

FIELD SERVICE WORK ORDER OPTIMIZATION

By

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ABSTRACT

The Field Service Work Order Optimization System aims to enhance the efficiency of a company's installation and repair services. It uses a centralized database to assign tasks to the most appropriate technicians based on their skills, location, and availability. By using a task prioritization algorithm, the system ensures that technicians are matched with the right jobs. Automated notifications keep technicians updated, while analytical insights help improve service over time. This system increases operational efficiency, reduces costs, and boosts customer satisfaction in the field service industry.

Key Technologies:

1. Salesforce Field Service: A platform that provides tools for scheduling, dispatching, and real-time communication between technicians and managers.
2. Artificial Intelligence (AI) & Machine Learning (ML): These technologies predict service demand, optimize technician schedules, and match technicians to jobs based on key factors like skill and proximity.
3. Predictive Analytics: Analyzes historical data to predict future service needs and prevent potential problems before they arise.
4. Internet of Things (IoT): IoT devices collect real-time data from equipment in the field, helping with timely maintenance and quick issue resolution.

Implementation Phases:

1. Salesforce Field Service Setup: Implementing scheduling, dispatching, and communication tools.
2. AI & ML Integration: Developing algorithms for smarter technician scheduling and task matching.
3. Predictive Analytics: Building models to predict service needs based on past data.
4. IoT Integration: Bringing in data from connected field devices to improve response times and maintenance.

Potential Challenges:

1. Data Integration: Combining data from multiple sources and older systems can be challenging.
2. Adoption by Stakeholders: Ensuring everyone is on board and comfortable with the new system.
3. Scalability: Making sure the system can grow and handle larger workloads in the future.
4. Data Security: Keeping customer and business data safe from breaches.

Measurable Outcomes:

1. Improved Efficiency
2. Higher Customer Satisfaction
3. Optimized Operations

Functional Requirements:

1. Managing Work Orders
2. Scheduling and Dispatching Technicians
3. Resource Management
4. Mobile Access for Technicians
5. Customer Communication Tools
6. Reporting and Analytics
7. Integration with Other Systems
8. User Access and Security Controls
9. Ongoing Maintenance and Support

By fulfilling these requirements, the system will streamline field operations, enhance customer service, and help achieve business objectives.

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INTRODUCTION

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, availability, and skills. The system employs a prioritization algorithm, focusing on assigning tasks to technicians. 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.

Task 1:

1.1 Create Technician Object:

An entity representing field technicians, capturing details like skills, name, location, availability, and contact information for optimized service dispatch.

Create a custom object from a spreadsheet

Define object and fields

Choose the data source, map fields and their types, and import field data.

CSV File Details

Encoding Format ¹

Values Separated By

Field Label Source ☐ Enter manually ☒ Detect from row

* Field Labels Row

Import 5 rows of Data? ¹ ☐ No, skip import ☒ Yes, import data

Record Name Field ¹

Fields 7 of 7 to import ☐ Hide mapped fields

IMPORT FILE FIELD NAME	SALESFORCE FIELD NAME	SALESFORCE FIELD TYPE	ADD TO LAYOUTS ¹	FIELD PREVIEW
✓ Technician ID	<input type="text" value="Technician ID"/>	<input type="text" value="Text"/>	<input checked="" type="checkbox"/>	T-0001
✓ Name	<input type="text" value="Name"/>	<input type="text" value="Text"/>	<input checked="" type="checkbox"/>	Raghu
✓ Phone	<input type="text" value="Phone"/>	<input type="text" value="Integer"/>	<input checked="" type="checkbox"/>	7892341560
✓ Email	<input type="text" value="Email"/>	<input type="text" value="Email"/>	<input checked="" type="checkbox"/>	lasyachakrala04@gmail.com
✓ Location	<input type="text" value="Location"/>	<input type="text" value="Text"/>	<input checked="" type="checkbox"/>	Hyderabad
✓ Availability	<input type="text" value="Availability"/>	<input type="text" value="Text"/>	<input checked="" type="checkbox"/>	Available

☒

After creating technician details, the Quick box looks like the below

Object Manager 1 Items, Sorted by Last Modified		<input type="text" value="tech"/> <input type="button" value="Schema Builder"/> <input type="button" value="Create"/>			
LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Technician	Technician__c	Custom Object		25/09/2024	✓

1.2 Create WorkOrder Object:

An entity tracking service tasks, detailing job requirements, status, assigned technician, and customer information for efficient field operations.

Welcome to Salesforce: Verify
Object Manager | Salesforce
Student - Skill Wallet
Object creator

object-creator.salesforce.com/load-data-wizard.xhtml

Create a custom object from a spreadsheet

Define object and fields

Choose the data source, map fields and their types, and import field data.

CSV File Details

Encoding Format

Unicode (UTF8)

Values Separated By

Comma

Field Label Source

☐ Enter manually
☒ Detect from row

* Field Labels Row

1

Import 2 rows of Data?

☒ No, skip import
☐ Yes, import data

Record Name Field

WorkOrder ID

Fields 7 of 7 to import

☐ Hide mapped fields

IMPORT FILE FIELD NAME		SALESFORCE FIELD NAME	SALESFORCE FIELD TYPE	ADD TO LAYOUTS	FIELD PREVIEW
✓ WorkOrder ID	✕	WorkOrder ID	Text	<input checked="" type="checkbox"/>	WO- (0001)
✓ Email	✕	Email	Email	<input checked="" type="checkbox"/>	example1@workorder.com
✓ Service Type	✕	Service Type	Picklist	<input checked="" type="checkbox"/>	Maintenance
✓ Description	✕	Description	Text Area (Long)	<input checked="" type="checkbox"/>	
✓ Location	✕	Location	Picklist	<input checked="" type="checkbox"/>	Pune
✓ Priority	✕	Priority	Picklist	<input checked="" type="checkbox"/>	Low

Back

☒

Next


After creating the WorkOrder Custom object it looks like the below

Object Manager 1 Items, Sorted by Last Modified		<input type="text" value="WorkOrder"/> <input type="button" value="Schema Builder"/> <input type="button" value="Create"/>			
LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
WorkOrder	WorkOrder__c	Custom Object		26/09/2024	✓

1.3 Create Assignment Object :

An entity linking technicians to work orders, detailing assignment dates, priority, status, and specific tasks for optimized field service.

After creating the Assignment custom object, the object manager bar looks the below



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⚙️


🔔




Setup

Home

Object Manager ▾

 SETUP
Object Manager
2 Items, Sorted by Last Modified

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Assignment	Assignment__c	Custom Object		26/09/2024	✓
Location Group Assignment	LocationGroupAssignment	Standard Object			



ENG IN 🔊 🔌 22:58 26-09-2024

Task 2:

Creating a Custom Tab

A user interface element in Salesforce that provides access to custom objects, records, or webcontent, enhancing navigation and organization of data within the Salesforce environment.

To create a Tab:(Assignment)

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

Note: Tabs for WorkOrder & Technician objects do get created automatically. We do not need to create tabs for those objects.

After following the above steps, the output looks like this:

The screenshot shows the Salesforce Setup interface. The left sidebar has a search bar with 'tabs' entered and a list of navigation items including 'User Interface' and 'Tabs'. The main content area is titled 'Custom Tabs' and contains a table of existing custom object tabs. The table has columns for Action, Label, Tab Style, and Description. It lists three tabs: 'Assignments' with an 'Airplane' style, 'Technician' with a 'Box' style, and 'WorkOrder' with a 'Box' style. Below the table are sections for 'Web Tabs', 'Visualforce Tabs', and 'Lightning Component Tabs', each with a 'New' button and a 'What Is This?' link. A message states 'No Web Tabs have been defined' and 'No Visualforce Tabs have been defined'.

Action	Label	Tab Style	Description
Edit Del	Assignments	Airplane	
Edit Del	Technician	Box	
Edit Del	WorkOrder	Box	

Task 3 :

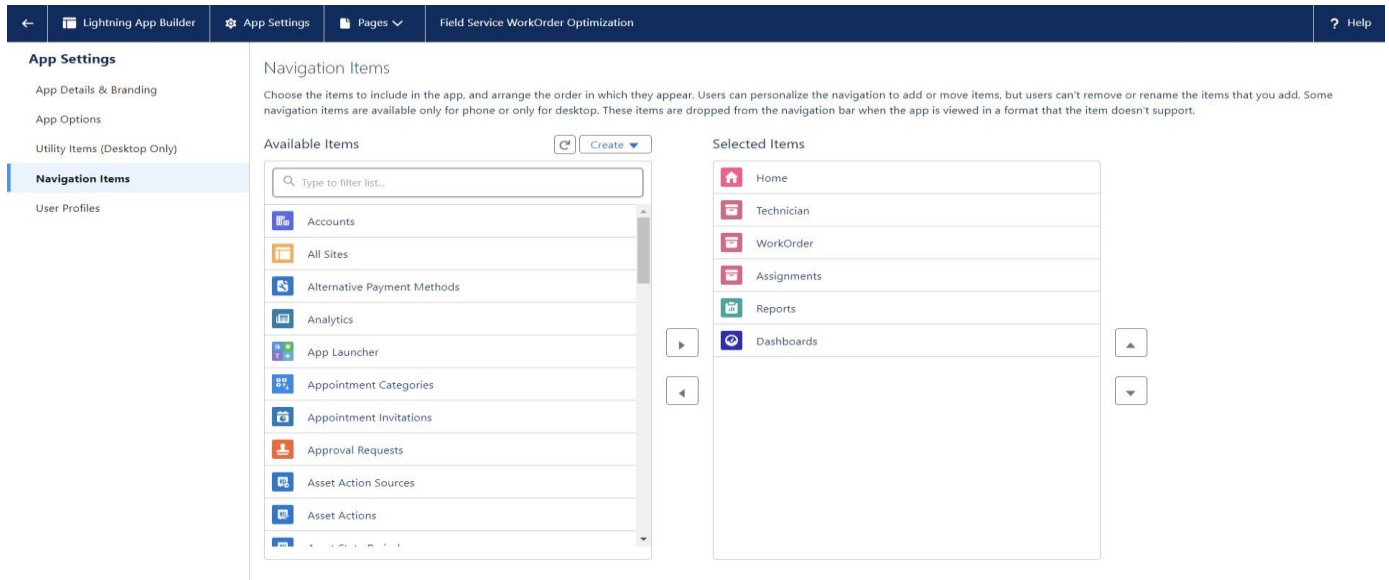
Create a Lightning App

To create a lightning app page:

1. Go to the 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 : Field Service WorkOrder Optimization Developer
Name : this will be auto populated
Description : Give a meaningful description
Image : optional (if you want to give any image you can, otherwise not mandatory)
Primary color hex value : keep this default

The screenshot displays the 'App Details & Branding' configuration page in the Lightning App Builder. The left sidebar shows the 'App Settings' menu with 'App Details & Branding' selected. The main content area is divided into two sections: 'App Details' and 'App Branding'. In the 'App Details' section, the 'App Name' field contains 'Field Service WorkOrder Optimization', the 'Developer Name' field contains 'Field_Service_WorkOrder_Optimization', and the 'Description' field contains 'Give a meaningful description'. The 'App Branding' section includes an 'Image' upload button and a 'Primary Color Hex Value' field set to '#0070D2'. Below these sections, there are 'Org Theme Options' and an 'App Launcher Preview' showing a tile with the initials 'FS' and the app name 'Field Service WorkOrder O...'. The bottom of the image shows a Windows taskbar with various application icons and a system tray with the date '26-09-2024' and time '23:00'.

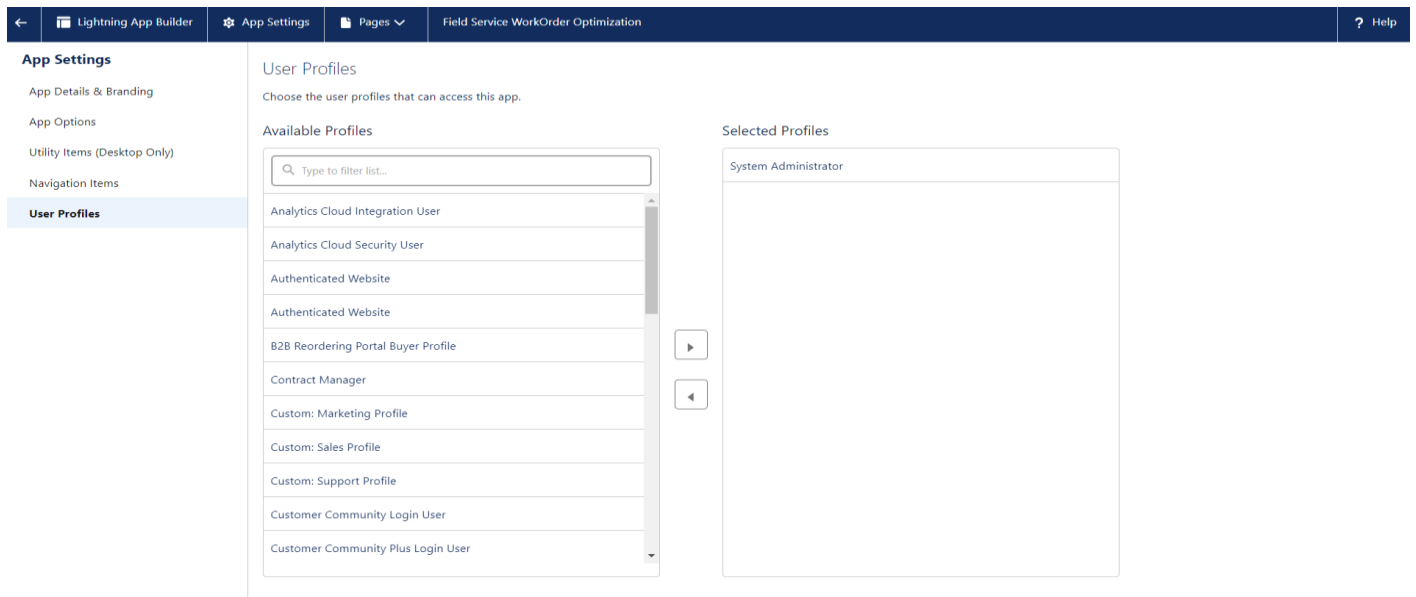
3. Then click Next --> (App option page) keep it as default --> Next --> (Utility Items) keep it as default --> Next
4. To Add Navigation Items:



Search the items in the search bar(Home, WorkOrder, Technician, Assignment, Reports, Dashboard) from the search bar and move it using the arrow button. Next. Note: select asset the custom object which we have created in the previous activity.

5. To Add User Profiles:

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



This is the output after completion of following the above procedure.

Task 4 :

4.1 Creating Lookup Field in Assignment Object

A lookup field in the Assignment Object establishes a relationship with another object, such as Technicians or Work Orders, enabling users to link and reference related records for improved dataorganization and relational tracking.

Setup

Home

Object Manager

Assignment

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

List View Button Layout

Assignment Custom Field

WorkOrder ID

Back to Assignment

Validation Rules (0)

Custom Field Definition Detail

EditSet Field-Level SecurityView Field AccessibilityWhere is this used?

Field Information

Field Label

WorkOrder ID

Field Name

WorkOrder_ID

API Name

WorkOrder_ID__c

Description

Help Text

Data Owner

Field Usage

Data Sensitivity Level

Compliance Categorization

Created By

Sree Lasya Chakrala, 25/09/2024, 11:36 pm

Modified By

Sree Lasya Chakrala, 26/09/2024, 8:38 pm

Lookup Options

Related To

WorkOrder

Related List Label

Assignments

Required

☐

Child Relationship Name

Assignments

4.2 Manage your picklist values

WorkOrder

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

List View Button Layout

Restriction Rules

Scoping Rules

Picklist Values Used

Active and Inactive picklist values4 (1,000 max)

Field Dependencies

New

No dependencies defined.

Validation Rules

New

No validation rules defined.

Values

NewReorderReplacePrintable ViewChart Colors

Delete SelectedDeactivate SelectedReplace Selected

Action	Values	API Name	Default	Chart Colors	Modified By
<input type="checkbox"/> Edit Del Deactivate	Value1	Value1	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 10:56 pm
<input type="checkbox"/> Edit Del Deactivate	Nasik	Nasik	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:38 pm
<input type="checkbox"/> Edit Del Deactivate	Warangal	Warangal	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:38 pm
<input type="checkbox"/> Edit Del Deactivate	Nanded	Nanded	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:38 pm

Inactive Values

Delete Unused Values

No Inactive Values values defined.

4.3 Manage your picklist values :

Add following values to the respective fields in WorkOrder object:

Field	Values
Priority	High
Service Type	Hardware repair Troubleshoot/Debugging Lane-Management

SETUP > OBJECT MANAGER

WorkOrder

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

List View Button Layout

Restriction Rules

Picklist Values Used

Active and inactive picklist values 4 (1,000 max)

Field Dependencies

New

Field Dependencies Help ?

No dependencies defined.

Validation Rules

New

Validation Rules Help ?

No validation rules defined.

Values

New

Reorder

Replace

Printable View

Chart Colors

Delete Selected

Deactivate Selected

Replace Selected

Values Help ?

Action	Values	API Name	Default	Chart Colors	Modified By
<input type="checkbox"/> Edit Del Deactivate	Value1	Value1	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 10:56 pm
<input type="checkbox"/> Edit Del Deactivate	High	High	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 26/09/2024, 8:40 pm
<input type="checkbox"/> Edit Del Deactivate	Low	Low	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 26/09/2024, 8:40 pm
<input type="checkbox"/> Edit Del Deactivate	Medium	Medium	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 26/09/2024, 8:40 pm

Inactive Values

Delete Unused Values

Inactive Values Help ?

No Inactive Values values defined.

SETUP > OBJECT MANAGER

WorkOrder

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Search Layouts

List View Button Layout

Restriction Rules

Picklist Values Used

Active and inactive picklist values 4 (1,000 max)

Field Dependencies

New

Field Dependencies Help ?

No dependencies defined.

Validation Rules

New

Validation Rules Help ?

No validation rules defined.

Values

New

Reorder

Replace

Printable View

Chart Colors

Delete Selected

Deactivate Selected

Replace Selected

Values Help ?

Action	Values	API Name	Default	Chart Colors	Modified By
<input type="checkbox"/> Edit Del Deactivate	Value1	Value1	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 10:56 pm
<input type="checkbox"/> Edit Del Deactivate	Hardware repair	Hardware repair	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:41 pm
<input type="checkbox"/> Edit Del Deactivate	Troubleshoot/Debugging	Troubleshoot/Debugging	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:41 pm
<input type="checkbox"/> Edit Del Deactivate	Lane-Management	Lane-Management	<input type="checkbox"/>	Assigned dynamically	Sree Lasya Chakrala, 25/09/2024, 11:41 pm

Inactive Values

Delete Unused Values

Inactive Values Help ?

No Inactive Values values defined.

4.4 Creating Formula Field in WorkOrder Object

A formula field in the Work Order Object automatically calculates and displays data based on other fields or custom logic. This feature streamlines data entry, ensures consistency, and provides real-time insights without manual updates.


1. Repeat steps 1 and 2 mentioned in activity 1
2. Select Data type as “Formula” and click Next.
3. Give Field Label and Field Name as “Date” and select formula return type as “Date” and click next.
4. Under Advanced Formula, write the formula and click “Check Syntax”
Formula: CreatedDate
5. Next--> Next--> Save.








The screenshot displays the Salesforce Setup interface. At the top, there is a search bar labeled "Search Setup" and a navigation bar with tabs for "Setup", "Home", and "Object Manager". The "Object Manager" tab is selected, and the "WorkOrder" object is chosen. The left sidebar shows a list of setup categories, with "Fields & Relationships" highlighted. The main content area is titled "SETUP > OBJECT MANAGER WorkOrder" and contains a "Simple Formula" tab. Below this tab, there are dropdown menus for "Select Field Type" (set to "WorkOrder") and "Insert Field" (set to "-- Insert Merge Field --"). An "Insert Operator" dropdown is also present. The formula text area contains the text "Date (Date) = CreatedDate". At the bottom, a "Check Syntax" button is visible, along with a message: "No syntax errors in merge fields or functions. (Compiled size: 20 characters)".


4.5 Creating Remaining fields for the respective objects


Now create the remaining fields using the data types mentioned in the table.

SI No	Object Name	Field				
1	Assignment	<table><tr><th>Field Name</th><th>Datatype</th></tr><tr><td><ul style="list-style-type: none">● Technician ID● Assignment Date● Completion Date</td><td>Lookup(Technician) Formula: return type : Date (WorkOrder_ID_r.Date_c) Formula: return type : Date IF(ISPICKVAL(WorkOrder_ID_r.Status_c , 'Resolved'), WorkOrder_ID_r.LastModifiedDate , NULL)</td></tr></table>	Field Name	Datatype	<ul style="list-style-type: none">● Technician ID● Assignment Date● Completion Date	Lookup(Technician) Formula: return type : Date (WorkOrder_ID_r.Date_c) Formula: return type : Date IF(ISPICKVAL(WorkOrder_ID_r.Status_c , 'Resolved'), WorkOrder_ID_r.LastModifiedDate , NULL)
Field Name	Datatype					
<ul style="list-style-type: none">● Technician ID● Assignment Date● Completion Date	Lookup(Technician) Formula: return type : Date (WorkOrder_ID_r.Date_c) Formula: return type : Date IF(ISPICKVAL(WorkOrder_ID_r.Status_c , 'Resolved'), WorkOrder_ID_r.LastModifiedDate , NULL)					



 Setup
 Home
 Object Manager


 SETUP > OBJECT MANAGER
Assignment

Details
 Fields & Relationships
 Page Layouts
 Lightning Record Pages
 Buttons, Links, and Actions
 Compact Layouts
 Field Sets
 Object Limits
 Record Types
 Related Lookup Filters
 Search Layouts
 List View Button Layout
 Restriction Rules
 Scoping Rules

Fields & Relationships
 8 Items, Sorted by Field Label
 Fields & Relationships
 Quick Find
 New
 Deleted Fields
 Field Dependencies
 Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Assignment Date	Assignment_Date__c	Formula (Date)		
Assignment ID	Name	Auto Number		✓
Completion Date	Completion_Date__c	Formula (Date)		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Technician ID	Technician_ID__c	Lookup(Technician)		✓
WorkOrder ID	WorkOrder_ID__c	Lookup(WorkOrder)		✓

Task 5 :

Technician Profile

1. Go to setup --> type profiles in the quick find box --> click on profiles --> click on new profile.
2. Select 'Standard Platform User' for existing profile and give 'Technician' for Profile Name and click on Save.
3. While still on the profile page, then click Edit.
4. While still on the profile page, then click Edit.
5. Scroll down and Click on Save.
6. Now from the profile detail page scroll down to custom field level security click on view next to WorkOrder object.
7. Click on Edit, enable the check box for the status field.
8. Click on Save.

The screenshot displays the Salesforce Setup interface. The left sidebar shows the navigation menu with 'Setup' selected. The main content area is titled 'Profiles' and shows the 'Technician' profile. The profile details include the name 'Technician', user license 'Salesforce Platform', and a custom profile checkbox checked. The 'Page Layouts' section lists various standard object layouts and their assignments. The 'Custom Field Level Security' section is partially visible at the bottom.

Profile Detail

Name	Technician
User License	Salesforce Platform
Description	
Created By	Sree Lasya Chakraborty, 26/09/2024, 12:17 am
Modified By	Sree Lasya Chakraborty, 26/09/2024, 6:26 pm

Page Layouts

Standard Object Layouts	Global	Lead
Global	Global Layout [View Assignment]	Lead Layout [View Assignment]
Email Application	Not Assigned [View Assignment]	Location Location Layout [View Assignment]
Home Page Layout	Home Page Default [View Assignment]	Location Group Location Group Layout [View Assignment]
Account	Account Layout [View Assignment]	Location Group Assignment Location Group Assignment Layout [View Assignment]
Alternative Payment Method	Alternative Payment Method Layout [View Assignment]	Object Milestone Object Milestone Layout [View Assignment]
Appointment Invitation	Appointment Invitation Layout [View Assignment]	Operating Hours Operating Hours Layout [View Assignment]
Customer	Customer Layout [View Assignment]	Skill Requirement Skill Requirement Layout [View Assignment]
D&B Company	D&B Company Layout [View Assignment]	Social Persona Social Persona Layout [View Assignment]
Data Use Legal Basis	Data Use Legal Basis Layout [View Assignment]	Store Store Layout [View Assignment]
Data Use Purpose	Data Use Purpose Layout [View Assignment]	Task Task Layout [View Assignment]
Digital Wallet	Digital Wallet Layout [View Assignment]	Threat Detection Feedback Threat Detection Feedback Layout [View Assignment]
Email Message	Email Message Layout [View Assignment]	Time Slot Time Slot Layout [View Assignment]
Engagement Channel Type	Engagement Channel Type Layout [View Assignment]	User User Layout [View Assignment]
Event	Event Layout [View Assignment]	User Profile User Profile Layout [View Assignment]
Feed Item	Feed Item Layout [View Assignment]	User Provisioning Account User Provisioning Account Layout [View Assignment]
Fulfillment Order	Fulfillment Order Layout [View Assignment]	User Provisioning Log User Provisioning Log Layout [View Assignment]
Fulfillment Order Item Adjustment	Fulfillment Order Item Adjustment Layout [View Assignment]	User Provisioning Request User Provisioning Request Layout [View Assignment]
Fulfillment Order Item Tax	Fulfillment Order Item Tax Layout [View Assignment]	Waitlist MISSING LABEL - Property/File - val Waitlist not found in section StandardLayouts [View Assignment]
Fulfillment Order Product	Fulfillment Order Product Layout [View Assignment]	Web Store Configuration Web Store Configuration Layout [View Assignment]
Idea	Varies by Record Type [View Assignment]	Work Type Work Type Layout [View Assignment]

Task 6 :

Create User

User is engaged in the Field Service Workforce Optimization Project, utilizing Salesforce to optimize field operations, improve resource management, and enhance customer service through efficient scheduling, real-time tracking, and comprehensive analytics.

1. Go to setup --> type users in the quick find box --> select users --> click New user.
2. Fill in the fields
 1. First Name : Elina
 2. Last Name : Gilbert
 3. Alias : Give an Alias Name
 4. Email id : Give your Personal Email id
 5. Username : Username should be in this form: text@text.text
 6. Nick Name : Give a Nickname
 7. Role :
 8. User license : Salesforce Platform
 9. Profiles : Technician

The screenshot shows the Salesforce Setup interface. On the left, the 'Setup' menu is open, and 'Users' is selected under 'User Management Settings'. The main content area displays the 'User Detail' page for 'Elina Gilbert'. The page includes a search bar at the top, a navigation menu on the left, and a detailed user profile on the right. The user profile shows the following information:

User Detail	
Name	Elina Gilbert
Alias	egilb
Email	jasvachakrala04@gmail.com [Verify]
Username	elina.g.com
Nickname	elina.g
Title	
Company	
Department	
Division	
Address	
Time Zone	(GMT+05:30) India Standard Time (Asia/Kolkata)
Locale	English (India)
Language	English
Delegated Approver	
Manager	
Receive Approval Request Emails	Only if I am an approver
Federation ID	
Role	Salesforce Platform
User License	Technician
Profile	
Active	<input checked="" type="checkbox"/>
Marketing User	<input type="checkbox"/>
Offline User	<input type="checkbox"/>
Knowledge User	<input type="checkbox"/>
Flow User	<input type="checkbox"/>
Service Cloud User	<input type="checkbox"/>
Site.com Contributor User	<input type="checkbox"/>
Site.com Publisher User	<input type="checkbox"/>
WDC User	<input type="checkbox"/>
Mobile Push Registrations	View
Data.com User Type	i
Accessibility Mode (Classic Only)	i
Debug Mode	i
High-Contrast Palette on Charts	i

Task 7 :

7.1 Create an Apex Class

1. Go to Setup --> Click on the gear icon --> Select Developer Console.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
4. Give the Apex Class name as “WorkOrderClass”.
5. Click ok.
6. Now write the code logic here

7. Source Code:

```
public class WorkOrderClass {  
    public static void workOrder(List<WorkOrder_c> newListWorkOrder){ Map<Integer,  
        List<String>> maptotech = new map<Integer,List<String>>();integer num = 0;  
        List<WorkOrder_c> properWo = new List<WorkOrder_c>(); List<Assignment_  
        c> lstAssignment = new List<Assignment_c>(); List<Technician_c>  
        technicianToAssignment = new List<Technician_c>();for(WorkOrder_c iter :  
        newListWorkOrder){  
        List<String> lststring = new List<string>(); If(iter.Service_Type_c  
        != null && iter.Location_c != null ){  
            num = num+1;  
            properWo.add(iter);  
            lststring.add(iter.Service_Type_c);lststring.add(iter.Location_c);  
  
            maptotech.put(num,lststring);  
        }  
    }  
    Map<integer,Id> techId = new Map<integer,Id>();  
    Map<Id,Technician_c> allTechnician = new Map<Id,Technician_c>([SELECT Id, Name,Phone_  
c, Location_c, Skills_c, Availability_c, Name_c, Email_c FROM Technician_c]);  
    integer num2 = 0;  
    For(Technician_c T : allTechnician.values()){ num2 =  
        num2+1;  
        if(maptotech.get(num2) != null){
```

```

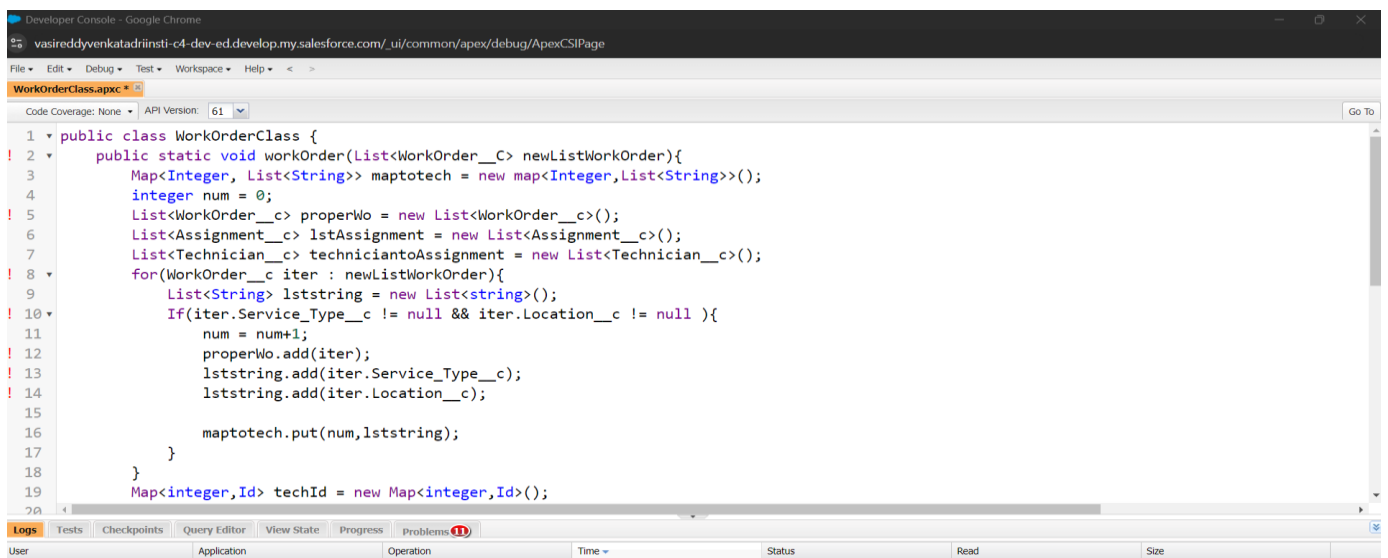
        List<string> valofmap = maptotech.get(num2);
        system.debug('error 1 ----> the maptotech is empty ---> ' + maptotech.get(num2));
        if(valofMap.contains(t.Skills_c) && ValofMap.contains(t.Location_c) &&
t.Availability_c == 'Available'){
            techid.put(num2,t.Id);
        }
    }

}

integer num3 = 0;
For(WorkOrder_c W : properWo){
    num3 = num3 + 1;
    Assignment_c A = new Assignment_c();
    A.WorkOrder_ID_c = W.Id;
    A.Technician_ID_c = techid.get(num3);
    lstAssignment.add(A);
}
If(!lstAssignment.IsEmpty()){ insert
    lstAssignment;
}
}
}

```

8. Save the code.(click on file --> Save)



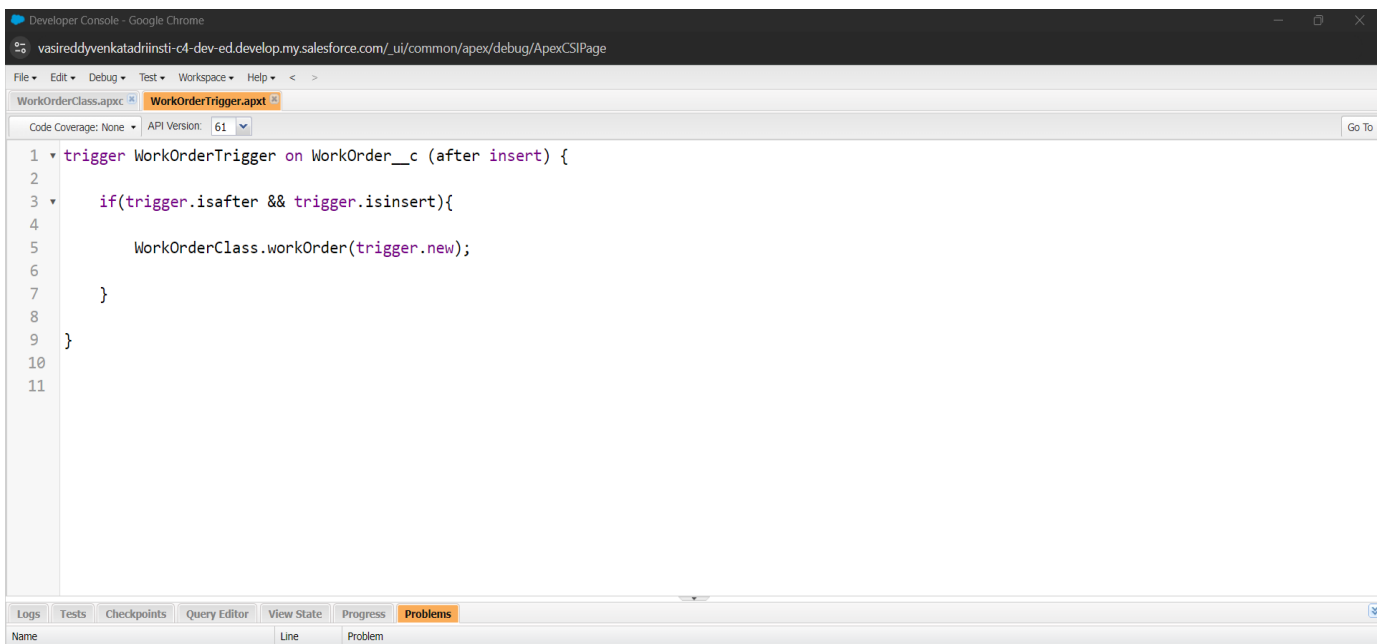
7.2 Create an Apex Trigger

1. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
2. Give the Apex Trigger name as “WorkOrderTrigger”, and select “WorkOrder_c” from the dropdown for sObject.
3. Click Submit.
4. Now write the code logic here

Source Code:

```
trigger WorkOrderTrigger on WorkOrder_c (after insert) {if(trigger.isafter &&
    trigger.isinsert){
        WorkOrderClass.workOrder(trigger.new);
    }
}
```

5. Save the code.(click on file --> Save)



7.3 Create an Apex Class

1. Go to Setup --> Click on the gear icon --> Select Developer Console.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
4. Give the Apex Class name as “AssigningEmail”.
5. Click ok.
6. Now write the code logic here

7. Source Code:

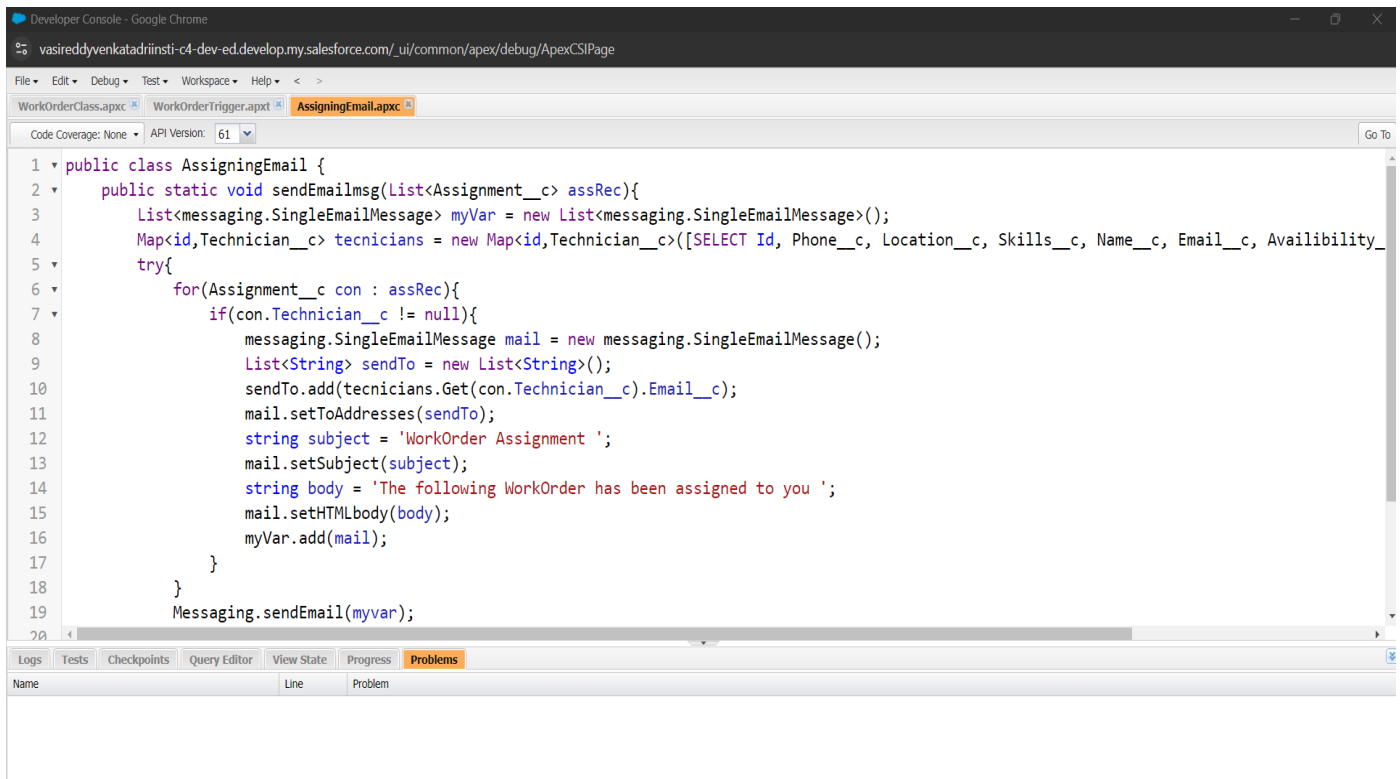
```
public class AssigningEmail {  
    public static void sendEmailmsg(List<Assignment_c> assRec){  
        List<messaging.SingleEmailMessage> myVar = new  
List<messaging.SingleEmailMessage>();  
        Map<id,Technician_c> technicians = new Map<id,Technician_c>([SELECT Id, Phone_c,Location_c,  
Skills_c, Name_c, Email_c, Availibility_c, Name FROM Technician_c]);  
        try{  
            for(Assignment_c con : assRec){  
                if(con.Technician_ID_c != null){  
                    messaging.SingleEmailMessage mail = new messaging.SingleEmailMessage();List<String>  
sendTo = new List<String>(); sendTo.add(technicians.Get(con.Technician_ID_c).Email_c);  
                    mail.setToAddresses(sendTo);  
                    string subject = 'WorkOrder Assignment '  
;                    mail.setSubject(subject);  
                    string body = 'The following WorkOrder has been assigned to you '  
;                    mail.setHTMLbody(body);  
                    myVar.add(mail);  
                }  
            }  
            Messaging.sendEmail(myvar);  
        }  
    }  
}
```

```

        catch(exception e){
            system.debug('Error ----- > ' + e.getMessage());
        }
    }
}

```

8. Save the code.(click on file --> Save)



7.4 Create an Apex Trigger

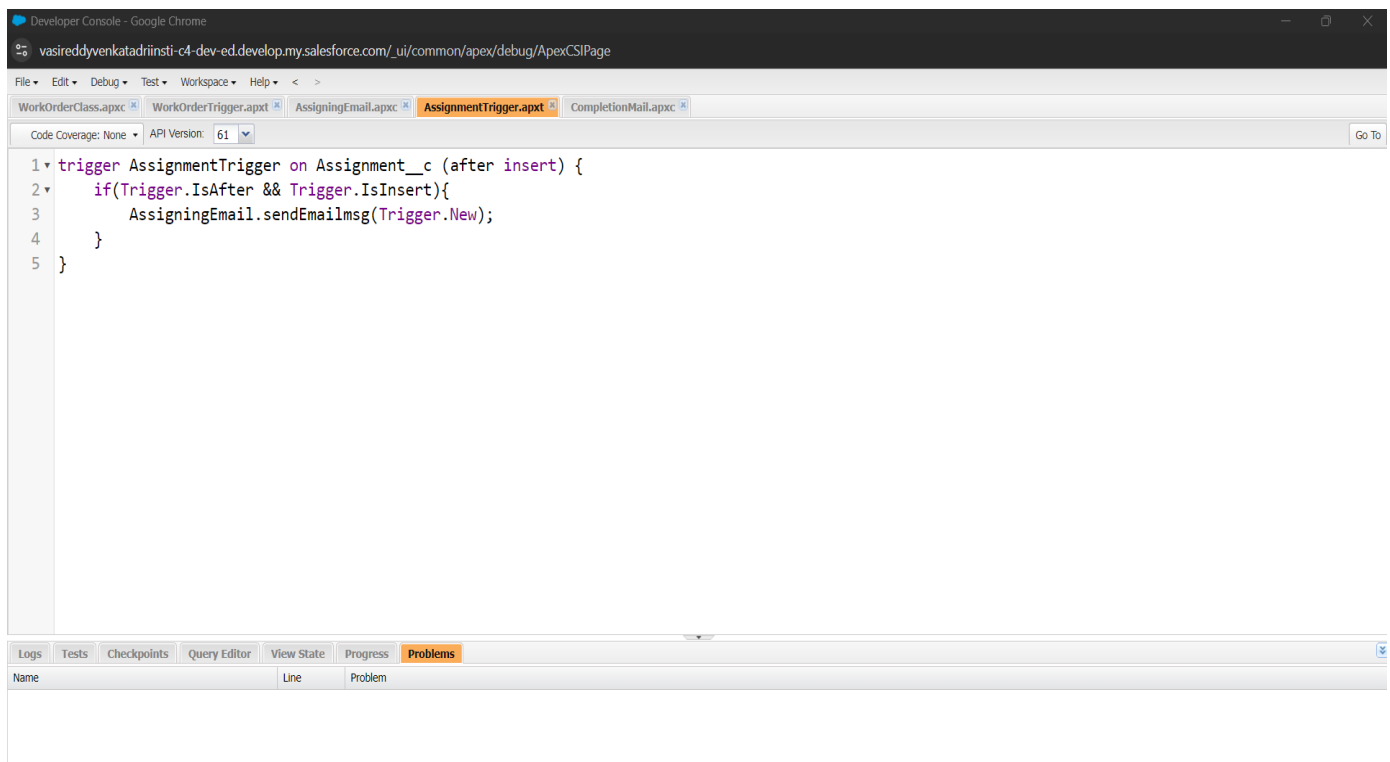
To create a new Apex Class follow the below steps:

1. Click on the file --> New --> Apex Class.
2. Give the Apex Trigger name as “AssignmentTrigger”, and select “Assignment_c” from the dropdown for sObject.
3. Click Submit.
4. Now write the code logic here

5. Source Code:

```
trigger AssignmentTrigger on Assignment_c (after insert) {  
    if(Trigger.IsAfter && Trigger.IsInsert){  
        AssigningEmail.sendEmailmsg(Trigger.New);  
    }  
}
```

6. Save the code.(click on file --> Save)



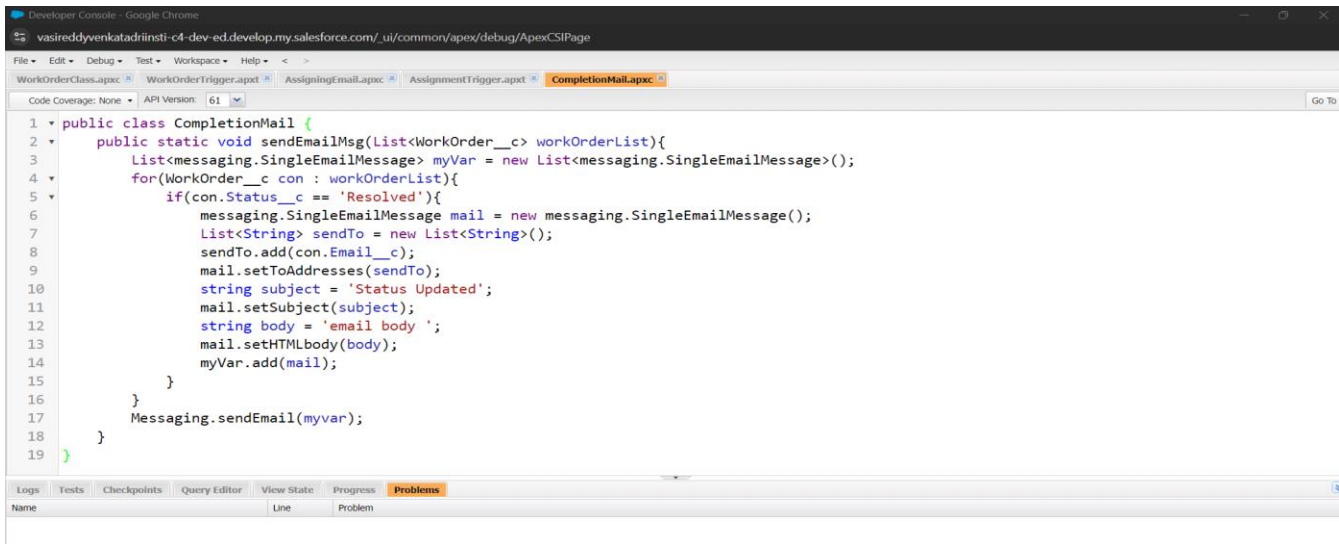
7.5 Create an Apex Class

1. Go to Setup --> Click on the gear icon --> Select Developer Console.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
4. Give the Apex Class name as “CompletionMail”.
5. Click ok.
6. Now write the code logic here

7. Source Code:

```
public class CompletionMail {  
    public static void sendEmailMsg(List<WorkOrder_c> workOrderList){  
        List<messaging.SingleEmailMessage> myVar = new  
List<messaging.SingleEmailMessage>(); for(WorkOrder_  
c con : workOrderList){  
    if(con.Status_c == 'Resolved'){  
        messaging.SingleEmailMessage mail = new messaging.SingleEmailMessage();List<String>  
        sendTo = new List<String>();  
        sendTo.add(con.Email_c);  
        mail.setToAddresses(sendTo); string  
        subject = 'Status Updated';  
        mail.setSubject(subject);  
        string body = 'email body '  
        mail.setHTMLbody(body);  
        myVar.add(mail);  
    }  
}  
    Messaging.sendEmail(myvar);  
}
```

8. Save the code.(click on file --> Save)



7.6 Create an Apex Trigger

1. Click on the file --> Open.
2. A pop up window opens click on Triggers, then select “WorkOrderTrigger” and click on “Open”
3. Now write the code logic here.
4. WorkOrderClass.workOrder(trigger.new);

```

    }
    if(Trigger.IsAfter && Trigger.IsUpdate){ CompletionMail.sendEmailMsg(Trigger.New);
    }
}

```
5. Save the code.(click on file --> Save)



7.7 Create an Asynchronous Apex Class

Create an Apex Class to Delete all the WorkOrder records which meets the following criteriaL

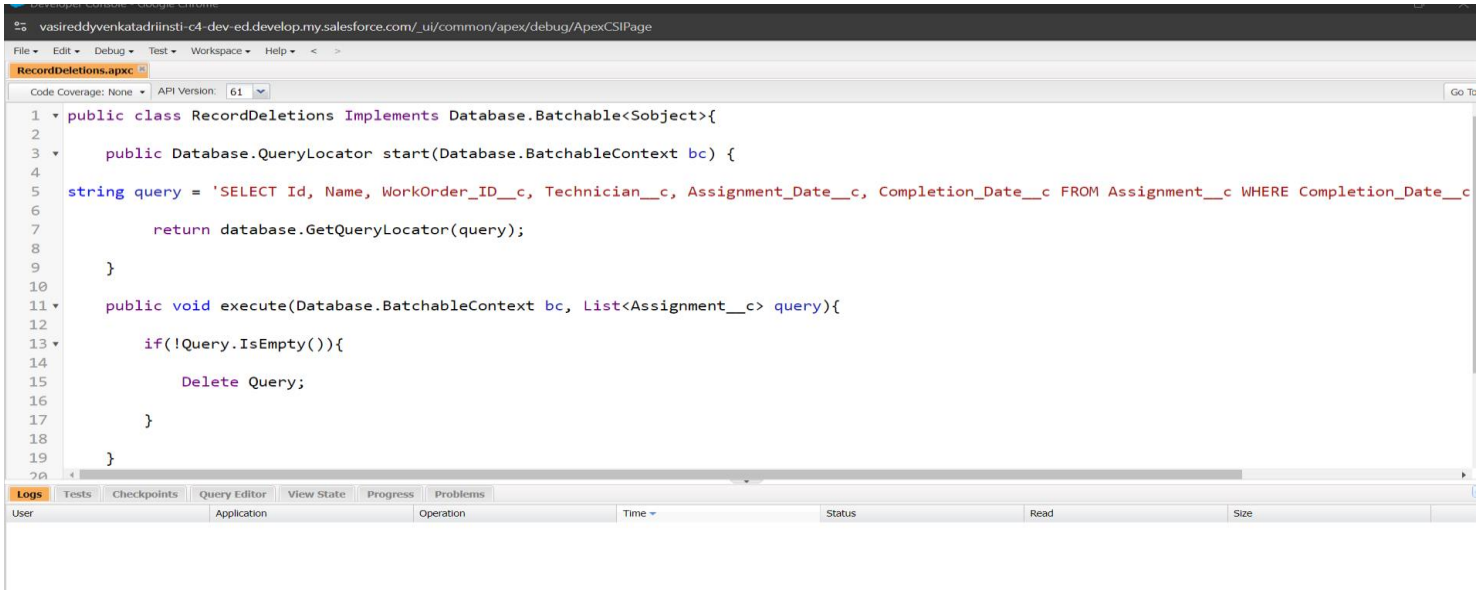
1. Completed date should be more than 30 days.
2. Status should be 'Resolved'.

Create an Apex Class

1. Go to Setup --> Click on the gear icon --> Select Developer Console.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
4. Give the Apex Class name as "RecordDeletion".
5. Click ok.
6. Now write the code logic here

```
public class RecordDeletions Implements Database.Batchable<Sobject>{ public
    Database.QueryLocator start(Database.BatchableContext bc) {
        string query = 'SELECT Id, Name, WorkOrder_ID_c, Technician_ID_c, Assignment_Date_
        c, Completion_Date_c FROM Assignment_c WHERE Completion_Date_c =
        LAST_N_DAYS:30';
        return database.GetQueryLocator(query);
    }
    public void execute(Database.BatchableContext bc, List<Assignment_c> query){
        if(!Query.IsEmpty()){
            Delete Query;
        }
    }
    public void finish(Database.BatchableContext bc){
    }
}
```

7. Save the code.(click on file --> Save)



7.8 Create an Apex Schedule Class

1. Go to Setup --> Click on the gear icon --> Select Developer Console.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. To create a new Apex Class follow the below steps:
Click on the file --> New --> Apex Class.
4. Give the Apex Class name as “ScheduleClass”.
5. Click ok.
6. Now write the code logic here

Source Code:

```

global class ScheduleClass implements Schedulable { global
    void execute(SchedulableContext SC) {
        RecordDeletions delrec = new RecordDeletions();
        database.executeBatch(delrec, 200);
    }
}

```

7. Save the code.(click on file ? Save)

```

1 global class ScheduleClass implements Schedulable {
2     global void execute(SchedulableContext SC) {
3         RecordDeletions delrec = new RecordDeletions();
4         database.executeBatch(delrec, 200);
5     }
6 }

```

7.9 Create a Schedule Apex

Schedule the Apex class:

1. From the Setup page search for “Apex Classes” in quick search.
2. Click on “Schedule Apex” as shown below.
3. Click on Schedule Apex and enter the Job name.
4. Job Name : DeleteAssignmentSchedule
5. Apex Class : ScheduleClass (from clicking on lookup icon)
6. Frequency : Monthly
7. Preferred Start Time : Select any time
8. Click Save.

Search Setup

Setup Home Object Manager

apex

- Email
 - Apex Exception Email
- Custom Code
 - Apex Classes
 - Apex Settings
 - Apex Test Execution
 - Apex Test History
 - Apex Triggers
- Environments
 - Jobs
 - Apex Flex Queue
 - Apex Jobs

Didn't find what you're looking for? Try using Global Search.

Apex Classes

Apex Code is an object oriented programming language that allows developers to develop on-demand business applications on the Lightning Platform.

Percent of Apex Used: 0.09%
You are currently using 5,192 characters of Apex Code (excluding comments and @isTest annotated classes) in your organization, out of an allowed limit of 6,000,000 characters. Note that the amount in use includes both Apex Classes and Triggers defined in your organization.

Estimate your organization's code coverage [i](#)
[Compile all classes](#)
 View: [All](#) [Create New View](#)

Action	Name ↑	Namespace Prefix	Api Version	Status	Size Without Comments	Last Modified By	Has Trace Flags
Edit Del Security	AssigningEmail		61.0	Active	1,220	Sree Lasya Chakrala , 26/09/2024, 10:50 am	<input type="checkbox"/>
Edit Del Security	CompletionMail		61.0	Active	801	Sree Lasya Chakrala , 26/09/2024, 10:54 am	<input type="checkbox"/>
Edit Del Security	RecordDeletions		61.0	Active	590	Sree Lasya Chakrala , 26/09/2024, 11:13 am	<input type="checkbox"/>
Edit Del Security	ScheduleClass		61.0	Active	207	Sree Lasya Chakrala , 26/09/2024, 12:17 pm	<input type="checkbox"/>
Edit Del Security	WorkOrderClass		61.0	Active	1,951	Sree Lasya Chakrala , 26/09/2024, 10:34 am	<input type="checkbox"/>

Dynamic Apex Classes

Dynamic Apex extends your programming reach by interacting with Lightning Platform components.

Task 8 :

8.1 Report

- 1. Go to the app --> click on the reports tab
- 2. Click New Report.
- 3. Select report type from category or from report type panel or from search panel --> click onstart report.
- 4. Customize your report
- 5. Add fields from left pane as shown below
- 6. Grouped by workorder ID
- 7. Save or run it.

Note: Reports may get varied from the above pictures as the data might be different.

Sales

Home

Opportunities

Leads

Tasks

Files

Accounts

Contacts

Campaigns

Dashboards

Reports

Chatter

Groups

Calendar

More

Search...

Star

Plus

Refresh

Help

Settings

Notifications

Avatar

Reports

Recent

2 items

Q Assignments with

New Report

New Folder

Settings

REPORTS	Report Name	Description	Folder	Created By	Created On	Subscribed
Recent	New Assignments with WorkOrder ID Report		Private Reports	Sree Lasya Chakrala	26/9/2024, 9:09 pm	
Created by Me	New Assignments with Technician Report		Private Reports	Sree Lasya Chakrala	26/9/2024, 9:10 pm	
Private Reports						
Public Reports						

Sales

Home

Opportunities

Leads

Tasks

Files

Accounts

Contacts

Campaigns

Dashboards

Reports

Chatter

Groups

Calendar

More

Search...

Star

Plus

Refresh

Help

Settings

Notifications

Avatar

Report: Assignments with Technician

New Assignments with Technician Report

Enable Field Editing

Q

Add Chart

Filter

Refresh

Edit

Total Records

3

	Assignment: Assignment ID	Technician: Technician ID
1	A-0003	T-0005
2	A-0001	T-0002
3	A-0002	T-0003

Sales

Home

Opportunities

Leads

Tasks

Files

Accounts

Contacts

Campaigns

Dashboards

Reports

Chatter

Groups

Calendar

More

Search...

Star

Plus

Refresh

Help

Settings

Notifications

Avatar

Report: Assignments with WorkOrder ID

New Assignments with WorkOrder ID Report

Enable Field Editing

Q

Add Chart

Filter

Refresh

Edit

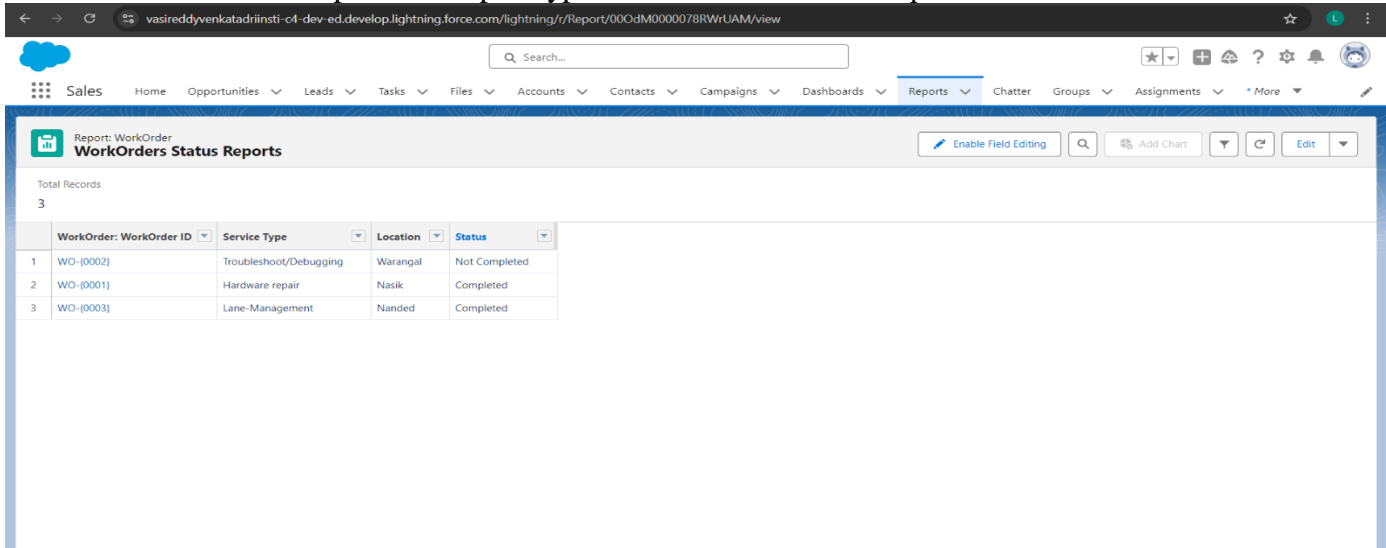
Total Records

5

	Assignment: Assignment ID	WorkOrder ID: WorkOrder ID
1	A-0002	WO-0002
2	A-0001	WO-0001
3	A-0003	WO-0003
4	A-0004	WO-0004
5	A-0005	WO-0005

8.2 Create Reports

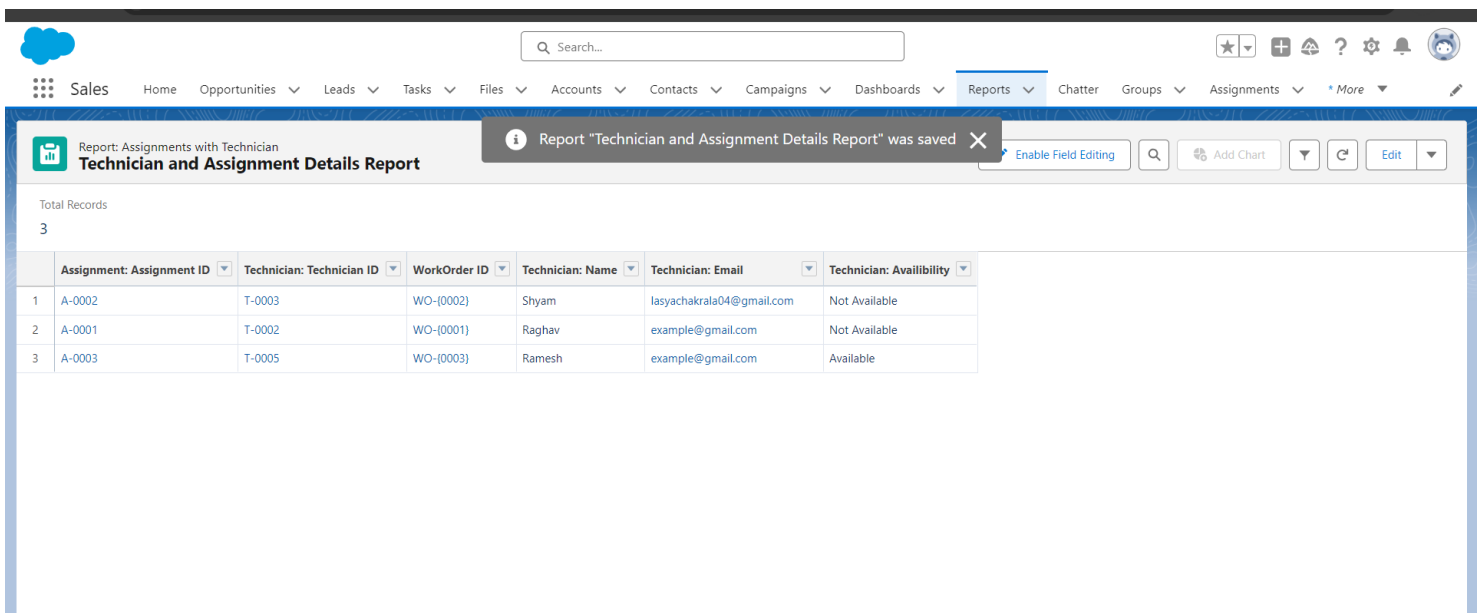
8.2.1 Create a report with report type: “WorkOrders Status Reports”.



The screenshot shows the Salesforce interface for a report titled "WorkOrders Status Reports". The report is based on the "WorkOrder" object. The table displays 3 records with columns: WorkOrder ID, Service Type, Location, and Status.

	WorkOrder: WorkOrder ID	Service Type	Location	Status
1	WO-{0002}	Troubleshoot/Debugging	Warangal	Not Completed
2	WO-{0001}	Hardware repair	Nasik	Completed
3	WO-{0003}	Lane-Management	Nanded	Completed

8.2.2 Create a report with report type: “Technician and Assignment Details Reports”.



The screenshot shows the Salesforce interface for a report titled "Technician and Assignment Details Report". The report is based on the "Assignments with Technician" object. A notification banner states "Report 'Technician and Assignment Details Report' was saved". The table displays 3 records with columns: Assignment ID, Technician ID, WorkOrder ID, Technician Name, Technician Email, and Technician Availability.

	Assignment: Assignment ID	Technician: Technician ID	WorkOrder ID	Technician: Name	Technician: Email	Technician: Availability
1	A-0002	T-0003	WO-{0002}	Shyam	lasyachakrala04@gmail.com	Not Available
2	A-0001	T-0002	WO-{0001}	Raghav	example@gmail.com	Not Available
3	A-0003	T-0005	WO-{0003}	Ramesh	example@gmail.com	Available

8.3 Dashboard

- 8.3.1 Go to the app --> click on the Dashboards tabs.
- 8.3.2 Give a Name and click on Create.
- 8.3.3 Select add component.
- 8.3.4 Select a Report which we have created in the previous activities and click on select.
- 8.3.5 Click Add then click on Save and then click on Done.

The screenshot shows the Salesforce Lightning interface. The top navigation bar includes a search bar and various icons. The main menu has tabs for Sales, Home, Opportunities, Leads, Tasks, Files, Accounts, Contacts, Campaigns, Dashboards, Reports, Chatter, and a dropdown for 'WO-[0005] | WorkOrder'. The 'Dashboards' tab is active, showing 'Dashboard 1'. A widget titled 'New Assignments with WorkOrder ID Report' is displayed, containing a table with 5 rows of assignment data.

Assignment: Assignment ID ↑	WorkOrder ID: WorkOrder ID
A-0001	WO-[0001]
A-0002	WO-[0002]
A-0003	WO-[0003]
A-0004	WO-[0004]
A-0005	WO-[0005]

Below the table, it says 'View Report (New Assignments with WorkOrder ID Report)'.

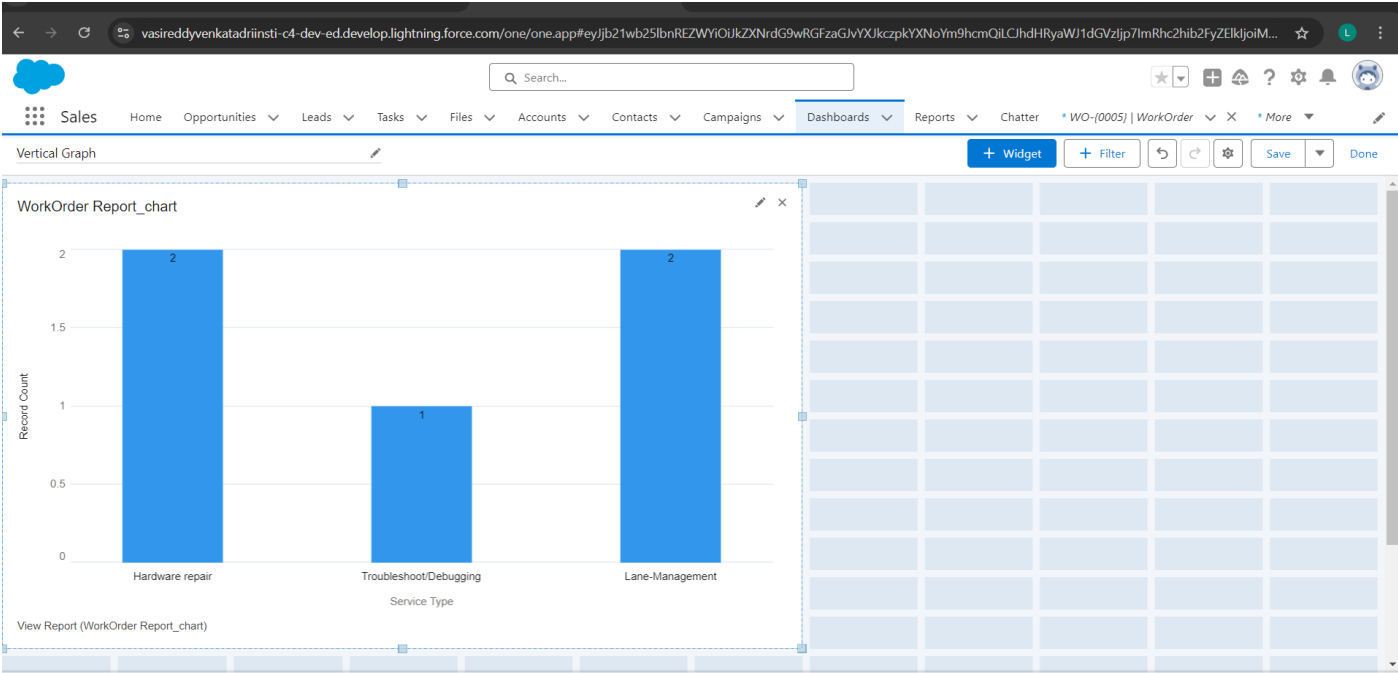
8.4 Create Dashboards

Create another Dashboard as we discussed in activity 3 which shows the details of completed workorder status in a vertical bar graph.

The screenshot shows the Salesforce Lightning Reports interface. The top navigation bar is similar to the dashboard view. The 'Reports' tab is active, showing 'New WorkOrder Report'. The report is titled 'New WorkOrder Report' and is in 'WorkOrder' mode. It features a bar chart showing the 'Record Count' for different 'Service Type' categories: Hardware repair (approx. 1.8), Troubleshoot/Debugging (approx. 1.0), and Lane-Management (approx. 1.8). Below the chart is a table with columns for Service Type, WorkOrder: WorkOrder ID, Email, and Location. The table includes subtotals for each service type and a grand total at the bottom.

Service Type ↑	WorkOrder: WorkOrder ID ↓	Email ↓	Location ↓
Hardware repair (2)	WO-[0001]	example@workorder.com	Nasik
	WO-[0004]	example3@workorder.com	Nasik
Subtotal			
Troubleshoot/Debugging (1)	WO-[0002]	example2@workorder.com	Warangal
Subtotal			
Lane-Management (2)	WO-[0003]	example1@workorder.com	Nanded
	WO-[0005]	example@workorder.com	Nanded
Row Counts			
Detail Rows			
Subtotals			
Grand Total			

The above figure tells us about the report we used to create the following chart and dashboard.



This is the last task we created a dashboard based upon the reports of workorder and details.