



Capstone Project Report  
On  
**“Travel App & Code Playground App”**

Submitted by:

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**Date:** 27/02/2023

**Github Link :**

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## **Abstract**

Salesforce, Inc. is an American cloud-based software company headquartered in San Francisco, California. It provides customer relationship management (CRM) software and applications focused on sales, customer service, marketing automation, analytics, and application development.

Salesforce's main technologies are tools for customer management. Other products enable customers to create apps, integrate data from other systems, visualize data, and offer training courses.

Force.com applications are built using declarative tools, backed by Lightning and Apex, a proprietary Java-like programming language for Force.com, as well as Visualforce, a framework including an XML syntax typically used to generate HTML. The Force.com platform typically receives three complete releases a year. As the platform is provided as a service to its developers, every single development instance also receives all these updates.

In this Project we work on Creation of Travel App , with custom Objects and fields and Flows to Automate the process of records, Creation of Approval process, modifying the user interface, creating reports and dashboards for analytics purposes.

In this Project we also develop the Code Playground app through a coding approach, by using Apex Classes and Triggers we extend the functional capabilities of the App.

## Introduction

Salesforce is a cloud-based software company that provides its customers with a platform to develop their own applications without following the tough steps that they used to follow in the legacy system. The software or application once created can be uploaded onto the cloud allowing the end-users to view them.

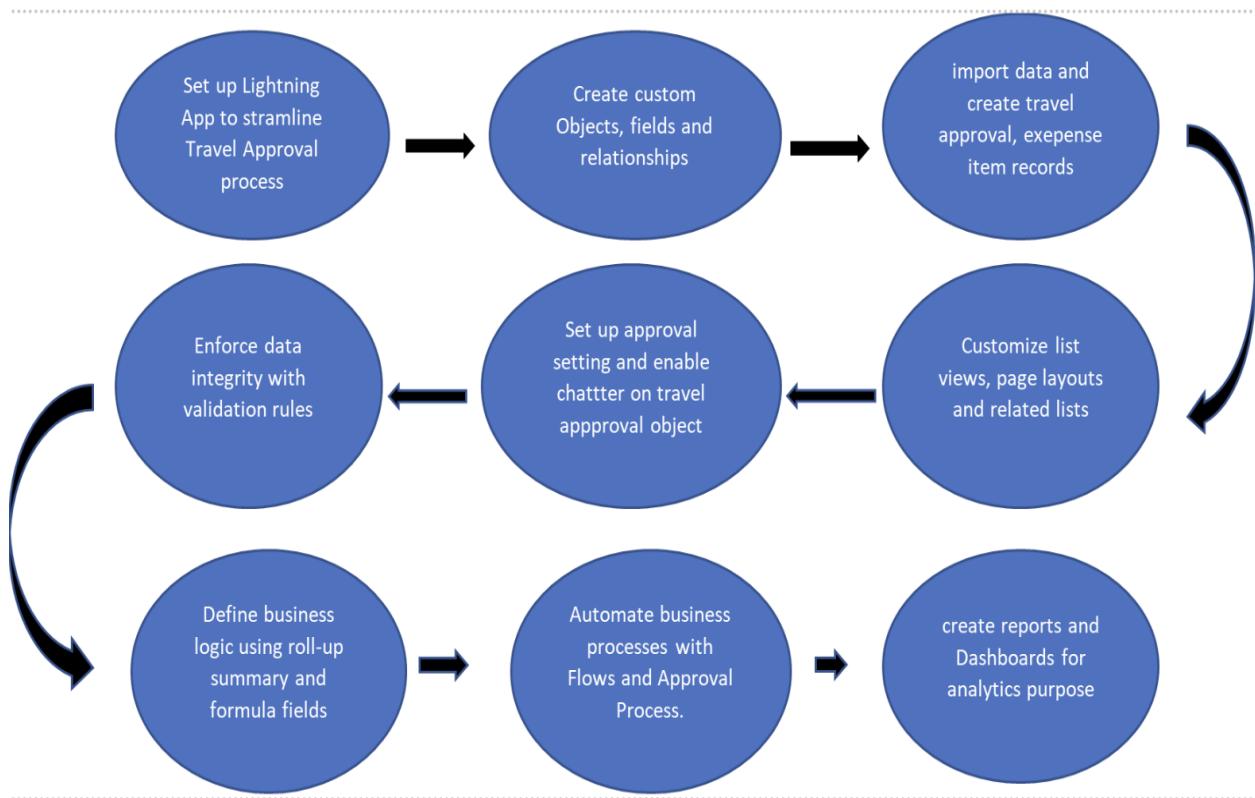
Salesforce is currently providing various software solutions and platforms for developers to create and distribute custom software/applications. Tech giants like Google, Twitter, Amazon, and Facebook are using Salesforce either in the form of SaaS or PaaS.



*Salesforce developers can make an application on the cloud and share it with multiple companies across multiple domains by using Salesforce.*

Talking about HR systems, every company across the globe has an HR team. Each HR team would require an HR application to store employee records. Almost all specifications for such an application would be common for all companies. So, as a developer, it would be very easy to create a Salesforce application for such specifications, post it onto the cloud, and provide it as a service to multiple clients at the same time. Maintenance of the same can be done altogether too. So basically, the problem of scalability gets eliminated.

# Flow of the Project



# Software Requirements

For the fastest and most stable experience, we recommend:

- An Octane 2.0 score of 30,000 or greater
- Network latency of 150 ms or less
- Download speed of 3 Mbps or greater
- At least 8 GB of RAM, with 3 GB available for Salesforce browser tabs

Minimum requirements are:

- An Octane 2.0 score of 20,000 or greater
- Network latency of 200 ms or less
- Download speed of 1 Mbps or greater
- At least 5 GB of RAM, with 2 GB available for Salesforce browser tabs

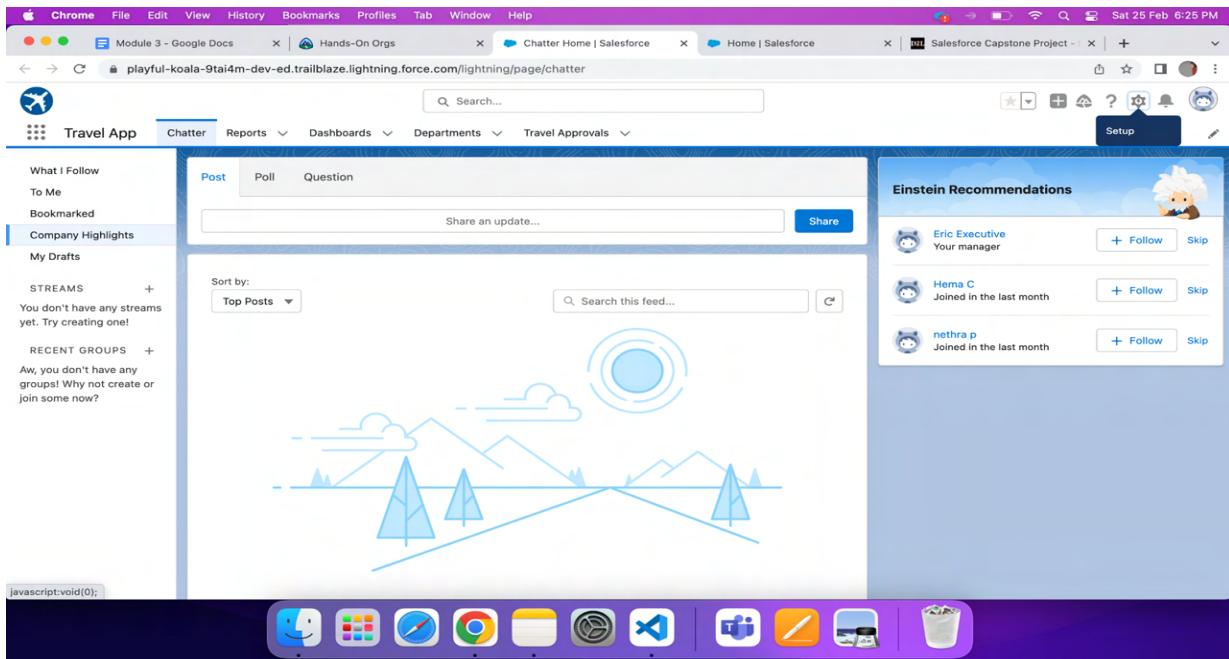
OR

Requirements	
Windows	
Operating system	<a href="#">Windows 8.1</a> 64-bit, <a href="#">Windows 8</a> 64-bit, Windows 7 Service Pack 1 64-bit, Windows Vista Service Pack 2 64-bit
CPU	<a href="#">Core 2 Quad</a> Q6600 at 2.4 GHz or <a href="#">AMD Phenom</a> 9850 at 2.5 GHz
Memory	4 GB <a href="#">RAM</a>
Free space	65 GB of free space
Graphics hardware	DirectX 10-compatible <a href="#">GPU</a> : <a href="#">GeForce 9800GT</a> 1GB or <a href="#">ATI Radeon HD 4870</a> 1GB
Sound hardware	<a href="#">DirectX</a> 10 compatible <a href="#">sound card</a>

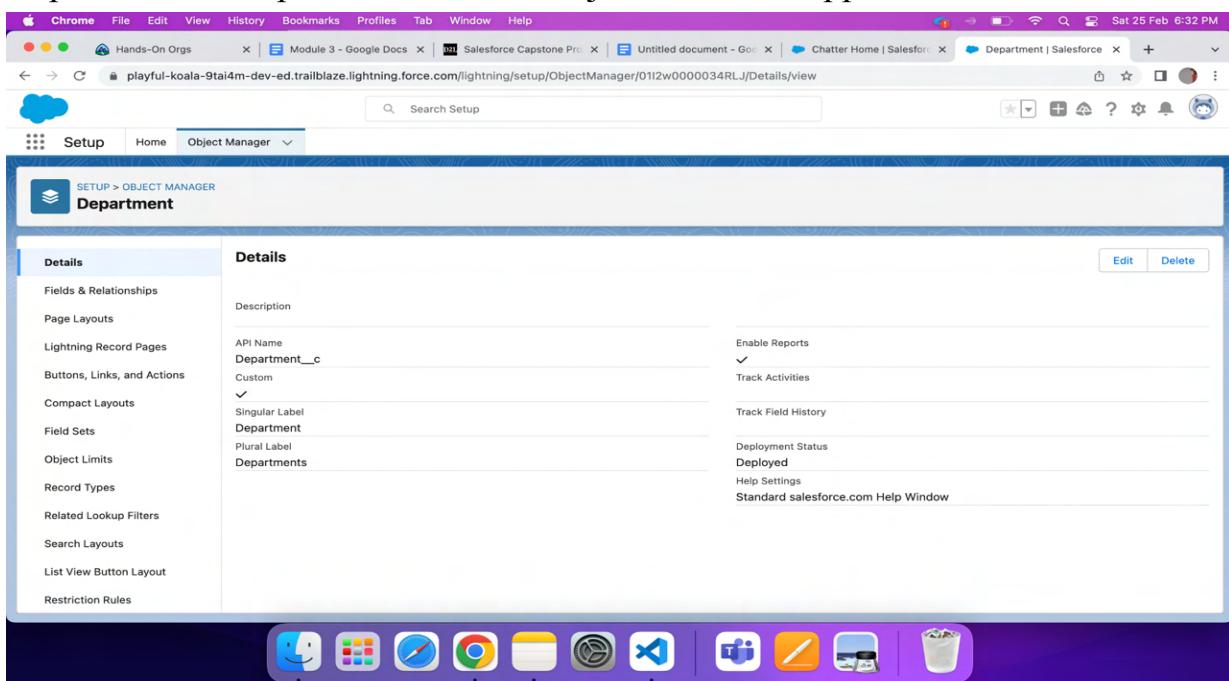
# Module - 1

## Exercise - 1

Step-1 Created Custom Lightning App “TRAVEL APP”



Step-2 Created Department Custom Object in Travel App.



## Step-3 Created custom Fields For Department Custom Object.

The screenshot shows the Salesforce Object Manager interface for the 'Department' object. The left sidebar lists various setup categories like Page Layouts, Lightning Record Pages, Buttons, etc. The main area displays a table titled 'Fields & Relationships' with 8 items. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The data includes:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Currency	CurrencyIsoCode	Picklist		
Department Code	Department_Code__c	Text(10) (Unique Case Sensitive)		
Department Name	Name	Text(80)		
Department Type	Department_Type__c	Picklist	Location	
Last Modified By	LastModifiedBy	Lookup(User)		
Location	Location__c	Picklist		
Owner	OwnerId	Lookup(User,Group)		

## Step-4 Created Travel Approval Custom Object.

The screenshot shows the Salesforce Object Manager interface for the 'Travel Approval' custom object. The left sidebar lists various setup categories. The main area displays a 'Details' section with the following configuration:

Details	Details
Description	Enable Reports
API Name Travel_Approval__c	Track Activities
Custom	Track Field History
✓	Deployment Status
Singular Label Travel Approval	Deployed
Plural Label Travel Approvals	Help Settings
	Standard salesforce.com Help Window

## Created Custom Fields for Travel approval Custom Object.

The screenshot shows the Salesforce Setup interface for the 'Travel Approval' object. The 'Fields & Relationships' section displays 14 items, each with its field name, type, and description. The fields listed are:

- Department: Department\_\_c, Lookup(Department)
- Destination State: Destination\_State\_\_c, Text(2)
- Last Modified By: LastModifiedById, Lookup(User)
- Out-of-State: Out\_of\_State\_\_c, Checkbox
- Owner: OwnerId, Lookup(User,Group)
- Purpose of Trip: Purpose\_of\_Trip\_\_c, Text Area(255)
- Status: Status\_\_c, Picklist
- Status Indicator: Status\_Indicator\_\_c, Formula (Text)
- Total Expenses: Total\_Expenses\_\_c, Roll-Up Summary (SUM Expense Item)
- Travel Approval #: Name, Auto Number

## The Travel App overview.

The screenshot shows the Travel App detail page for a travel approval record (TA-03335). The page is divided into sections: Related, Details, and Activity.

**Details Section:**

- Travel Approval #: TA-03335
- Status: Approved
- Created By: Suresh Bandi
- Trip Info:
  - Purpose of Trip: White-Kutch
  - Trip Start Date: 6/14/2019
  - Trip End Date: 6/15/2019
  - Out-of-State: checked
  - Destination State: FL

**Activity Section:**

- Activity Timeline: Shows no activities to show.
- Chatter Feed: Shows a message from Suresh Bandi: "Get started by sending an email, scheduling a task, and more."

## Step-5 Imported Department Records from departments.csv file using Data Import Wizard.

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "Travel Approval | Salesforce". The page displays a list of 16 department records, each with a checkbox and a link. The records are sorted by Department Name and filtered by All departments. The list includes: Audit Services, Contract Management, Disability Determination Bureau, Division of Aging, Division of Disability and Rehabilitative Services, Division of Family Resources, Division of Finance, Division of Mental Health and Addiction, Human Resources, Legislative Services, Office of Communications and Media, Office of Early Childhood and Out-of-School Learning, Office of General Counsel, Office of Medicaid Policy and Planning, Quality and Compliance Office, and Technology. The interface has a dark theme with a purple header bar containing various icons.

## Exercise -2

Step -1 Created Travel Approval record with given details.

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "Travel Approval | Salesforce". The page displays a detailed view of a travel approval record with the ID TA-03635. The record is in Draft status with a total expense of USD 0.00. It was created by Suresh Bandi on 2/25/2023 at 6:47 PM. The trip info section indicates the purpose is to attend DreamForce, starting on 2/23/2023 and ending on 3/2/2023. The destination state is CA. The record is owned by Suresh Bandi and is associated with the Technology department. The activity and chatter sections show no recent activity. The interface has a dark theme with a purple header bar containing various icons.

## Step-2 Created Expense Item Custom Object.

The screenshot shows the Salesforce Setup interface for creating a new custom object named "Expense Item".

**Details Panel:**

- API Name:** Expense\_Item\_\_c
- Custom:** ✓
- Singular Label:** Expense Item
- Plural Label:** Expense Items

**Object Settings:**

- Enable Reports:** ✓
- Track Activities:** ✓
- Track Field History:** ✓
- Deployment Status:** Deployed
- Help Settings:** Standard salesforce.com Help Window

**Related Links:**

- Fields & Relationships
- Page Layouts
- Lightning Record Pages
- Buttons, Links, and Actions
- Compact Layouts
- Field Sets
- Object Limits
- Record Types
- Related Lookup Filters
- Restriction Rules
- Scoping Rules
- Triggers

## Step-3 Created Custom Fields for Expense Item Custom Object.

The screenshot shows the Salesforce Setup interface for managing fields and relationships for the "Expense Item" custom object.

**Fields & Relationships:**

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Currency(16, 2)		
Created By	CreatedBy	Lookup(User)		
Currency	CurrencyIsoCode	Picklist		
Expense Item Number	Name	Auto Number		✓
Expense Type	Expense_Type__c	Picklist		
Last Modified By	LastModifiedBy	Lookup(User)		
Travel Approval	Travel_Approval__c	Master-Detail(Travel Approval)		✓

Step-4 Created record for expense Item with given details.

The screenshot shows a Salesforce Lightning interface for a Travel Approval record. The record ID is TA-03635. The main view displays the following sections:

- Notes & Attachments (0)**: A section for uploading files.
- Expense Items (2)**: A table showing two expense items:

Expense Item Number	Expense Type	Amount
E-00003	Airfare	USD 450.00
E-00004	Hotel	USD 870.00
- Approval History (0)**: A section for tracking approvals, which is currently empty.

The interface includes standard Salesforce navigation elements like Chatter, Reports, Dashboards, Departments, and Travel Approvals. The top bar shows multiple tabs and the date Sat 25 Feb 6:54 PM.

Step-5 Created a user with the name “ ERIC ”.

The screenshot shows the Salesforce Setup interface for creating a new User record. The record is named "Eric Executive". The User Detail section contains the following information:

Name	Eric Executive
Alias	exec
Email	bandisuresh15sss@gmail.com
Username	ericbandisuresh15sss@gmail.com
Nickname	eric.exec
Title	
Company	
Department	
Division	
Address	
Time Zone	(GMT-07:00) Mountain Standard Time (America/Phoenix)
Locale	English (United States)
Language	English
Currency	USD - U.S. Dollar
Delegated Approver	Manager
Role	CEO
User License	Salesforce
Profile	System Administrator
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"/>
WDC User	<input type="checkbox"/>
Mobile Push Registrations	<input type="checkbox"/>
Data.com User Type	<input type="checkbox"/>
Accessibility Mode (Classic Only)	<input type="checkbox"/>
Debug Mode	<input type="checkbox"/>

The interface includes a sidebar with various setup categories like Users, Profiles, Public Groups, Roles, and User Management Settings. The top bar shows multiple tabs and the date Sat 25 Feb 6:56 PM.

## Step-6 Added user Eric Executive as manager to system administrator.

The screenshot shows the Salesforce Setup interface under the 'Users' section. A user named Suresh Bandi is being edited. The 'Manager' field is set to 'Eric Executive'. Other fields include Name, Alias, Email, Username, Nickname, Title, Company, Department, Division, Time Zone, Locale, Language, Currency, Delegated Approver Manager, Receive Approval Request Email, Federation ID, App Registration, and various User License and Profile settings.

## Step-7 Customized the Travel Approval Default search layout.

The screenshot shows the Salesforce Setup interface under the 'Object Manager' section for the 'Travel Approval' object. The 'Edit Search Layout' section is displayed. The 'Selected Fields' list contains 'Travel Approval #', 'Purpose of Trip', 'Department', 'Status', 'Destination State', 'Trip Start Date', and 'Trip End Date'. The 'Available Fields' list includes 'Record ID', 'Out-of-State', 'Status Indicator', 'Total Expenses', 'Currency', 'Owner Alias', 'Owner First Name', 'Owner Last Name', 'Created By Alias', 'Created By', and 'Created Date'. Buttons for 'Add', 'Up', 'Down', and 'Remove' are used to manage the selected fields.

## Step-8 Customized the “ALL” list View.

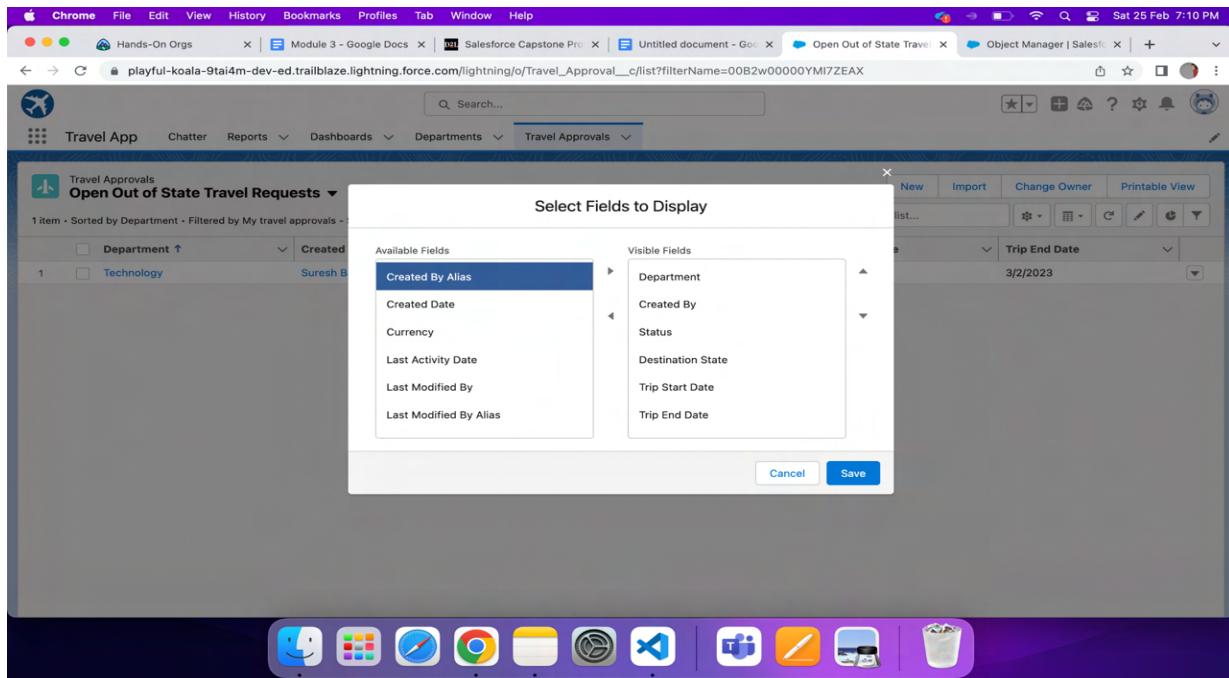
The screenshot shows a Salesforce Lightning interface in a Chrome browser. The title bar includes tabs for Hands-On Orgs, Module 3 - Google Docs, Salesforce Capstone Pro, Untitled document - Google Sheets, ALL | Travel Approvals, and Object Manager | Salesforce. The main navigation bar has links for Travel App, Chatter, Reports, Dashboards, Departments, and Travel Approvals. A modal window titled "Select Fields to Display" is open, allowing users to map available fields from the left panel to visible fields on the right. Available fields include Created By Alias, Created Date, Currency, Destination State, Last Activity Date, and Last Modified By. Visible fields include Department, Created By, Status, Trip Start Date, and Trip End Date. A table below shows travel approval records for Suresh Bandi, categorized by status (Approved or Rejected) and date.

ID	Department	Created By	Status	Trip Start Date	Trip End Date
1	Audit Services	Suresh Bandi	Approved	11/4/2019	11/7/2019
2	Audit Services	Suresh Bandi	Rejected	5/31/2019	6/4/2019
3	Audit Services	Suresh Bandi	Approved	7/8/2019	7/8/2019
4	Audit Services	Suresh Bandi	Rejected	11/22/2019	11/28/2019
5	Audit Services	Suresh Bandi	Approved	4/15/2019	4/15/2019
6	Audit Services	Suresh Bandi	Rejected	4/7/2019	4/19/2019
7	Audit Services				
8	Audit Services				
9	Audit Services				
10	Audit Services				
11	Audit Services				
12	Audit Services				
13	Audit Services				
14	Audit Services				
15	Audit Services				
16	Audit Services				

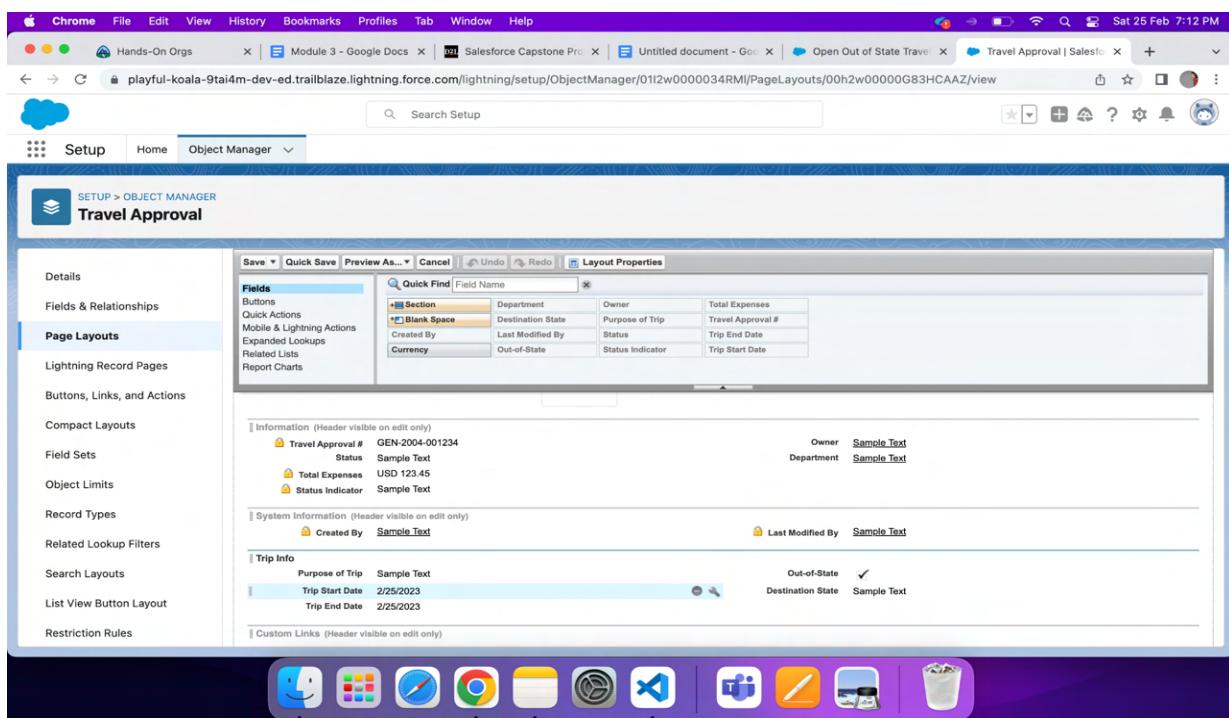
## Step-9 Created Travel approval custom List View “Open Out of State Travel Requests”.

The screenshot shows a Salesforce Lightning interface in a Chrome browser. The title bar includes tabs for Hands-On Orgs, Module 3 - Google Docs, Salesforce Capstone Pro, Untitled document - Google Sheets, Open Out of State Travel Requests | Lightning, and Object Manager | Salesforce. The main navigation bar has links for Travel App, Chatter, Reports, Dashboards, Departments, and Travel Approvals. A list view titled "Open Out of State Travel Requests" is displayed, filtered by "Status, Out-of-State". The list includes one record for Technology department, Draft status, CA destination, trip start date 2/23/2023, and trip end date 3/2/2023. To the right, a "Filters" sidebar shows two active filters: "Filter by Owner: My travel approvals" and "Matching all of these filters: Out-of-State equals True".

## Step- 10 Customized fields to display in the Travel Approval “Open Out Of State Travel Requests” List view.



## Step-11 Customized the Travel Approval Page Layout.



## Step-12 Customized the Expense item related list under Travel Approval page layout.

**Fields**

Section	Department	Owner	Total Expenses
Blank Space	Destination State	Purpose of Trip	Travel Approval #
Created By	Last Modified By	Status	Trip End Date
Currency	Out-of-State	Status Indicator	Trip Start Date

**Notes & Attachments**  
This list is not customizable

**Expense Items**

Expense Item Number	Expense Type	Amount
Sample Text	Sample Text	USD 123.45

**Approval History**

Date	Status	Assigned To	Actual Approver	Comments
2/25/2023, 7:12 PM	Sample Text	Sarah Sample	Sarah Sample	Sample Text

**Related** Details

**Notes & Attachments (0)**

**Expense Items (2)**

Expense Item Number	Expense Type	Amount
E-00003	Airfare	USD 450.00
E-00004	Hotel	USD 870.00

**Approval History (0)**

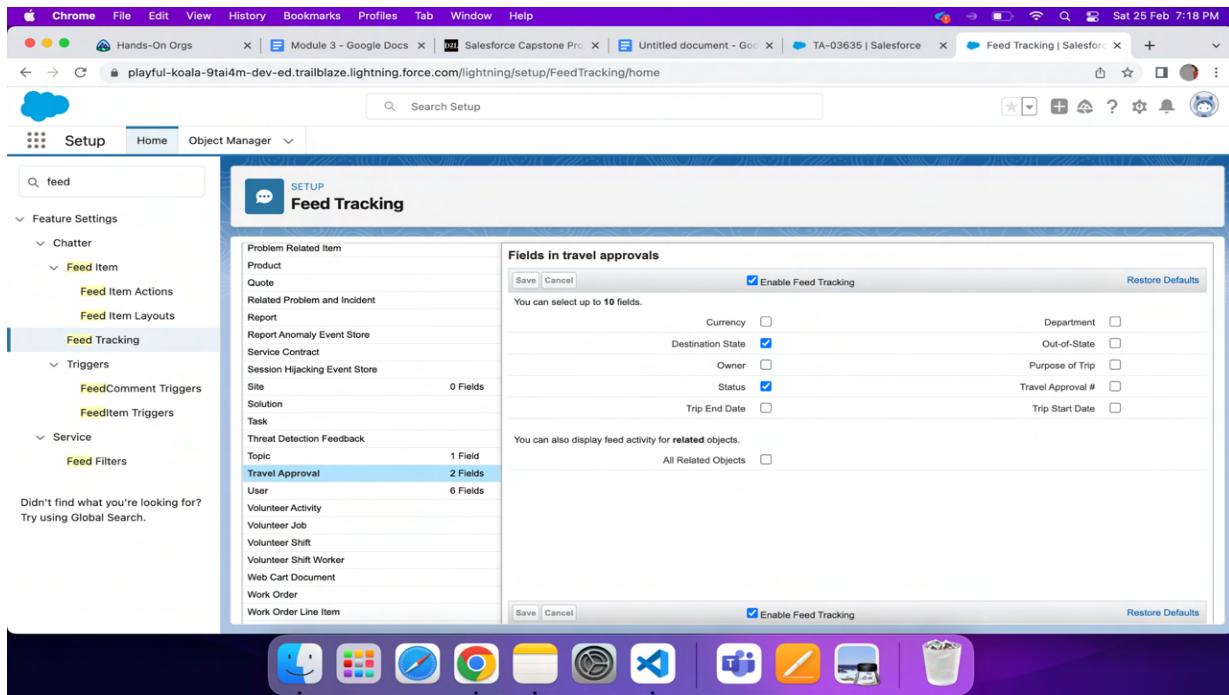
**Activity** Chatter

Filters: All time • All activities • All types

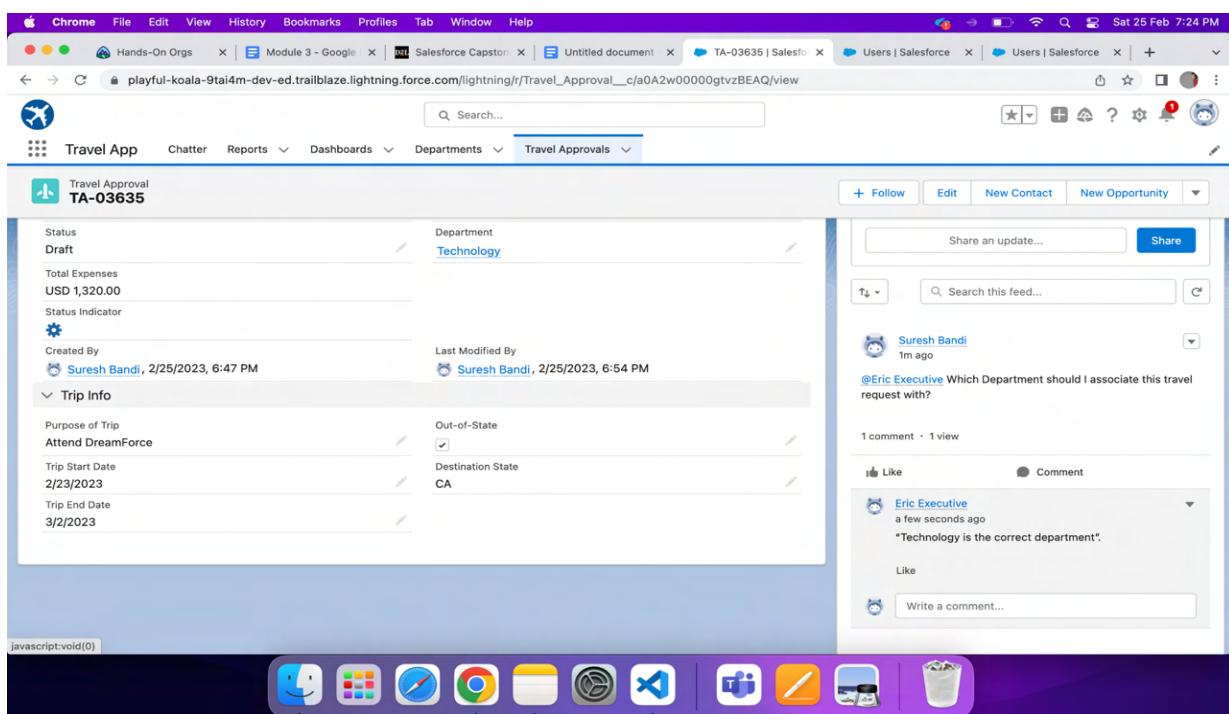
No activities to show. Get started by sending an email, scheduling a task, and more.

No past activity. Past meetings and tasks marked as done show up here.

## Step- 13 Enabled feed tracking on Travel Approval Custom Object.



## Test Collaboration.



## Overview of Travel Approval App.

The screenshot shows a web browser window with multiple tabs open, including "Hands-On Orgs", "Module 3 - Google", "Salesforce Capstone", "Untitled document", "TA-03635 | Salesforce", "Users | Salesforce", and "Users | Salesforce". The main content area displays the "Travel App" interface. At the top, there's a navigation bar with links for "Chatter", "Reports", "Dashboards", "Departments", and "Travel Approvals". Below this, a specific travel approval record is shown for "TA-03635". The record details include:

- Status: Draft
- Department: Technology
- Total Expenses: USD 1,320.00
- Status Indicator: (gear icon)
- Created By: Suresh Bandi, 2/25/2023, 6:47 PM
- Last Modified By: Suresh Bandi, 2/25/2023, 6:54 PM
- Trip Info:
  - Purpose of Trip: Attend DreamForce
  - Out-of-State: checked
  - Trip Start Date: 2/23/2023
  - Destination State: CA
  - Trip End Date: 3/2/2023

On the right side of the page, there's a Chatter feed. A comment from "Suresh Bandi" (@Eric Executive) asks, "Which Department should I associate this travel request with?". Another comment from "Eric Executive" (@Eric Executive) replies, "Technology is the correct department". There are also "Like" and "Comment" buttons, and a text input field for writing a comment.

## Module -2

### Exercise-1

Step-1 Created validation rule

logic :- Trip End date must greater than Trip Start date

The screenshot shows the Salesforce Setup interface for the 'Travel Approval' object. On the left, a sidebar lists various setup categories like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Travel Approval Validation Rule' and displays the following details:

Validation Rule Detail	
Rule Name	Trip_end_date_after_start_date
Error Condition Formula	Trip_End_Date__c < Trip_Start_Date__c
Error Message	Trip end date must be greater than or equal to start date
Description	
Created By	Suresh Bandi, 2/14/2023, 10:09 PM
Active	✓
Error Location	Trip End Date
Modified By	Suresh Bandi, 2/16/2023, 2:29 PM

Step-2 Created Roll-Up Summary Field on Travel Approval Object.

Logic:- Sum-up the total expenses from related expense item

The screenshot shows the Salesforce Setup interface for the 'Travel Approval' object. The 'Fields & Relationships' tab is selected in the sidebar. The main content area is titled 'Travel Approval Custom Field Total Expenses' and displays the following details:

Custom Field Definition Detail	
Field Information	
Field Label	Total Expenses
Field Name	Total_Expenses__c
API Name	Total_Expenses__c
Description	
Help Text	
Data Owner	
Field Usage	
Data Sensitivity Level	
Compliance Categorization	
Created By	Suresh Bandi, 2/14/2023, 10:12 PM
Modified By	Suresh Bandi, 2/14/2023, 10:12 PM

Below the field information, there is a section for 'Roll-Up Summary Options' with the following settings:

Data Type	Roll-Up Summary
Summarized Object	Expense Item
Field to Aggregate	Expense Item: Amount
Filter Criteria	

## Step-3 Created Static Resources.

The screenshot shows the Salesforce Setup interface for managing Static Resources. On the left, a sidebar lists 'Custom Code' and 'Static Resources'. The main area displays a 'StatusImages' resource with the following details:

Name	StatusImages
Namespace Prefix	
Description	
MIME Type	application/zip
Cache Control	Public
Size	39,130 bytes
<a href="#">View file</a>	
Created By	Suresh Bandi, 2/14/2023, 10:15 PM
Last Modified By	Suresh Bandi, 2/14/2023, 10:15 PM

At the bottom of the page are 'Edit', 'Delete', and 'Where is this used?' buttons.

## Step-4 Created a Formula field on the Travel Approval Object to show an image based on the status field.

The screenshot shows the Salesforce Setup interface for the 'Travel Approval' object. On the left, a sidebar lists various customization options like 'Page Layouts', 'Buttons, Links, and Actions', and 'Field Sets'. The main area shows the 'Status Indicator' custom field definition with the following details:

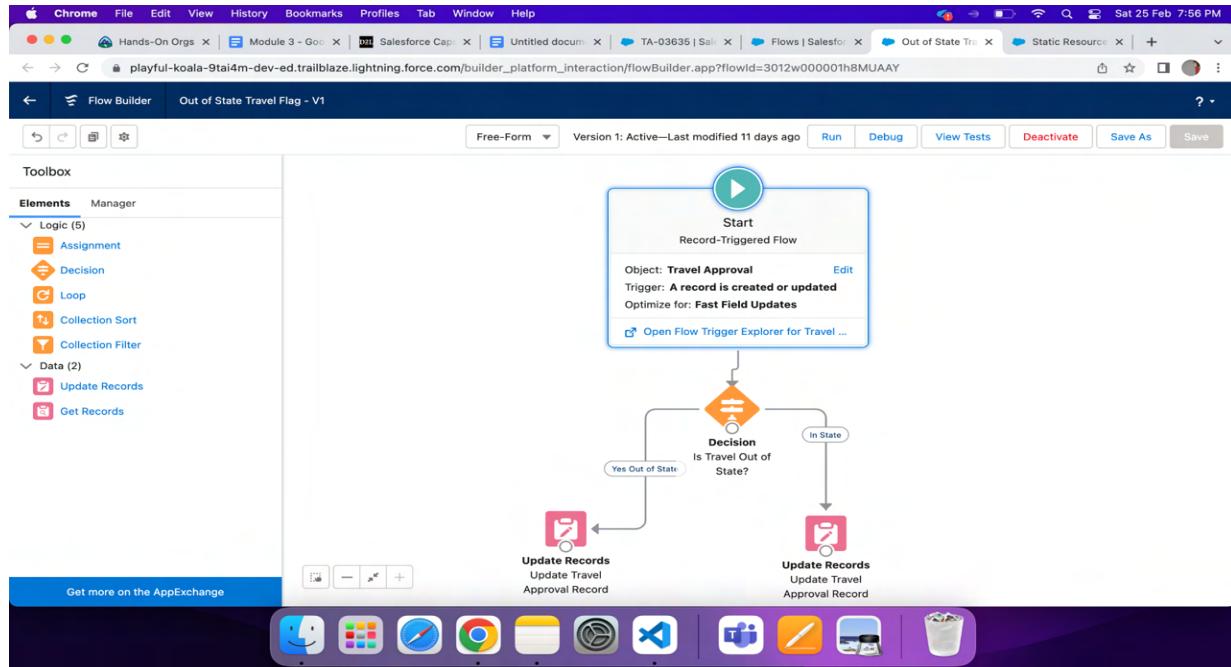
**Custom Field Definition Detail**

Field Information	Object Name
Field Label: Status Indicator Field Name: Status_Indicator API Name: Status__Indicator__c Description: Help Text: Data Owner: Field Usage: Data Sensitivity Level: Compliance Categorization: Created By: Suresh Bandi, 2/14/2023, 10:16 PM	Travel Approval
Modified By: Suresh Bandi, 2/14/2023, 10:16 PM	

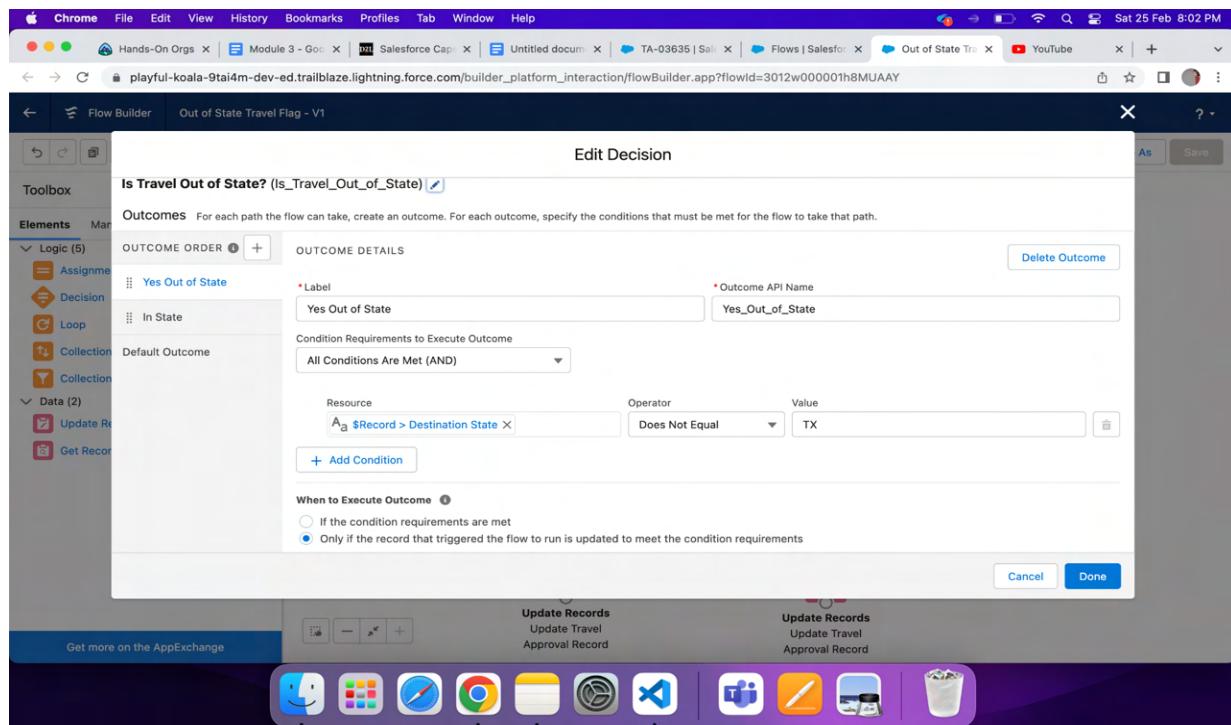
**Formula Options**

Data Type	Formula
Formula	IF( ISPICKVAL( Status__c , 'Approved') , IMAGE( "/resource/Status/Images/thumbs-up.png" , "Accepted" , 20, 20) , IF( ISPICKVAL( Status__c , 'Rejected') , IMAGE( "/resource/Status/Images/thumbs-down.png" , "Rejected" , 20, 20) , IMAGE( "/resource/Status/Images/draft.png" , "In-Process" , 20, 20) ) )

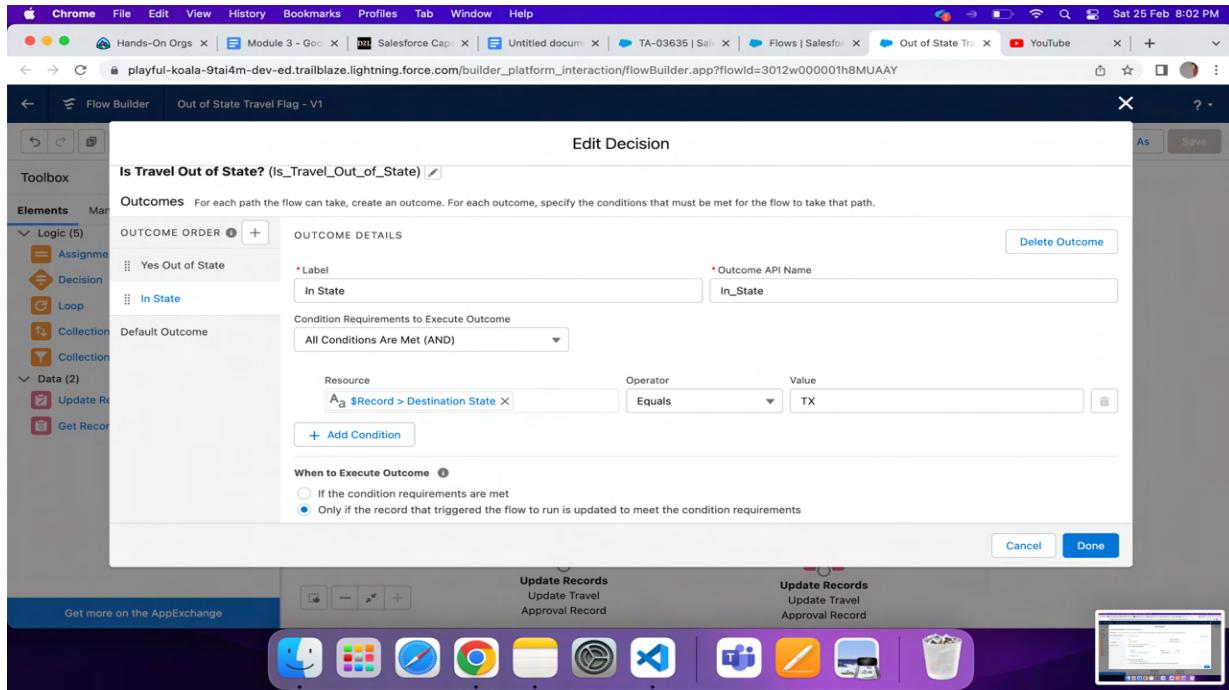
## Step- 5 Create Record Triggered Flow



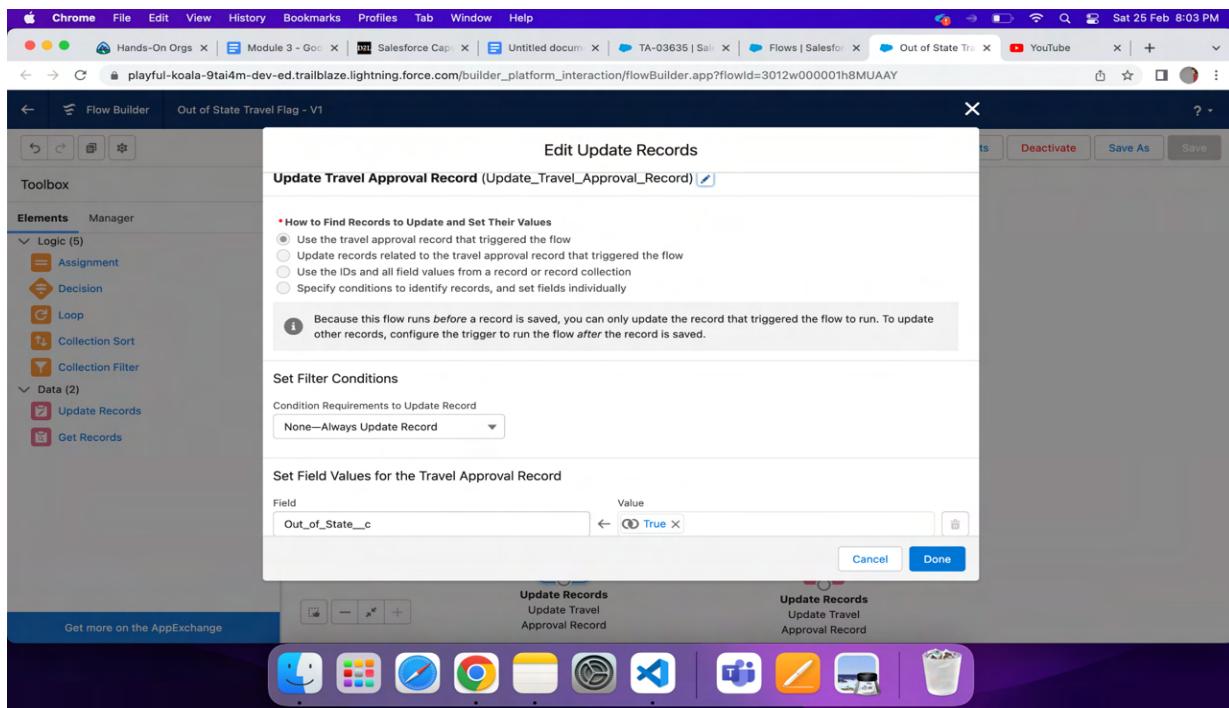
Added Decision Element to the flow  
Outcome 1 :- IF travel is Out of State



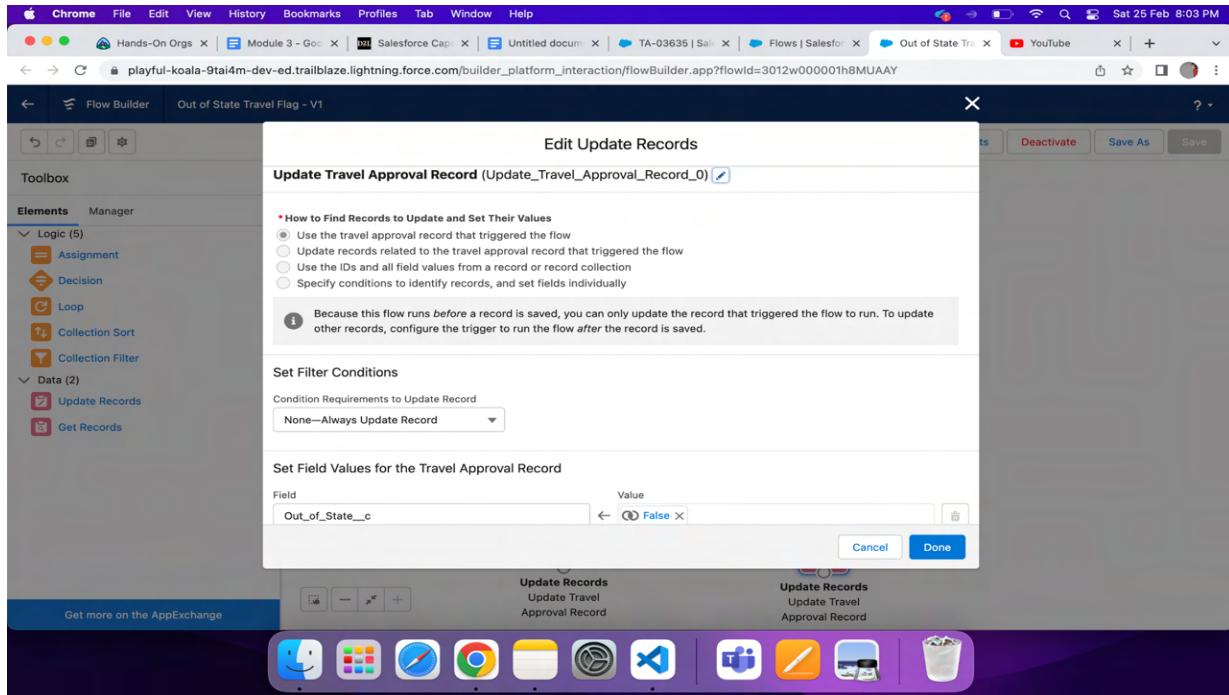
## Outcome 2 :- IF travel is In the State



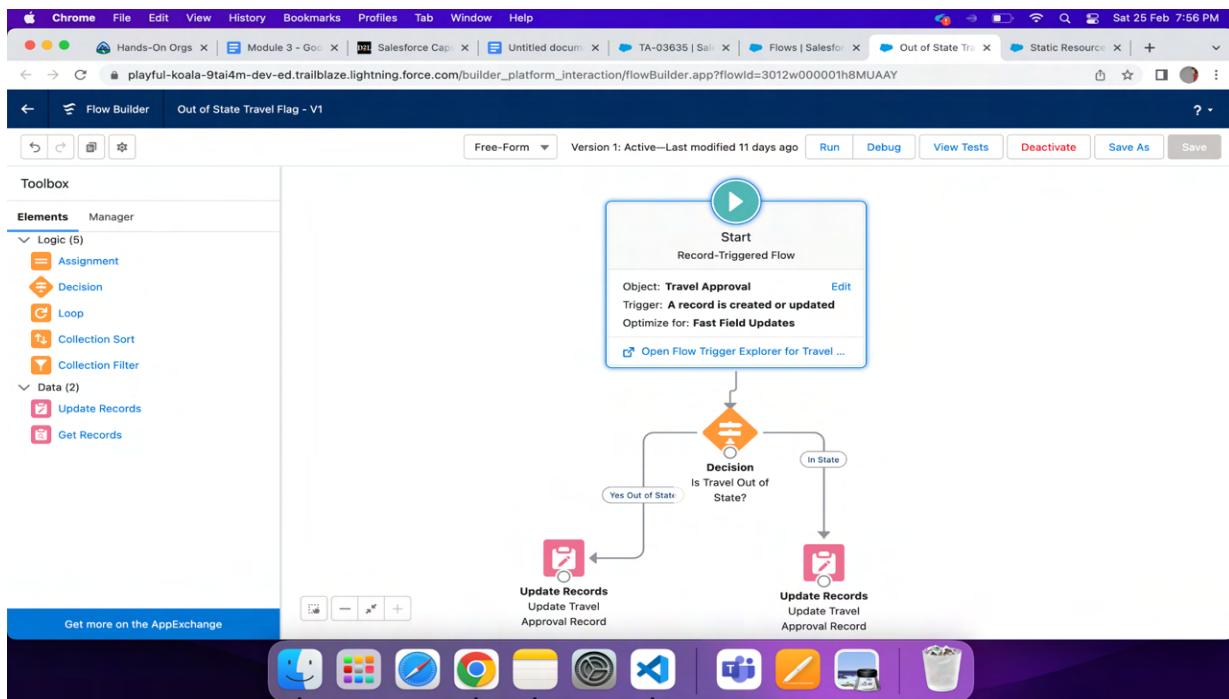
Updated the Travel Approval record when Travel is out of State.



Updated the Travel Approval record when Travel is In the State.



## Out Of State Travel Flag (Flow)



## Step-6 Created an Approval process for Travel Approval request.

The screenshot shows the Salesforce Setup interface with the following details:

- Page Title:** Approval Processes
- Section:** Approval Processes
- Process Name:** Travel Approval Request
- Unique Name:** Travel\_Approval\_Request
- Description:** True
- Record Editability:** Administrator ONLY
- Initial Submitters:** Travel Approval Owner
- Created By:** Suresh Bandi, 2/14/2023, 10:30 PM
- Active:** Yes
- Manager of Record Submitter:** Yes
- Last Modified:** Suresh Bandi, 2/25/2023, 8:16 PM
- Buttons:** Edit, Clone, Deactivate

## Created Approval Step for out of state travel

Action	Step Number	Name	Description	Criteria	Assigned Approver	Reject Behavior
Show Actions   Edit	1	Step 1			Manager	Final Rejection
Show Actions   Edit	2	Travel Coordinator Approval		Travel Approval: Out-of-State EQUALS True	User:Suresh Bandi	Final Rejection

## Created Final Approval Action

The screenshot shows the Field Updates page with the following details:

- Field Update:** Set Status to Approved
- Object:** Travel Approval
- Field to Update:** Travel Approval: Status
- Field Data Type:** Picklist
- New Field Value:** Approved
- Buttons:** Edit, Delete

## Created Final Rejection Action.

The screenshot shows the Salesforce Setup interface under the 'Field Updates' section. A new field update is being created with the following details:

- Name:** Set Status to Reject
- Unique Name:** Set\_Status\_to\_Reject
- Description:** (empty)
- Object:** Travel Approval
- Field to Update:** Travel Approval: Status
- Field Data Type:** Picklist
- Re-evaluate Workflow Rules after Field Change:** (checkbox checked)
- New Field Value:** Rejected

Buttons at the bottom include 'Edit' and 'Delete' for the field update record.

## Tested the Approval Process.

The screenshot shows a pending approval request in the Travel App. The approval step is labeled 'Travel Approval Approval' and is currently 'Pending'. The details are:

Submitter	Date Submitted	Actual Approver	Assigned To
Suresh Bandi	Feb 25, 2023	Eric Executive	Eric Executive

Comments from the submitter (Suresh Bandi) are present:

**Submitter Comments**  
Suresh Bandi  
Please Approve  
Feb 25, 2023, 7:57:32 AM

The screenshot shows the approval process step for TA-03635, which has now been approved. The details are:

Submitter	Date Submitted	Actual Approver	Assigned To
Suresh Bandi	Feb 25, 2023	Suresh Bandi	Suresh Bandi

Comments from the approver (Suresh Bandi) are present:

**Approver Comments**  
Suresh Bandi  
Approved  
Feb 25, 2023, 8:29:51 PM

## Exercise - 2

### Step-1 Imported Travel Approval Records Using Data Import Wizard.

Department	Created By	Status	Trip Start Date	Trip End Date
Audit Services	Suresh Bandi	Rejected	8/9/2019	8/15/2019
Audit Services	Suresh Bandi	Approved	2/28/2019	3/6/2019
Audit Services	Suresh Bandi	Approved	4/30/2019	5/10/2019
Audit Services	Suresh Bandi	Approved	12/27/2019	1/10/2020
Audit Services	Suresh Bandi	Approved	9/21/2019	10/6/2019
Audit Services	Suresh Bandi	Approved	9/3/2019	9/3/2019
Audit Services	Suresh Bandi	Approved	3/20/2019	4/10/2019
Audit Services	Suresh Bandi	Approved	7/8/2019	7/9/2019
Audit Services	Suresh Bandi	Approved	8/7/2019	8/7/2019
Audit Services	Suresh Bandi	Approved	2/18/2019	2/20/2019
Audit Services	Suresh Bandi	Approved	11/4/2019	11/7/2019
Audit Services	Suresh Bandi	Rejected	5/31/2019	6/4/2019
Audit Services	Suresh Bandi	Approved	7/8/2019	7/8/2019
Audit Services	Suresh Bandi	Rejected	11/22/2019	11/28/2019
Audit Services	Suresh Bandi	Approved	4/15/2019	4/15/2019
Audit Services	Suresh Bandi	Rejected	4/7/2019	4/19/2019

### Step-2 Created Travel Requests by Department Report.

Department	Travel Approval #	Out-of-State	Destination State	Trip Start Date	Trip End Date
Audit Services (16)	TA-03384	<input type="checkbox"/>	TX	4/30/2019	5/10/2019
	TA-03403	<input checked="" type="checkbox"/>	OK	12/27/2019	1/10/2020
	TA-03452	<input checked="" type="checkbox"/>	OK	7/8/2019	7/9/2019
	TA-03508	<input checked="" type="checkbox"/>	OK	11/4/2019	11/7/2019

## Step-3 Created Travel Requests by Month Report.

The screenshot shows a Salesforce Lightning report titled "Travel Requests by Month". The report displays travel approvals for January and February 2019. The data is organized by trip end date, travel approval number, department, status, destination state, and trip start date. A subtotal section shows approvals for February 2019. The report interface includes a search bar, enable field editing, add chart, and edit buttons at the top right. The bottom features a toolbar with various icons and a Mac OS X dock at the bottom.

Trip End Date	Travel Approval #	Department	Status	Destination State	Trip Start Date
January 2019 (17)	TA-03400	Legislative Services	Approved	TX	1/20/2019
	TA-03436	Disability Determination Bureau	Approved	TX	1/12/2019
	TA-03423	Office of General Counsel	Rejected	TX	1/27/2019
	TA-03570	Division of Aging	Approved	TX	1/22/2019
	TA-03582	Quality and Compliance Office	Approved	TX	1/14/2019
	TA-03591	Contract Management	Approved	TX	1/18/2019
<b>Subtotal</b>					
February 2019 (11)	TA-03378	Division of Aging	Approved	OK	1/24/2019
	TA-03438	Division of Aging	Approved	FL	1/3/2019
	TA-03448	Division of Mental Health and Addiction	Approved	OK	1/3/2019
	TA-03449	Contract Management	Approved	GA	1/30/2019
	TA-03357	Office of Communications and Media	Rejected	FL	1/12/2019
	TA-03363	Division of Disability and Rehabilitative Services	Approved	OK	1/23/2019
	TA-03493	Division of Disability and Rehabilitative Services	Approved	FL	1/29/2019

## Step -4 Created Travel Approvals Dashboard.

The screenshot shows a Salesforce Lightning dashboard titled "Travel Requests Dashboard". The dashboard displays two charts: "Travel Requests by Department" and "Travel Requests by Month". The "Travel Requests by Department" chart is a horizontal bar chart showing the record count for various departments. The "Travel Requests by Month" chart is a stacked bar chart showing the record count for each month from January 2019 to March 2020, categorized by whether the trip was out-of-state or not. The dashboard also includes a message indicating it was last updated on Feb 25, 2023, at 9:45 PM.

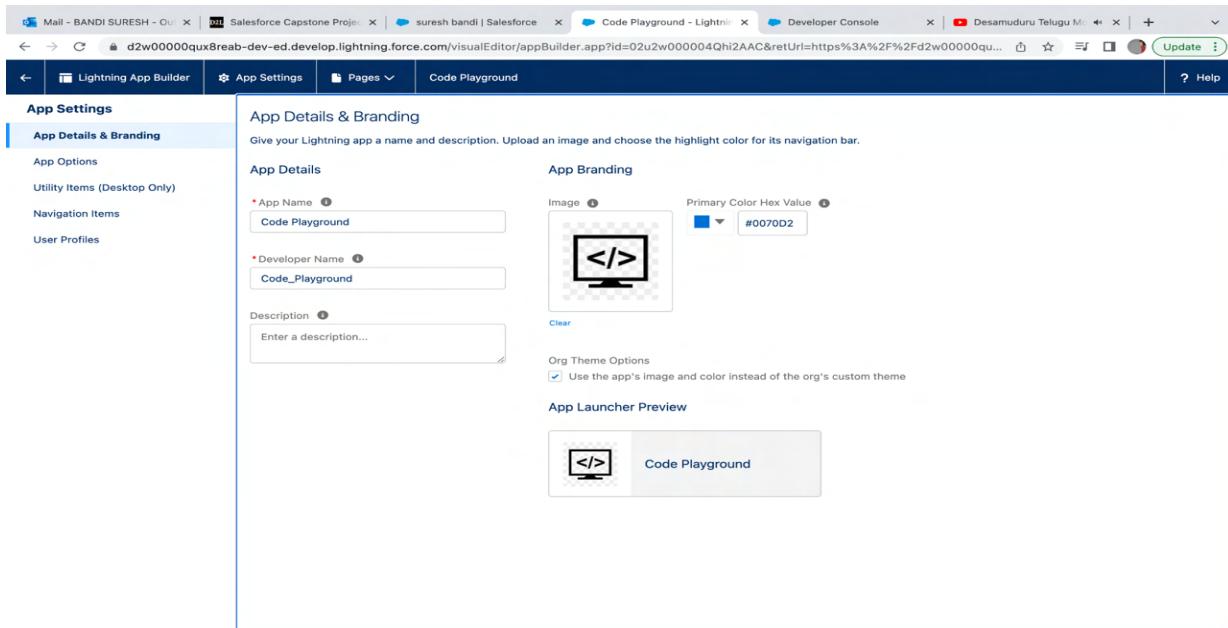
Department	Record Count
Audit Services	18
Contract Management	20
Disability Determination B...	19
Division of Aging	20
Division of Disability and ...	21
Division of Family Resour...	18
Division of Finance	19
Division of Mental Health ...	17
Human Resources	18
Legislative Services	19
Office of Communication...	23
Office of Early Childhood ...	19

Trip End Date	Out-of-State	Record Count
January 2...	false	~18
February 2...	false	~22
March 2019	true	~25
April 2019	false	~20
May 2019	false	~18
June 2019	false	~22
July 2019	false	~25
August 2019	false	~20
September...	false	~25
October 2...	false	~15
November...	false	~22
December...	false	~25
January 2...	false	~10
February 2...	false	~5
March 2020	false	~5

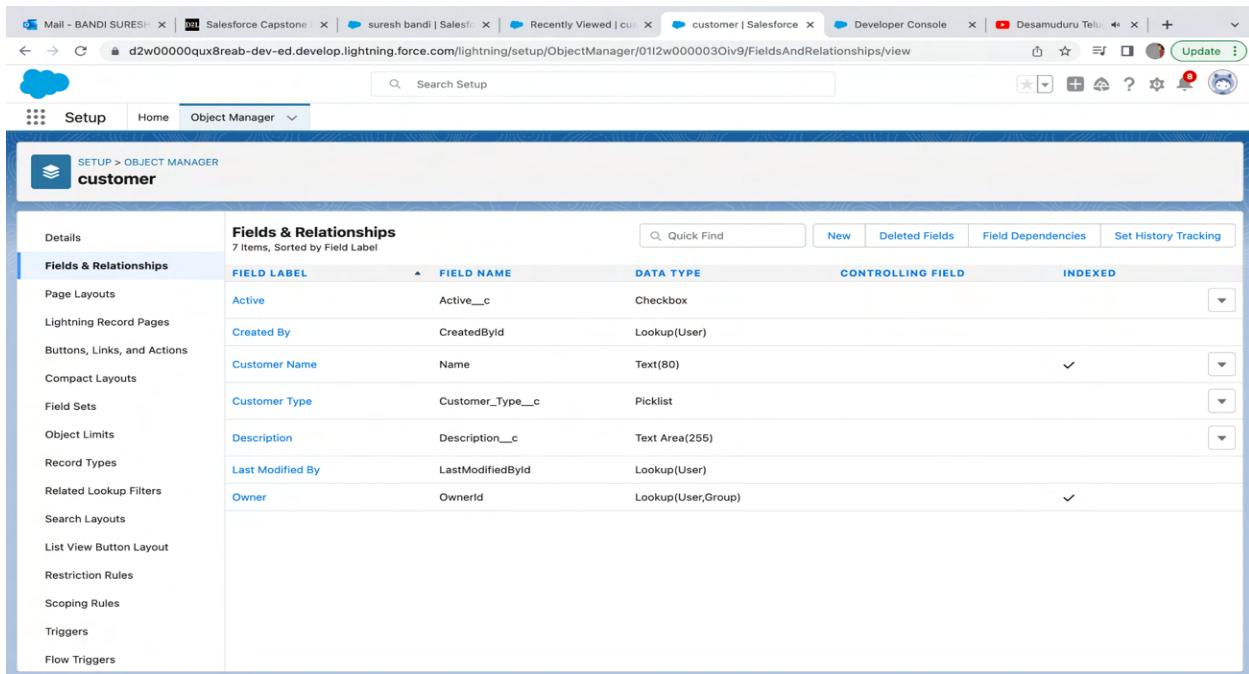
# Module - 3

## Exercise - 1

Created Lightning App “Code PlayGround”



Created customer Custom Object and Respective custom fields.



## Created Billing Custom Object and respective custom fields.

The screenshot shows the Salesforce Setup interface under Object Manager. On the left, a sidebar lists various setup categories like Page Layouts, Lightning Record Pages, Buttons, etc. The main area is titled 'Fields & Relationships' for the 'Billing' object. It displays seven items, sorted by Field Label. The columns include Field Label, Field Name, Data Type, Controlling Field, and Indexed status. The fields listed are:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount Paid	Amount_Paid__c	Currency(10, 0)		
Billing Number	Name	Auto Number		✓
Created By	CreatedById	Lookup(User)		
Customer	Customer__c	Master-Detail(customer)		✓
Customer Type	Customer_Type__c	Picklist		
Last Modified By	LastModifiedById	Lookup(User)		
Status	Status__c	Picklist		

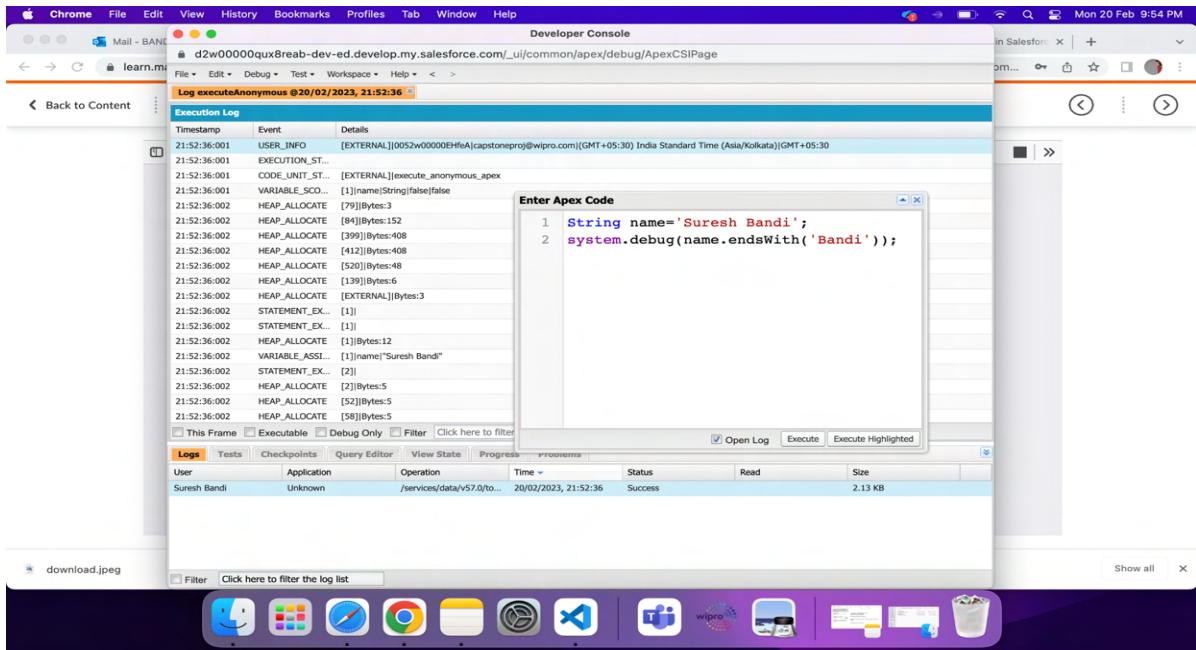
## Code PlayGround App :

The screenshot shows a custom application named 'Code Playground' running on Salesforce. The top navigation bar includes links for Accounts, Leads, Contacts, Opportunities, Cases, customers, and Billings. The main content area is titled 'All Accounts' and displays a list of 13 accounts. The columns are Account Name, Account Site, Billing State/Province, Phone, Type, and Account Owner. The account names listed are:

Account Name	Account Site	Billing State/Province	Phone	Type	Account Owner
Burlington Textiles Corp of America	NC	(336) 222-7000		Customer - Direct	SBand
Dickenson plc	KS	(785) 241-6200		Customer - Channel	SBand
Edge Communications	TX	(512) 757-6000		Customer - Direct	SBand
Express Logistics and Transport	OR	(503) 421-7800		Customer - Channel	SBand
GenePoint	CA	(650) 867-3450		Customer - Channel	SBand
Grand Hotels & Resorts Ltd	IL	(312) 596-1000		Customer - Direct	SBand
Pyramid Construction Inc.		(014) 427-4427		Customer - Channel	SBand
Sample Account for Entitlements					autopro
sForce	CA	(415) 901-7000			SBand
United Oil & Gas Corp.	NY	(212) 842-5500		Customer - Direct	SBand
United Oil & Gas, Singapore	Singapore	(650) 450-8810		Customer - Direct	SBand
United Oil & Gas, UK	UK	+44 191 4956203		Customer - Direct	SBand
University of Arizona	AZ	(520) 773-9050		Customer - Direct	SBand

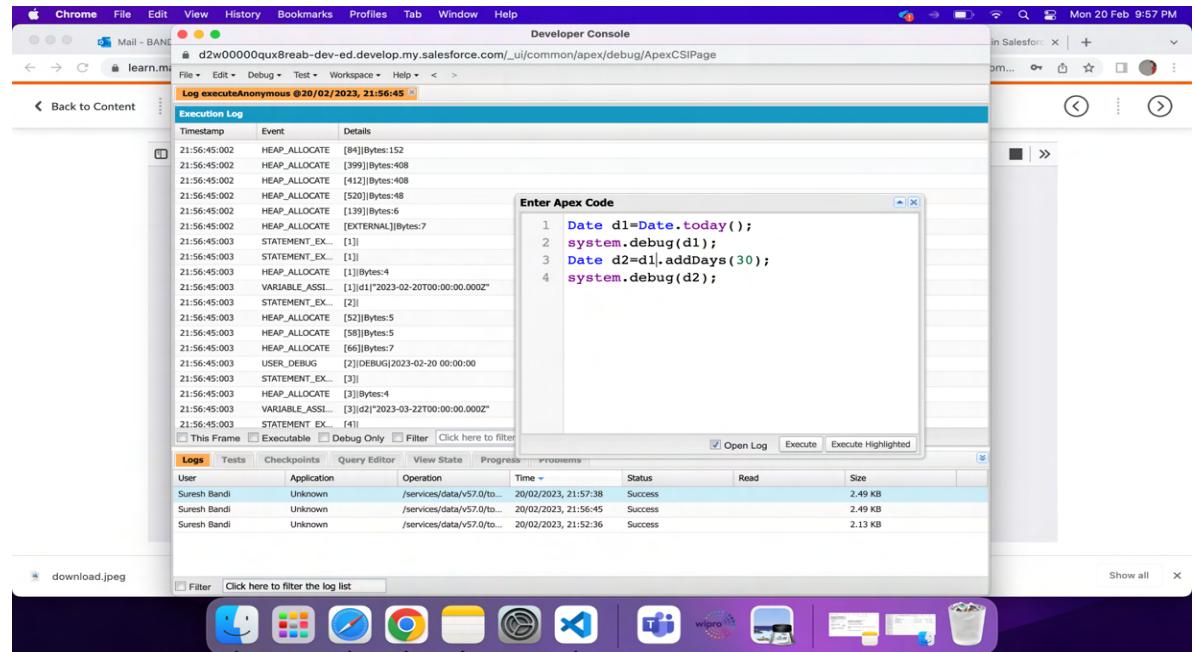
## Exercise -2

Define a String variable endsWith() method to display output.



```
String name='Suresh Bandi';
system.debug(name.endsWith('Bandi'));
```

Define 2 Date type variables, use Date method today() and addDays(30) to display output.



```
Date d1=Date.today();
system.debug(d1);
Date d2=d1.addDays(30);
system.debug(d2);
```

Define an output of integer variable from string '10' and add 20 to it.

```
string s='10';
integer num=integer.valueOf(s);
system.debug(num);
system.debug(num+20);
```

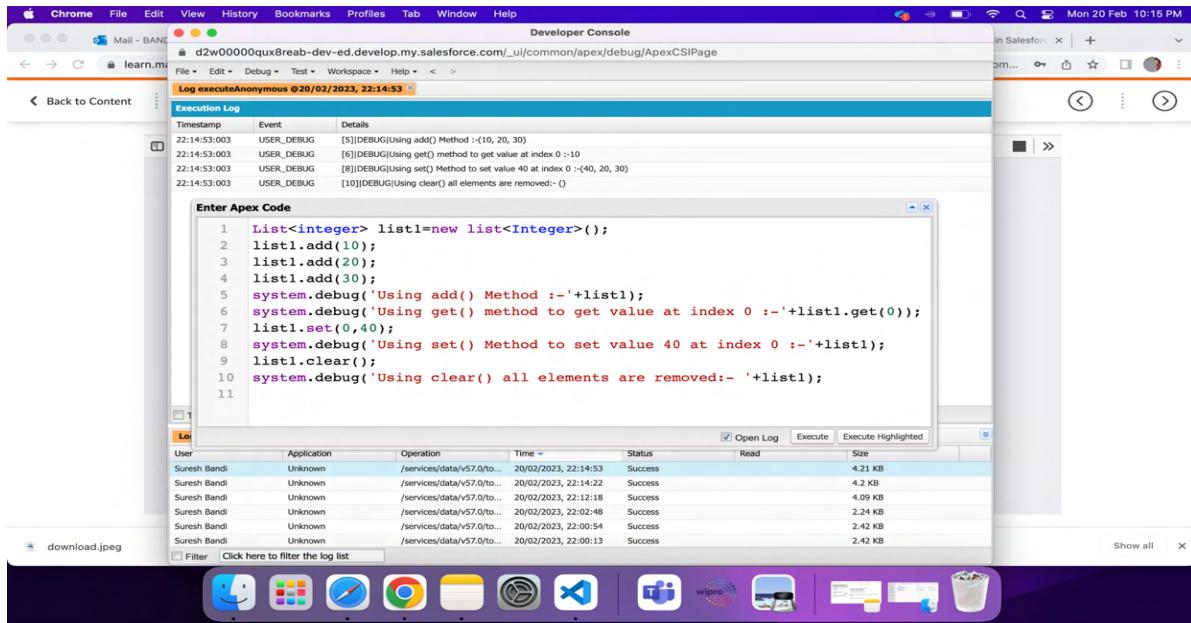
User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 22:00:54	Success	2.42 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 22:00:13	Success	2.42 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:57:38	Success	2.49 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:56:45	Success	2.49 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:52:36	Success	2.13 KB	

Define a string variable & use string method length() to display the output.

```
String name='Suresh';
system.debug('length of string'+name.length());
```

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 22:02:48	Success	2.24 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 22:00:54	Success	2.42 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 22:00:13	Success	2.42 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:57:38	Success	2.49 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:56:45	Success	2.49 KB	
Suresh Bandi	Unknown	/services/data/v57.0/to...	20/02/2023, 21:52:36	Success	2.13 KB	

Define a list of integers and display the output using add(), get(), set(), clear() methods.



The screenshot shows the Salesforce Developer Console interface. The top navigation bar includes File, Edit, View, History, Bookmarks, Profiles, Tab, Window, and Help. The title bar displays the URL: d2w00000qqux8reab-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage. The main area has tabs for Execution Log, Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Execution Log tab is active, showing a log entry for executeAnonymous at 2023-02-20T10:14:53. The log details the execution of the following Apex code:

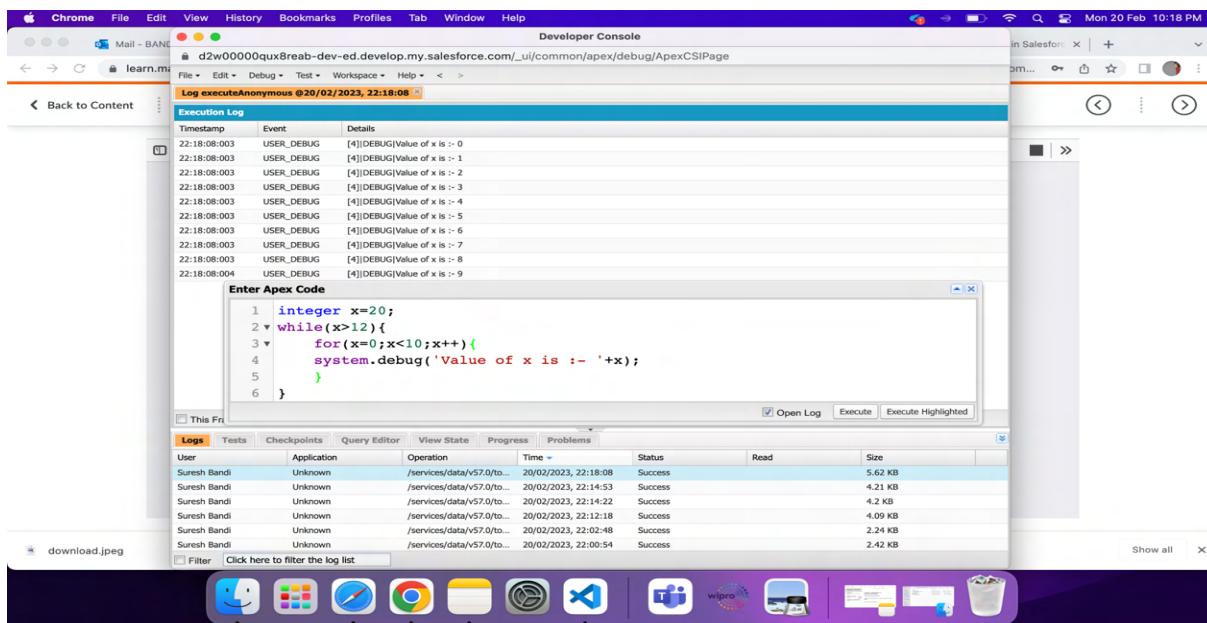
```

List<integer> list1=new list<Integer>();
list1.add(10);
list1.add(20);
list1.add(30);
system.debug('Using add() Method :-'+list1);
system.debug('Using get() method to get value at index 0 :-'+list1.get(0));
list1.set(0,40);
system.debug('Using set() Method to set value 40 at index 0 :-'+list1);
list1.clear();
system.debug('Using clear() all elements are removed:- '+list1);

```

The Logs tab shows a table of log entries for the current session, with one entry highlighted for the user Suresh Bandi. The bottom of the screen shows a Mac OS X dock with various application icons.

Print numbers from 0 to 9



The screenshot shows the Salesforce Developer Console interface. The top navigation bar includes File, Edit, View, History, Bookmarks, Profiles, Tab, Window, and Help. The title bar displays the URL: d2w00000qqux8reab-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage. The main area has tabs for Execution Log, Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Execution Log tab is active, showing a log entry for executeAnonymous at 2023-02-20T10:18:08. The log details the execution of the following Apex code:

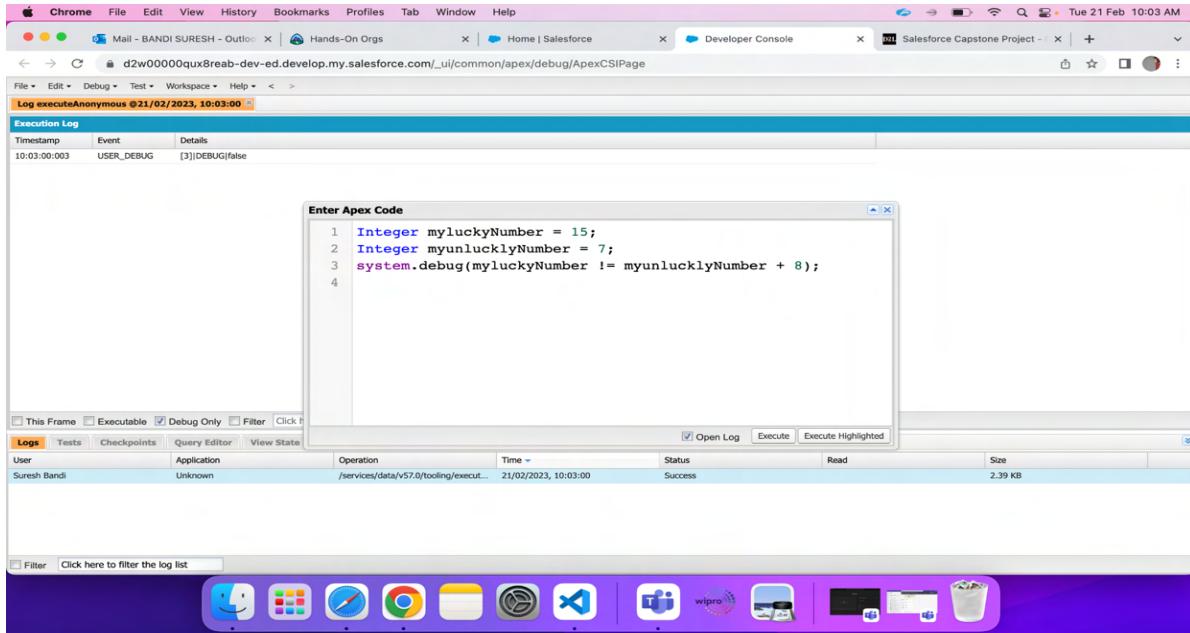
```

integer x=20;
while(x>12){
    for(x=0;x<10;x++){
        system.debug('Value of x is :- '+x);
    }
}

```

The Logs tab shows a table of log entries for the current session, with one entry highlighted for the user Suresh Bandi. The bottom of the screen shows a Mac OS X dock with various application icons.

## Exercise- 3



Execution Log

Timestamp	Event	Details
10:03:00.003	USER_DEBUG	[3]DEBUG:false

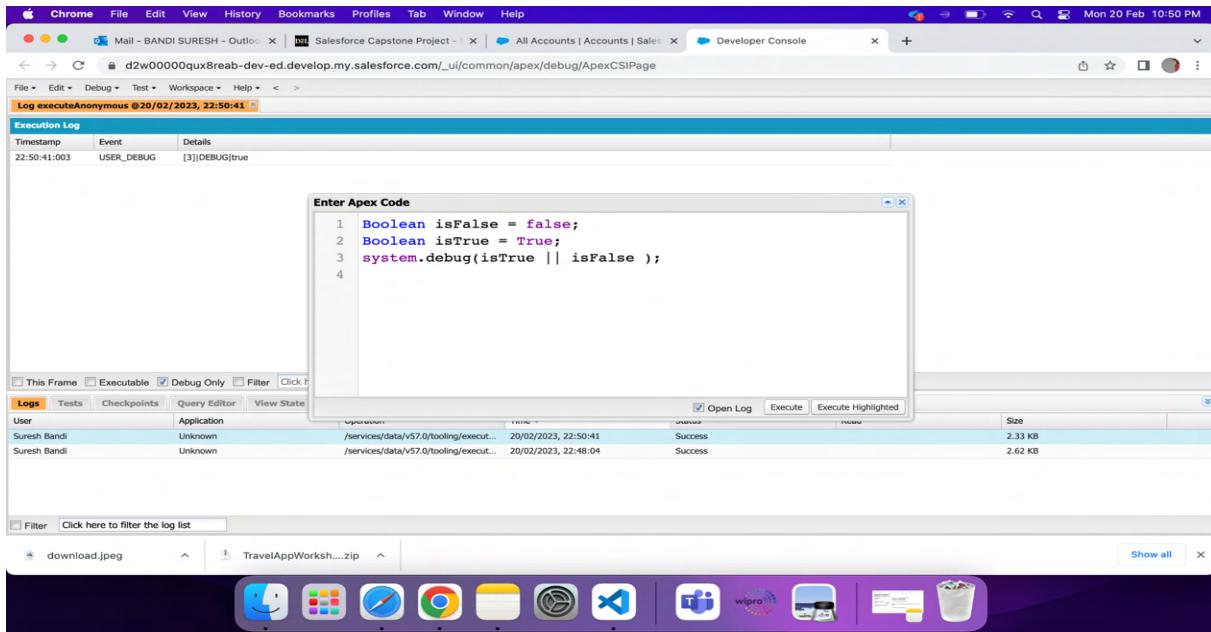
Enter Apex Code

```
1 Integer myluckyNumber = 15;
2 Integer myunluckyNumber = 7;
3 system.debug(myluckyNumber != myunluckyNumber + 8);
4
```

Logs Tests Checkpoints Query Editor View State

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 10:03:00	Success		2.39 KB

## Exercise - 4



Execution Log

Timestamp	Event	Details
22:50:41:003	USER_DEBUG	[3]DEBUG:true

Enter Apex Code

```
1 Boolean isFalse = false;
2 Boolean isTrue = True;
3 system.debug(isTrue || isFalse );
```

Logs Tests Checkpoints Query Editor View State

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	20/02/2023, 22:50:41	Success		2.33 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	20/02/2023, 22:48:04	Success		2.62 KB

## Exercise - 5

```
1 Date today = Date.today();
2 Date tomorrow = Date.today().addDays(1);
3 System.debug(today != tomorrow);
4
```

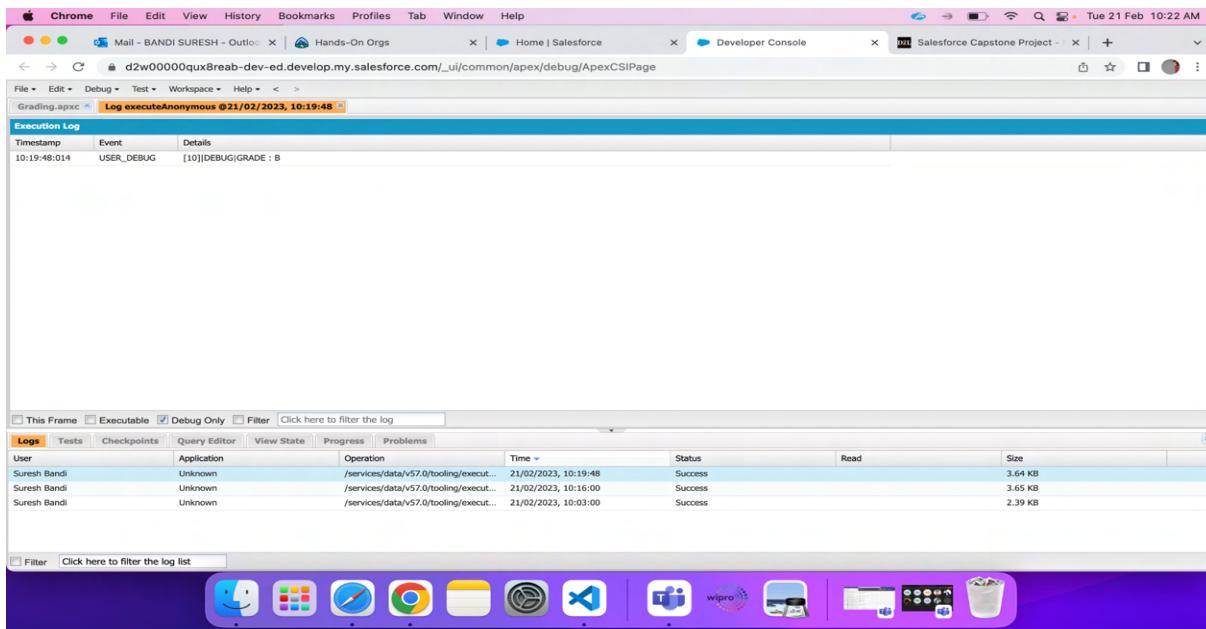
User	Operation	Time	Status	Size
Suresh Bandi	/services/data/v57.0/tooling/execut...	20/02/2023, 22:54:32	Success	2.43 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	20/02/2023, 22:53:25	Success	2.43 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	20/02/2023, 22:53:14	Success	2.43 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	20/02/2023, 22:50:41	Success	2.33 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	20/02/2023, 22:48:04	Success	2.62 KB

## Exercise - 6

Write a program and execute to demo the use of “if..else if...else”.

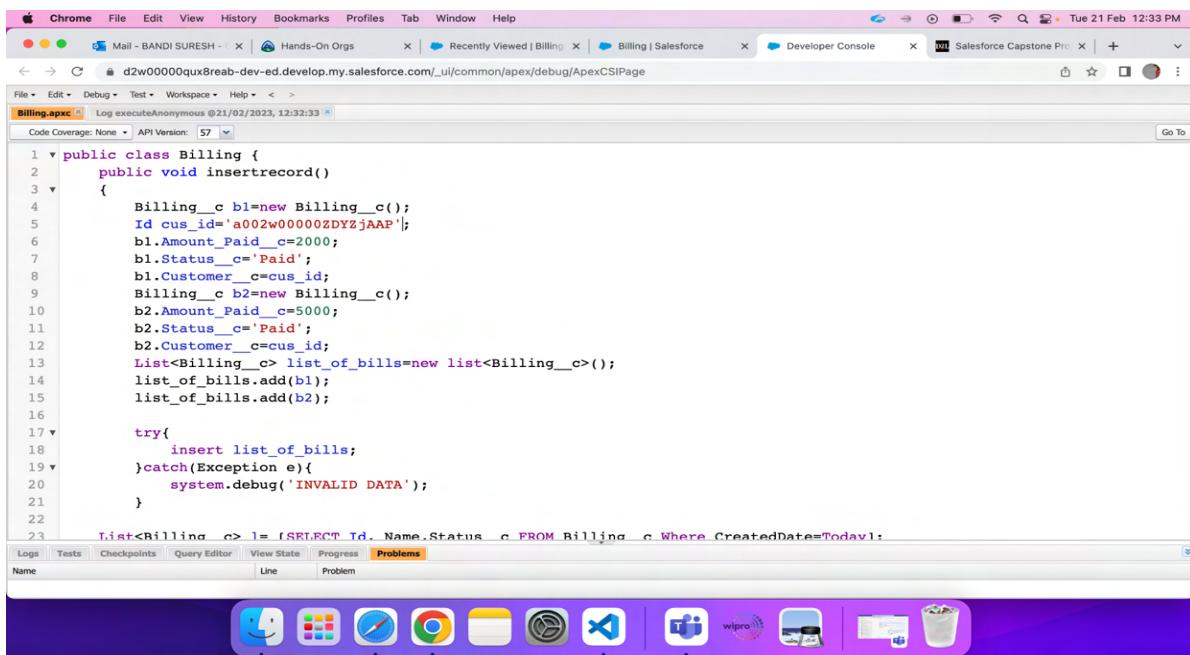
```
1 public class Grading {
2     public integer score=86;
3
4     public void grad(){
5         if(score==100){
6             system.debug('GRADE : A+');
7         }else if(score>=90){
8             system.debug('GRADE : A');
9         }else if(score>=80){
10            system.debug('GRADE : B');
11        }else{
12            System.debug('Grade: Failed');
13        }
14    }
15 }
```

User	Operation	Time	Status	Read	Size
Suresh Bandi	/services/data/v57.0/tooling/execut...	21/02/2023, 10:19:48	Success		3.64 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	21/02/2023, 10:16:00	Success		3.65 KB
Suresh Bandi	/services/data/v57.0/tooling/execut...	21/02/2023, 10:03:00	Success		2.39 KB



## Exercise - 7

Write a Program to execute and demo the use of “Apex - for loop”.



Chrome File Edit View History Bookmarks Profiles Tab Window Help

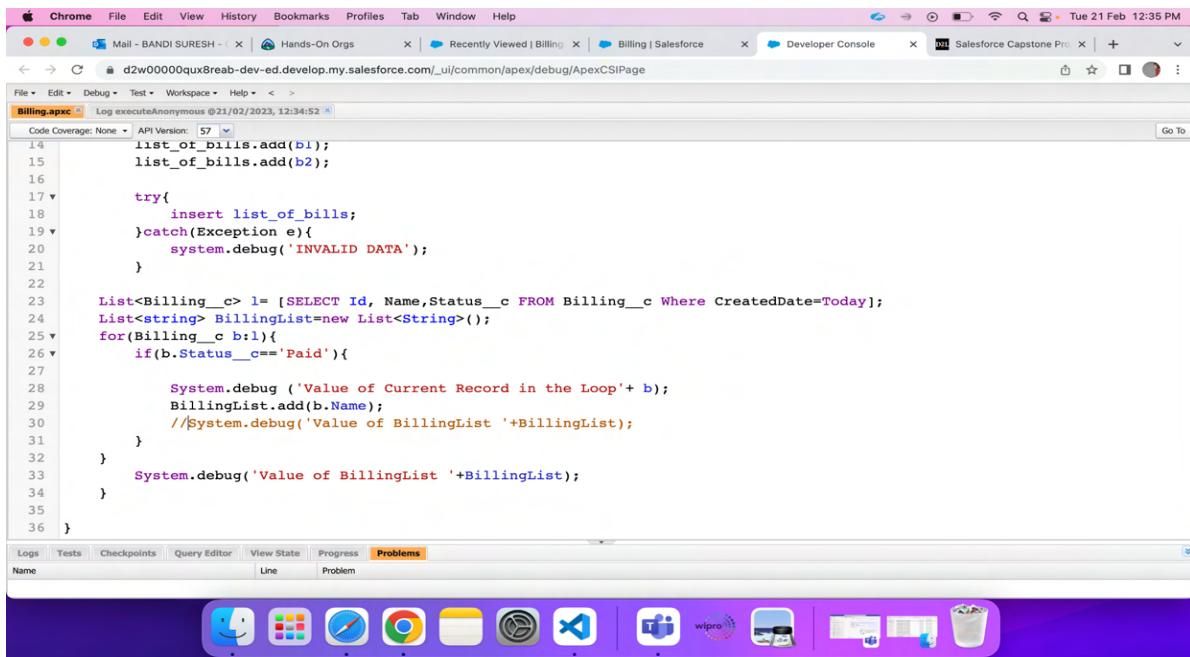
Mail - BANDI SURESH | Hands-On Orgs | Recently Viewed | Billing | Billing | Salesforce | Developer Console | Salesforce Capstone Pro

Billing.apxc Log executeAnonymous @21/02/2023, 12:34:52

```
Code Coverage: None API Version: 57
14     list_of_bills.add(b1);
15     list_of_bills.add(b2);
16
17     try{
18         insert list_of_bills;
19     }catch(Exception e){
20         system.debug('INVALID DATA');
21     }
22
23     List<Billing__c> l = [SELECT Id, Name, Status__c FROM Billing__c Where CreatedDate=Today];
24     List<string> BillingList=new List<String>();
25     for(Billing__c b1){
26         if(b1.Status__c=='Paid'){
27
28             System.debug ('Value of Current Record in the Loop'+ b);
29             BillingList.add(b.Name);
30             //System.debug('Value of BillingList '+BillingList);
31         }
32     }
33     System.debug('Value of BillingList '+BillingList);
34 }
35
36 }
```

Logs Tests Checkpoints Query Editor View State Progress Problems

Line Problem



Chrome File Edit View History Bookmarks Profiles Tab Window Help

Mail - BANDI SURESH | Hands-On Orgs | Recently Viewed | Billing | Billing | Salesforce | Developer Console | Salesforce Capstone Pro

Billing.apxc Log executeAnonymous @21/02/2023, 12:34:52

Execution Log

Timestamp	Event	Details
12:34:52:066	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgWTAA0, Name=B - 0006, Status__c=Paid]
12:34:52:067	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgWUA0, Name=B - 0007, Status__c=Paid]
12:34:52:067	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgWJAA0, Name=B - 0004, Status__c=Paid]
12:34:52:067	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgWKA0, Name=B - 0005, Status__c=Paid]
12:34:52:067	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgQJAA0, Name=B - 0002, Status__c=Paid]
12:34:52:067	USER_DEBUG	[28][DEBUG]Value of Current Record in the LoopBilling__c:[Id=a012w000017WgQKA0, Name=B - 0003, Status__c=Paid]
12:34:52:067	USER_DEBUG	[32][DEBUG]Value of BillingList (B - 0006, B - 0007, B - 0004, B - 0005, B - 0002, B - 0003)

Enter Apex Code

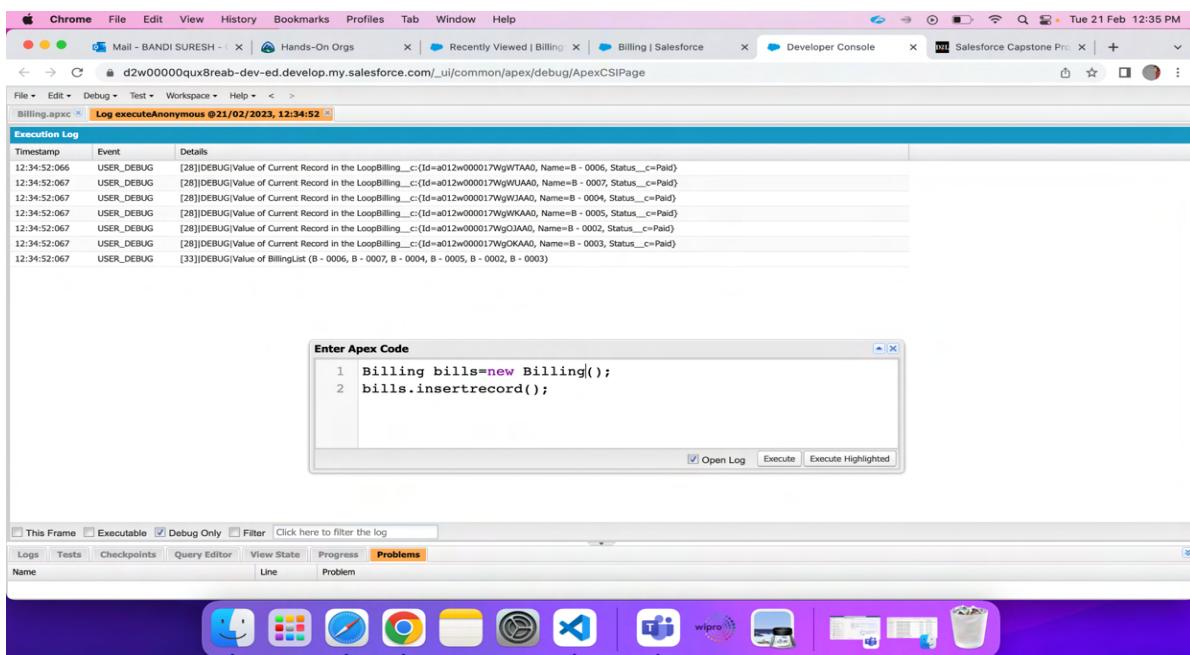
```
1 Billing bills=new Billing();
2 bills.insertrecord();
```

Open Log Execute Execute Highlighted

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

Logs Tests Checkpoints Query Editor View State Progress Problems

Line Problem



## Exercise - 8

Write a class to demo the use of constants in Apex.

The screenshot shows a web browser window with several tabs open. The active tab is 'DiscountClass.apxc' under the 'Developer Console' section of the Salesforce developer interface. The code editor contains the following Apex class:

```
1 public class DiscountClass {
2     final Decimal regularDiscount=0.2;
3     Decimal finalPrice;
4     public decimal calculateDiscount(decimal price){
5         finalPrice = price - price*regularDiscount;
6         return finalPrice;
7     }
8 }
```

Below the code editor is a modal dialog titled 'Enter Apex Code' containing the following test code:

```
1 DiscountClass dc=new DiscountClass();
2 system.debug(dc.calculateDiscount(500));
```

At the bottom of the browser window, there is a toolbar with various icons for file operations and navigation.

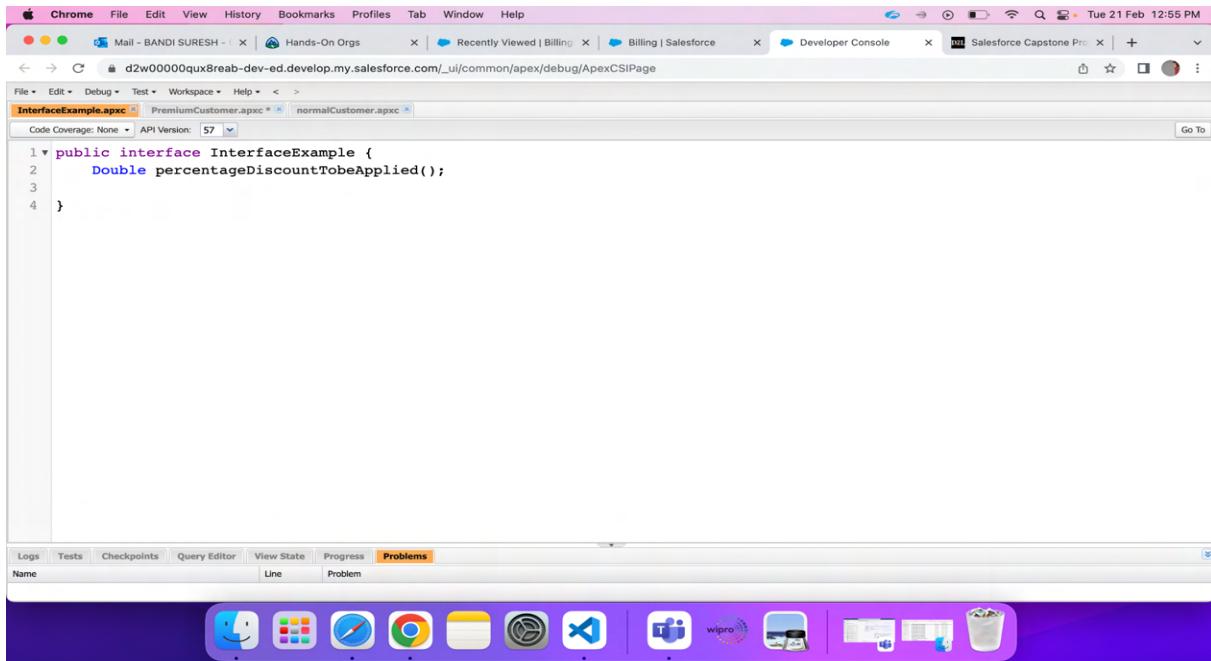
The screenshot shows a web browser window with several tabs open. The active tab is 'Log executeAnonymous @21/02/2023, 12:42:56' under the 'Developer Console' section of the Salesforce developer interface. The execution log table displays the following entry:

Timestamp	Event	Details
12:42:56:012	USER_DEBUG	[2]  DEBUG 400.0

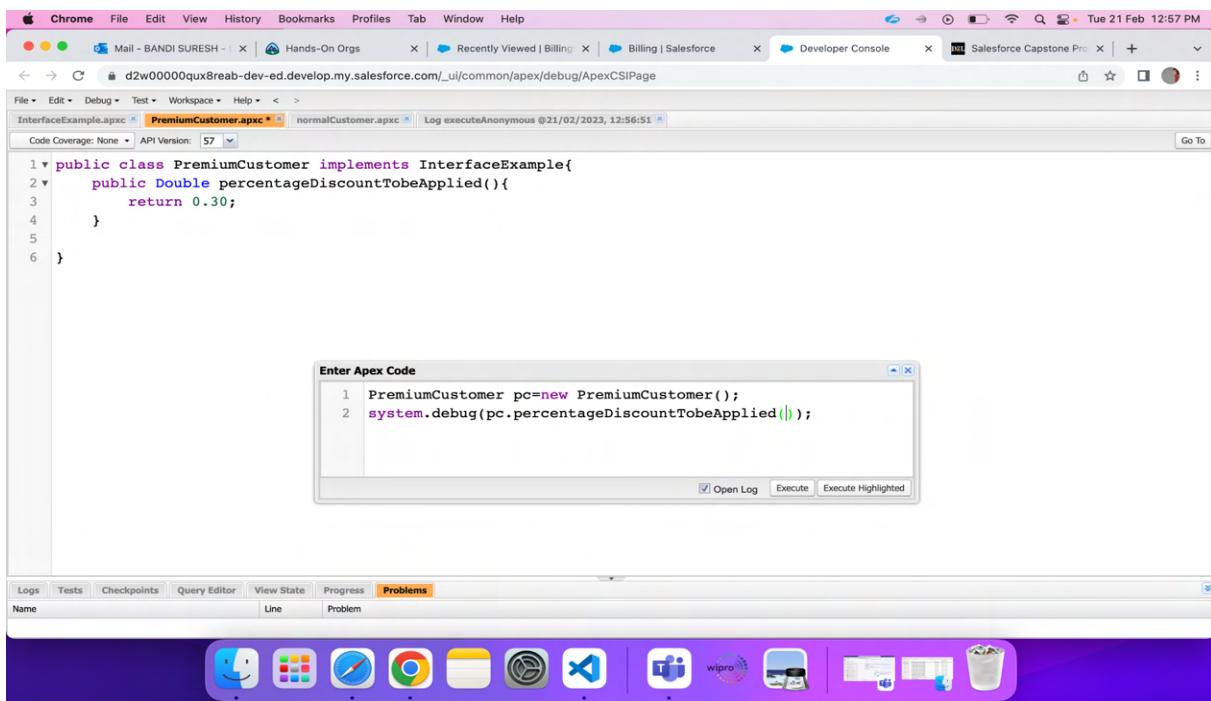
At the bottom of the browser window, there is a toolbar with various icons for file operations and navigation.

## Exercise - 9

Write a class to demo the use of interfaces in apex.



```
1 public interface InterfaceExample {
2     Double percentageDiscountToBeApplied();
3 }
4 
```

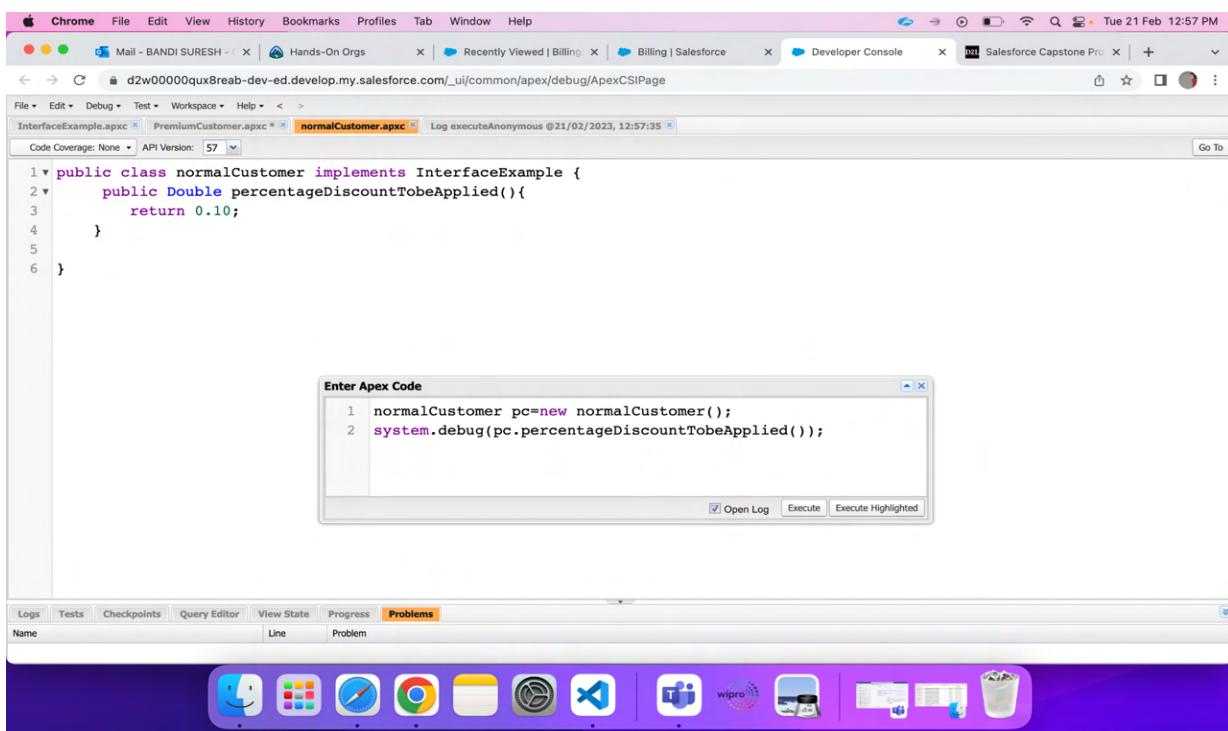
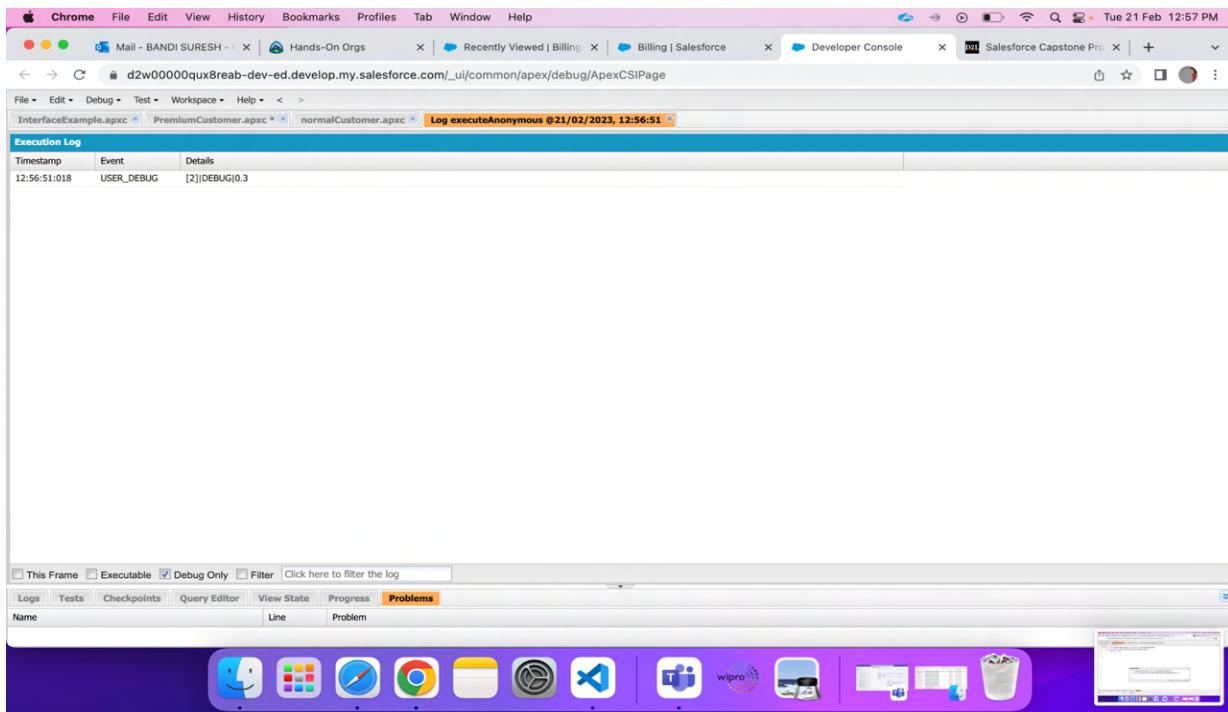


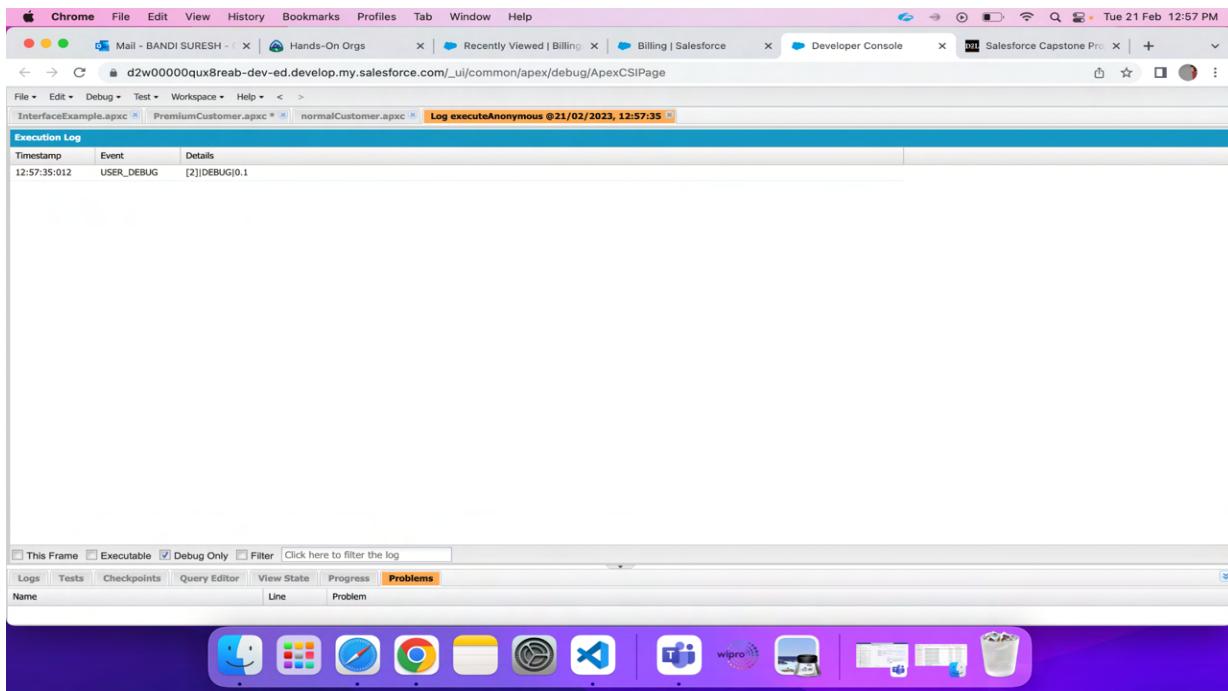
```
1 public class PremiumCustomer implements InterfaceExample{
2     public Double percentageDiscountToBeApplied(){
3         return 0.30;
4     }
5 }
6 
```

Enter Apex Code

```
1 PremiumCustomer pc=new PremiumCustomer();
2 system.debug(pc.percentageDiscountToBeApplied());
```

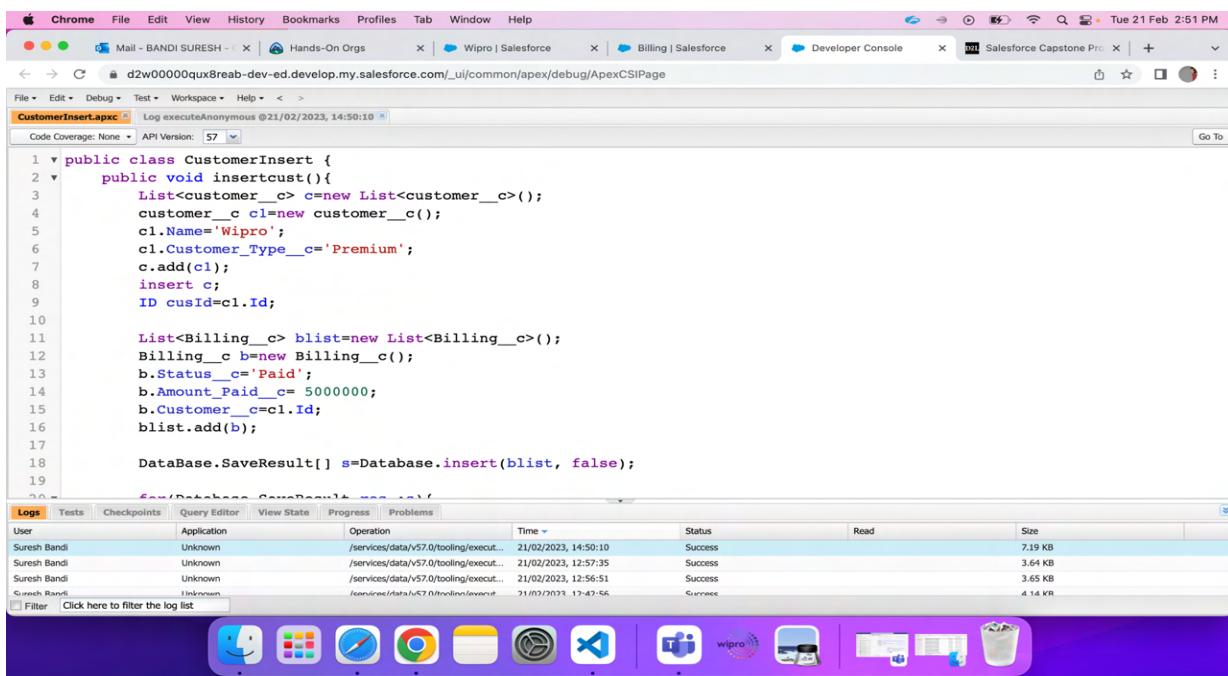
Open Log    Execute    Execute Highlighted





## Exercise - 10

DML insert Operation using Database methods on Customer Custom Object.



CustomerInsert.apxc

```

14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

```

Code Coverage: None API Version: 57

```

        b.Status__c = 'Paid';
        b.Amount_Paid__c = 500000;
        b.Customer__c=c1.Id;
        blist.add(b);

        DataBase.SaveResult[] s=Database.insert(blist, false);

        for(DataBase.SaveResult res :s){
            if(res.isSuccess()){
                system.debug('Record is inserted and the record ID:- '+res.getId());
            }else{
                for(Database.Error err : res.getErrors()){
                    system.debug(err.getStatusCode()+' :'+err.getMessage());
                    system.debug('Errors at following billinf fields'+err.getFields());
                }
            }
        }
    }
}

```

Logs Tests Checkpoints Query Editor View State Progress Problems

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 14:50:10	Success		7.19 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:57:35	Success		3.64 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:56:51	Success		3.65 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:47:54	Success		4.14 KB

Filter Click here to filter the log list

CustomerInsert.apxc

Log executeAnonymous @21/02/2023, 14:50:10

Execution Log

Timestamp	Event	Details
14:50:10:105	USER_DEBUG	[22]DEBUG Record is inserted and the record ID:- a012w000017WnOPAS

Enter Apex Code

```

1 CustomerInsert cus=new CustomerInsert();
2 cus.insertcust();

```

Open Log Execute Execute Highlighted

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
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 14:50:10	Success		7.19 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:57:35	Success		3.64 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:56:51	Success		3.65 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:47:54	Success		4.14 KB

Filter Click here to filter the log list

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Thu 23 Feb 8:12 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/customer\_\_c/a002w00000ZDfuEAAT/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

customer Wipro

Related Details

Customer Name: Wipro Owner: Suresh Bandi

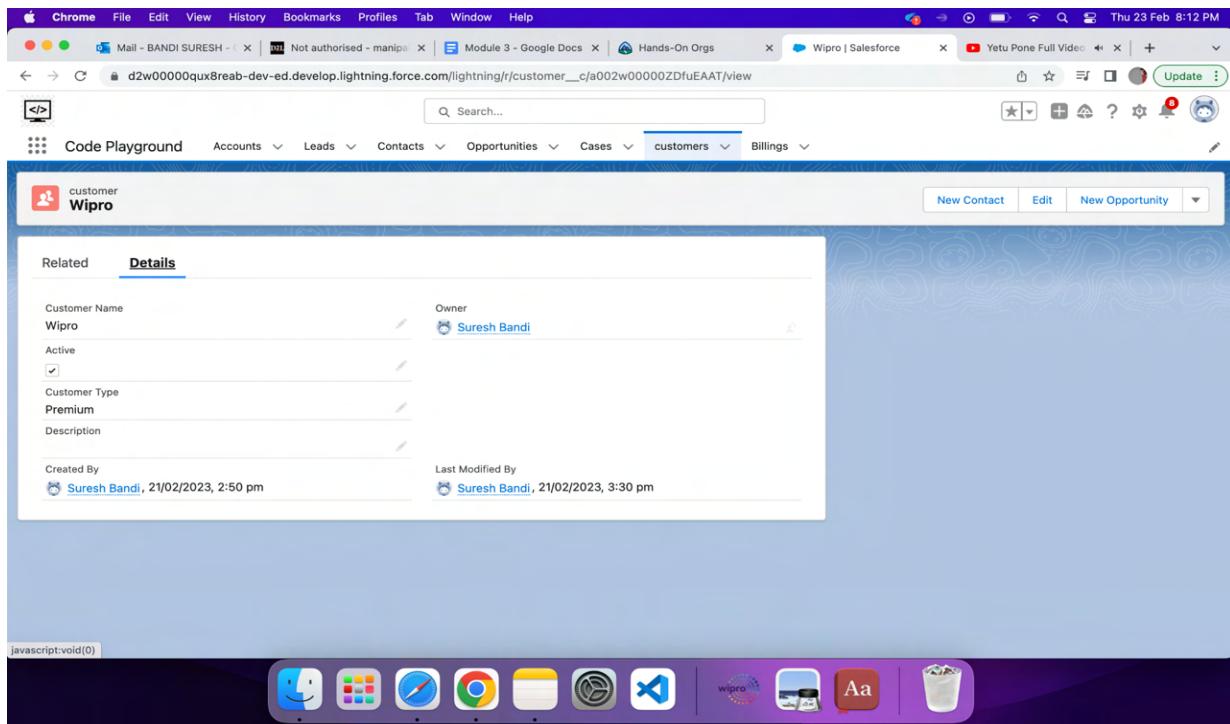
Active:

Customer Type: Premium

Description:

Created By: Suresh Bandi, 21/02/2023, 2:50 pm Last Modified By: Suresh Bandi, 21/02/2023, 3:30 pm

javascript:void(0)



Chrome File Edit View History Bookmarks Profiles Tab Window Help

Thu 23 Feb 8:12 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/Billing\_\_c/a012w000017Wn0PAAS/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

Billing B - 0008

New Contact Edit New Opportunity

Related Details

Billing Number: B - 0008

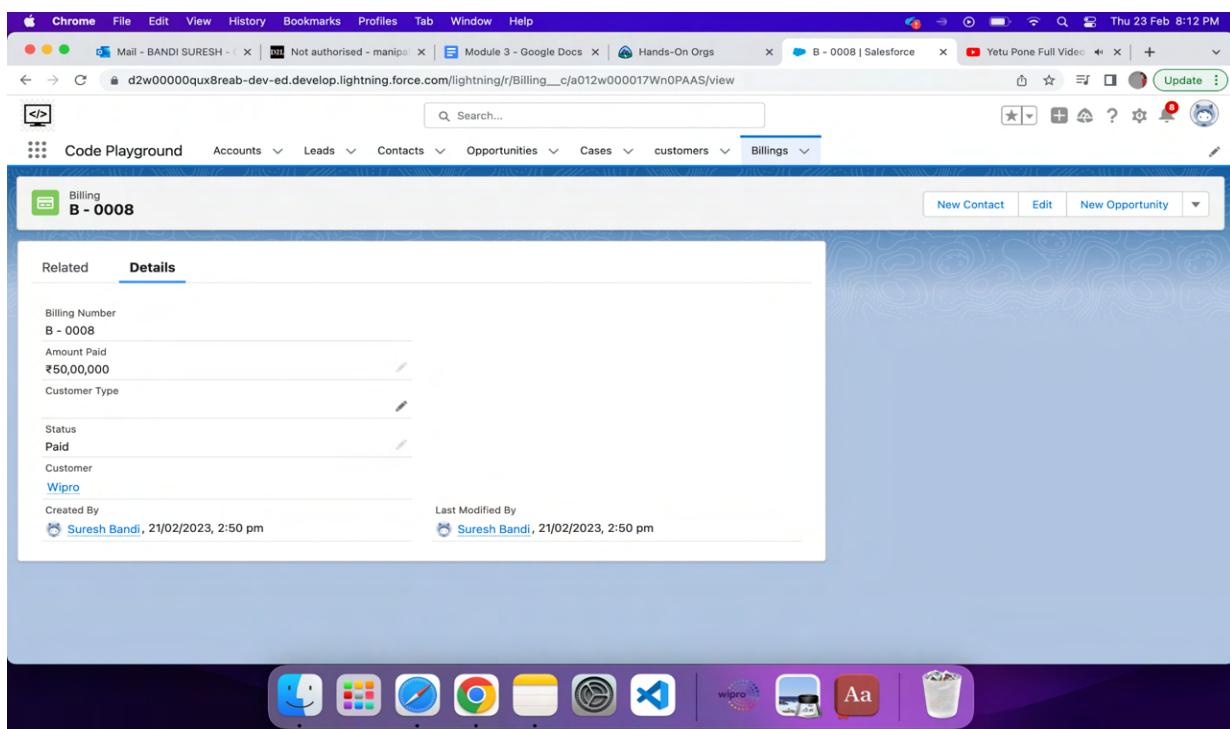
Amount Paid: ₹50,00,000

Customer Type:

Status: Paid

Customer: Wipro

Created By: Suresh Bandi, 21/02/2023, 2:50 pm Last Modified By: Suresh Bandi, 21/02/2023, 2:50 pm



## Exercise - 11

Write and Execute SOQL queries from Developer Console For Opportunity Object.

The screenshot shows the Salesforce Developer Console interface. The top navigation bar includes tabs for Chrome, File, Edit, View, History, Bookmarks, Profiles, Tab, Window, and Help. The current tab is 'Developer Console'. The URL in the address bar is [d2w00000qux8reib-dev-ed.develop.my.salesforce.com/\\_ui/common/apex/debug/ApexCSIPage](https://d2w00000qux8reib-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage). The title bar shows 'Opportunity@3:04 PM'. The main area displays a SOQL query results grid:

Query Results - Total Rows: 10					
Id	Amount	StageName	Account.Name	Account.Industry	Account.Website
0062w00000jxEJAAV	125000	Negotiation/Review	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEJIAAV	270000	Proposal/Price Quote	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEJRAAV	120000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEJRAAV	270000	Negotiation/Review	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEJUAV	270000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEJWAV	915000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEjgAAF	675000	Needs Analysis	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEjAAF	235000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEjCAF	440000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>
0062w00000jxEjAAF	120000	Closed Won	United Oil & Gas Corp.	Energy	<a href="http://www.uos.com">http://www.uos.com</a>

Below the grid, there are buttons for 'Query Grid', 'Logs', 'Tests', 'Checkpoints', 'Query Editor' (which is selected), 'View State', 'Progress', and 'Problems'. The 'Logs' section shows 'Any query errors will appear here...'. The 'History' section shows 'Executed' and the query text. The bottom toolbar includes icons for various applications like Mail, Calendar, and Salesforce.

## Exercise - 12

Trigger to create Billing records

The screenshot shows the Salesforce Developer Console interface. The top navigation bar includes tabs for Chrome, File, Edit, View, History, Bookmarks, Profiles, Tab, Window, and Help. The current tab is 'Developer Console'. The URL in the address bar is [d2w00000qux8reib-dev-ed.develop.my.salesforce.com/\\_ui/common/apex/debug/ApexCSIPage](https://d2w00000qux8reib-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage). The title bar shows 'CustomerTrigger.apxt'. The main area displays the Apex trigger code:

```
trigger CustomerTrigger on customer__c (after update) {
    if( Trigger.isUpdate){
        List<customer__c> cus=Trigger.new;
        for(customer__c c : cus){
            if(c.Active__c==true){
                Billing__c b=new Billing__c();
                b.Status__c='Paid';
                b.Amount_Paid__c=1000000;
                b.Customer__c=c.Id;
                insert b;
            }
        }
    }
}
```

Below the code, there are tabs for 'Logs', 'Tests', 'Checkpoints', 'Query Editor', 'View State', 'Progress', and 'Problems'. The 'Problems' tab is selected. The bottom toolbar includes icons for various applications like Mail, Calendar, and Salesforce.

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Tue 21 Feb 3:30 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/customer\_\_c/a002w00000ZDfuEAAT/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

customer Wipro

New Contact Edit New Opportunity

Related Details

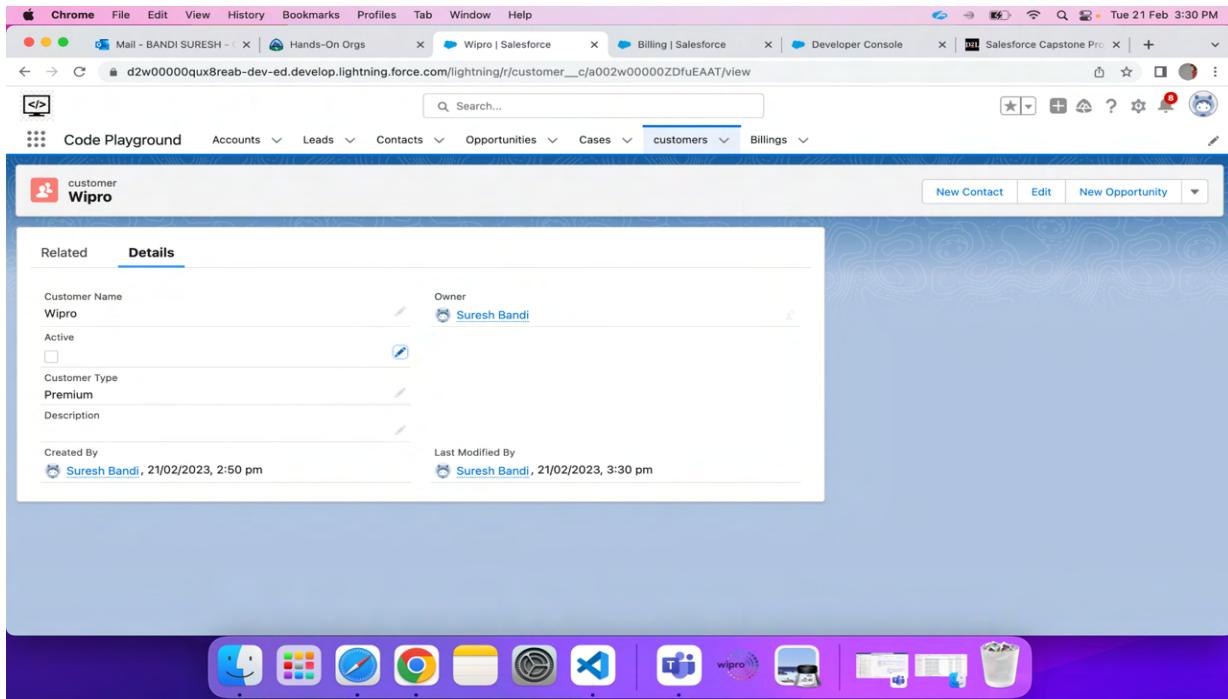
Customer Name Wipro Owner Suresh Bandi

Active

Customer Type Premium

Description

Created By Suresh Bandi, 21/02/2023, 2:50 pm Last Modified By Suresh Bandi, 21/02/2023, 3:30 pm



Chrome File Edit View History Bookmarks Profiles Tab Window Help

Tue 21 Feb 3:30 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/customer\_\_c/a002w00000ZDfuEAAT/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

customer Wipro

New Contact Edit New Opportunity

Related Details

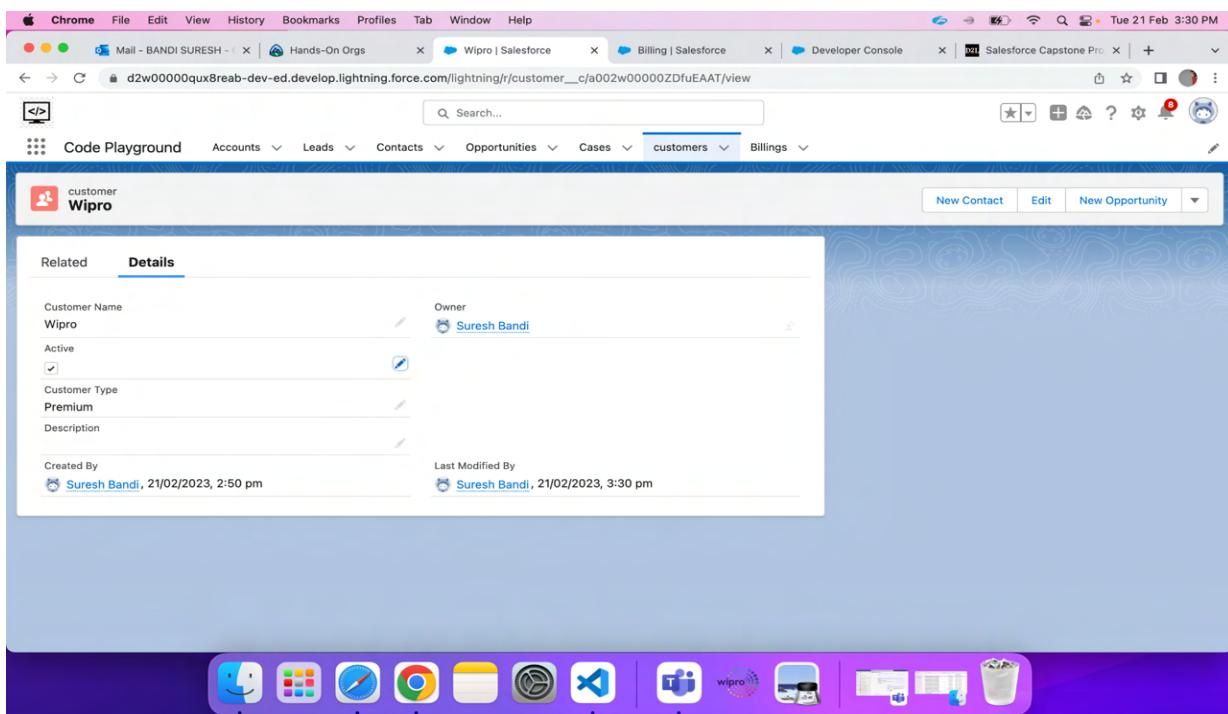
Customer Name Wipro Owner Suresh Bandi

Active

Customer Type Premium

Description

Created By Suresh Bandi, 21/02/2023, 2:50 pm Last Modified By Suresh Bandi, 21/02/2023, 3:30 pm



## Billing record created when Customer Object Status changed to Active

The screenshot shows a Salesforce Billing record detail page for a customer named 'B - 0012'. The record has a Billing Number 'B - 0012' and an Amount Paid of '₹10,00,000'. The Customer Type is listed as 'Wipro'. The status is 'Paid'. The record was created by 'Suresh Bandi' on 21/02/2023 at 3:30 pm. The last modified by is also 'Suresh Bandi' at the same time. The page includes tabs for Related and Details, and buttons for New Contact, Edit, and New Opportunity.

## Exercise - 13

### Test Class for Customer Trigger

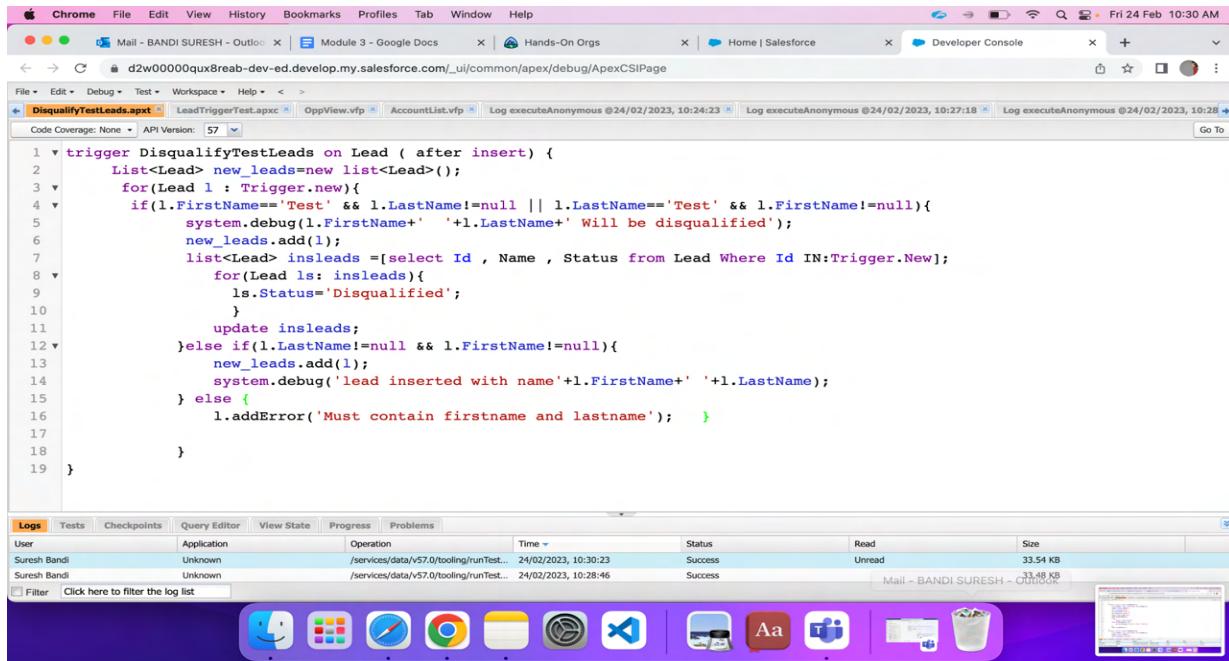
The screenshot shows a Salesforce developer console with a test class named 'CustomerTriggerTest'. The code creates a new customer record with Name 'Mahindra', Customer Type 'Standard', and Active status 'False'. It then updates the Active status to 'True' and asserts that it is now 'True'. The test passes with 100% coverage for the CustomerTrigger class. The developer console also shows a log of test runs and their results.

```
1 @isTest
2 public class CustomerTriggerTest {
3     @isTest static void CustomerTest(){
4         List<customer__c> clist=new list<customer__c>();
5         customer__c c_new=new customer__c();
6         c_new.Name='Mahindra';
7         c_new.Customer_Type__c='Standard';
8         c_new.Active__c=False;
9         clist.add(c_new);
10        insert clist;
11        Test.startTest();
12        c_new.Active__c=True;
13        update c_new;
14        system.assertEquals(c_new.Active__c, True);
15        system.assertEquals(c_new.Name, 'Mahindra');
16        Test.stopTest();
17    }
18 }
```

Status	Test Run	Enqueued Time	Duration	Failures	Total	Overall Code Coverage
✓	TestRun @ 4:27:32 pm			0	1	CustomerTrigger 100% 9/9
✓	TestRun @ 4:31:21 pm			0	1	DiscountClass 0% 0/4
✓	CustomerTriggerTest		0:00	0	1	Grading 0% 0/5
✗	CustomerTest			1	1	
	TestRun @ 4:34:53 pm					

## Exercise - 14

Trigger to find specific leads and change the lead status to “Disqualified”.



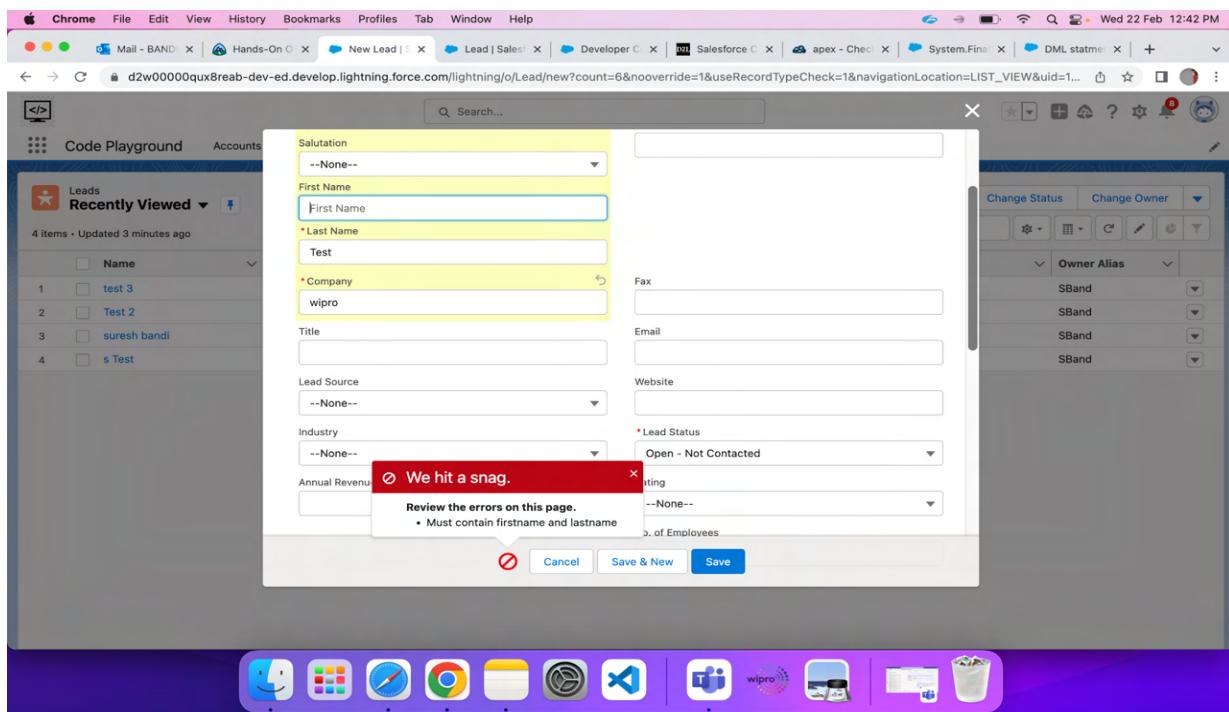
The screenshot shows a Chrome browser window with multiple tabs open. The active tab is 'Developer Console' at `d2w00000quxBreab-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage`. The console displays the following Apex trigger code:

```
trigger DisqualifyTestLeads on Lead ( after insert) {
    List<Lead> new_leads=new list<Lead>();
    for(Lead l : Trigger.new){
        if(l.FirstName=='Test' && l.LastName!=null || l.LastName=='Test' && l.FirstName!=null){
            system.debug(l.FirstName+' '+l.LastName+' Will be disqualified');
            new_leads.add(l);
            list<Lead> insleads =[select Id , Name , Status from Lead Where Id IN:Trigger.New];
            for(Lead ls: insleads){
                ls.Status='Disqualified';
            }
            update insleads;
        }else if(l.LastName!=null && l.FirstName!=null){
            new_leads.add(l);
            system.debug('lead inserted with name'+l.FirstName+' '+l.LastName);
        } else {
            laddError('Must contain firstname and lastname');
        }
    }
}
```

Below the code, the 'Logs' tab is selected in the developer console interface. It shows two log entries:

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/tooling/runTest...	24/02/2023, 10:30:23	Success	Unread	33.54 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/runTest...	24/02/2023, 10:28:46	Success		33.48 KB

The browser's address bar shows the URL `d2w00000quxBreab-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage`.



Chrome File Edit View History Bookmarks Profiles Tab Window Help

Wed 22 Feb 12:42 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/Lead/00Q2w00000SLJzbEAH/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

Lead Suresh Test

Activity Details Chatter News

Lead Owner Suresh Bandi

Name Suresh Test

Company wipro

Title

Lead Source

Industry

Annual Revenue

Phone

Mobile

Fax

Email

Website

Lead Status Disqualified

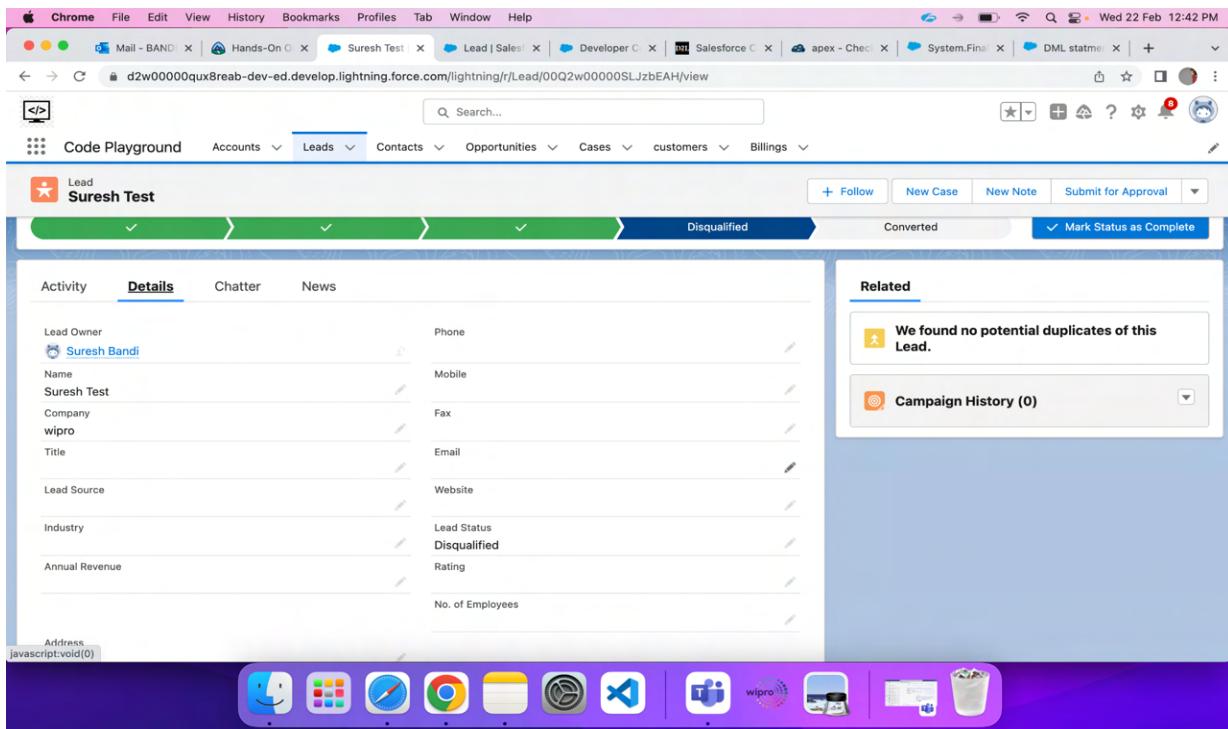
Rating

No. of Employees

Related

We found no potential duplicates of this Lead.

Campaign History (0)



Chrome File Edit View History Bookmarks Profiles Tab Window Help

Thu 23 Feb 8:43 PM

d2w00000qux8reab-dev-ed.develop.lightning.force.com/lightning/r/Lead/00Q2w00000SLJV9EAP/view

Code Playground Accounts Leads Contacts Opportunities Cases customers Billings

Lead suresh bandi

Activity Details Chatter News

Lead Owner Suresh Bandi

Name suresh bandi

Company nn

Title

Lead Source

Industry

Annual Revenue

Phone

Mobile

Fax

Email

Website

Lead Status Open - Not Contacted

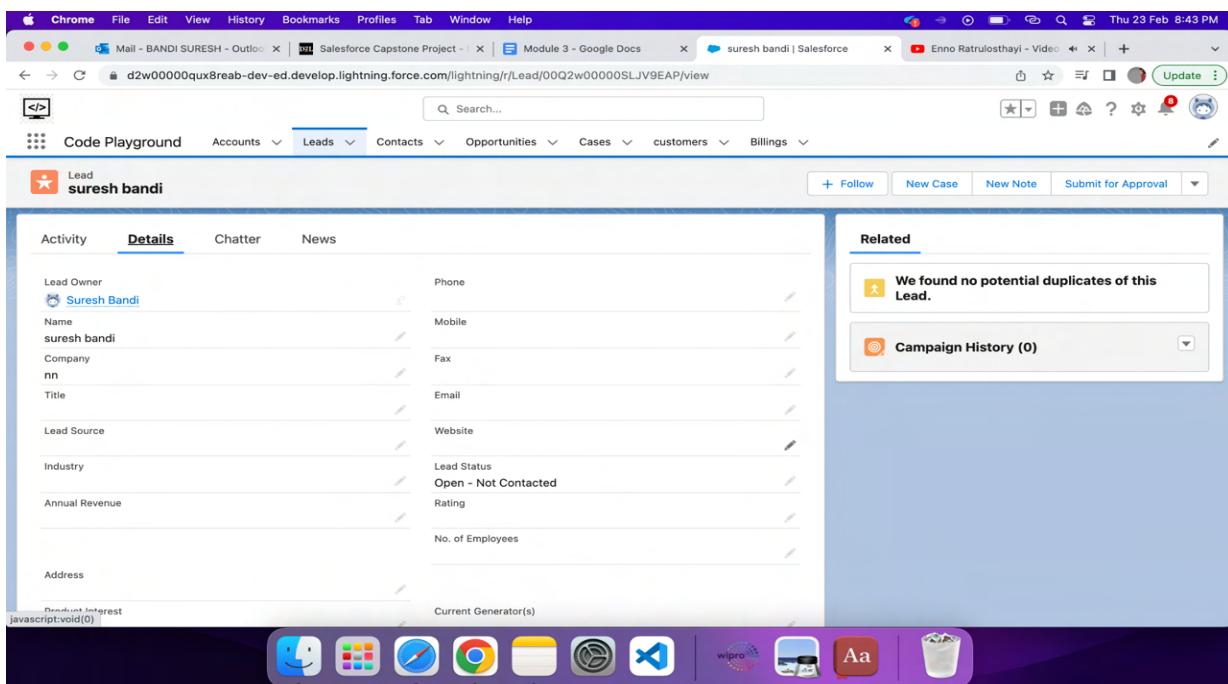
Rating

No. of Employees

Address

Product Interest javascript:void(0)

Current Generator(s)



## Exercise - 15

### Test Class for DisqualifyTestLeads.

Code Coverage: None API Version: 57

```
1  @isTest
2  public class LeadTriggerTest {
3  @isTest static void leadTest(){
4      List<Lead> test_list=new List<Lead>();
5      Lead l=new Lead();
6      l.FirstName='Sunny';
7      l.LastName='Test';
8      l.Company='Argano';
9      l.Status='Disqualified';
10     test_list.add(l);
11     Test.startTest();
12     insert test_list;
13     Test.stopTest();
14     system.assertEquals(l.FirstName,'Sunny');
15     system.assertEquals(l.LastName,'Test');
16     system.assertEquals(l.Status,'Disqualified');
17   }
18   @isTest static void leadTest2(){
19 }
```

Status	Test Run	Enqueued Time	Duration	Failures	Total	Overall Code Coverage
✓	TestRun @ 10:40:30 am			0	2	CustomerTrigger 0% 0/9
✗	TestRun @ 10:42:21 am			1	2	DiscountClass 0% 0/4
✗	TestRun @ 10:42:55 am			1	2	DisqualifyTestLeads 100% 11/11
✗	TestRun @ 10:44:25 am			1	2	Grading 0% 0/5
✓	TestRun @ 10:46:59 am			0	2	

Code Coverage: None API Version: 57

```
1  }
18  }
19  @isTest static void leadTest2(){
20     List<Lead> test_list2=new List<Lead>();
21     Lead l2=new Lead();
22     l2.FirstName=null;
23     l2.LastName='Test';
24     l2.Company='Argano';
25     test_list2.add(l2);
26     Test.startTest();
27     try{
28       insert test_list2;
29     }catch(Exception e){
30       system.debug('Cannot insert lead');
31     }
32     Test.stopTest();
33   }
34  @isTest static void leadTest3(){
35     List<Lead> test_list3=new List<Lead>();
36     Lead l3=new Lead();
37     l3.FirstName='Suresh';
38 }
```

User	Application	Operation	Time	Status	Read	Size
Suresh Bandi	Unknown	/services/data/v57.0/tooling/runTest...	24/02/2023, 10:30:23	Success	Unread	33.54 KB
Suresh Bandi	Unknown	/services/data/v57.0/tooling/runTest...	24/02/2023, 10:28:46	Success		33.48 KB

Chrome File Edit View History Bookmarks Profiles Tab Window Help

Thu 23 Feb 10:55 AM

Mail - BANDI SURESH - X Hands-On Orgs X Home | Salesforce X Developer Console X Assignments - WIP\_Sale X Bandi Suresh SuperBad X +

File Edit Test Workspace Help < >

InterfaceExample.apxc PremiumCustomer.apxc DisqualifyTestLeads.apxc LeadTriggerTest.apxc

Code Coverage: None API Version: 57 Run Test Go To

```

29     system.assertEquals(l2.FirstName,null);
30     system.assertEquals(l2.LastName,'Test');
31
32 }
33 @isTest static void leadTest3(){
34     List<Lead> test_list3=new List<Lead>();
35     Lead l3=new Lead();
36     l3.FirstName='Suresh';
37     l3.LastName='Bandi';
38     l3.Company='Argano';
39     test_list3.add(l3);
40     Test.startTest();
41     insert test_list3;
42     Test.stopTest();
43     system.assertEquals(l3.FirstName,'Suresh');
44     system.assertEquals(l3.LastName,'Bandi');
45
46 }
47 }
```

Logs Tests Checkpoints Query Editor View State Progress Problems

Status	Test Run	Enqueued Time	Duration	Failures	Total	Overall Code Coverage
✓	TestRun @ 10:40:30 am			0	2	Class CustomerTrigger 0% 0/9
✗	TestRun @ 10:42:21 am			1	2	DiscountClass 0% 0/4
✗	TestRun @ 10:42:55 am			1	2	DisqualifyTestLeads 100% 11/11
✗	TestRun @ 10:44:25 am			1	2	Grading
✓	TestRun @ 10:46:59 am			0	2	

Microsoft Teams File Edit View Window Help

Fri 24 Feb 10:34 AM

Mail - BANDI SURESH - Outlook X Module 3 - Google Docs X Hands-On Orgs X Home | Salesforce X Developer Console X +

File Edit Debug Test Workspace Help < >

DisqualifyTestLeads.apxc LeadTriggerTest.apxc OppView.vfp AccountList.vfp Log executeAnonymous @24/02/2023, 10:30:23

Execution Log

Timestamp	Event	Details
10:30:23:06	USER_DEBUG	[5]DEBUG Sunny Test Will be disqualified
10:30:23:231	USER_DEBUG	[30]DEBUG Cannot insert lead
10:30:23:301	USER_DEBUG	[14]DEBUG lead inserted with nameSuresh Bandi

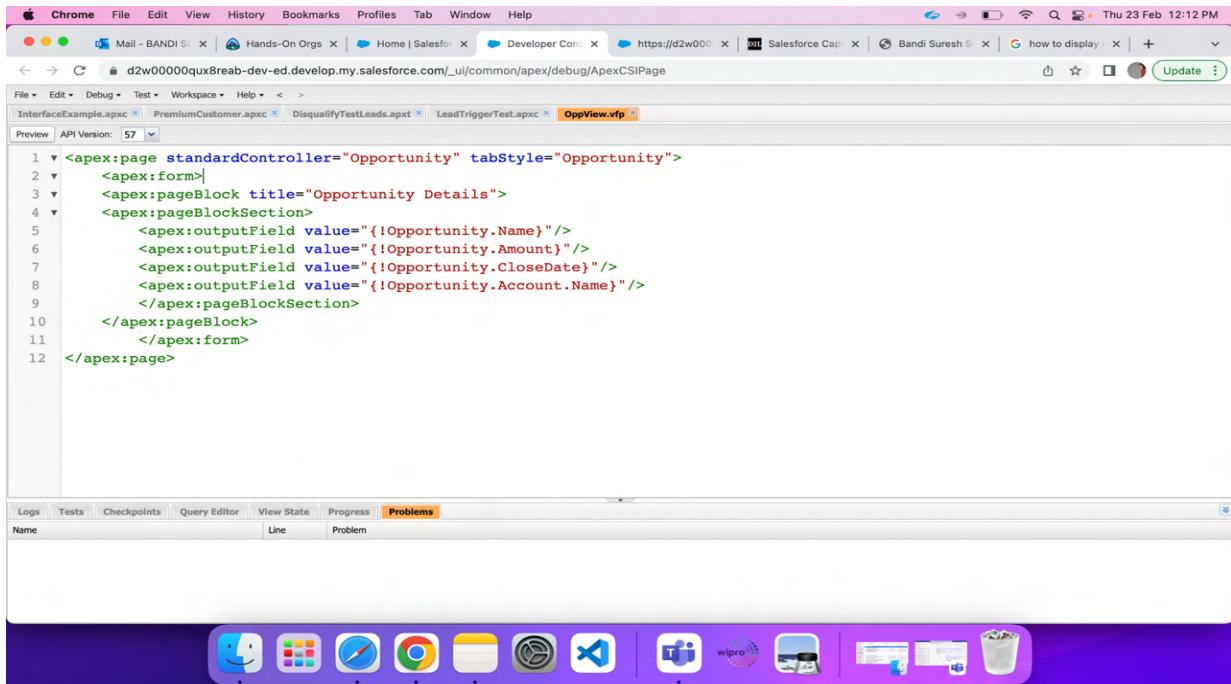
This Frame Executable Debug Only Filter Click here to filter the log

Logs Tests Checkpoints Query Editor View State Progress Problems

Status	Test Run	Enqueued Time	Duration	Failures	Total	Overall Code Coverage
✗	TestRun @ 10:19:33 am			1	3	Class Billing 0% 0/21
✗	TestRun @ 10:21:19 am			1	3	CustomerInsert 0% 0/18
✓	TestRun @ 10:23:57 am			0	3	CustomerTrigger 0% 0/9
✓	TestRun @ 10:24:24 am			0	3	DiscountClass 0% 0/4
✓	TestRun @ 10:27:19 am			0	3	DisqualifyTestLeads 100% 11/11
✓	TestRun @ 10:28:47 am			0	3	Grading 0% 0/5
✓	TestRun @ 10:30:23 am			0	3	normalCustomer 0% 0/2
						PremiumCustomer 0% 0/2

## Exercise - 16

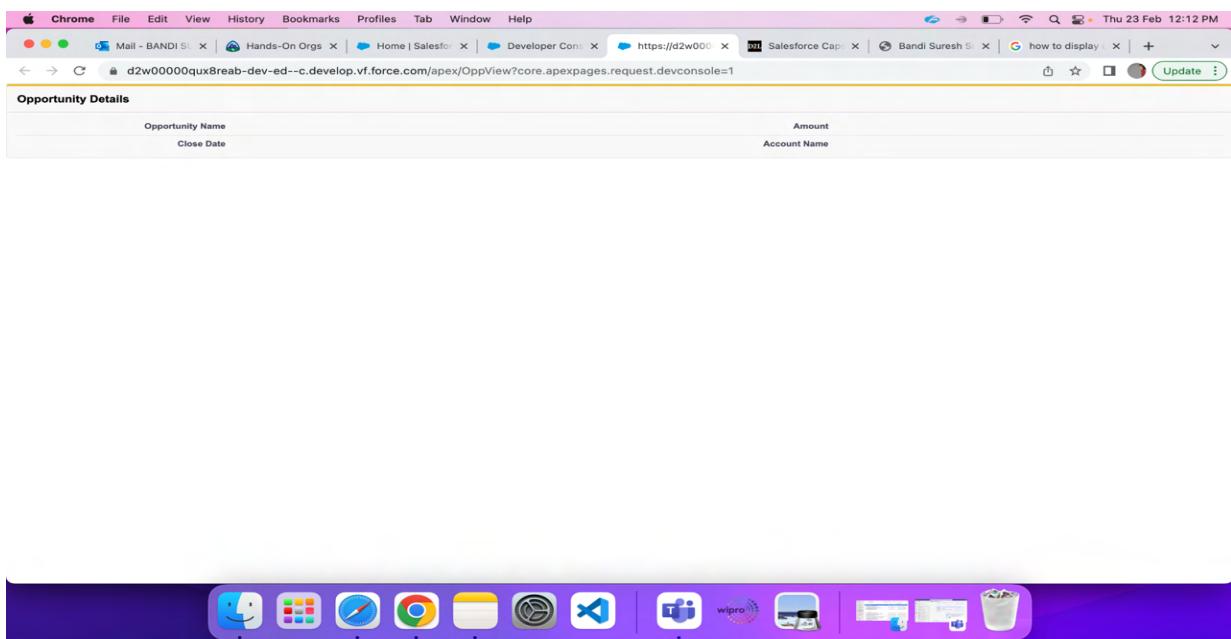
### VisualForce Page to display Opportunity fields as output fields.



The screenshot shows the Salesforce Developer Console interface. The top navigation bar includes 'File', 'Edit', 'Debug', 'Test', 'Workspace', 'Help', and tabs for 'InterfaceExample.apxc', 'PremiumCustomer.apxc', 'DisqualifyTestLeads.apxc', 'LeadTriggerTestLapxc', and 'OppView.vfp'. The main area displays the Visualforce page code:

```
1 <apex:page standardController="Opportunity" tabStyle="Opportunity">
2   <apex:form>
3     <apex:pageBlock title="Opportunity Details">
4       <apex:pageBlockSection>
5         <apex:outputField value="{!Opportunity.Name}" />
6         <apex:outputField value="{!Opportunity.Amount}" />
7         <apex:outputField value="{!Opportunity.CloseDate}" />
8         <apex:outputField value="{!Opportunity.Account.Name}" />
9       </apex:pageBlockSection>
10      </apex:pageBlock>
11    </apex:form>
12  </apex:page>
```

Below the code, there are tabs for 'Logs', 'Tests', 'Checkpoints', 'Query Editor', 'View State', 'Progress', and 'Problems'. The 'Problems' tab is selected, showing no errors. The bottom of the screen features a purple Mac OS X dock with various application icons.



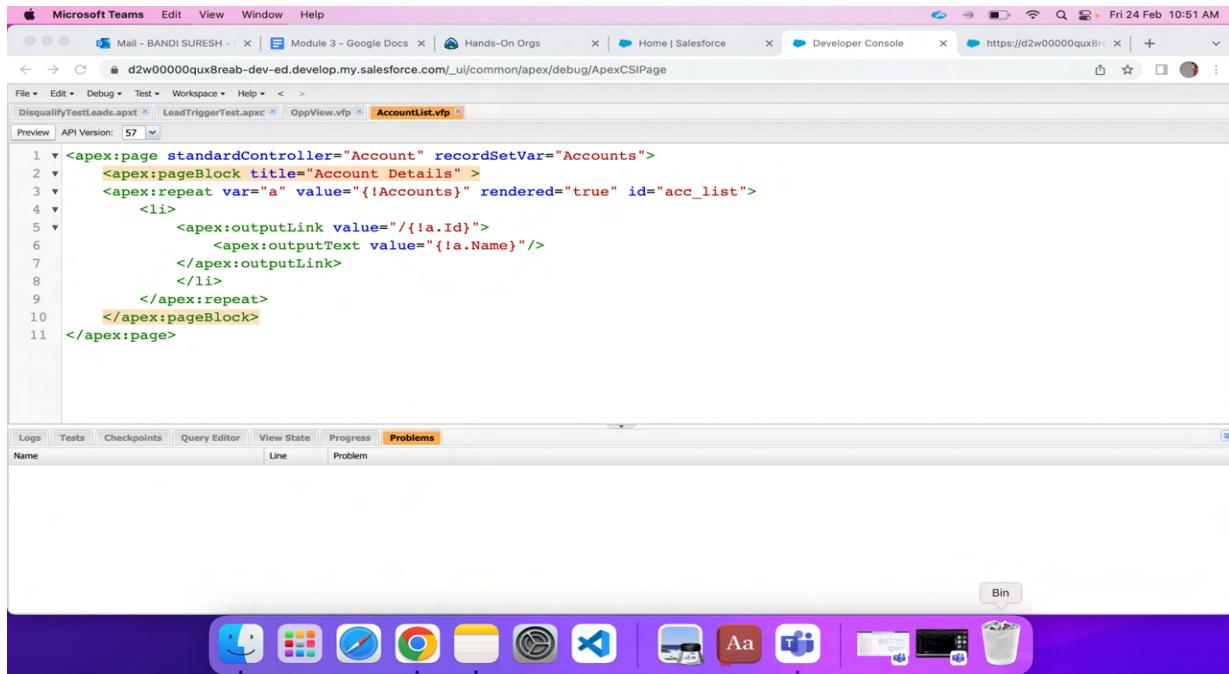
The screenshot shows a web browser window with the URL <https://d2w00000qux8reab-dev-ed--c.force.com/apex/OppView>. The page title is 'Opportunity Details'. The content area displays the following table:

Opportunity Name	Amount

The bottom of the screen features a purple Mac OS X dock with various application icons.

## Exercise - 17

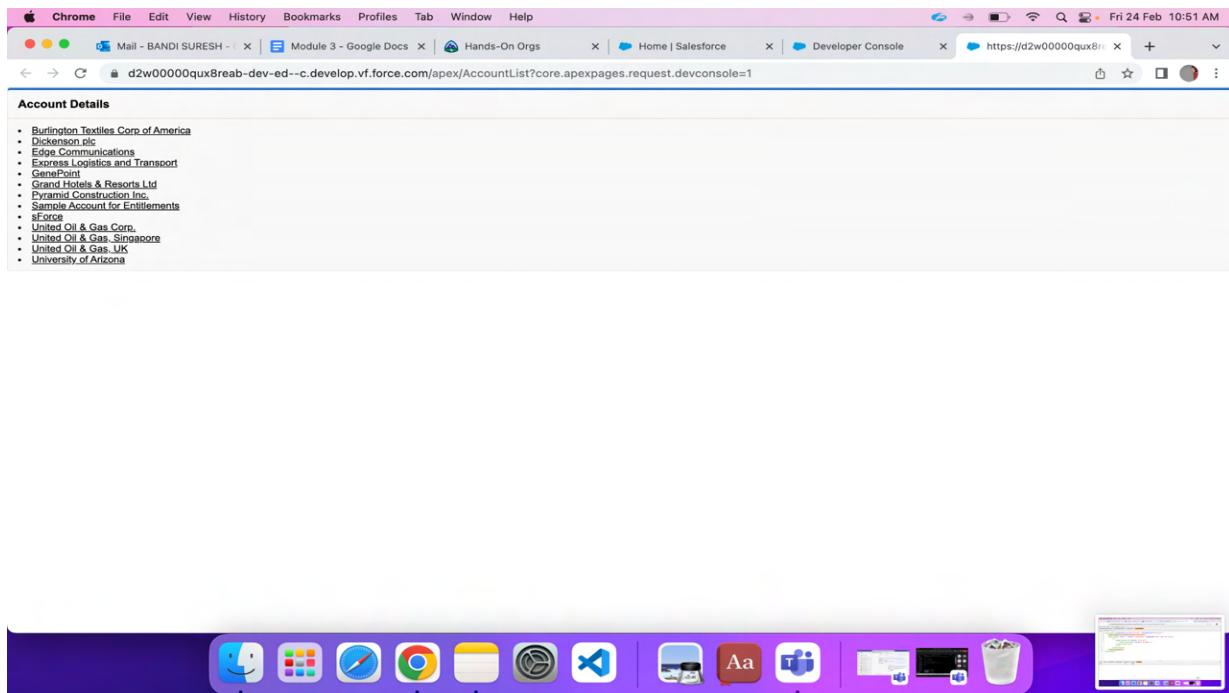
VisualForce page to display list of accounts linked to their records.



The screenshot shows a Microsoft Teams desktop interface. In the center, there is a code editor window titled "AccountList.vfp" with the following VisualForce page code:

```
1 <apex:page standardController="Account" recordSetVar="Accounts">
2   <apex:pageBlock title="Account Details" >
3     <apex:repeat var="a" value="{!Accounts}" rendered="true" id="acc_list">
4       <li>
5         <apex:outputLink value="/{!a.Id}">
6           <apex:outputText value="{!a.Name}"/>
7         </apex:outputLink>
8       </li>
9     </apex:repeat>
10   </apex:pageBlock>
11 </apex:page>
```

Below the code editor, there are tabs for "Logs", "Tests", "Checkpoints", "Query Editor", "View State", "Progress", and "Problems". The "Problems" tab is selected. At the bottom of the screen, there is a purple Mac OS X-style dock with various application icons.



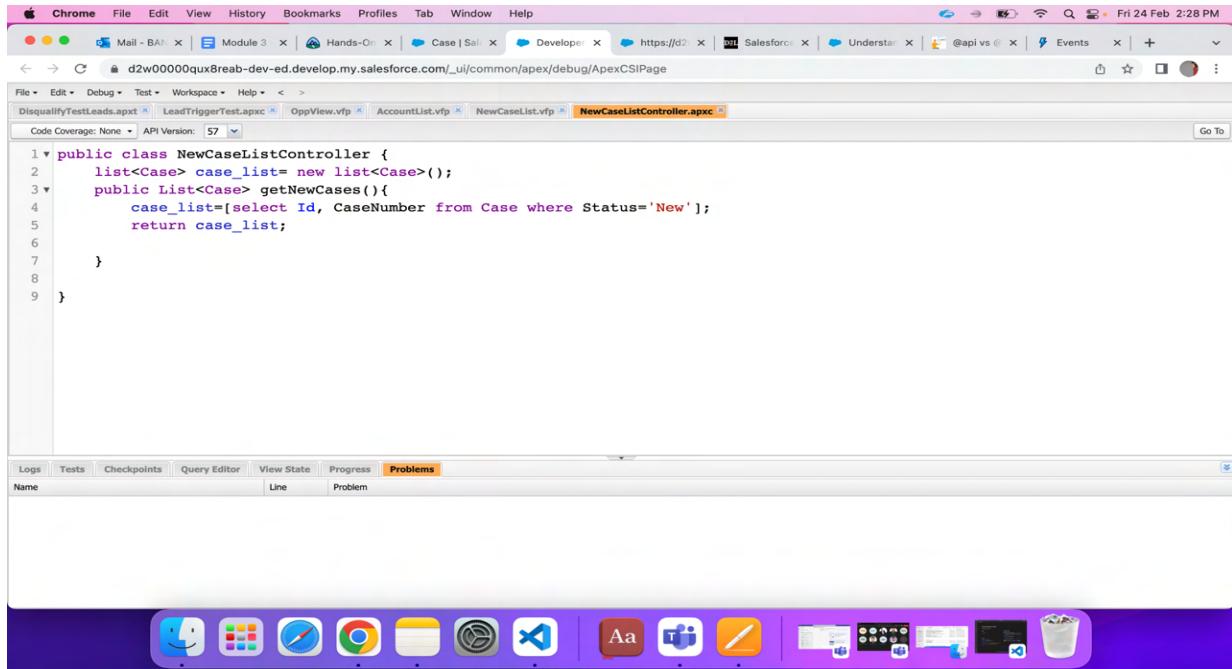
The screenshot shows a Chrome browser window with the URL "https://d2w000000qux8reib-dev-ed.c.develop.vf.force.com/apex/AccountList?core.apexpages.request.devconsole=1". The page displays a list of account names under the heading "Account Details":

- Buddinton Textiles Core of America
- Dimensional plc
- Edge Communications
- Express Logistics and Transport
- GenePoint
- Grand Hyatt & Resorts Ltd
- Karakoram Construction Inc.
- Sample Account for Entitlements
- sForce
- United Oil & Gas Corp.
- United Oil & Gas Singapore
- United Oil & Gas UK
- University of Arizona

At the bottom of the screen, there is a purple Mac OS X-style dock with various application icons.

## Exercise - 18

Visualforce page to display list of cases with the status “NEW”.

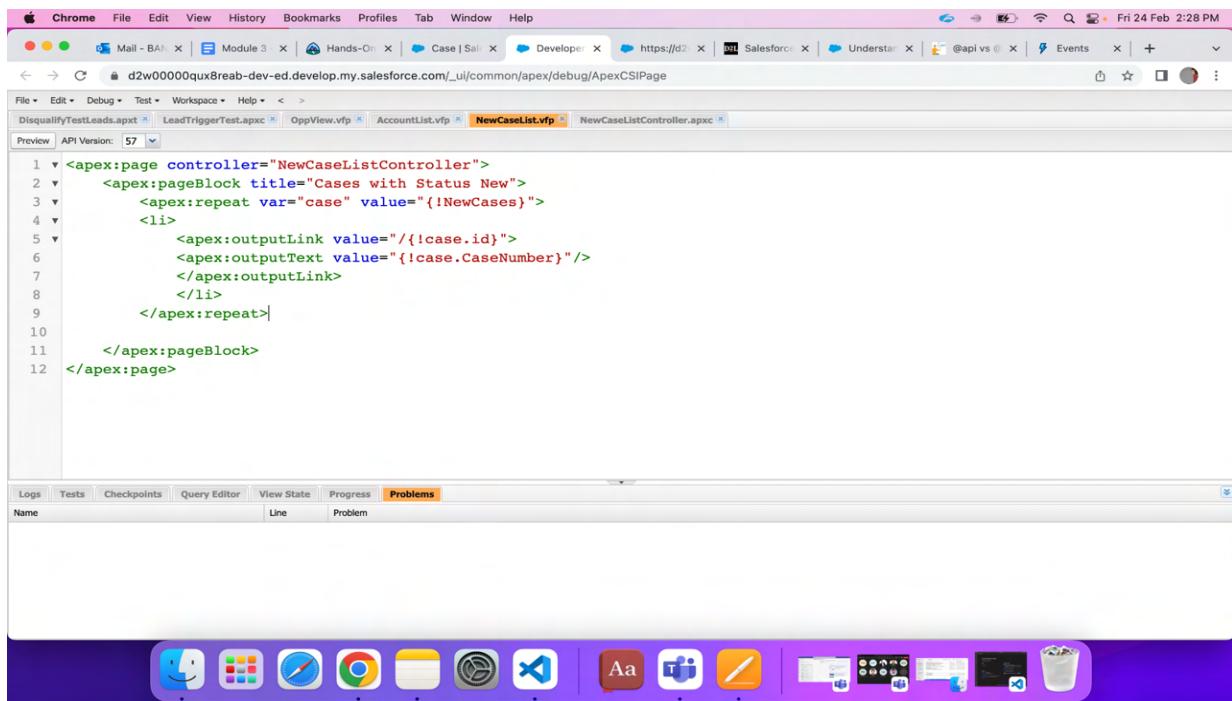


A screenshot of a Mac desktop. At the top is a browser window titled "d2w00000qux8reib-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage". The tab bar shows several tabs including "NewCaseListController.apxc". The main content area contains the following Apex code:

```
1 public class NewCaseListController {  
2     list<Case> case_list= new list<Case>();  
3     public List<Case> getNewCases(){  
4         case_list=[select Id, CaseNumber from Case where Status='New'];  
5         return case_list;  
6     }  
7 }  
8 }
```

Below the code editor is a toolbar with tabs: Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected. The Dock at the bottom of the screen shows icons for Mail, Finder, Safari, App Store, System Preferences, and other applications.

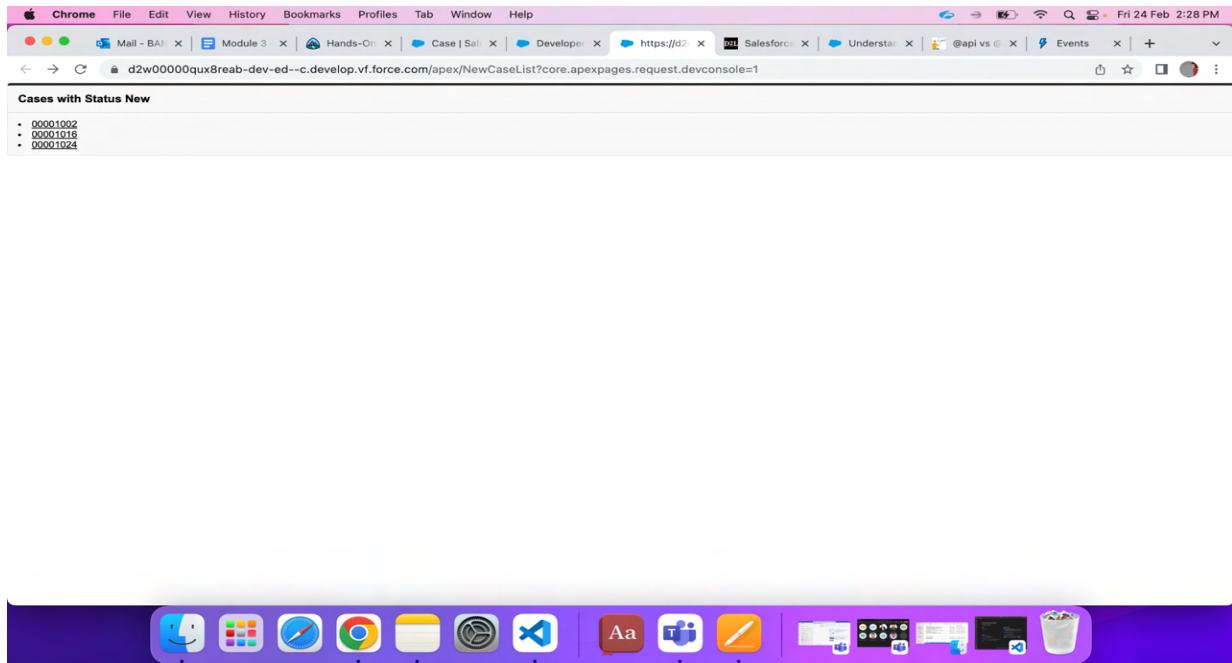
Custom Controller Apex Class :



A screenshot of a Mac desktop. At the top is a browser window titled "d2w00000qux8reib-dev-ed.develop.my.salesforce.com/\_ui/common/apex/debug/ApexCSIPage". The tab bar shows several tabs including "NewCaseList.vfp". The main content area contains the following Visualforce page code:

```
1 <apex:page controller="NewCaseListController">  
2     <apex:pageBlock title="Cases with Status New">  
3         <apex:repeat var="case" value="{!NewCases}">  
4             <li>  
5                 <apex:outputLink value="/{!case.id}">  
6                     <apex:outputText value="{!case.CaseNumber}" />  
7                 </apex:outputLink>  
8             </li>  
9         </apex:repeat>  
10    </apex:pageBlock>  
11 </apex:page>
```

Below the code editor is a toolbar with tabs: Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected. The Dock at the bottom of the screen shows icons for Mail, Finder, Safari, App Store, System Preferences, and other applications.



## References

1. [Manage sales - Salesforce IN](#)
2. [Salesforce - ADX201 Administrative Essentials for New Admins in Lightning Experience \(SFADX201\) \(qa.com\)](#)
3. [Understand the Salesforce Architecture Unit | Salesforce Trailhead](#)