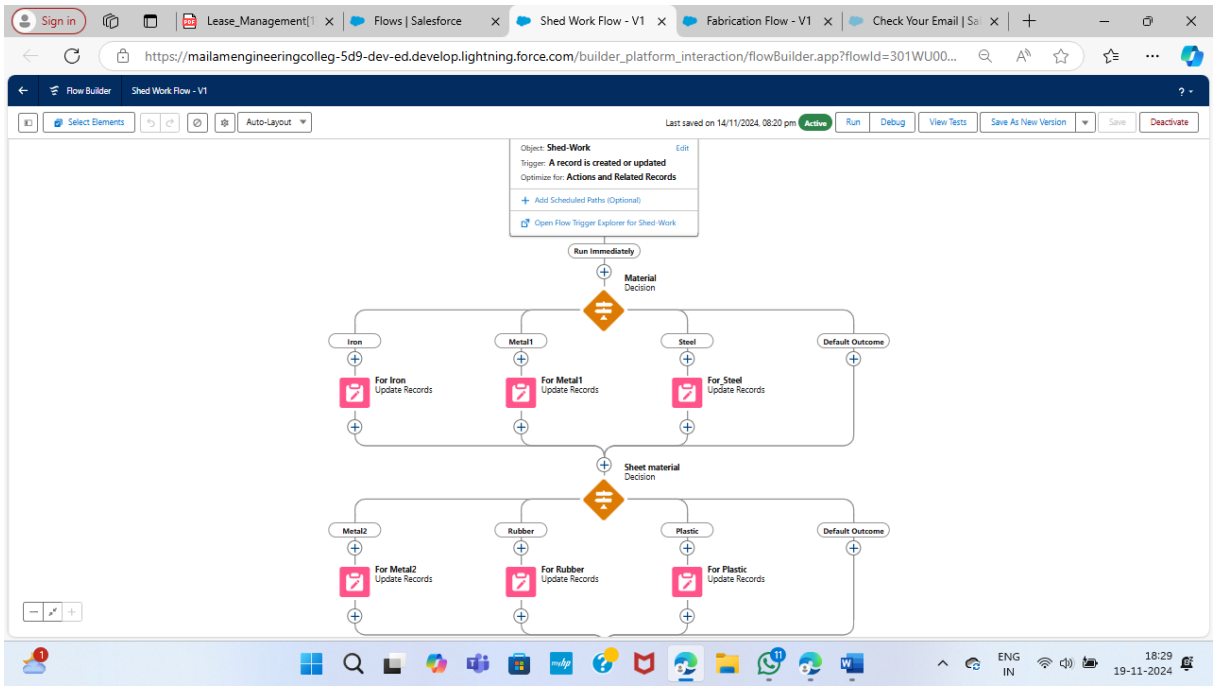


Click on Save

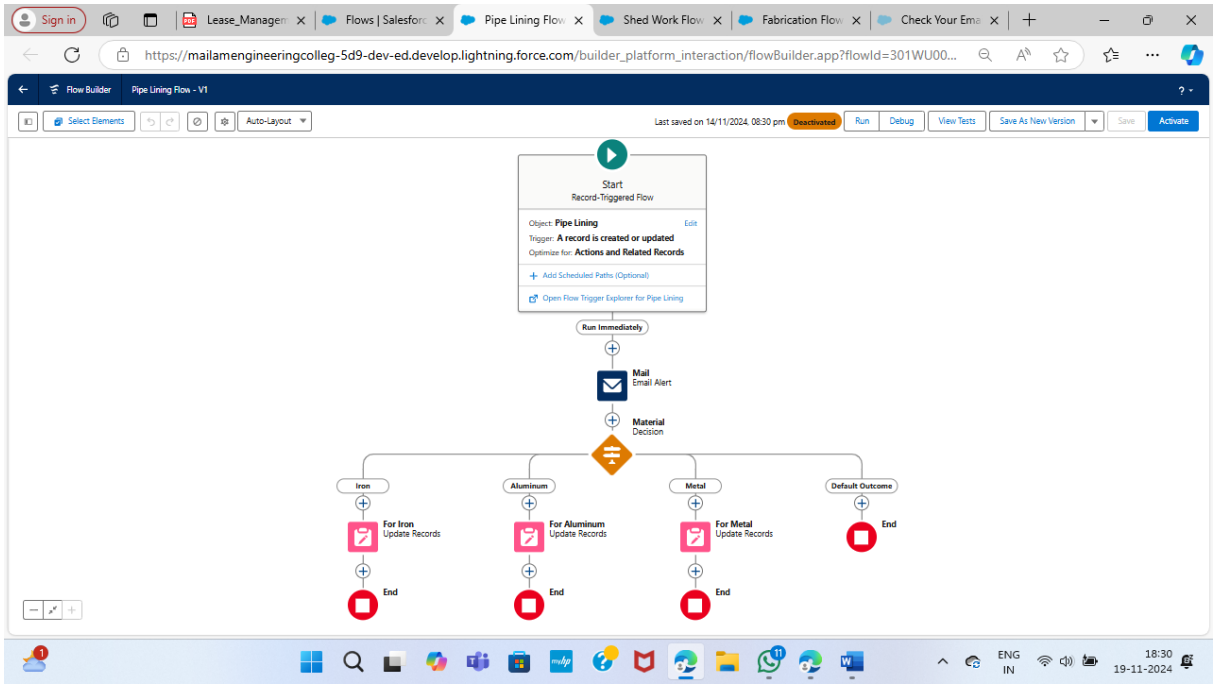
- Flow Label : Fabrication Flow
- Flow API Name : Fabrication_Flow
- Click Save and then active



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



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



Test and validation:

1. Functional Testing

1. **Client Information Management:**
    - **Company Information:** Verify that company information can be added, updated, and deleted.
    - **Owner Details:** Ensure owner details are correctly captured and associated with the company.
    -

- **Contact Information:** Test the addition, updating, and deletion of contact information.
- **Worker Details:** Validate that worker details, including skills and roles, are managed accurately.

2. **Material and Measurement Management:**
   - **Material Requirements:** Ensure materials and measurements can be entered and modified.
   - **Price Calculation:** Test the automatic price calculation based on materials and measurements.
3. **Engineering Work Categories:**
   - **Fabrication Work:** Test processes such as Drilling, Welding, Cutting, and Folding.
   - **Shed Construction:** Validate the management of the shed construction process.
   - **Pipe Lining:** Ensure accurate tracking of pipe repairing and replacing tasks.

2. Integration Testing

1. **Data Consistency:**
   - Verify that data remains consistent across different modules (e.g., client info, material management).
2. **Workflow Integration:**
   - Ensure seamless integration of different workflows (e.g., from client information to project execution).

3. Performance Testing

1. **Load Testing:**
   - Test the application's performance under high load to ensure it handles multiple users and large data efficiently.
2. **Stress Testing:**
   - Identify the application's breaking point and ensure it recovers gracefully from failures.

4. Security Testing

1. **Data Protection:**
   - Ensure sensitive information (e.g., client details) is securely stored and accessed only by authorized personnel.

2. **Access Control:**
    - Verify that different users (e.g., admin, worker) have appropriate access levels.

5. Usability Testing

1. **User Interface:**
    - Test the application's UI for ease of use and intuitive navigation.
2. **User Experience:**
    - Gather feedback from end-users (e.g., project managers, workers) to ensure the application meets their needs.

6. System Testing

- Validate that the application runs smoothly on a Windows 8 machine with a 30mbps bandwidth.

7. Regression Testing

- Maintain a suite of test cases to ensure new changes do not negatively impact existing functionalities.

Validation

- **Acceptance Testing:**
    - Conduct acceptance testing with a group of end-users to validate that the application meets all business requirements and user expectations.
- **Documentation:**
    - Provide comprehensive documentation, including user guides and technical manuals, to assist users and maintainers.

Conclusion:

This CRM application will streamline the management of engineering projects, providing a centralized system to track and manage various aspects such as client information, project details, worker assignments, and material requirements. The inclusion of automatic price calculation based on specified materials and measurements will further enhance the efficiency and accuracy of project management.