Field Service WorkOrderOptimization

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Abstract—The Field Service Work Order Optimization System streamlines operations for a company providing installations and repairs. Utilizing a robust database, the system efficiently matches work orders with skilled technicians based on technicians location, availibility, and skills. The system employs a prioritization algorithm, focusing on assigning tasks to technician. Automated communication keeps technicians informed, while analytics offer insights for continuous improvement. Overall, this solution maximizes efficiency, reduces operational costs, and improves customer satisfaction in the dynamic realm of field service operations.

# Developer Account Creation & Activation

In this section, we will create a Salesforce developer account and activate it by following a simple sign-up process.

**1.1 Creating Developer Account:**

1. Navigate to [Salesforce Developer Signup](https://developer.salesforce.com/signup).
2. Fill in the form with the required details:
   * First name & last name
   * Email (a valid email address)
   * Role: Developer
   * Company: College Name
   * Country: India
   * Postal Code
   * Username (in the format username@organization.com)
3. Submit the form by clicking **Sign Me Up**.

**1.2 Account Activation:**

1. Check the email inbox used during sign-up for a verification email from Salesforce.
2. Click on **Verify Account**.
3. Set a password and answer the security question.
4. Once the account is verified, you will be redirected to the Salesforce Setup page.

# Creating Objects in Salesforce

In this section, we will create three custom objects—Technician, WorkOrder, and Assignment—to store and manage relevant data in Salesforce.

**2.1 Create Technician Object:**

1. Download and edit the Technician spreadsheet.
2. Navigate to Salesforce **Setup** → **Object Manager** → **Create** → **Custom Object from Spreadsheet**.
3. Upload the spreadsheet, set **Technician ID** as the Record Name, and validate field types.
4. Finalize and save the Technician object.

**2.2 Create WorkOrder Object:**

1. Repeat the process for the WorkOrder spreadsheet.
2. Ensure proper field mapping and finalize creation.

**2.3 Create Assignment Object:**

1. Navigate to **Object Manager** → **Create** → **Custom Object**.
2. Configure the following:
   * Label Name: **Assignment**
   * Record Name Label: **Assignment ID**
   * Auto Number Format: **A-{0000}**, Starting Number: **1**
3. Enable additional features (reports and search).
4. Save the object.

# Custom Tabs in Salesforce

This section explains how to create a custom tab for the Assignment object in Salesforce. Tabs provide a user-friendly way to access and manage object data.

**3.1 Creating a Custom Tab for Assignment:**

1. Navigate to **Setup** → **Tabs**.
2. Click **New** under the **Custom Object Tabs** section.
3. Select **Assignment** as the object and choose a tab style.
4. On the **Add to Profiles** page, retain default settings and click **Next**.
5. On the **Add to Custom App** page, keep default settings and click **Next**.
6. Click **Save** to finalize the tab creation.

**Note:** Tabs for **WorkOrder** and **Technician** objects are created automatically when the objects are created.

# The Lightning App

This section guides the creation of a Lightning App to manage and streamline navigation across custom objects and other relevant items for the Field Service WorkOrder Optimization system.

**4.1 Steps to Create a Lightning App:**

1. **Access App Manager:**
   * Navigate to **Setup** → **App Manager** → **New Lightning App**.
2. **Provide App Details:**
   * App Name: Field Service WorkOrder Optimization
   * Developer Name: Auto-populated
   * Description: "An app to optimize field service operations by streamlining work orders, technicians, and assignments."
   * Image: Optional
   * Primary Color Hex Value: Default
3. **Configure App Options:**
   * Keep default settings.
4. **Add Navigation Items:**
   * Items to include: **Home, WorkOrder, Technician, Assignment, Reports, Dashboard**.
   * Ensure proper mapping for custom objects (e.g., **Asset** for custom object).
5. **Add User Profiles:**
   * Assign the **System Administrator** profile to the app.
6. **Save and Finalize:**
   * Click **Save & Finish** to complete the app creation.

# Fields & Relationships

In this section, we focus on defining and managing fields and relationships for the **Assignment** and **WorkOrder** objects to store various types of data. Below are the steps for each sub-section.

**5.1: Creating a Lookup Field in the Assignment Object**

1. Go to **Setup** → **Object Manager**.
2. Search for the **Assignment** object using the Quick Find bar and click on it.
3. Click on **Fields & Relationships** → **New**.
4. Select **Data Type** as **Lookup Relationship** and click **Next**.
5. For **Related To**, select the **WorkOrder** object.
   * **Note:** Ensure you select the custom **WorkOrder** object you created earlier, not a standard object.
6. Set the **Field Label** as **WorkOrder ID**.
7. Click **Next** → **Next** → **Save & New**.

**5.2: Manage Picklist Values (1)**

1. Navigate to **Setup** → **Object Manager**.
2. Search for the **WorkOrder** object and click on it.
3. Go to **Fields & Relationships**, select the **Location** field, scroll to the **Values** section, and click **New**.
4. Add the following values:
   * Nasik
   * Warangal
   * Nanded
5. Click **Save**.

**5.3: Manage Picklist Values (2)**

1. Repeat steps 1 and 2 from **5.2**.
2. Add values to the respective fields in the **WorkOrder** object:
   * **Field: Priority** → Add **High**.
   * **Field: Service Type** → Add the following values:
     + Hardware repair
     + Troubleshoot/Debugging
     + Lane-Management
3. Save the changes for each field.

**5.4: Creating a Formula Field in the WorkOrder Object**

1. Go to **Setup** → **Object Manager** → **WorkOrder**.
2. Click on **Fields & Relationships** → **New**.
3. Select **Data Type** as **Formula** and click **Next**.
4. Set **Field Label** and **Field Name** as **Date**.
5. Choose **Formula Return Type** as **Date** and click **Next**.
6. Under **Advanced Formula**, enter the following formula: CreatedDate
7. Click **Check Syntax** to validate the formula.
8. Click **Next** → **Next** → **Save**.

**5.5: Creating Remaining Fields for Respective Objects**

For **Assignment Object**:

1. Create a **Lookup Field**:
   * **Field Name:** Technician ID
   * **Data Type:** Lookup (Technician)
2. Create a **Formula Field**:
   * **Field Name:** Assignment Date
   * **Formula Return Type:** Date
   * **Formula:**
   * WorkOrder\_ID\_\_r.Date\_\_c
3. Create another **Formula Field**:
   * **Field Name:** Completion Date
   * **Formula Return Type:** Date
   * **Formula:**
   * IF(ISPICKVAL(WorkOrder\_ID\_\_r.Status\_\_c, 'Resolved'), WorkOrder\_ID\_\_r.LastModifiedDate, NULL)

# Profiles

Profiles control user permissions and access in Salesforce. This section describes the creation of the Technician profile to restrict access to specific objects and fields.

**6.1 Creating the Technician Profile**

1. **Create the Profile:**
   * Go to **Setup** → Search for **Profiles** in the Quick Find box → Click on **Profiles**.
   * Click **New Profile**.
   * In the **Existing Profile** dropdown, select **Standard Platform User**.
   * Set **Profile Name** to **Technician**.
   * Click **Save**.
2. **Edit the Profile:**
   * While on the **Technician Profile** page, click **Edit**.
   * Scroll down to the **Custom Object Permissions** section.
   * Set **Read-only Access** for the following objects:
     + Technician
     + WorkOrder
     + Assignment
3. **Set Field Access Permissions:**
   * While still in the **Technician Profile**, scroll down to **Custom Field-Level Security**.
   * Next to the **WorkOrder** object, click **View**.
   * Click **Edit**.
   * Enable the checkbox for the **Status** field.
   * Click **Save**.