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DNV·GL
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

WORKFORCE ADMINISTRATION SOLUTION (DEV)

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WORKFORCE ADMINISTRATION SOLUTION (DEV)

Overview of project:

The Workforce Administration Solution (Dev) project in Trailhead guides users through creating a Salesforce app to manage employee data, project assignments, and asset tracking. Participants learn to build custom objects and relationships to manage employee workloads, monitor performance, and keep asset records. This project provides hands-on experience with Salesforce development and data management skills.

Project requirements:

Hardware Required: System with advance configuration
Software Required: Salesforce Platform
System Required: Good Configuration

Project Description:

A Workforce Administration Solution is a software platform designed to streamline and automate various aspects of employee project management and asset assignment within an organization. It serves as a centralized system for managing employee and working on, monitoring performance, and maintaining records of assigned assets.

Smart Internz

SMARTBRIDGE · PARTNER

Table of content:

Key features:

Employee Management: Creating records for employees and managing related information.

Project Assignment Tracking: Linking employees to projects they are assigned to, tracking their workloads, and ensuring they're effectively utilized.

Salesforce:

Salesforce is an interactive learning platform by Salesforce that offers free, hands-on training for various Salesforce skills and concepts. It provides guided modules, projects, and trails covering topics from beginner to advanced levels in Salesforce development, administration, and more. Users earn badges and points by completing challenges, making it a fun, gamified way to learn. Trailhead helps users build valuable skills to advance their careers in the Salesforce ecosystem.
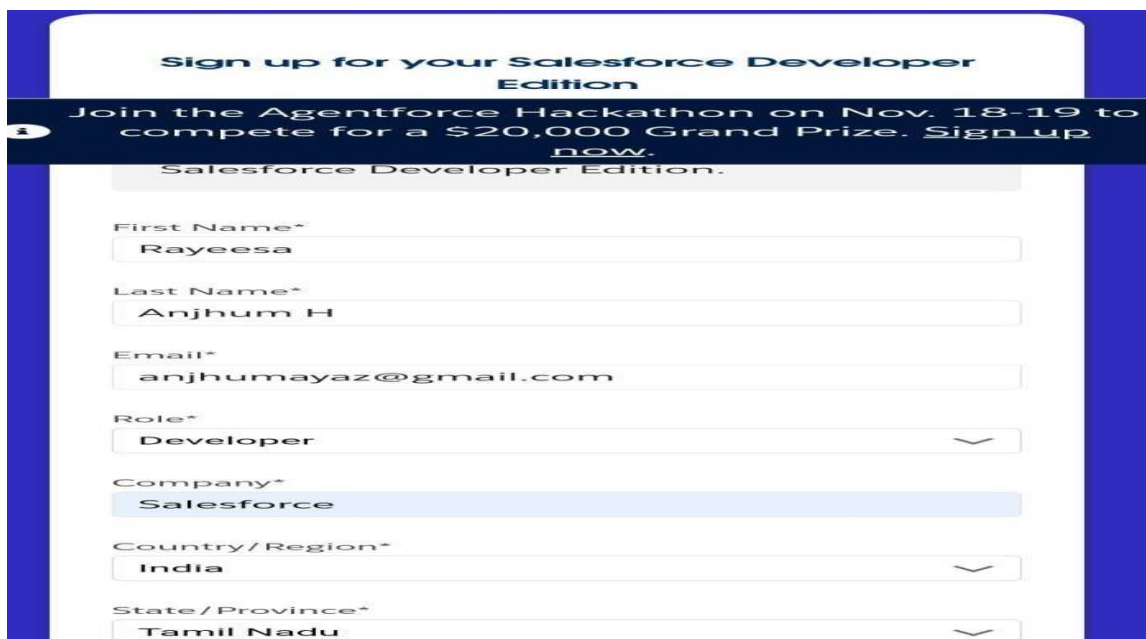
Benefits of Using Salesforce:

- **Scalability**: As a cloud-based solution, Salesforce can easily scale to support organizations of all sizes.
- **Data Centralization**: Salesforce centralizes customer data, providing a single source of truth for sales, service, and marketing teams.
- **Enhanced Productivity**: Automation tools in Salesforce reduce manual tasks, freeing up time for teams to focus on value-added activities.

Activity 1: Creating Developer Account

Solving steps:

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

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

   - First name & Last name
   - Email
   - Role : Developer
   - Company : College Name
   - County : India
   - Postal Code : pin code
   - Username : should be a combination of your name and company ☐ Click on Sign me up.

Sign up for your Salesforce Developer Edition

Join the Agentforce Hackathon on Nov. 18-19 to compete for a $20,000 Grand Prize. Sign up now.

Salesforce Developer Edition.

First Name*
Rayeesa

Last Name*
Anjhum H

Email*
anjhumayaz@gmail.com

Role*
Developer

Company*
Salesforce

Country/Region*
India

State/Province*
Tamil Nadu

Activity 2: Account Activation

Solving steps:
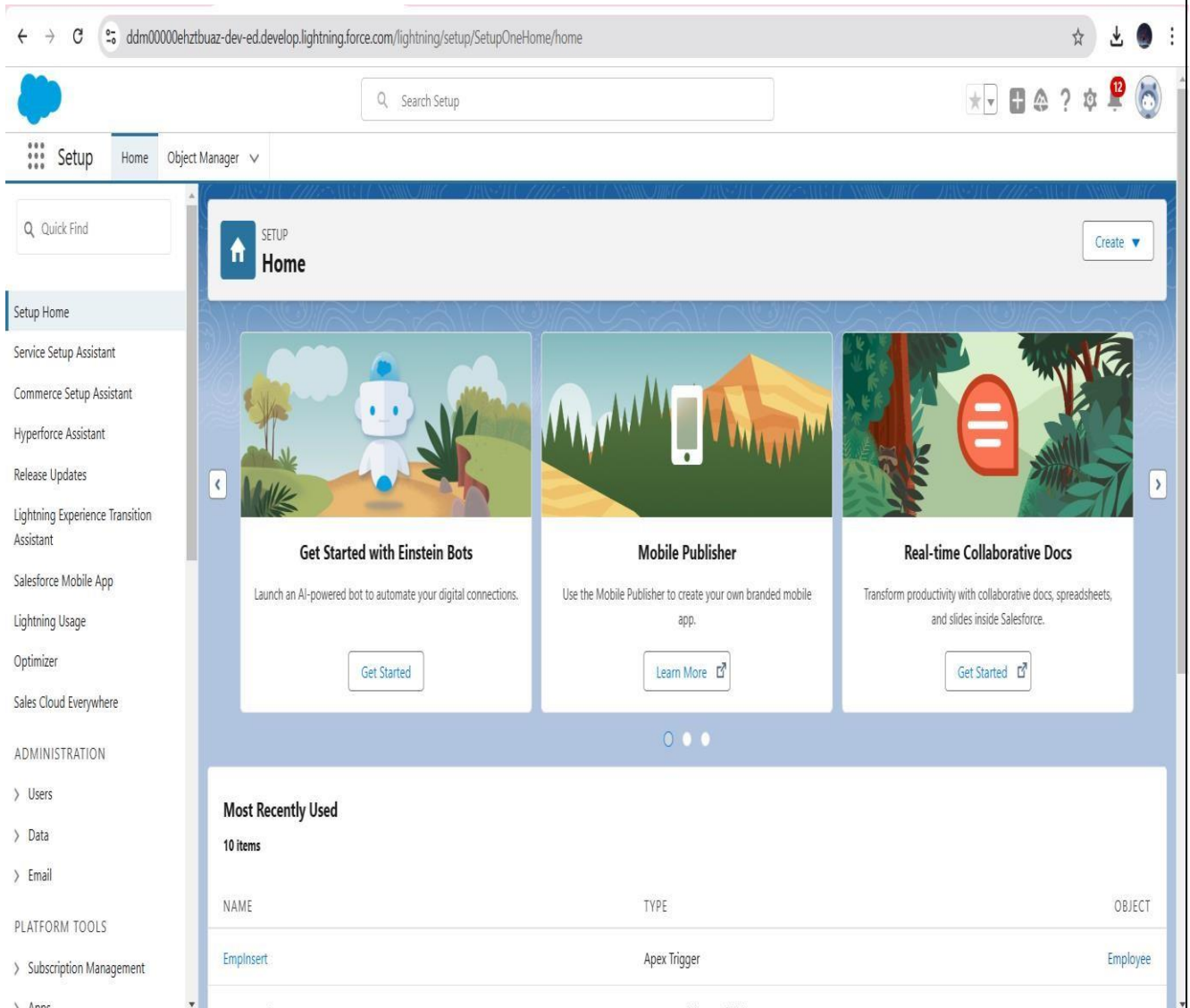
1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 510mins.

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.

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:

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

6. Custom Objects: Custom objects are those objects that are created by users.

Activity 1: Create Employee Object

Solving steps:
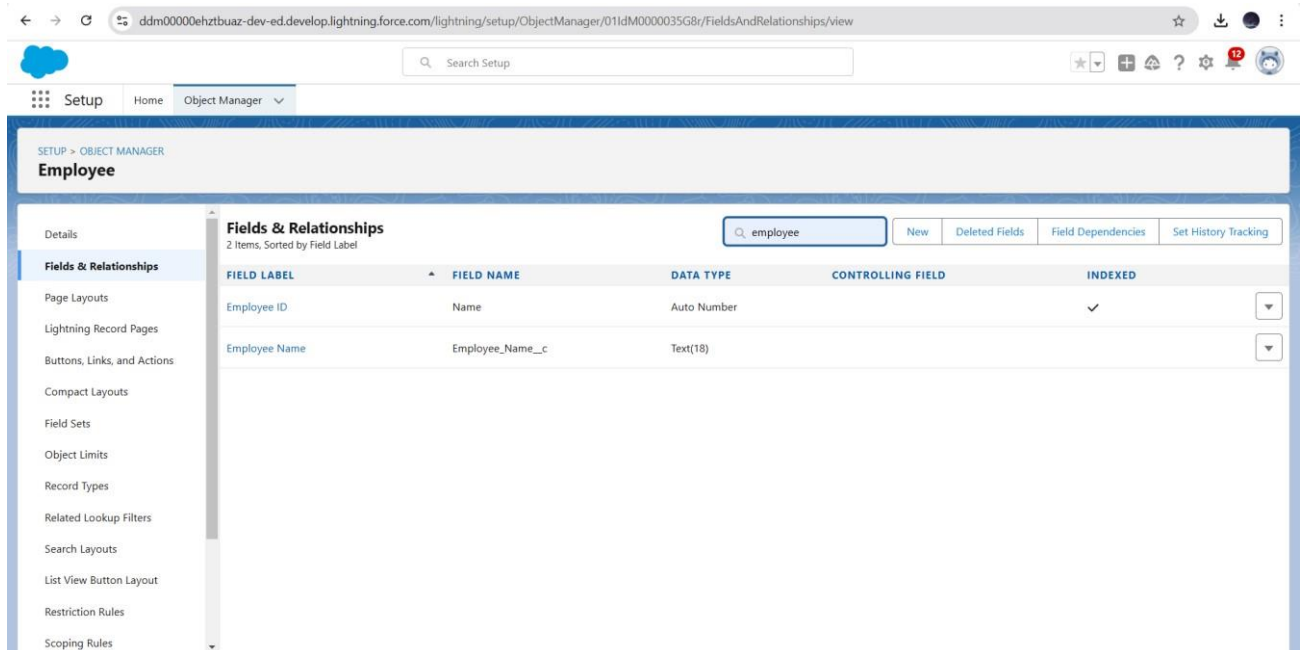
1. From the setup page --> Click on Object Manager --> Click on Create -> Click on Custom Object.

   - Enter the label name: Employee
   - Plural label name: Employees
   - Enter Record Name Label and Format
   - Record Name : Employee ID
   - Data Type : Auto Number
   - Display Format : EMS-{0000}
   - Starting Number : 1

2.Click on Allow reports,

3.Allow search --> Save.

Activity 2: Create Project Object

Solving steps:

1. From the setup page --> Click on Object Manager --> Click on Create --> Click on Custom Object.

   - Enter the label name--> Project
   - Plural label name--> Projects
   - Enter Record Name Label and Format
     - Record Name : Project ID
     - Data Type : Auto Number
     - Display Format : Proj-{0000}
     - Starting Number : 1

2. Click on Allow reports,

3. Allow search --> Save

Activity 3: Create 3 more objects with label names as ProjectTask, Asset, Asset Service.

Solving steps:

1. From the setup page --> Click on Object Manager --> Click on Create --> Click on Custom Object.

   - Enter the label name--> Project Task Name

   - Plural label name--> Projects Task Name
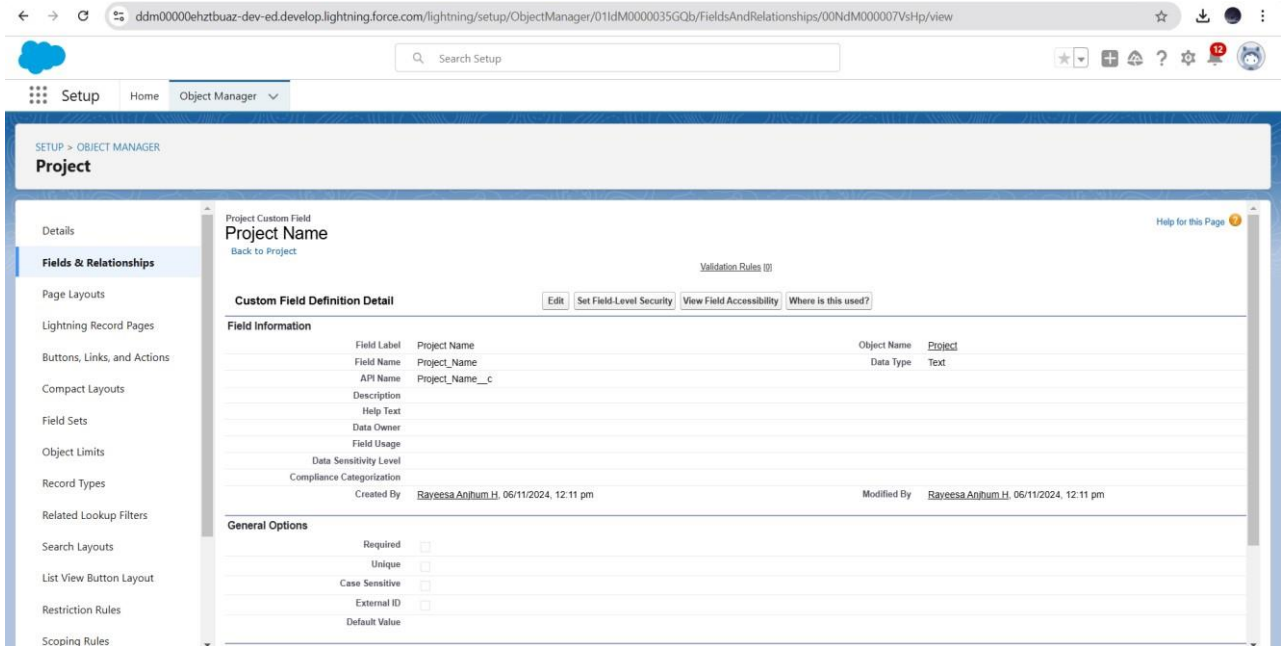   Enter Record Name Label and Format
       - Record Name : Project ID
       - Data Type : Text
       - Display Format : Proj-{0000}
       - Starting Number : 1 2.   Click on

   Allow reports,

2. Allow search --> Save.

Output:

Tabs:

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

Types of Tabs:

1. Custom Tabs

2. Web Tabs

3. Visualforce Tabs

4. Lightning Component Tabs

5. Lightning Page Tabs

Activity 1: Creating a Custom Tab (Employee)

Solving steps:

1. Go to setup page --> type Tabs in Quick Find bar --> click on tabs --> New (under custom object tab)

2. Select Object(Employee) --> Select any tab style --> Next (Add to profiles page) keep it as default --> Next (Add to Custom App) keep it as default --> Save.

Output:
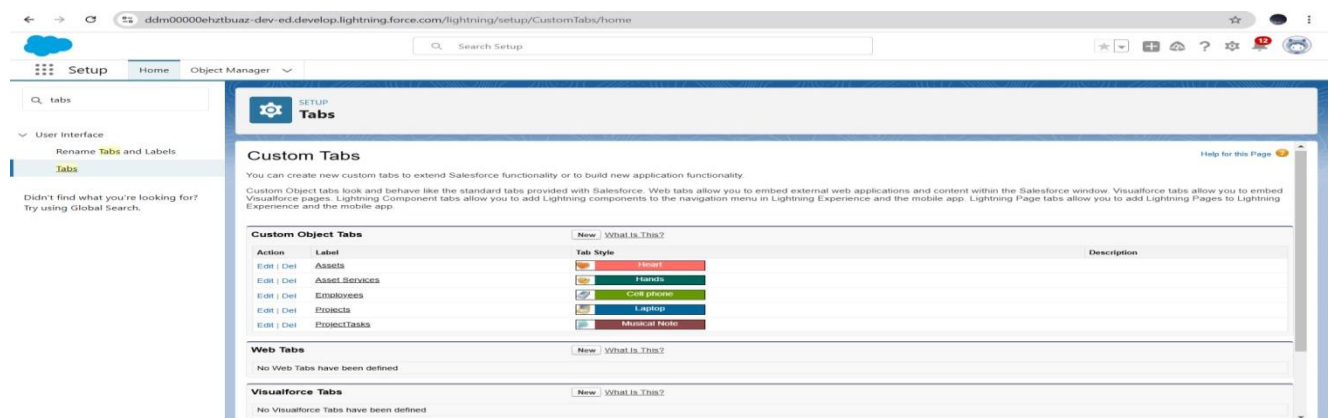
Activity 2: Creating a Custom Tab (Project)

Solving steps:

1. Go to setup page --> type Tabs in Quick Find bar --> click on tabs --> New (under custom object tab)

2. Select Object(Project) --> Select the tab style ?--> Next (Add to profiles page) keep it as default --> Next (Add to Custom App) keep it as default --> Save.

Output:

Activity 3: Creating tabs for remaining objects

Solving steps:

1. Go to setup page --> type Tabs in Quick Find bar --> click on tabs --> New (under custom object tab)

2. Select Object(Project Task, Asset, Asset Service objects) --> Select the tab style ?--> Next (Add to profiles page) keep it as default --> Next (Add to Custom App) keep it as default --> Save.

Output:

The Lightning App

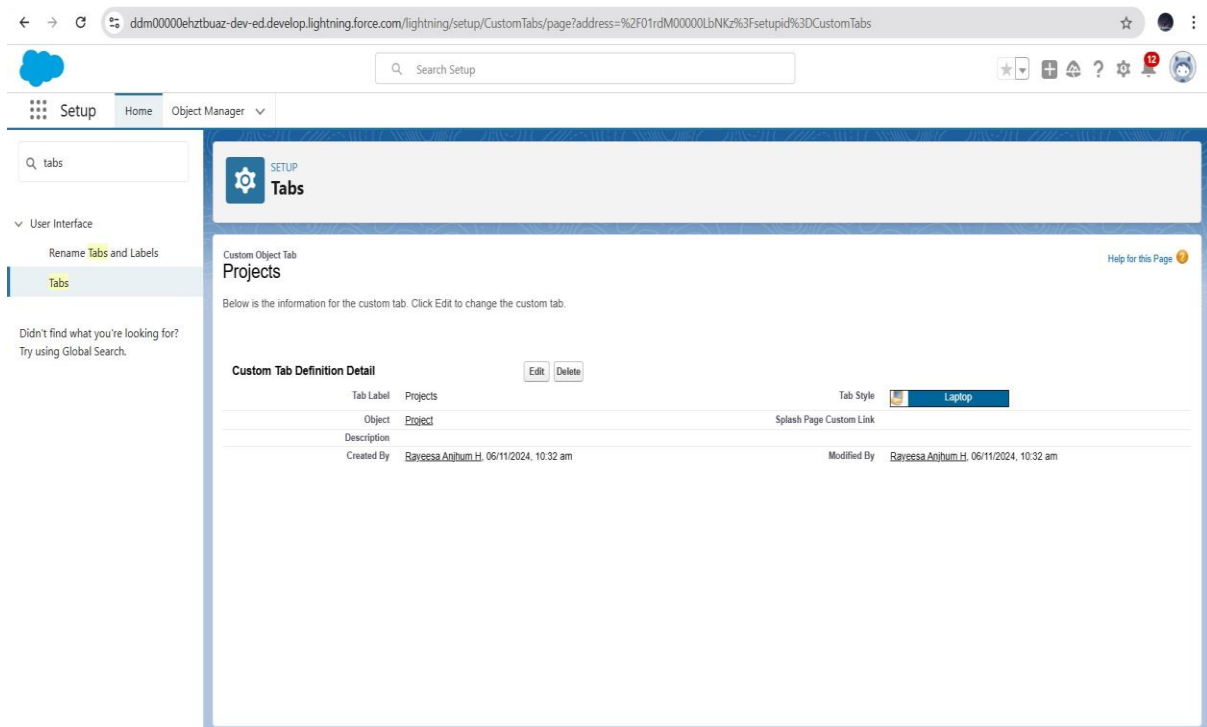An app is a collection of items that work together to serve a particular function. In Lightning Experience, Lightning apps gives users access to sets of objects, tabs, and other items all in one convenient bundle in the navigation bar.

Activity 1: Create a Lightning App
Solving step:
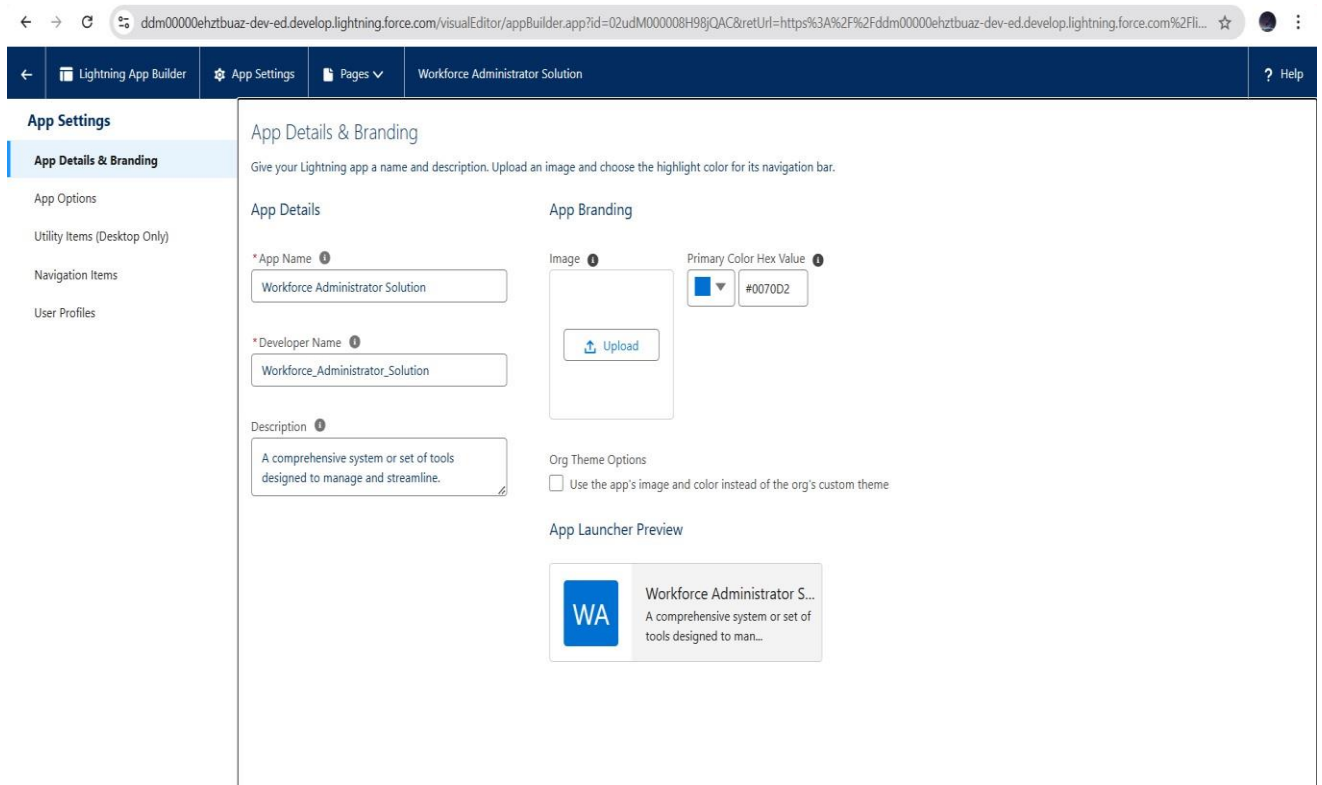
1. Go to setup page --> search "app manager" in quick find --> select "app manager" --> click on New lightning App.

2. Fill the app name in app details and branding as follow

   App Name   : Workforce Administrator Solution

   Developer Name   : this will auto populated

   Description   : Give a meaningful description

   Image   : optional

   Primary color hex value : keep this default

3. Then click Next --> (App option page) keep it as default --> Next --> (Utility Items) keep it as default --> Next.

4. Search the items in the search bar(Employees, Projects, ProjectTask, Assets, Asset Services, Reports, Dashboard) from the search bar and move it using the arrow button --> Next.

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

Output:

Fields & Relationships:

In Salesforce, fields are data points within objects (e.g., Account Name, Email) that store specific information about records. Relationships define how objects are related to each other, like a Lookup Relationship (one-to-one link) or a Master-Detail Relationship (dependent link where the child object is deleted if the parent is deleted). These relationships enable data connections and streamline complex workflows within Salesforce.

Types of Fields

1. Standard Fields
2. Custom Fields

Activity : Creating Data Field in Employee Object

Solving steps:

1. Navigate to Object Manager:

- Go to Setup
- Search for and select Object Manager.
- Find and click on the Employee object from the list.

2. Create New Fields:

- In the Employee object, go to the Fields & Relationships section.
- Click New to create a new field.

- Select the Field Type based on the type of data you want to store.

3. Configure Field Properties:
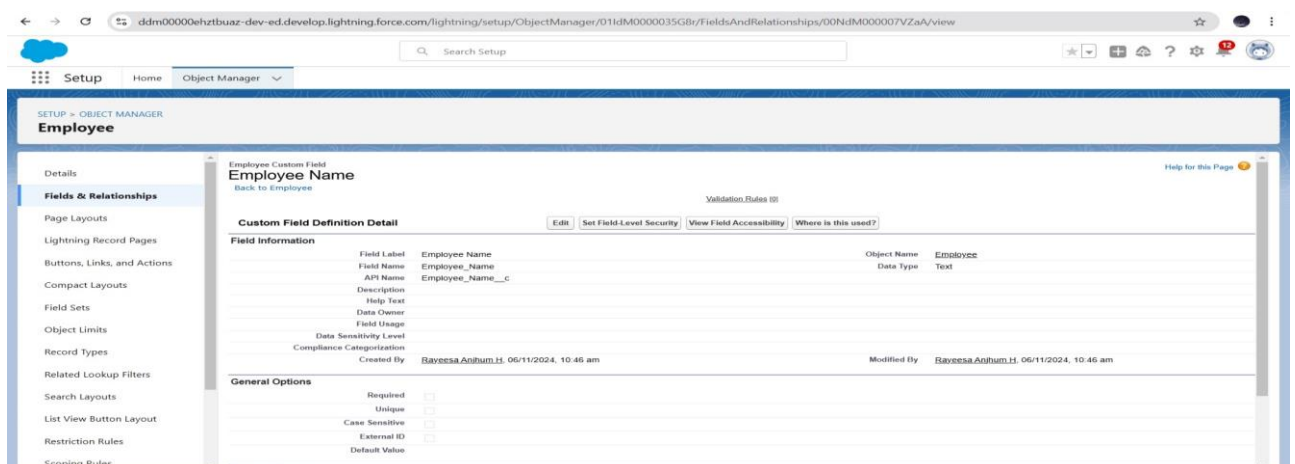
- Enter the Field Label and Field Name.
- Set Length (if applicable) and any additional properties such as Unique, Required or Default Value.

4. Set Field-Level Security and Layout:

- Choose which profiles can view and edit this field.
- Select the Page Layouts to include this field on the Employee record page.

5. Repeat for Remaining Fields , Save and Verify.

Output:

Setting OWD:

In Salesforce, **Organization-Wide Defaults (OWD)** control the default level of access that users have to records they don't own within each object. Setting OWD defines baseline data visibility across your organization, and it can be modified using role hierarchies, sharing rules, and manual sharing for more flexibility.

Activity : Create OWD Setting

Solving steps:

1. Go to Setup:

    ☐ Click on the Setup icon in the top-right corner.

2. Navigate to Sharing Settings:

    ☐ In the Quick Find box, type Sharing Settings and select it.

3. Set OWD for Each Object:

- Under Organization-Wide Defaults, find the Default Internal Access and Default External Access settings for each object (e.g., Account, Contact, Custom Objects like Employee).
- Click Edit to change the access level.

4. Choose Access Levels:

- Set the desired access level:

  - Private: Only the record owner and those above in the role hierarchy can access the record.
  - Public Read Only: All users can view records, but only the owner and their superiors can edit.
  - Public Read/Write: All users can view and edit records.

  - Controlled by Parent: Access to the object is determined by its parent object's sharing settings.

5. Click Save.

Output:
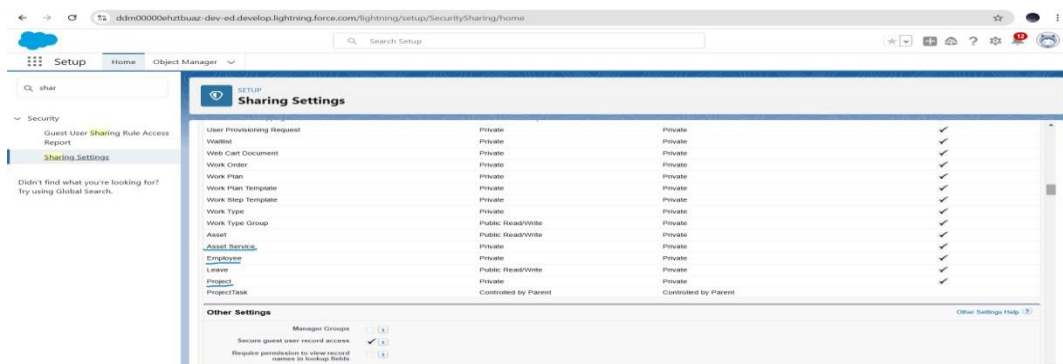
User Adoption:
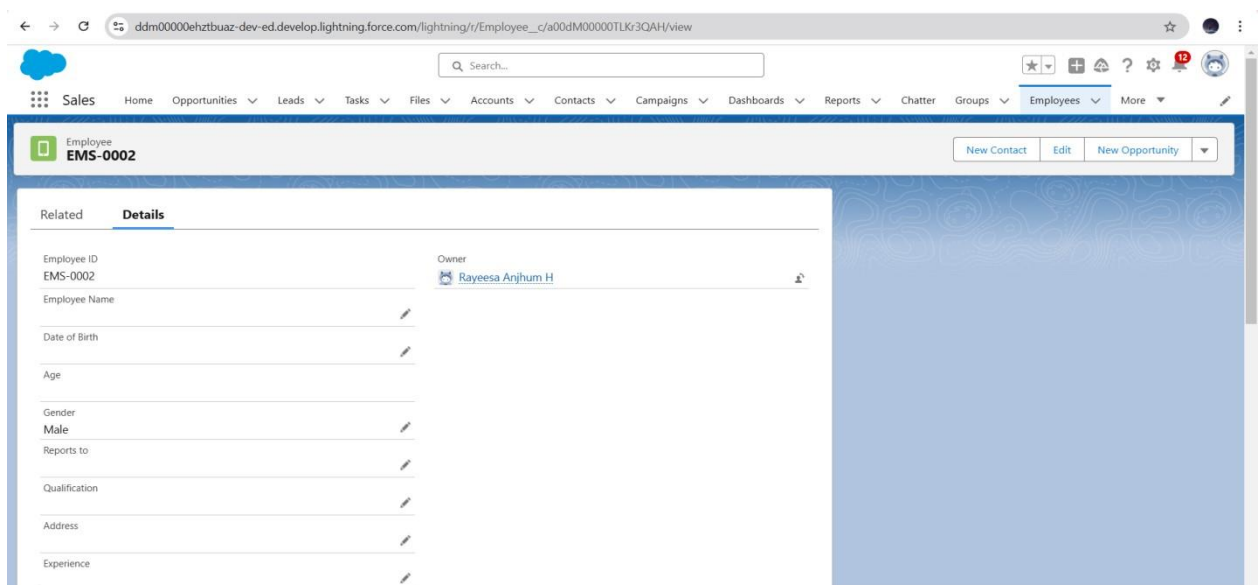
User Adoption in Salesforce refers to the extent to which users are actively and effectively using the platform as part of their daily workflows. High user adoption is essential for realizing the full potential of Salesforce, as it drives better data quality, higher productivity, and more consistent customer interactions.

Activity : Create, View and Delete a Record (Employee)

Solving steps:

1. Click on App Launcher on the left side of the screen.
2. Search Employee Management System & click on it.
3. Click on the Employee tab. Click New. Fill the Details and click on Save.

Output:

Import Data

Importing data into Salesforce is essential for getting records, such as leads, contacts, accounts, and custom objects, into the system. Salesforce provides various tools to facilitate data import, ensuring that you can do this efficiently while maintaining data integrity

Activity-1: Importing data using Data Wizard

Solving steps:

1. Prepare Your Data File

   - Format your data in a CSV file. Ensure that each column corresponds to a field in Salesforce (e.g., First Name, Last Name, Email).
   - Clean the data by removing duplicates and verifying that data is consistent (e.g., formatting dates correctly, standardizing values).
   - Save the file in CSV format as it's the required format for Salesforce imports.

2. Access the Data Import Wizard

   - Log in to Salesforce and navigate to Setup.
   - In the Quick Find box, type Data Import Wizard and select it from the list of options.

3. Launch the Wizard and Choose Your Object

- Click Launch Wizard to begin.
- Choose the type of records you're importing:
  - Standard Objects (e.g., Accounts, Contacts, Leads).
  - Custom Objects (if you're importing into a custom-created object).

- Select the object you want to import data into.

4. Set Import Options

- Specify the action for this import:

  - Add New Records: Import only new records.
  - Update Existing Records: Update existing records in Salesforce (use this if you have unique identifiers like Record ID).
  - Add New and Update Existing Records: A combination of both (useful if your file contains a mix of new and existing records).

5. Upload Your CSV File

- Choose the CSV file you prepared earlier.
- The Data Import Wizard will automatically move to the next step after uploading.

6. Map Fields

- The wizard will attempt to auto-map fields in your file to Salesforce fields. Review the mappings to ensure each column aligns correctly with a Salesforce field.
- If some fields are not automatically mapped, manually select the correct Salesforce field that corresponds to each column in your CSV file.

7. Start Import and Review Settings

- Once you confirm field mappings, review your import settings, and check for any additional options.
- Click Start Import to begin the process.
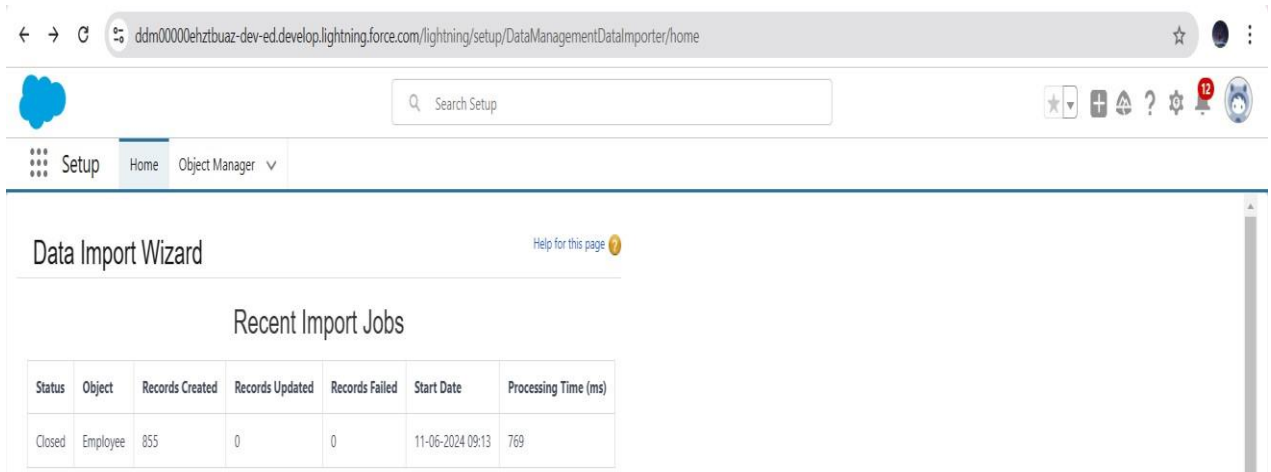
8. Monitor Import Status and Check Results

- Salesforce will send you an email notification once the import is complete.
- Go to the records in Salesforce to verify the imported data, ensuring all fields were populated correctly.

9. Review Any Error Messages

- If some records failed to import, the Data Import Wizard provides a detailed report on errors (such as missing required fields or data format issues). Address any errors in your CSV file and re-import the failed records if necessary.

Profiles:

In Salesforce, profiles define user permissions and access settings, controlling what users can view, create, edit, or delete within the system. Each profile specifies access to objects, fields, applications, and other settings, ensuring users have the appropriate level of access based on their role.

Activity 1: Creating profiles Solving steps:

1. Go to Setup:

   - Click on the Setup gear icon in the upper right corner of Salesforce.

2. Navigate to Profiles:

   - In the Quick Find box, type Profiles and select it.

3. Create a New Profile:

- Click New Profile.
- Choose an existing profile as a Base Profile (template) for permissions, and enter a Profile Name for the new profile.
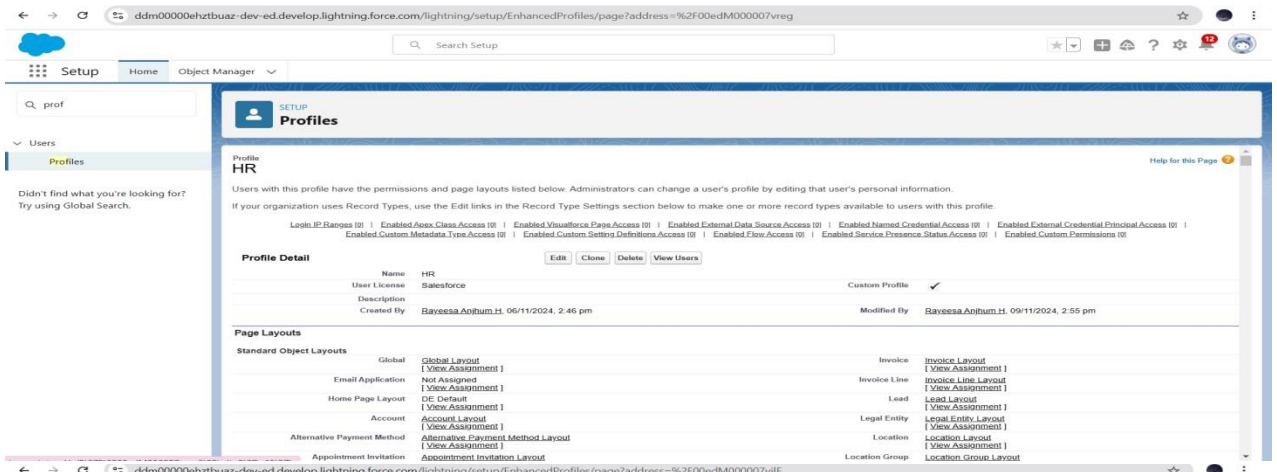- Click Save.

4. Edit Profile Permissions:

- In the new profile, configure permissions for:

  - Object Settings: Define access levels (Read, Create, Edit, Delete) for standard and custom objects.

  - Field-Level Security: Specify visibility and edit permissions for fields within objects.

  - App and Tab Settings: Set which apps and tabs the profile has access to.

  - System Permissions: Configure general permissions, such as login hours, IP restrictions, and access to system functions.

5.Assign Users to Profile:

- Go to Manage Users > Users in Setup.
- Assign users to the new profile as needed by editing their profiles in user settings.

6.Save your changes and review the profile.

Output:

Role:

In Salesforce, Roles define a hierarchy that controls user access to data, especially when it comes to record visibility across the organization. Roles help determine which records users can view, edit, or transfer based on ownership and their position in the hierarchy. Role settings complement profiles, giving additional control over data sharing across teams.

Activity 1: Creating Roles

Solving steps:

1. Go to Setup:
   - Click the Setup gear icon in the upper-right corner of Salesforce.
2. Navigate to Roles:
   - In the Quick Find box, type Roles and select Roles under Users.
3. Set Up Role Hierarchy:
   - Click Set Up Roles to open the role hierarchy.

- Click Add Role next to a role if you want to add a new role under an existing one, or select New Role to create from scratch.

4. Enter Role Details:
   - Enter a Role Name (e.g., Sales Manager).
   - Specify a Parent Role to determine where this role fits in the hierarchy (if applicable).
   - Add a Role Description if needed.
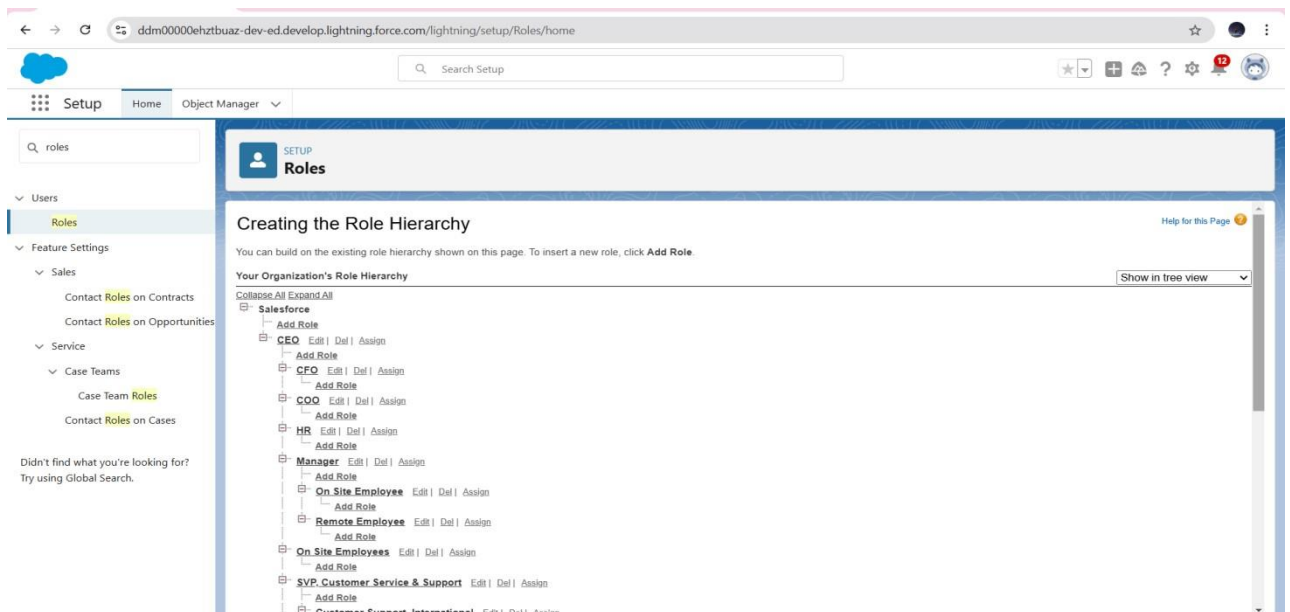
5. Save the Role:
   - Click Save to create the role.

6. Assign Users to the Role.

Output:

Users

In Salesforce, users are individuals who have login access to the platform and are assigned specific roles, profiles, and permissions. Each user is associated with a license type that determines their available features, and their profile controls what they can view and modify in Salesforce. Users can be employees, contractors, or community members, depending on the organization's requirements.

Activity 1: Create User

Solving steps:

1. Go to Setup.
2. Click the Setup gear icon in the top-right corner.
3. Navigate to Users.
4. In the Quick Find box, type Users and select Users under Manage Users.
5. Click on New User.
6. Click the New User button to open the user creation form.
7. Fill in User Details.
8. Enter required details like First Name, Last Name, Email, Username (must be unique), Role, and Profile.
9. Set License and Locale.
10. Choose a User License and Profile based on the user's needs. Set Locale settings if necessary (e.g., time zone, language).
11. Click Save to create the user.

Output:

Page layouts

Page Layouts in Salesforce determine the organization and presentation of fields, buttons, related lists, and other elements on a record page. They define the user interface for individual records and control what users can see and edit.

Activity 1: Creating a page layout

Solving steps:

1. Click on the Setup gear icon in the upper-right corner.
2. In the Quick Find box, type the name of the object you want to create a page layout for (e.g., Account, Contact, Opportunity).Select the Object from the results.
3. Under the Details section, click on Page Layouts.
4. Click the New Layout button to create a new page layout.
5. Choose a layout template (you can either start from scratch or clone an existing layout).
6. Drag and drop fields, sections, related lists, buttons, and other elements onto the page.Arrange the fields in the order you want them to appear.
7. After customization, click Save to create the new page layout.
8. You can assign the page layout to different Record Types or user profiles by clicking on Page Layout Assignment.

Output:
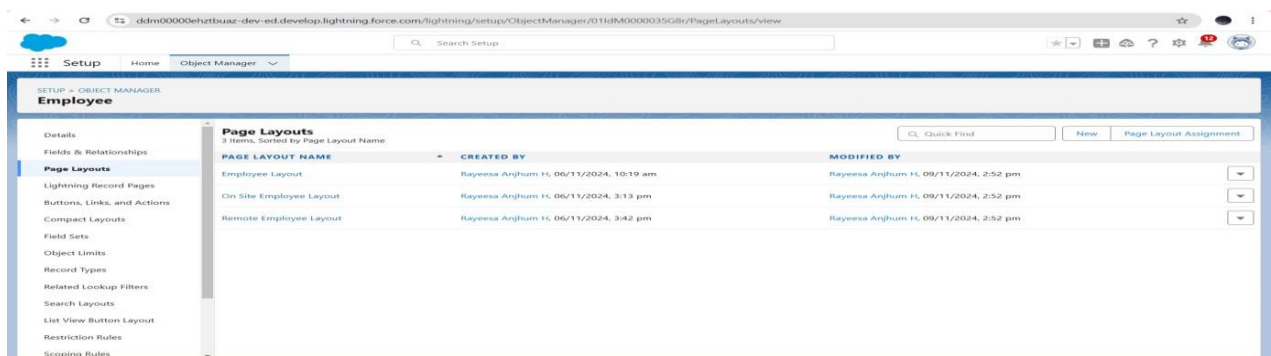
Chatter group

A Chatter Group in Salesforce is a collaborative space where users can communicate, share files, and collaborate on projects or topics. Groups can be public, private, or unlisted, allowing members to discuss and share updates securely within a specific team or across the organization. Chatter Groups improve teamwork by enabling focused discussions and resource sharing in one place.

Solving steps:

1. In the Salesforce app, click on Chatter in the navigation bar. If Chatter isn't visible, use the App Launcher to find it.

2. In the Chatter tab, click on **Groups** to view all existing groups and create a new one.

3. Click **New Group** and enter the **Group Name**.

4. Provide a brief description of the group's purpose.

5. Choose the group's access level:
   a. **Public**: Anyone in the organization can join and see posts.
   b. **Private**: Only invited members can join, and only they can see posts.
   c. **Unlisted**: Only members who are invited can see the group and its posts.

6. You can add members to the group by entering their names. They will receive notifications to join.

7. Click **Save** to create the group.

Output:
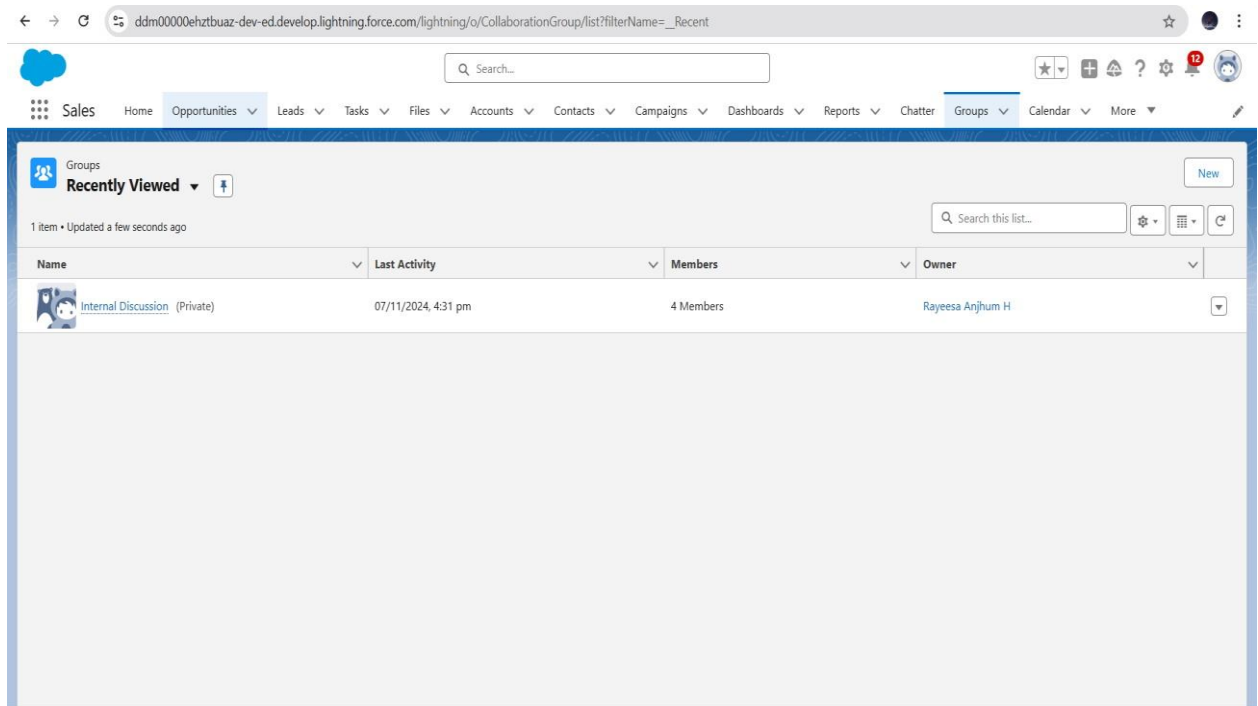
Record types

Record Types in Salesforce allow you to customize business processes, layouts, and picklist values for different types of records within the same object. They enable you to define unique layouts and processes for various scenarios, like different sales processes for products or services. This helps tailor user experience based on roles, departments, or specific business needs.

Activity 1: Creating Record Type

Solving steps:

1. Click on the Setup gear icon in the upper-right corner.
2. In the Quick Find box, enter the name of the object and select the object.
3. In the object settings, select Record Types from the menu on the left.
4. Create a New Record Type:

   - Click New Record Type.
   - Enter a Record Type Label (name) and Description.
   - Select a Business Process if applicable (e.g., Sales Process for Opportunities).

5. Set Record Type Settings:

   - Choose the profiles that should have access to this Record Type.
   - Set the default Record Type if needed for certain profiles.

6. Assign a Page Layout for the Record Type.Customize Picklist Values to tailor choices based on this Record Type.
7. Click Save to create the Record Type.

Output:
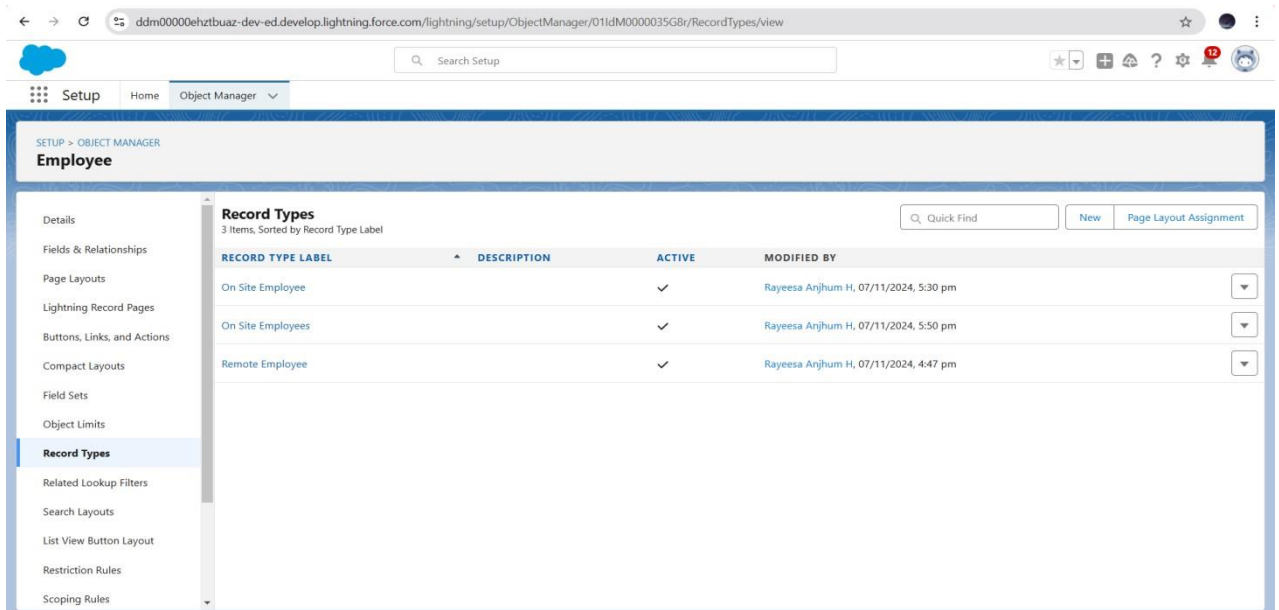
Permission sets

Permission Sets in Salesforce are collections of permissions that extend users' access without changing their profiles. They allow administrators to grant additional permissions to users on top of what their profile provides, such as access to specific objects, fields, or system settings. Permission Sets offer flexibility in managing user permissions across various roles and departments.

Solving steps:

1. Click on the Setup gear icon in the top-right corner of Salesforce.
2. In the Quick Find box, type Permission Sets and select it.
3. Click New to create a new permission set.

4. Enter a Label and API Name for the permission set, and select a User License if needed.

5. Click Save.

6. In the permission set, go to the settings under App Permissions, Object Settings, System Permissions, etc., to configure the necessary permissions.

7. Click Save to finalize the permission set.

Output:
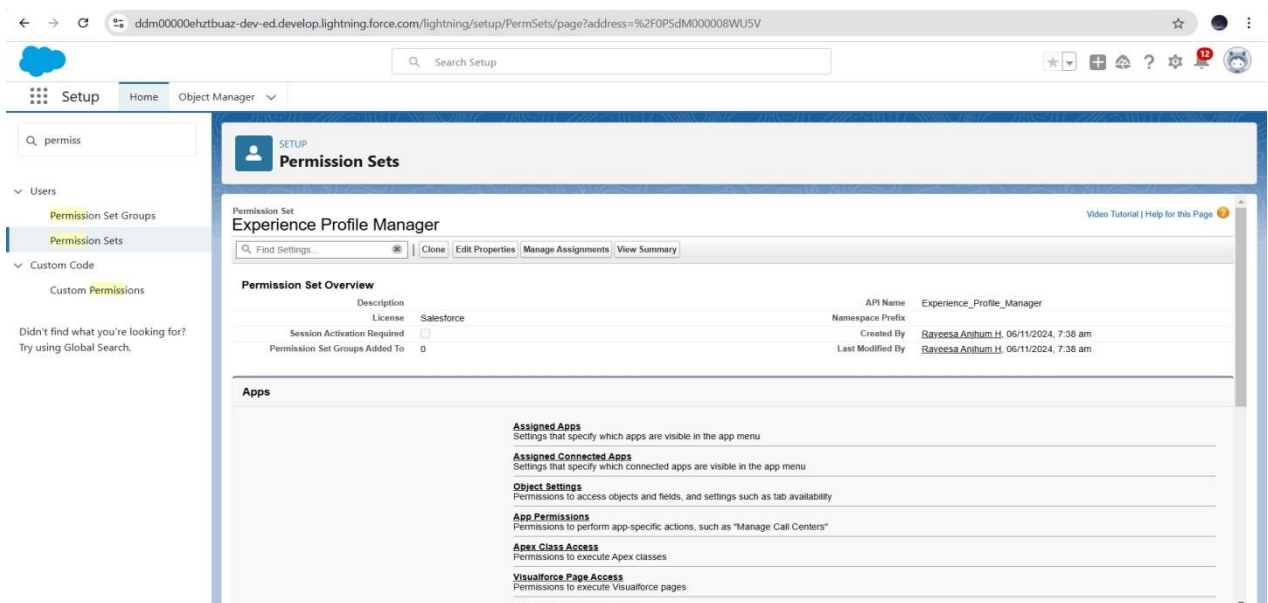
Report
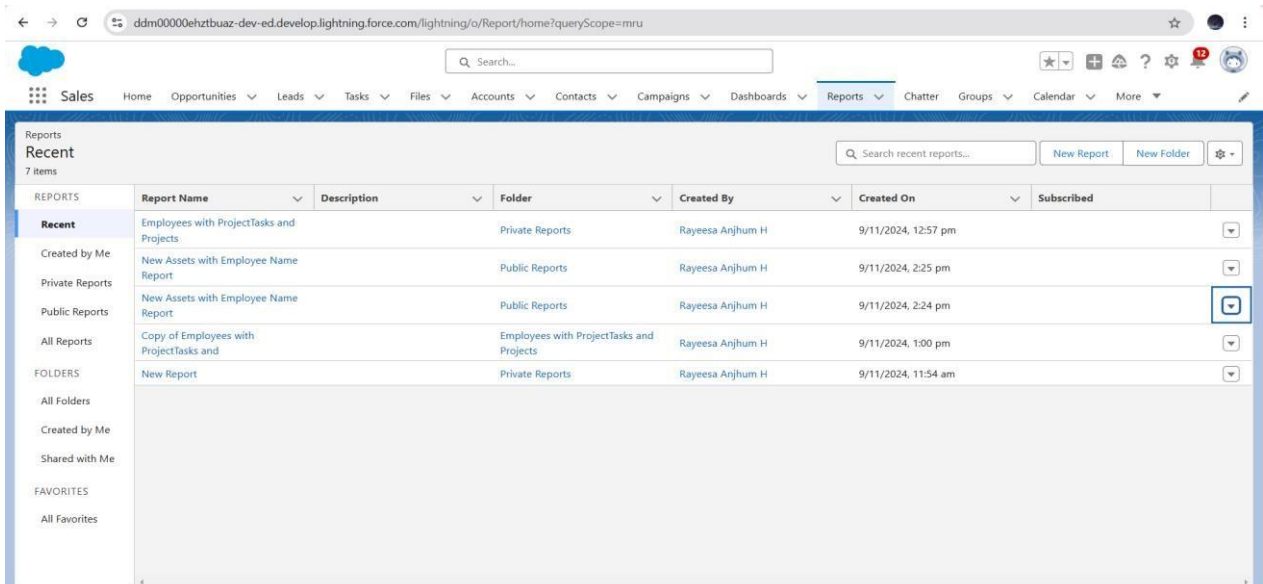
In Salesforce, a Report is a tool used to view, analyze, and summarize data in a structured format. Reports allow users to filter, group, and display records from objects, providing insights into trends and metrics for informed decisionmaking. They can be customized and saved for easy access, supporting various data visualization and export options.

Activity 1: Create Report

Solving steps:

1. Go to the Reports Tab, navigate to the Reports tab. If it's not visible, use the App Launcher to find it.
2. Click on New Report to start creating a report.
3. Choose the Report Type that matches the data you want to analyze (e.g., Accounts, Opportunities, Cases), and click Continue.
4. Add Filters and Fields:

   • Use the Filters pane to narrow down your data (e.g., filter by date or status).
   • Add and arrange Fields in the report to display specific data.

5. Group and Summarize Data (Optional):

   • If needed, group data by fields like date or record type, and add summaries like totals or averages for insights.

6. Run and Save the Report:

   • Click Run to see the report's results.
   • Click Save & Run to name and save the report for future access.

Dashboards

Dashboards in Salesforce are visual displays of key metrics and reports, presenting data in charts, tables, and graphs for quick analysis. They provide insights into performance and trends at a glance, helping users make informed decisions. Dashboards can be customized and shared across teams to monitor progress toward business goals in real time.
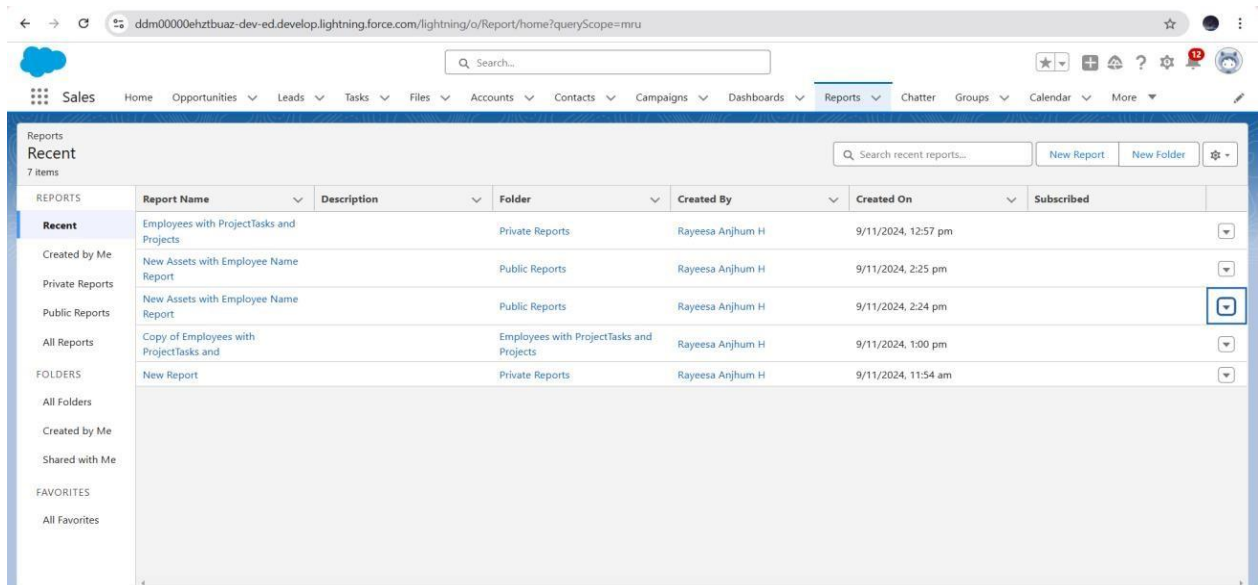
Activity 1: Create Dashboard

Solving steps:

1. In Salesforce, navigate to the Dashboards tab. If it's not visible, use the App Launcher to find it.
2. Click on New Dashboard to start creating a new dashboard.
3. Enter a Dashboard Name and select a Folder to save it in.

4. Click Create to open the dashboard builder.

5. Click + Component to add visual elements.

6. Select a Report to display in the dashboard component and choose a Visualization Type.

7. Adjust settings like titles, legends, and filters to format the data as desired.

8. Click Save and then Done to view the completed dashboard.

Output:

Approval Process

An Approval Process in Salesforce is a series of steps that automate the approval of records, ensuring that data meets business requirements before being finalized. It defines the criteria for record submission, who needs to approve it, and what happens at each approval stage. This process helps streamline decision-making and ensures compliance with organizational policies.

Activity 1: Create an Approval Process

Solving steps:

1. Click on the Setup gear icon in the top-right corner.
2. In the Quick Find box, type Approval Processes and select it under Process Automation.
3. Choose the object (e.g., Opportunity, Case) you want to create an approval process for, and click Create New Approval Process.
4. Select either Standard or Jump Start for the type of approval process you want to create. Jump Start is a simpler version for quick setup.
5. Enter a Name and Unique Name for the approval process, then specify the Record Entry Criteria (when records should enter the approval process).
6. Define who the Approvers will be (e.g., manager, user role). You can set automatic or manual approval actions.
7. Add Email Alerts, Field Updates, Tasks, and other actions to take when a record is approved or rejected.
8. After setting up the steps and actions, click Activate to start using the approval process.

Output:

Apex Trigger

An Apex Trigger in Salesforce is a piece of code that runs before or after specific events occur on a record, such as inserting, updating, or deleting data. Triggers allow you to automate processes, enforce custom business logic, and manipulate data when standard actions do not meet business needs. They are written in Salesforce's programming language, Apex, and can be used to extend the platform's functionality.

Activity 1: Create and Testing an Apex Trigger

Solving steps:

Steps to create an Apex Trigger:

1. Click on the Setup gear icon in the upper-right corner of Salesforce.
2. In the Quick Find box, type Apex Triggers and select it.
3. Click New Trigger to start creating a new trigger.
4. Define Trigger Name and Object:

   - Enter a Trigger Name (e.g., AccountTrigger).
   - Choose the Object (e.g., Account) that the trigger will be applied to.

5. Define the trigger's logic by specifying the events (e.g., before insert, after update) and writing the Apex code to execute. Click Save to create the trigger.

Coding:

CodeSnippet:

```
        trigger EmpInsert on Employee__c (before insert) {
for(Employee__c pass : Trigger.New){              List<Employee__c> mynew
= [SELECT Id, Name FROM    Employee__c WHERE Employee_Name__c =:
pass.Employee_Name__c];        if(mynew.size() > 0){
            pass.Name.addError('Employee with same name is existing');
            }
         }
        }
```

Steps to Test the Apex Trigger

1. Create a Test Class:

    •   In Setup, type Apex Classes in the Quick Find box and select it.
    •   Click New to create a test class that will verify the trigger's functionality.

2. Write Test Code:

    ☐ Create a test method to insert or update records that will trigger the Apex logic.

Example:

apex

Copy code @isTest public class TestAccountTrigger {

    @isTest static void testAccountTrigger() {
        Account testAccount = new Account(Name = 'Test Account');
    insert testAccount; // Trigger will fire here

        Account result = [SELECT Name FROM Account WHERE Id
= :testAccount.Id];
        System.assertEquals('TEST ACCOUNT', result.Name);   //
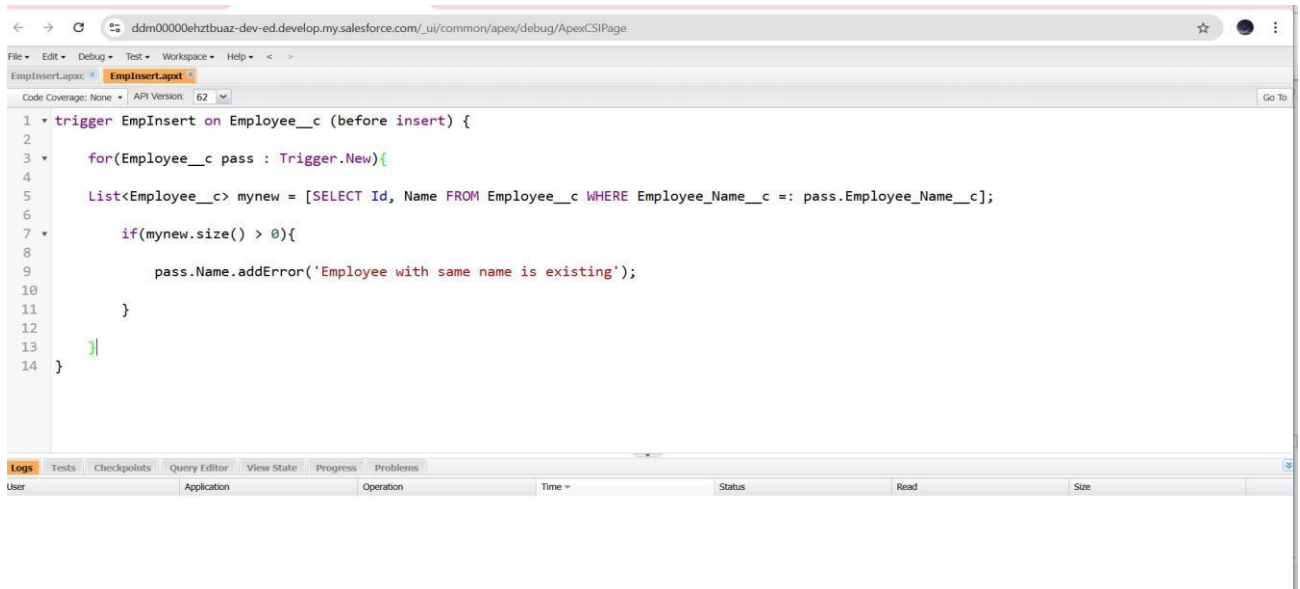Assert the trigger logic
      }
    }

3. Run Tests:

    - In the Apex Classes section, click Run Test and select the test class
      to run it.
    - Verify that the test passes and the trigger works as expected.

4. Check Test Results:

    - Review the test results to confirm the trigger ran correctly. If the test
      fails, debug the Apex code and retest.

Output:


```
trigger EmpInsert on Employee__c (before insert) {

    for(Employee__c pass : Trigger.New){

    List<Employee__c> mynew = [SELECT Id, Name FROM Employee__c WHERE Employee_Name__c =: pass.Employee_Name__c];

        if(mynew.size() > 0){

            pass.Name.addError('Employee with same name is existing');

        }

    }
}
```

Conclusion:

In this project, we successfully implemented key Salesforce features to optimize and automate various business processes. From creating custom fields and objects to configuring page layouts and record types, we ensured that the platform was tailored to meet the specific needs of the organization. We also utilized Salesforce automation tools such as Approval Processes, Apex Triggers, and Dashboards to streamline operations and enhance decisionmaking through real-time data analysis. Throughout the process, we focused on user adoption, providing training and ensuring that the system was intuitive for all stakeholders. This project enhances organizational efficiency, promotes collaboration, and supports data-driven decision-making for sustained growth.