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An Autonomous Institute Affiliated to Savitribai Phule Pune University
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Department of Computer Engineering

A Mini Project Report (Cloud Computing Lab)

"Restaurant Billing System"

SUBMITTED TO THE DEPARTMENT OF COMPUTER ENGINEERING

AISSMS IOIT

T. Y. BTech Engineering

SUBMITTED BY

Student Roll No	Student Name
B-84	M Venkata Soodarshan

सत्याला मरण नाही

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CERTIFICATE

This is to certify that the project report

“Restaurant Billing System”

Student Roll No	Student Name
B-84	M.Venkata Soodarshan

is a bonafide student of this institute and the work has been carried out by him/her under the supervision of **Mrs. Veena Bhende** and it is approved for the partial fulfillment of the Department of Computer Engineering AISSMS IOIT.

(Mrs. VEENA BHENDE)
Guide
Department of Computer Engineering
Place : Pune

(Dr. S. N. ZAWARE)
Head
Department of Computer Engineering
Date

Procedure:

Step 1: Define Requirements

Before you start coding, gather the key requirements for your Restaurant Billing System:

Users (e.g., restaurant staff) should be able to:

- Create new bills for customer orders.
- View existing bills and their details.
- Update bills for modifications (e.g., adding or removing items).
- Delete bills when necessary (e.g., cancelled orders).

Step 2: Create Custom Objects

1. **Restaurant Object:**
    - Go to Setup > Object Manager > Create Object.
    - Create a new object called Restaurant Orders with the following fields:
        - Item Quantities (Text)
        - Selected Items (Text)
        - Menu Items (Long Text Area)
        - Total Price (Currency)

Step 3: Create Fields

Add fields to the Restaurant object as described:

- Go to Object Manager > Restaurant_Orders > Fields & Relationships.
- Create the necessary fields:
    - Item Quantities (Text)
    - Selected Items (Text)
    - Menu Items (Long Text Area)
    - Total Price (Currency)

Step 4: Create Apex Class for Restaurant Billing System

Create an Apex class that will handle the creation, update, and deletion of orders. Here's a basic structure for the Restaurant Billing System class:

```
public with sharing class RestaurantOrder {
    // Field declarations
    public Map<String, Integer> itemQuantities { get; set; } // Store quantities of selected items using item names as keys
    public Decimal totalPrice { get; set; } // Store the total price of the selected items
    public Map<String, Decimal> menuItems { get; set; } // Menu items with their prices
```

```
// Constructor to initialize the menu
public RestaurantOrder() {
    // Initialize the menu with item names and prices in Rupees
    menuItems = new Map<String, Decimal>();
    menuItems.put('Pizza', 150); // Price in Rupees
    menuItems.put('Burger', 100);
    menuItems.put('Pasta', 80);
    menuItems.put('Dosa', 60);
    menuItems.put('Soda', 20);

    itemQuantities = new Map<String, Integer>(); // Initialize empty quantity map
    totalPrice = 0; // Initialize the total price
}

// Method to calculate the total price based on selected items and their quantities
public void calculateTotalPrice() {
    totalPrice = 0; // Reset total price for new calculation

    // Loop through selected items and calculate the total price
    for (String itemName : itemQuantities.keySet()) {
        Integer quantity = itemQuantities.get(itemName);
        if (menuItems.containsKey(itemName)) {
            totalPrice += menuItems.get(itemName) * quantity;
        } else {
            System.debug('Invalid item name: ' + itemName);
        }
    }

    System.debug('Total Price: ₹' + totalPrice); // Displaying total price in Rupees
}

// Method to save the restaurant order to the custom object
public void saveOrder() {
    Restaurant_Order__c orderRecord = new Restaurant_Order__c();
    orderRecord.Selected_Items__c = mapToSelectedItemsString(itemQuantities);
    orderRecord.Total_Price__c = totalPrice;
     orderRecord.Item_Quantities__c = mapToString(itemQuantities); // Convert the map to string for storage
        orderRecord.Menu_Items__c = mapToMenuItemsString(menuItems); // Convert the menu to long text area for storage

    try {
        insert orderRecord;
        System.debug('Order saved successfully: ' + orderRecord.Id);
    } catch (DmlException e) {
        System.debug('Error saving order: ' + e.getMessage());
    }
}
// Helper method to convert item quantities map to a string format
private String mapToString(Map<String, Integer> itemMap) {
    List<String> itemList = new List<String>();
    for (String key : itemMap.keySet()) {
        itemList.add(key + ':' + itemMap.get(key));
    }
    return String.join(itemList, ',');
}

    // Helper method to convert item quantities to selected item names
(Selected_Items__c field)
private String mapToSelectedItemsString(Map<String, Integer> itemMap) {
    List<String> selectedItemsList = new List<String>();
    for (String key : itemMap.keySet()) {
        selectedItemsList.add(key);
    }
    return String.join(selectedItemsList, ',');
}

  // Helper method to convert menu items map to a string format for the
Menu_Items__c field
private String mapToMenuItemsString(Map<String, Decimal> menuMap) {
    List<String> menuList = new List<String>();
    for (String key : menuMap.keySet()) {
        menuList.add(key + ' - ₹' + menuMap.get(key)); // Display prices in Rupees
    }
    return String.join(menuList, '\n');
}

// Method to display the menu to the user
public String displayMenu() {
    String menu = 'Restaurant Menu:\n';
    for (String itemName : menuItems.keySet()) {
        menu += itemName + ' - ₹' + menuItems.get(itemName) + '\n'; // Display
prices in Rupees
    }
    return menu;
}

// Method to add an item and its quantity to the order
public void addItemToOrder(String itemName, Integer quantity) {
    if (menuItems.containsKey(itemName)) {
        if (itemQuantities.containsKey(itemName)) {
            itemQuantities.put(itemName, itemQuantities.get(itemName) + quantity);
// Add to existing quantity
        } else {
            itemQuantities.put(itemName, quantity); // Add new item with quantity
        }
        System.debug('Added ' + quantity + ' of ' + itemName + ' to the order.');
    } else {
```

```
        System.debug('Invalid item name: ' + itemName);
    }
}

// Method to remove an item from the order
public void removeItemFromOrder(String itemName) {
    if (itemQuantities.containsKey(itemName)) {
        itemQuantities.remove(itemName);
        System.debug('Removed item ' + itemName + ' from the order.');
    } else {
        System.debug('Item not found in order: ' + itemName);
    }
}

// Method to reset the entire order
public void resetOrder() {
    itemQuantities.clear(); // Clear all items from the order
    totalPrice = 0; // Reset the total price
    System.debug('Order has been reset.');
}

// Method to display an order summary
public String displayOrderSummary() {
    String summary = 'Order Summary:\n';
    for (String itemName : itemQuantities.keySet()) {
            summary += 'Item: ' + itemName + ', Quantity: ' + itemQuantities.get(itemName) + '\n';
        }
        summary += 'Total Price: ₹' + totalPrice + '\n'; // Display total price in Rupees
        return summary;
    }
}
```

Step 6: Lightning Component

If you want a UI for your Restaurant Billing System, you can create either a Visualforce Page or a Lightning Component. Here's a sample code for a basic

Visualforce page:

```
<apex:page controller="RestaurantOrder">
  <h1>Restaurant Billing System</h1>

  <h2>Menu</h2>
  <pre>{!displayMenu()}</pre>

  <h2>Add Item to Order</h2>
  <apex:form>
    <apex:inputText value="{!itemName}" placeholder="Item Name" />
    <apex:inputText value="{!quantity}" placeholder="Quantity" />
```

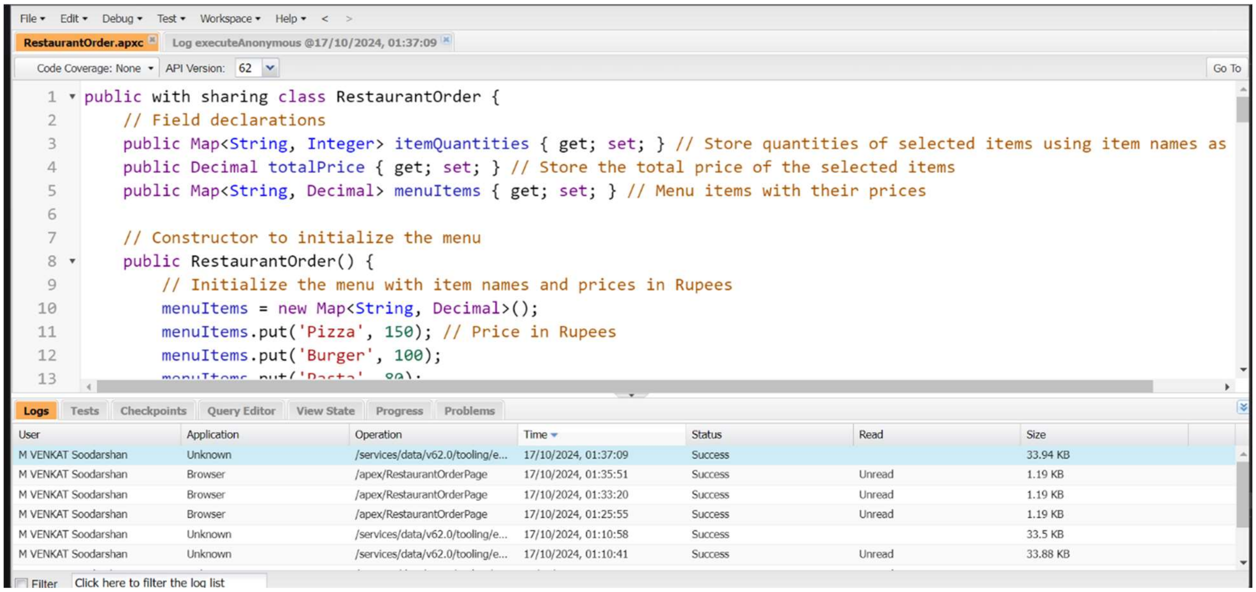
```
        <apex:commandButton value="Add Item" action="{!addItemToOrder}" />
    </apex:form>

    <h2>Order Summary</h2>
    <pre>{!displayOrderSummary()}</pre>

    <apex:commandButton value="Save Order" action="{!saveOrder}" />
    <apex:commandButton value="Reset Order" action="{!resetOrder}" />
</apex:page>
```

Step 7: Deploy and Test

- Deploy your Apex code to your Salesforce org.
- Test the functionality by adding, updating, and deleting Orders.
- Ensure that the data is stored correctly and appears in the UI if applicable.

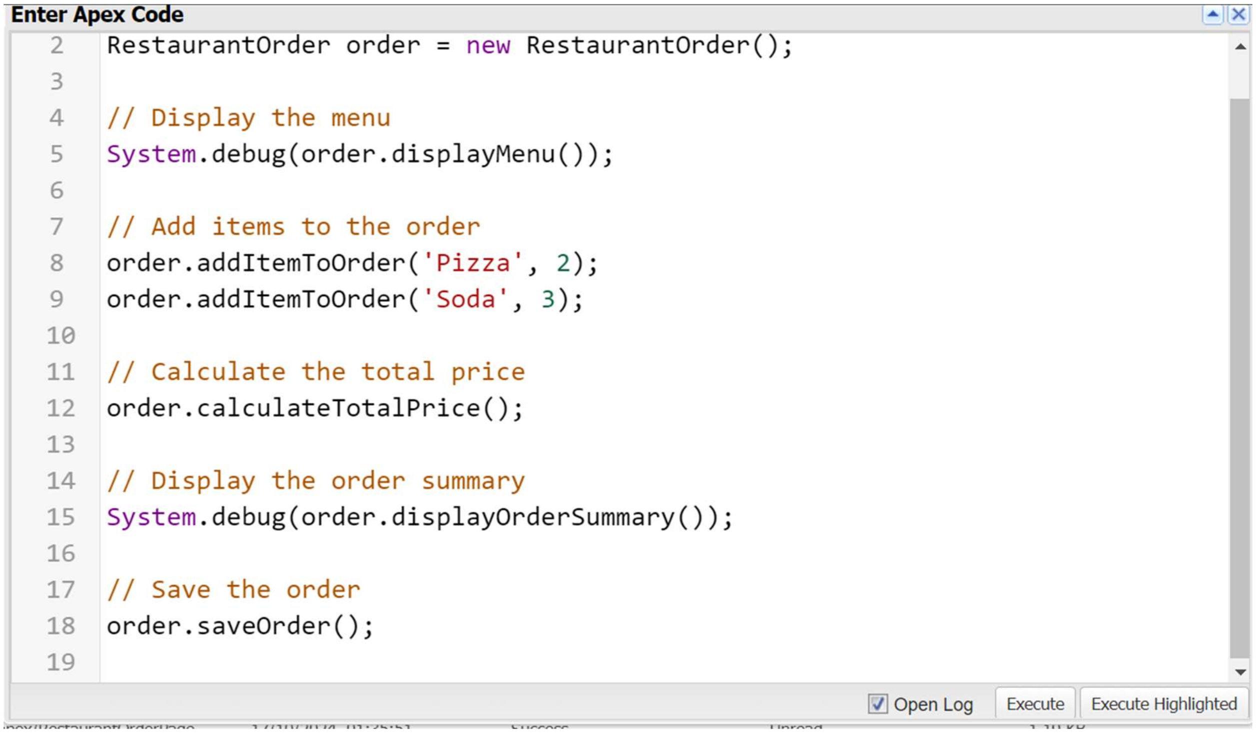
By following these steps, you will have a functional Restaurant_Order__c built in Salesforce using Apex. You can further enhance it by adding validation rules, triggers, reports, and dashboards.

PROJECT OUTPUT:

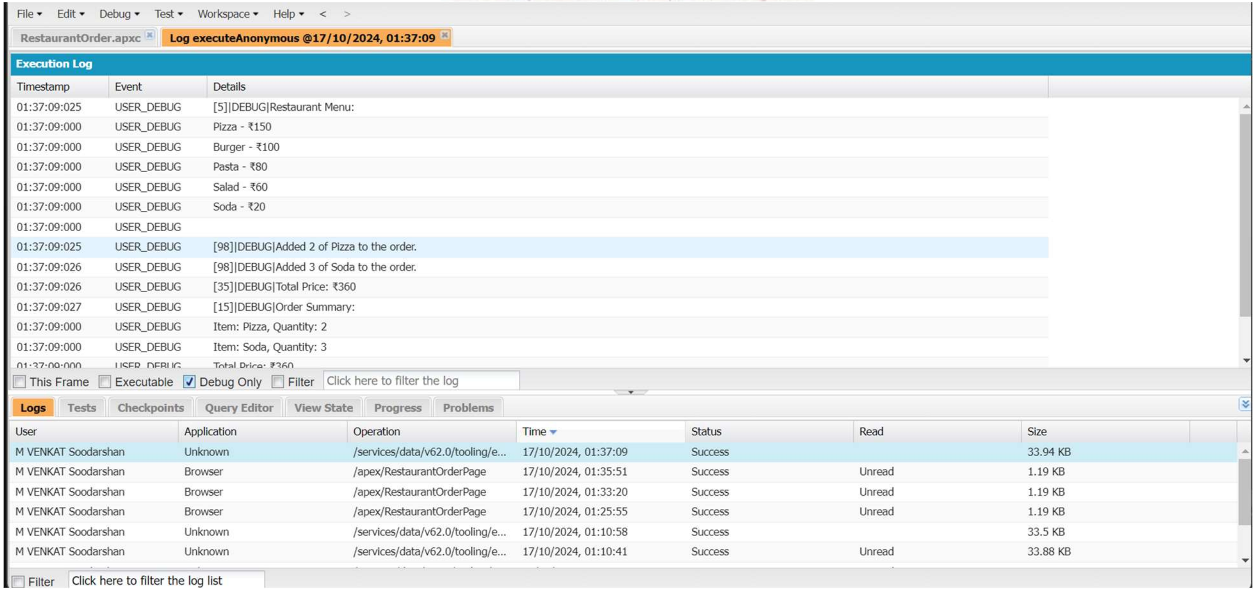


```
public with sharing class RestaurantOrder {
    // Field declarations
    public Map<String, Integer> itemQuantities { get; set; } // Store quantities of selected items using item names as
    public Decimal totalPrice { get; set; } // Store the total price of the selected items
    public Map<String, Decimal> menuItems { get; set; } // Menu items with their prices

    // Constructor to initialize the menu
    public RestaurantOrder() {
        // Initialize the menu with item names and prices in Rupees
        menuItems = new Map<String, Decimal>();
        menuItems.put('Pizza', 150); // Price in Rupees
        menuItems.put('Burger', 100);
        menuItems.put('Pasta', 80);
```

User	Application	Operation	Time ▾	Status	Read	Size
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:37:09	Success		33.94 KB
M VENKAT Soodarshan	Browser	/apex/RestaurantOrderPage	17/10/2024, 01:35:51	Success	Unread	1.19 KB
M VENKAT Soodarshan	Browser	/apex/RestaurantOrderPage	17/10/2024, 01:33:20	Success	Unread	1.19 KB
M VENKAT Soodarshan	Browser	/apex/RestaurantOrderPage	17/10/2024, 01:25:55	Success	Unread	1.19 KB
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:10:58	Success		33.5 KB
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:10:41	Success	Unread	33.88 KB



```
RestaurantOrder order = new RestaurantOrder();

// Display the menu
System.debug(order.displayMenu());

// Add items to the order
order.addItemToOrder('Pizza', 2);
order.addItemToOrder('Soda', 3);

// Calculate the total price
order.calculateTotalPrice();

// Display the order summary
System.debug(order.displayOrderSummary());

// Save the order
order.saveOrder();

```


File ▾ Edit ▾ Debug ▾ Test ▾ Workspace ▾ Help ▾ < >
RestaurantOrder.apxc
Log executeAnonymous @17/10/2024, 01:37:09

Execution Log

Timestamp	Event	Details
01:37:09:025	USER_DEBUG	[5]|DEBUG|Restaurant Menu:
01:37:09:000	USER_DEBUG	Pizza - ₹150
01:37:09:000	USER_DEBUG	Burger - ₹100
01:37:09:000	USER_DEBUG	Pasta - ₹80
01:37:09:000	USER_DEBUG	Salad - ₹60
01:37:09:000	USER_DEBUG	Soda - ₹20
01:37:09:000	USER_DEBUG	
01:37:09:025	USER_DEBUG	[98]|DEBUG|Added 2 of Pizza to the order.
01:37:09:026	USER_DEBUG	[98]|DEBUG|Added 3 of Soda to the order.
01:37:09:026	USER_DEBUG	[35]|DEBUG|Total Price: ₹360
01:37:09:027	USER_DEBUG	[15]|DEBUG|Order Summary:
01:37:09:000	USER_DEBUG	Item: Pizza, Quantity: 2
01:37:09:000	USER_DEBUG	Item: Soda, Quantity: 3
01:37:09:000	USER_DEBUG	Total Price: ₹360

☐ This Frame ☐ Executable ☑ Debug Only ☐ Filter Click here to filter the log

Logs Tests Checkpoints Query Editor View State Progress Problems

User	Application	Operation	Time	Status	Read	Size
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:37:09	Success		33.94 KB
M VENKAT Soodarshan	Browser	/apex/RestaurantOrderPage	17/10/2024, 01:35:51	Success	Unread	1.19 KB
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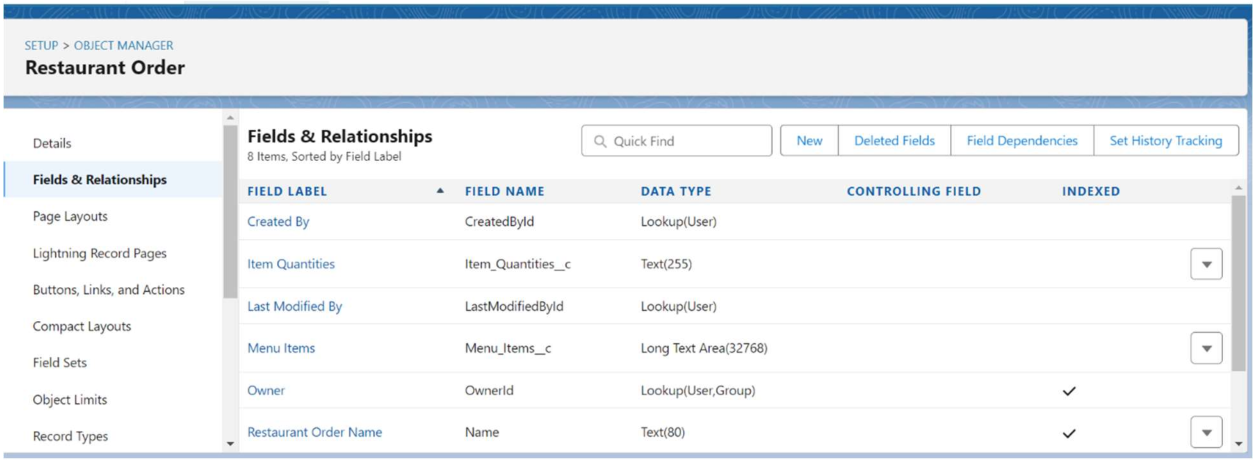
M VENKAT Soodarshan	Browser	/apex/RestaurantOrderPage	17/10/2024, 01:25:55	Success	Unread	1.19 KB
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:10:58	Success		33.5 KB
M VENKAT Soodarshan	Unknown	/services/data/v62.0/tooling/e...	17/10/2024, 01:10:41	Success	Unread	33.88 KB

☐ Filter Click here to filter the log list

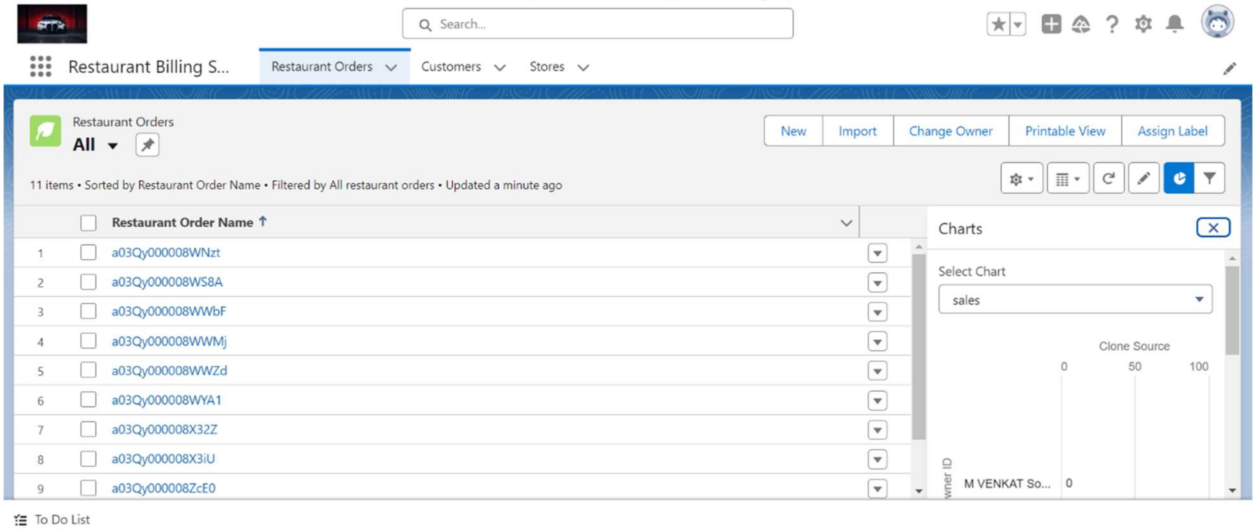


Restaurant Order

Fields & Relationships

8 Items, Sorted by Field Label

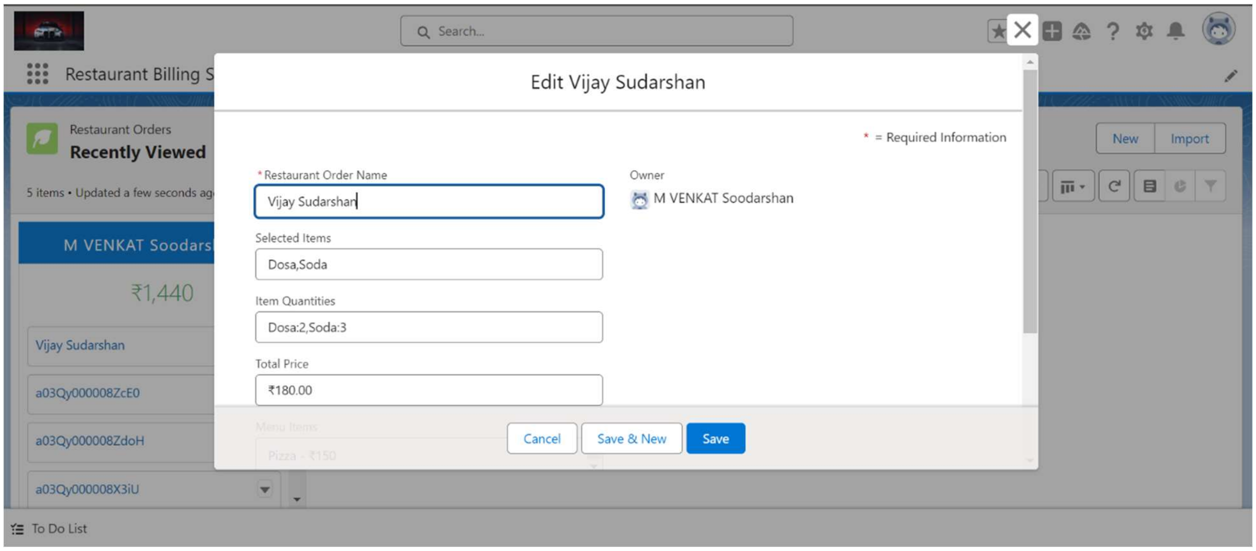
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Item Quantities	Item_Quantities__c	Text(255)		
Last Modified By	LastModifiedById	Lookup(User)		
Menu Items	Menu_Items__c	Long Text Area(32768)		
Owner	OwnerId	Lookup(User,Group)		✓
Restaurant Order Name	Name	Text(80)		✓



Restaurant Orders
All

11 items • Sorted by Restaurant Order Name • Filtered by All restaurant orders • Updated a minute ago

	Restaurant Order Name
1	a03Qy000008WNzt
2	a03Qy000008WS8A
3	a03Qy000008WWbF
4	a03Qy000008WWMj
5	a03Qy000008WWZd
6	a03Qy000008WYA1
7	a03Qy000008X32Z
8	a03Qy000008X3iU
9	a03Qy000008ZcE0



Edit Vijay Sudarshan

* = Required Information

*Restaurant Order Name: Vijay Sudarshan

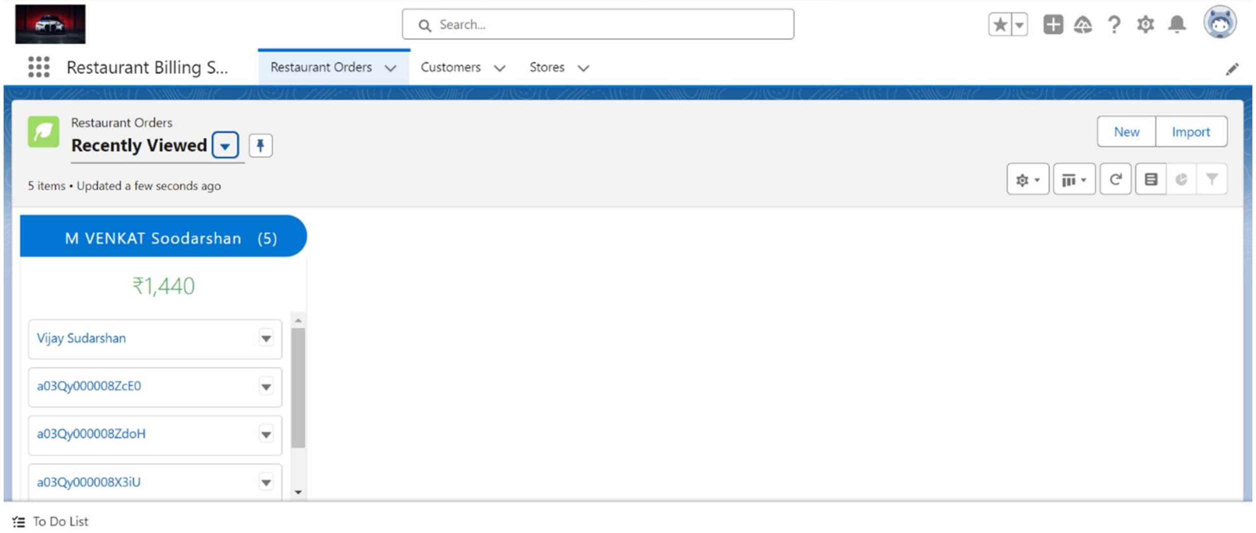
Owner: M VENKAT Soodarshan

Selected Items: Dosa,Soda

Item Quantities: Dosa:2,Soda:3

Total Price: ₹180.00

Menu Items: Pizza - ₹150



Restaurant Orders
Recently Viewed

5 items • Updated a few seconds ago

M VENKAT Soodarshan (5)

₹1,440

Vijay Sudarshan

a03Qy000008ZcE0

a03Qy000008ZdoH

a03Qy000008X3iU