



# Capstone Project Report On **“Travel Approval App”**

GitHub Link: <https://github.com/sakam-swetha/Project.git>

Submitted by:

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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.

Every travel organization requires a Travel Approval Application. This department deals with the approval of travel requests. It also allows for prime levels of control and oversight over travel bookings, policy and budget. The approval process is usually often lengthy and requires a lot of paperwork. It requires so much of time and work efforts to complete it. To eradicate human errors and achieve perfect data and procedures, the use of software is considered a smart choice.

Therefore, with the help of Customer Relation Management (CRM) software services provided by Salesforce, we are making a travel approval application. It starts with building of data model where the objects and fields comes into picture follows by customizing the user interface where we Use list views and page layouts to streamline an app user's experience. Every application generally needed a business logic so in this it is achieved by validation rules , formula fields and approval process. Finally, to analyse travel approvals we add reports and dashboards. This application will help them in keeping track of the complete travel approval process.

## 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

The flow of the Travel Approval App for Salesforce typically involves several steps, which are as follows:

**1. Travel Request Submission:** Sales representatives submit travel requests using the Travel Approval App within the Salesforce platform. The request includes details such as travel dates, destinations, budgets, and purpose.

**Automated Routing of Requests:** The app automatically routes the travel request to the appropriate approvers based on predefined rules and workflows. This ensures that requests are reviewed by the right people, in the right order.

- 1. Review and Approval:** Approvers receive notifications when a travel request requires their approval. They can review the request details and approve or reject it within the app.
- 2. Notification and Feedback:** Sales representatives are notified of the approval or rejection of their travel request. If rejected, the app may allow the representative to revise and resubmit the request.
- 3. Real-Time Reporting:** The app provides real-time visibility into travel requests and approvals, allowing sales managers to monitor travel spend and make informed decisions about their teams' travel plans.

Overall, the Travel Approval App for Salesforce automates and streamlines the travel request and approval process, providing a seamless experience for sales representatives and managers while ensuring compliance and costeffectiveness.

# 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>

# Screenshots Module 1

## Exercise 1 :-

### STEP 1:

#### Creating Lightning App: Travel App

The screenshot shows the Chatter feed for the 'Travel App'. There are two posts:

- Post 1:** TA-00001 — sakam swetha (February 14, 2023 at 9:42 PM)  
@Eric Executive Which department should I associate this travel request with?  
Like Comment Share
- Post 2:** sakam swetha (February 14, 2023 at 9:35 PM)  
Technology is the correct department.  
Like Comment Share

The right sidebar shows the user profile for 'sakam swetha' with the following settings:

- DISPLAY DENSITY: Comfy (Compact)
- OPTIONS: Switch to Salesforce Classic, Add Username
- Joined in the last month

### STEP 2:

#### Custom Object: Department

The screenshot shows the 'Object Manager' setup page for the 'Department' object. The 'Details' tab is selected, displaying the following information:

Details	Details
Fields & Relationships	Description
Page Layouts	API Name: Department__c
Lightning Record Pages	Custom
Buttons, Links, and Actions	✓
Compact Layouts	Singular Label: Department
Field Sets	Plural Label: Departments
Object Limits	
Record Types	
Related Lookup Filters	
Search Layouts	
List View Button Layout	
Restriction Rules	
Scoping Rules	
Triggers	
Flow Triggers	

The right sidebar shows the user profile for 'sakam swetha' with the following settings:

- DISPLAY DENSITY: Comfy (Compact)
- OPTIONS: Switch to Salesforce Classic, Add Username

## STEP 3:

### Creating custom fields in Department object Department Code Filed

The screenshot shows the Salesforce Object Manager for the 'Department' object. The 'Fields & Relationships' section is selected. A table displays the following fields:

FIELD LABEL	FIELD NAME	DATA TYPE	OPTIONS
Created By	CreatedById	Lookup(User)	
Department Code	Department_Code__c	Text(10) (Unique Case Sensitive)	
Department Name	Name	Text(80)	
Department Type	Department_Type__c	Picklist	
Last Modified By	LastModifiedById	Lookup(User)	
Location	Location__c	Picklist	
Owner	OwnerId	Lookup(User,Group)	

## Field Dependency

The screenshot shows the 'Edit Field Dependency' screen for the 'Location' field. The 'Dependent Field' is set to 'Department Type'. The interface includes instructions and a legend for managing visibility of values in the dependent picklist.

**Instructions:**

- Double click on a cell to toggle its visibility for the Controlling Field value shown in the column heading.
- To change multiple cells at once, select multiple cells and then click the **Include Values** or **Exclude Values** button to change the visibility of all selected cells at once.
- Use SHIFT + click to select a range of adjacent cells. Use CTRL + click to select multiple cells that are not adjacent.
- Use the **Preview** button to test the results.

**Legend:**

- Excluded Value
- Included Value

The dependent picklist for 'Department Type' shows categories: Banking, Finance, Education, Energy, IT, and Manufacturing. The 'Manufacturing' category is highlighted as included. The main picklist for 'Location' shows cities: Delhi, Bangalore, Finance, Education, Energy, and IT. The 'Finance' and 'Education' cities are highlighted as included.

## STEP 4:

### Custom Object : Travel Approval

The screenshot shows the Salesforce Setup interface with the 'Object Manager' selected. Under 'Travel Approval', the 'Details' tab is active. The left sidebar lists various configuration options: 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, Triggers, and Flow Triggers. The main pane displays the object's API name as 'Travel\_Approval\_\_c', singular label as 'Travel Approval', and plural label as 'Travel Approvals'. On the right, a user profile for 'sakam swetha' is shown with 'DISPLAY DENSITY' set to 'Comfy'. A sidebar menu includes 'Switch to Salesforce Classic' and 'Add Username'.

### Custom Fields in Travel Approval

The screenshot shows the 'Fields & Relationships' section for the 'Travel Approval' object. It lists 13 items, sorted by Field Label. The fields include: Department (Department\_\_c, Lookup(Department)), Destination State (Destination\_State\_\_c, Text(2)), Last Modified By (LastModifiedByld, 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), Trip End Date (Trip\_End\_Date\_\_c, Date), and Trip Start Date (Trip\_Start\_Date\_\_c, Date). The right sidebar shows the same user profile and 'DISPLAY DENSITY' settings as the previous screenshot.

## Testing the Travel App with the given Objects and Fields

The screenshot shows the Salesforce interface for a Travel Approval record. The record ID is TA-00500. The Details tab is selected, displaying fields such as Total Expenses (\$0.00), Status (New), and Department (Contract Management). The Created By field shows sakam swetha. The Trip Info section includes fields for Purpose of Trip (Out-of-State checked), Trip Start Date (2/22/2023), Trip End Date (2/28/2023), and Destination State (jk). To the right, the Activity sidebar is visible, showing no upcoming activities.

## STEP 5:

### Importing the Department records using the Data Import Wizard

The screenshot shows the Salesforce Departments list view. There are 16 items listed, sorted by Department Name. 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. A context menu is open on the right side, showing options like Comfy, Compact, and Switch to SalesForce Classic.

## Exercise 2:-

### STEP 1:

#### Creating Travel Approval Record

The screenshot shows a Salesforce page for a Travel Approval record with ID TA-00501. The page has a header with the Travel App logo, Chatter, Dashboards, Reports, Departments, Travel Approvals, Customers, and a search bar. Below the header is a toolbar with Follow, Edit, New Contact, and New Opportunity buttons. The main content area has tabs for Related and Details. Under Details, there are fields for Travel Approval # (TA-00501), Status (Draft), Total Expenses (\$0.00), and Created By (sakam swetha). A Trip Info section contains fields for Purpose of Trip (Attend Dreamforce), Trip Start Date (2/21/2023), and Trip End Date (3/4/2023). To the right of the main content is a sidebar titled 'Activity' which shows a list of activities and a message indicating no upcoming or overdue activities.

### STEP 2:

#### Creating Expense Item Custom Object

The screenshot shows the Salesforce Setup page for creating a new custom object named 'Expense Item'. The left sidebar lists various setup options like 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, Flow Triggers, and Validation Rules. The main content area shows the 'Details' tab for the 'Expense Item' object. It includes fields for Description, API Name (Expense\_Item\_\_c), Singular Label (Expense Item), and Plural Label (Expense Items). On the right side, there is a user profile for sakam swetha and settings for display density (set to 'Comfy'), options (Compact), and other account-related links. The status bar at the bottom indicates the deployment status is 'Deployed'.

## STEP 3:

### Creating Custom Fields in Expense Item Object

The screenshot shows the Salesforce Setup interface under the Object Manager for the 'Expense Item' object. The left sidebar lists various setup categories like Page Layouts, Lightning Record Pages, and Validation Rules. The main area displays a table titled 'Fields & Relationships' with 6 items, sorted by Field Label. The table columns include Field Label, Field Name, Data Type, and Control. The data is as follows:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROL
Amount	Amount__c	Currency(16, 2)	
Created By	CreatedById	Lookup(User)	
Expense Item Number	Name	Auto Number	
Expense Type	Expense_Type__c	Picklist	
Last Modified By	LastModifiedById	Lookup(User)	
Travel Approval	Travel_Approval__c	Master-Detail(Travel Approval)	

The top right corner shows a user profile for 'sakam swetha' and options for 'DISPLAY DENSITY' (Comfy selected), 'OPTIONS' (Switch to Salesforce Classic, Add Username), and a 'Compact' button.

## STEP 4:

### Creating Records in Expense Item Object

The screenshot shows the Travel App interface with a record detail page for a 'Travel Approval' with ID 'TA-00500'. The top navigation bar includes links for Chatter, Dashboards, Reports, Departments, Travel Approvals, and Scustomers. The main content area shows related sections: 'Notes & Attachments (0)', 'Expense Items (2)', and 'Approval History (0)'. The 'Expense Items' section displays two records:

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

The bottom right corner shows a user profile for 'sakam swetha' and options for 'DISPLAY DENSITY' (Comfy selected), 'OPTIONS' (Switch to Salesforce Classic, Add Username), and a 'Compact' button. It also shows the 'Activity' and 'Upcoming & Overdue' sections.

## STEP 5:

### Creating User names Eric Executive

The screenshot shows the Salesforce Setup interface under the 'Users' tab. A new user record is being created with the following details:

User Detail		Role	
Name	Eric Executive	Role	CEO
Alias	eexec	User License	Salesforce
Email	sakamswetha@gmail.com	Profile	System Administrator
Username	eric.sweatha@wipro.com	Active	<input checked="" type="checkbox"/>
Nickname	eric.exec	Marketing User	<input type="checkbox"/>
Title		Offline User	<input type="checkbox"/>
Company		Knowledge User	<input type="checkbox"/>
Department		Flow User	<input type="checkbox"/>
Division		Service Cloud User	<input type="checkbox"/>
Address		Site.com Contributor User	<input type="checkbox"/>
Time Zone	(GMT-08:00) Pacific Standard Time (America/Los_Angeles)	Site.com Publisher User	<input type="checkbox"/>
Locale	English (United States)	WDC User	<input type="checkbox"/>
Language	English	Mobile Push Registrations	<input type="checkbox"/> View
Delegated Approver		Accessibility Mode (Classic Only)	<input type="checkbox"/>
Manager	Only if I am an approver	Debug Mode	<input type="checkbox"/>
Federation ID		High-Contrast Palette on Charts	<input type="checkbox"/>
App Registration: One-Time Password Authenticator		Load Lightning Pages While Scrolling	<input checked="" type="checkbox"/>
App Registration: Salesforce Authenticator		Send Apex Warning Emails	<input type="checkbox"/>
Security Key (U2F or WebAuthn)		Salesforce CRM Content User	<input checked="" type="checkbox"/>
Lightning Login		Receive Salesforce CRM Content Email Alerts	<input checked="" type="checkbox"/>
Temporary Verification Code (Expires In 1 to 24 Hours)	[Generate]	Receive Salesforce CRM Content Alerts as Daily Digest	<input checked="" type="checkbox"/>
Make Setup My Default Landing Page <input type="checkbox"/>			

## STEP 6:

### Add User Eric as a Manager

The screenshot shows the continuation of the user creation process. The 'Mailing Address' section is filled with placeholder values. Under 'Single Sign On Information', the 'Federation ID' field is empty. In the 'Locale Settings' section, the time zone is set to '(GMT-08:00) Pacific Standard Time (America/Los\_Angeles)', locale to 'English (United States)', and language to 'English'. The 'Approver Settings' section shows the 'Delegated Approver' field empty and the 'Manager' field populated with 'Eric Executive'. The 'Receive Approval Request Emails' dropdown is set to 'Only if I am an approver'. At the bottom, there is a checkbox for generating a new password and a 'Save' button.

## STEP 7:

### Customize the Travel Approval Default Search Layout

The screenshot shows the Salesforce Setup interface with the 'Search Layouts' page open. The page title is 'Edit Search Layout' for 'Travel Approval Search Results'. In the 'Selected Fields' section, 'Travel Approval #' and 'Purpose of Trip' are listed. The 'Available Fields' section contains various travel-related fields such as Record ID, Out-of-State, Status Indicator, Total Expenses, Owner Alias, Owner First Name, Owner Last Name, Created By Alias, Created By, Created Date, and Last Modified By Alias. There are buttons for 'Add' and 'Remove' fields, along with 'Up' and 'Down' arrows for reordering. A checkbox for 'Override the search result column customizations for all users' is present. Below the fields, sections for 'Standard Buttons' and 'Custom Buttons' are shown, both with no items. At the bottom are 'Save' and 'Cancel' buttons.

## STEP 8:

### Select Fields to display in the Travel Approval “All” List View

The screenshot shows the Travel App interface with the 'Travel Approvals All' list view. A modal window titled 'Select Fields to Display' is open, listing available fields like 'Created By Alias', 'Created Date', 'Destination State', etc., and visible fields like 'Travel Approval #', 'Department', 'Created By', 'Status', 'Trip Start Date', and 'Trip End Date'. The main list view displays 50+ items, sorted by Travel Approval #, with columns for Travel Approval #, Department, Created By, Status, Trip Start Date, and Trip End Date. Each row shows details such as TA-00001 for Technology, Eric Executive as the Created By, and various dates for Trip Start and End.

## STEP 9:

### Create Travel approval custom List View “Open Out of State Travel Requests”

The screenshot shows a Salesforce list view titled "Travel Approvals All". The table displays two travel approvals with the following data:

	Travel Approval #	Department	Created By	Status	Trip Start Date	Trip End Date
1	TA-00500	Contract Management	sakam swetha	New	2/22/2023	2/28/2023
2	TA-00501	Technology	sakam swetha	Draft	2/21/2023	3/4/2023

On the right side of the screen, there is a sidebar titled "Filters" containing the following filter criteria:

- Filter by Owner: All travel approvals
- Matching all of these filters:
  - Out-of-State equals True
  - Status not equal to Approved, Rejected

## STEP 10:

Select fields to display in the Travel Approval “Open Out of State Travel Requests”

The screenshot shows the "Select Fields to Display" dialog box. It has two main sections: "Available Fields" and "Visible Fields".

**Available Fields:**

- Created By Alias
- Created Date
- Last Activity Date
- Last Modified By
- Last Modified By Alias
- Last Modified Date

**Visible Fields:**

- Travel Approval #
- Trip End Date
- Trip Start Date
- Department
- Created By
- Destination State

At the bottom of the dialog box are "Cancel" and "Save" buttons.

## STEP 11:

### Customizing Page Layout

The screenshot shows the Lightning App Builder interface for a "Travel Approval Record Page". The main area displays a record detail page for a travel approval with ID TA-00501. The page includes sections for "Details", "Activity", and "Trip Info". The "Details" section contains fields such as Travel Approval #, Status, Total Expenses, and Status Indicator. The "Activity" section shows a Chatter feed with one post from sakam.swetha. The "Trip Info" section displays trip start and end dates, purpose, and destination state. To the right, a sidebar titled "Record Detail" provides tips for configuring record detail sections and fields. It also includes links to "See How It Works", "Set fields in Page Layouts", "Assign Page Layouts", and "Travel Approval Layout (previewed)". A "Set Component Visibility" section with a "Filters" button is also present.

The screenshot shows the Salesforce Setup interface for the "Travel Approval" object. The left sidebar lists various setup categories, and the main area shows the "Page Layouts" tab for the "Travel Approval" object. The "Fields & Relationships" section is currently selected. The "Fields" panel lists fields such as Buttons, Quick Actions, and Destination State. The "Page Layout Properties" panel shows a "Layout Properties" tab with a "Fields" section containing a "Section" component. On the right, a user profile for "sakam swetha" is shown, along with options for "DISPLAY DENSITY" (set to "Comfy"), "OPTIONS" (with "Switch to Salesforce Classic" and "Add Username" buttons), and a "Custom Console Components" section.

## STEP 12:

### Customize the Expense Item Related List under the Travel Approval page layout

The screenshot shows the Salesforce Travel App interface. At the top, there's a navigation bar with links for Chatter, Dashboards, Reports, Departments, Travel Approvals, and Customers. Below the navigation is a header for 'Travel Approval TA-00500'. The main content area has tabs for 'Related' and 'Details'. Under 'Related', there are sections for 'Notes & Attachments (0)', 'Expense Items (2)', and 'Approval History (0)'. The 'Expense Items' section lists two items: E-00003 (\$450.00, Airfare) and E-00004 (\$870.00, Hotel). To the right of the main content is a sidebar with a user profile for 'sakam swetha', options for 'DISPLAY DENSITY' (set to 'Comfy'), 'Activity' (empty), and 'Upcoming & Overdue' (empty). There are also links to 'Switch to Salesforce Classic' and 'Add Username'.

## STEP 13:

### Enable “Feed Tracking” for Travel Approval Object

The screenshot shows the Salesforce Setup interface. On the left, there's a sidebar with 'Email', 'Feature Settings', 'Chatter', and 'Sales' sections. Under 'Sales', 'Contract Roles on Contracts' and 'Contract Settings' are listed. A note at the bottom says ' Didn't find what you're looking for? Try using Global Search.' The main content area is titled 'Feed Tracking' for the 'Travel Approval' object. It includes a section for 'Fields in travel approvals' where users can select up to 9 fields to track. Fields listed include Department, Session Out-of-State, Purpose of Trip, Travel Approval #, Trip Start Date, Destination State, Owner, Status, and Trip End Date. A note says 'You can also display feed activity for related objects.' and there's a checkbox for 'All Related Objects'. At the bottom, there are 'Save' and 'Cancel' buttons, a checked 'Enable Feed Tracking' checkbox, and a 'Restore Defaults' link.

# Test Collaboration

The screenshot shows the Chatter feed interface. A post from user 'sakam swetha' (@Eric Executive) asks which department should be associated with a travel request. User 'sakam swetha' replies that 'Technology is the correct department'. Another comment from 'Eric Executive' is visible below. The feed includes sorting options like 'Top Posts' and a search bar.

## Testing the App

The screenshot shows the Travel Approval record page for 'TA-00001'. The 'Details' tab is selected, displaying trip information such as purpose ('Attend Dreamforce'), dates ('Trip Start Date: 2/6/2023', 'Trip End Date: 2/14/2023'), and location ('Out-of-State: CA'). The 'Chatter' tab is also present, showing a post from 'Eric Executive' updating the record and a comment from 'sakam swetha' asking about department association.

## MODULE 2

### Exercise 1 :-

#### STEP 1:

#### Validation Rule that trip end date always $\geq$ start date

The screenshot shows the Salesforce Setup interface for the 'Travel Approval' object. On the left, a sidebar lists various configuration options like Details, Fields & Relationships, Page Layouts, and Validation Rules. The main content area is titled 'Travel Approval Validation Rule'. It displays a single validation rule named 'Trip\_end\_date\_after\_start\_date' with the formula 'Trip\_End\_Date\_\_c < Trip\_Start\_Date\_\_c'. The rule is active and applies to the 'Trip End Date' field. A note at the bottom indicates it was created by 'sakam swetha' on 2/14/2023.

#### Working on Validation Rule with error message

The screenshot shows the 'New Travel Approval' page in the 'Travel App'. The 'Information' section includes fields for 'Travel Approval #' (set to 'TA-00500'), 'Status' (set to 'New'), 'Owner' (set to 'sakam swetha'), and 'Department' (set to 'Contract Management'). In the 'Trip Info' section, the 'Trip Start Date' is set to '2/24/2023' and the 'Trip End Date' is set to '2/22/2023'. A validation error message box appears, stating 'We hit a snag.' and 'Review the following fields: • Trip\_End Date'. The 'Trip End Date' field is highlighted in red, indicating the error.

## STEP 2:

### Creating Roll-up Summary Field on Travel Approval Object

The screenshot shows the Salesforce Setup interface for creating a custom field. The left sidebar lists various setup categories like Details, Fields & Relationships, Page Layouts, etc. The main area is titled 'Travel Approval Custom Field' and shows a 'Total Expenses' field being defined. The 'Custom Field Definition Detail' section includes fields for Field Label ('Total Expenses'), Field Name ('Total\_Expenses'), API Name ('Total\_Expenses\_\_c'), Description, Help Text, Data Owner, Field Usage, Data Sensitivity Level, Compliance Categorization, and Created By ('sakam\_swetha'). It also shows Roll-Up Summary Options with Data Type set to 'Roll-Up Summary', Summarized Object to 'Expense Item', Field to Aggregate to 'Expense Item: Amount', and Summary Type to 'SUM'. A note at the bottom states 'Travel Approval Custom Field: Total Expenses ~ Salesforce - Developer Edition'.

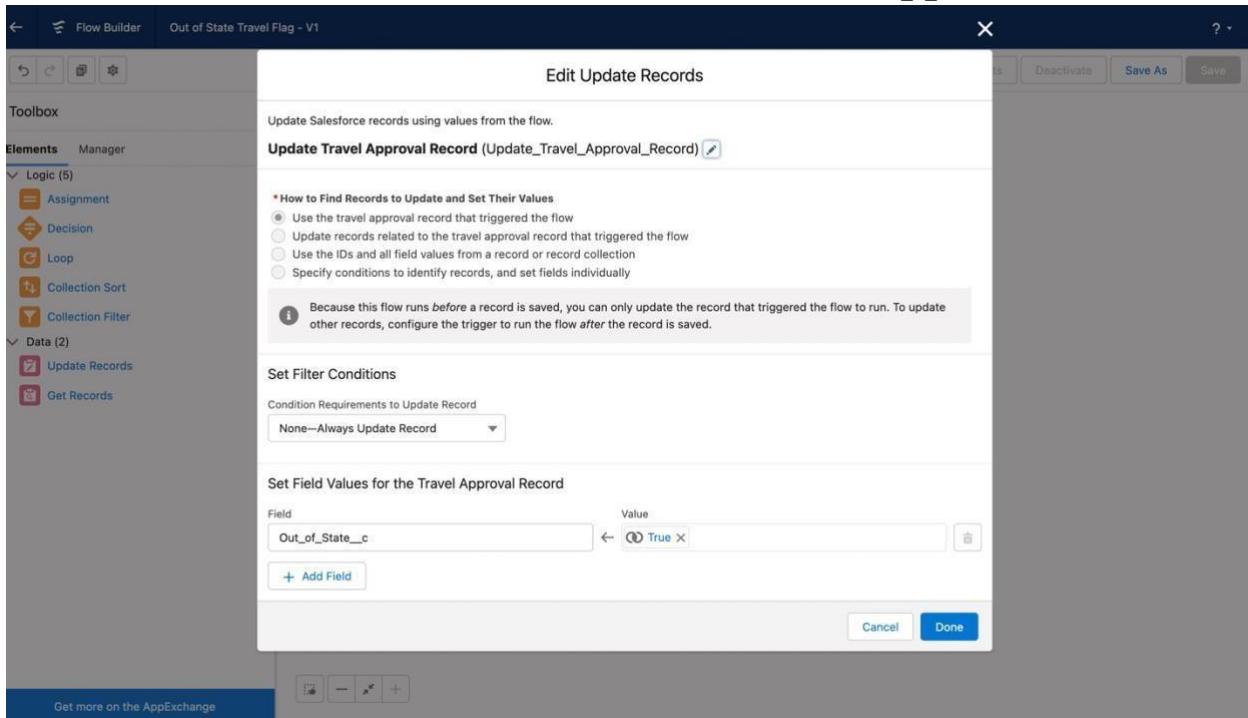
## STEP 3:

### Creating Formula Field Static Resource with name StatusImages

The screenshot shows the Salesforce Setup interface for creating a static resource. The left sidebar shows a search bar with 'static' typed in, a 'Custom Code' section, and a 'Static Resources' section which is currently selected. The main area is titled 'Static Resources' and shows a 'StatusImages' resource being defined. The 'Static Resource Detail' section includes fields for Name ('StatusImages'), Namespace Prefix, Description, MIME Type ('application/zip'), Cache Control ('Public'), Size ('39,130 bytes'), and a 'View file' link. It also shows Created By ('sakam\_swetha') and Last Modified By ('sakam\_swetha'). A note at the bottom states 'StatusImages ~ Salesforce - Developer Edition'. On the right side, there is a user profile for 'sakam\_swetha' and a sidebar with options for 'DISPLAY DENSITY' (set to 'Comfy'), 'OPTIONS', and links to 'Switch to Salesforce Classic' and 'Add Username'.

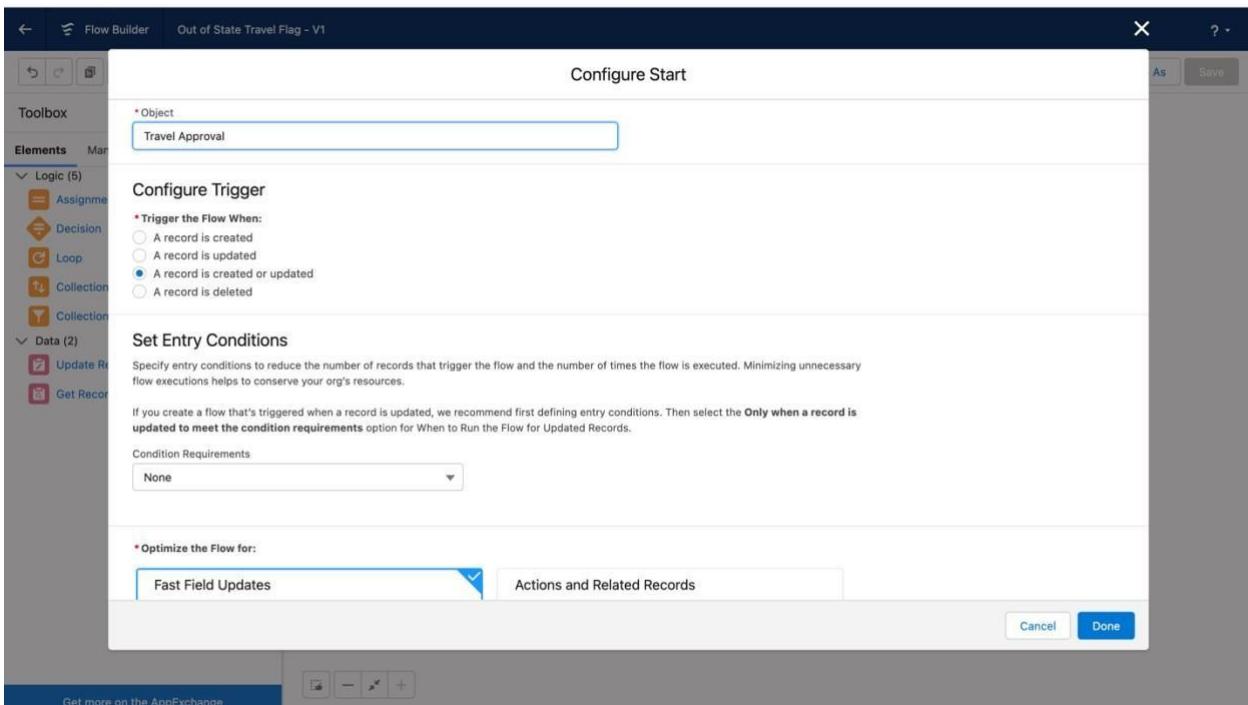
## STEP 4:

### Create Status Formula Field on Travel Approval



## STEP 5:

### Record Trigger Flow



# Creating Decisions

The screenshot shows the Salesforce Flow Builder interface with the title "Out of State Travel Flag - V1". The main area is titled "Edit Update Records" and contains the following sections:

- How to Find Records to Update and Set Their Values:**
  - Use the travel approval record that triggered the flow (selected)
  - Update records related to the travel approval record that triggered the flow
  - Use the IDs and all field values from a record or record collection
  - Specify conditions to identify records, and set fields individually
- A note: "Because this flow runs before a record is saved, you can only update the record that triggered the flow to run. To update other records, configure the trigger to run the flow after the record is saved."
- Set Filter Conditions:** A dropdown menu shows "None—Always Update Record".
- Set Field Values for the Travel Approval Record:**

Field	Value
Out_of_State__c	True

+ Add Field
- Buttons: Cancel, Done.

The screenshot shows the Salesforce Flow Builder interface with the title "Out of State Travel Flag - V1". The main area is titled "Edit Decision" and contains the following sections:

- Outcomes:** For each path the flow can take, create an outcome. For each outcome, specify the conditions that must be met for the flow to take that path.
- OUTCOME ORDER:** A list of outcomes:
  - Yes Out of State
  - In State
- OUTCOME DETAILS:**
  - Yes Out of State:**
    - \*Label: In State
    - \*Outcome API Name: In\_State
  - Default Outcome:** Condition Requirements to Execute Outcome: All Conditions Are Met (AND).

Resource	Operator	Value
A_a \$Record > Destination State	Equals	TX

+ Add Condition
- When to Execute Outcome:**
  - If the condition requirements are met (radio button)
  - Only if the record that triggered the flow to run is updated to meet the condition requirements** (radio button, selected)
- Buttons: Cancel, Done.

**Edit Decision**

**Is Travel Out of State? (Is\_Travel\_Out\_of\_State)**

**Outcomes** For each path the flow can take, create an outcome. For each outcome, specify the conditions that must be met for the flow to take that path.

**OUTCOME ORDER** **OUTCOME DETAILS**

- Yes Out of State** **Label**: Yes Out of State **Outcome API Name**: Yes\_Out\_of\_State
- In State**

**Condition Requirements to Execute Outcome**: All Conditions Are Met (AND)

**Resource**: \$Record > Destination State **Operator**: Does Not Equal **Value**: TX

**When to Execute Outcome**:
  If the condition requirements are met
  Only if the record that triggered the flow to run is updated to meet the condition requirements

**Cancel** **Done**

**Start**  
Record-Triggered Flow

**Object:** Travel Approval **Trigger:** A record is created or updated **Optimize for:** Fast Field Updates

**Decision** Is Travel Out of State?

```

graph TD
    Start((Start)) --> Decision{Decision  
Is Travel Out of State?}
    Decision -- "Yes Out of State" --> UpdateOut[Update Records  
Update Travel Approval Record]
    Decision -- "In State" --> UpdateIn[Update Records  
Update Travel Approval Record]
  
```

**Update Records** **Update Travel Approval Record**

**Update Records** **Update Travel Approval Record**

**Get more on the AppExchange**

# STEP 6:

## Creating an Approval Process to send travel approvals to manage or travel coordinator

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

**Approval Processes**

**Travel Approval: Travel Approval Request**

**Process Definition Detail**

- Process Name: Travel Approval Request
- Unique Name: Travel\_Approval\_Request
- Description: Travel Approval: Total Expenses GREATER THAN 0
- Entry Criteria: Travel Approval: Total Expenses GREATER THAN 0
- Record Editability: Administrator ONLY
- Active: checked
- Manager of Record Submitter: Next Automated Approver Determined By
- Allow Submitters to Recall Approval Requests: unchecked
- Approval Assignment Email Template: Initial Submitters
- Initial Submitters: Travel Approval Owner
- Created By: sakam swetha, 2/14/2023, 10:18 PM
- Modified By: sakam swetha, 2/14/2023, 11:25 PM

**Initial Submission Actions**

Action Type	Description
Record Lock	Lock the record from being edited

**Approval Steps**

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:sakam swetha	Final Rejection

**Final Approval Actions**

Action Type	Description
Record Lock	Lock the record from being edited
Edit   Remove Field Update	Set Status to Approved

**Final Rejection Actions**

Action Type	Description
Edit   Remove Field Update	Record Lock
	Unlock the record for editing
	Set Status to Rejected

**Recall Actions**

Action Type	Description
Record Lock	Unlock the record for editing

The screenshot shows a Salesforce interface for a Travel Approval record. The record ID is TA-00001. The page includes sections for Notes & Attachments, Expense Items (2), and Approval History (3). The Approval History table shows three steps: Travel Coordinator Approval (Approved), Step 1 (Approved), and Approval Request Submitted (Submitted). A sidebar on the right displays upcoming and overdue activities.

Expense Item Number	Amount	Expense Type
E-00001	\$450.00	Airfare
E-00002	\$870.00	Hotel

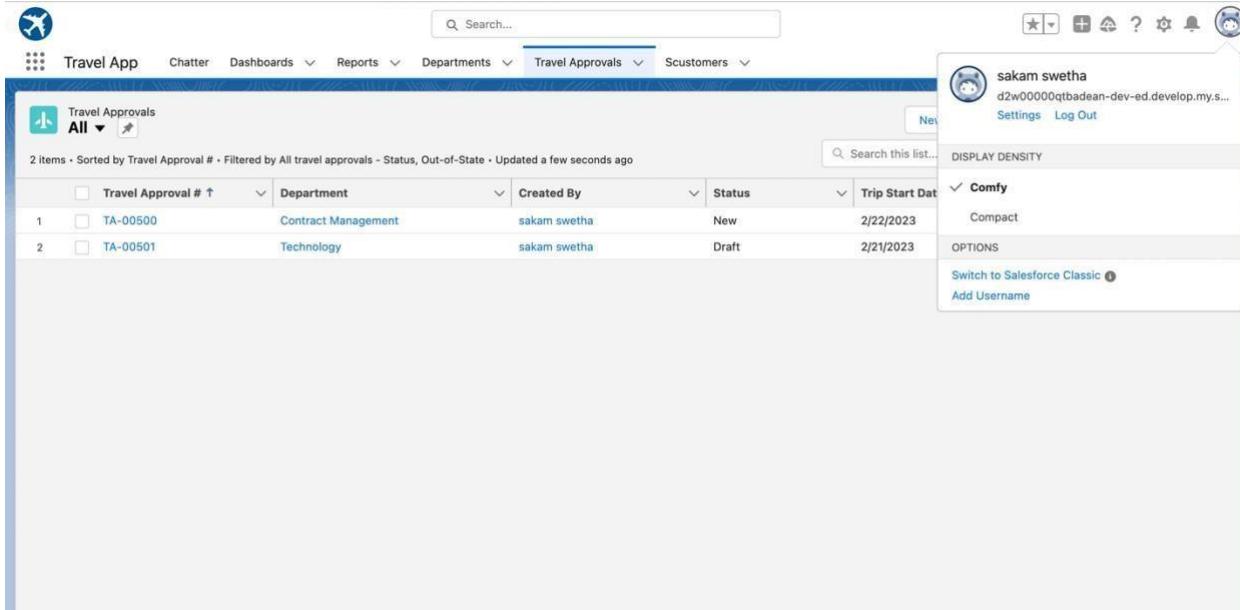
## Final Result

The screenshot shows a Chatter feed post by sakam.swetha. The post asks, "Which department should I associate this travel request with?". A comment from sakam.swetha states, "Technology is the correct department." The interface includes a dropdown menu for display density settings.

## Exercise 2:-

### STEP 1:

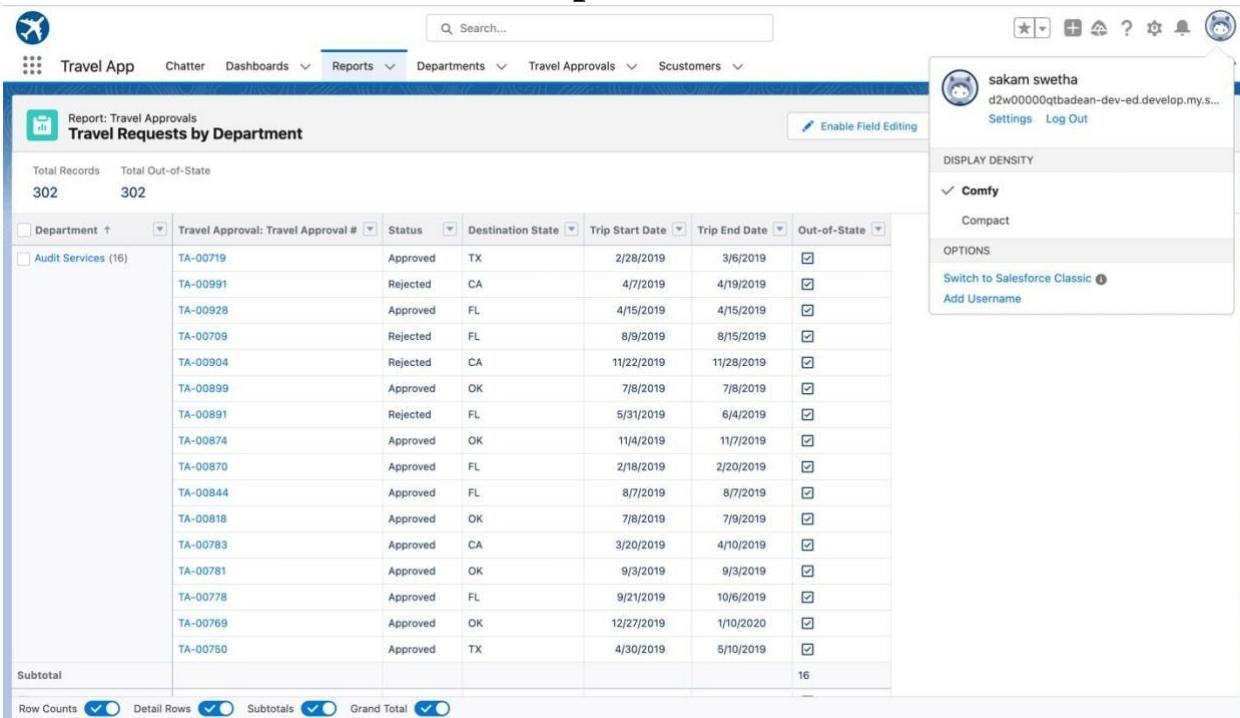
#### Using Data Import Wizard Importing Travel Approval Records



The screenshot shows the Salesforce interface for the Travel App. The top navigation bar includes links for Travel App, Chatter, Dashboards, Reports, Departments, Travel Approvals (which is currently selected), and Scustomers. A search bar is at the top right. On the left, there's a sidebar with a travel icon and the text "Travel Approvals All". The main content area displays a table with two rows of travel approval records. The columns are: Travel Approval # (with sorting arrow), Department, Created By, Status, and Trip Start Date. The first record is for TA-00500 in Contract Management, created by sakam swetha, status New, trip start date 2/22/2023. The second record is for TA-00501 in Technology, created by sakam swetha, status Draft, trip start date 2/21/2023. To the right of the table is a user profile for sakam swetha and a sidebar with options for DISPLAY DENSITY (set to Comfy), OPTIONS, and links to Switch to Salesforce Classic and Add Username.

### STEP 2:

#### Creating Travel Request by Department report and add chart Properties



The screenshot shows the Salesforce Reports interface. The top navigation bar includes links for Travel App, Chatter, Dashboards, Reports (selected), Departments, Travel Approvals, and Scustomers. A search bar is at the top right. The main content area displays a report titled "Report: Travel Approvals" with the subtitle "Travel Requests by Department". It shows a table with 302 total records, all of which are "Total Out-of-State". The table has columns for Department, Travel Approval #, Status, Destination State, Trip Start Date, Trip End Date, and Out-of-State. The data is grouped by Department, with "Audit Services (16)" having 16 entries. The report includes a "Subtotal" row and footer controls for Row Counts, Detail Rows, Subtotals, and Grand Total.

Travel App Chatter Dashboards Reports Departments Travel Approvals Scustomers

Report: Travel Approvals  
Travel Requests by Department

Subtotal 16

	Department	Travel Approval: Travel Approval #	Status	Destination State	Trip Start Date	Trip End Date	Out-of-State
Contract Management (21)	TA-00500	New	jk	2/22/2023	2/28/2023	<input checked="" type="checkbox"/>	
	TA-00725	Approved	OK	5/11/2019	5/11/2019	<input checked="" type="checkbox"/>	
	TA-00999	Approved	GA	10/30/2019	11/2/2019	<input checked="" type="checkbox"/>	
	TA-00996	Approved	CA	6/17/2019	6/20/2019	<input checked="" type="checkbox"/>	
	TA-00987	Approved	FL	4/14/2019	5/5/2019	<input checked="" type="checkbox"/>	
	TA-00979	Approved	FL	6/20/2019	6/23/2019	<input checked="" type="checkbox"/>	
	TA-00971	Approved	TX	4/4/2019	4/4/2019	<input checked="" type="checkbox"/>	
	TA-00966	Rejected	TX	10/17/2019	10/20/2019	<input checked="" type="checkbox"/>	
	TA-00965	Approved	CA	7/5/2019	7/8/2019	<input checked="" type="checkbox"/>	
	TA-00962	Approved	TX	7/4/2019	7/4/2019	<input checked="" type="checkbox"/>	
	TA-00957	Approved	TX	1/18/2019	1/18/2019	<input checked="" type="checkbox"/>	
	TA-00940	Approved	CA	3/31/2019	4/2/2019	<input checked="" type="checkbox"/>	
	TA-00717	Approved	FL	5/8/2019	5/14/2019	<input checked="" type="checkbox"/>	
	TA-00707	Approved	TX	12/22/2019	1/1/2020	<input checked="" type="checkbox"/>	
	TA-00896	Approved	FL	2/20/2019	2/24/2019	<input checked="" type="checkbox"/>	
	TA-00895	Approved	FL	1/29/2019	1/29/2019	<input checked="" type="checkbox"/> true	
	TA-00821	Approved	GA	2/9/2019	2/9/2019	<input checked="" type="checkbox"/>	
	TA-00815	Approved	GA	1/30/2019	1/30/2019	<input checked="" type="checkbox"/>	

Row Counts Detail Rows Subtotals Grand Total

sakam swetha d2w00000qtbaean-dev-ed.develop.my.s... Settings Log Out

DISPLAY DENSITY Comfy Compact

OPTIONS Switch to Salesforce Classic Add Username

## Final Report

Travel App Chatter Dashboards Reports Departments Travel Approvals Scustomers

REPORT Travel Requests by Department Travel Approvals

Previewing a limited number of records. Run the report to see everything.

Update Preview Automatically

Record Count

Department

Department	Travel Approval: Travel Approval #	Status	Destination State	Trip Start Date	Trip End Date	Out-of-State
Audit Services (1)	TA-00750	Approved	TX	4/30/2019	5/10/2019	<input checked="" type="checkbox"/>
Subtotal						1
Disability Determination Bureau (1)	TA-00736	Approved	FL	10/20/2019	10/22/2019	<input checked="" type="checkbox"/>
Subtotal						1
Division of Aging (3)	TA-00737	Approved	FL	2/17/2019	2/20/2019	<input checked="" type="checkbox"/>
	TA-00743	Approved	GA	3/5/2019	3/14/2019	<input checked="" type="checkbox"/>
	TA-00744	Approved	OK	1/24/2019	1/24/2019	<input checked="" type="checkbox"/>
Subtotal						3
Division of Disability and Rehabilitative Services (2)	TA-00732	Approved	GA	7/7/2019	7/7/2019	<input checked="" type="checkbox"/>
Row Counts Detail Rows Subtotals Grand Total						Conditional Formatting

## STEP 3:

### Creating Travel Request by Month Report

**Report: Travel Approvals**  
**Travel Requests by Month**

Trip End Date	Out-of-State	Travel Approval: Travel Approval #	Department	Status	Destination State	Trip Start Date
January 2019 (17)	(17)	TA-00957	Contract Management	Approved	TX	1/18/2019
		TA-00895	Contract Management	Approved	FL	1/29/2019
		TA-00815	Contract Management	Approved	GA	1/30/2019
		TA-00948	Quality and Compliance Office	Approved	TX	1/14/2019
		TA-00802	Disability Determination Bureau	Approved	TX	1/12/2019
		TA-00766	Legislative Services	Approved	TX	1/20/2019
		TA-00723	Office of Communications and Media	Rejected	FL	1/12/2019
		TA-00789	Office of General Counsel	Rejected	TX	1/27/2019
		TA-00936	Division of Aging	Approved	TX	1/22/2019
		TA-00804	Division of Aging	Approved	FL	1/3/2019
		TA-00744	Division of Aging	Approved	OK	1/24/2019
		TA-00729	Division of Disability and Rehabilitative Services	Approved	OK	1/23/2019
		TA-00859	Division of Disability and Rehabilitative Services	Approved	FL	1/29/2019
		TA-00910	Division of Family Resources	Approved	FL	1/21/2019
		TA-00814	Division of Mental Health and Addiction	Approved	OK	1/3/2019
		TA-00913	Office of Early Childhood and Out-of-School Learning	Rejected	OK	1/4/2019
		TA-00908	Office of Early Childhood and Out-of-School Learning	Approved	GA	1/18/2019

Row Counts Detail Rows Subtotals Grand Total

### Final Report

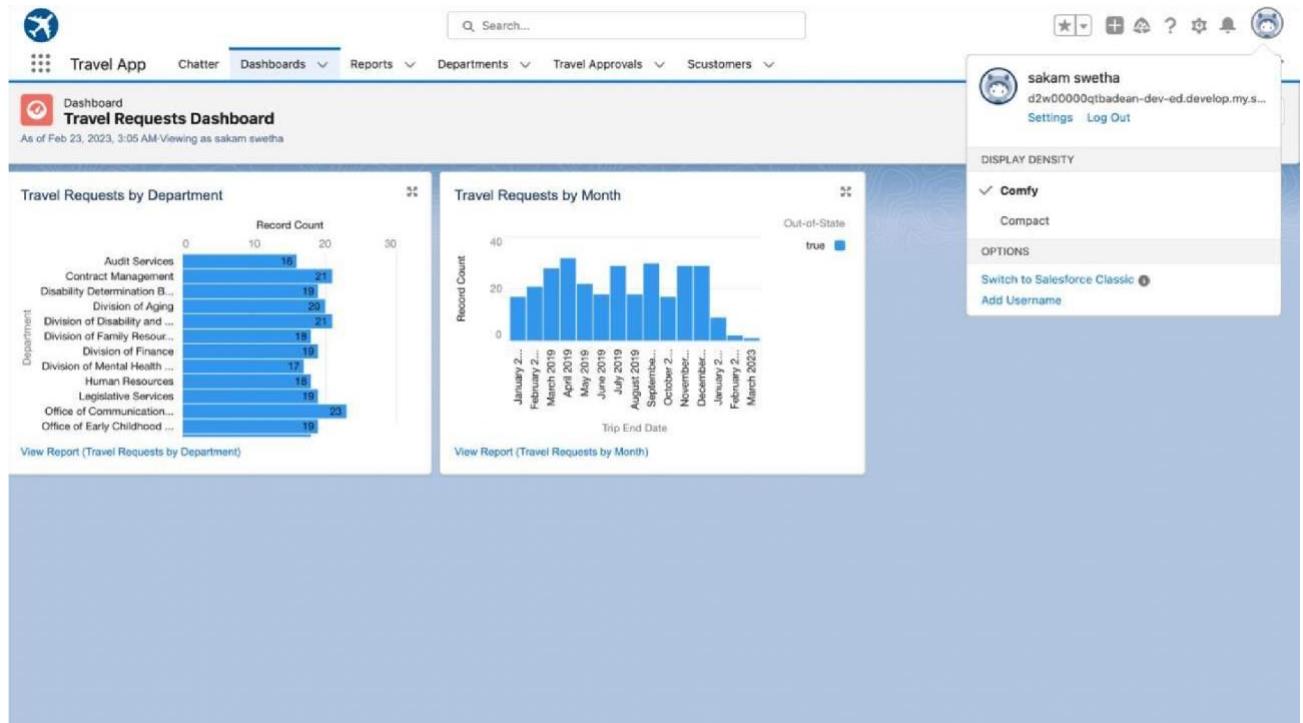
**Report: Travel Approvals**  
**Travel Requests by Month**

Trip End Date	Out-of-State	Travel Approval: Travel Approval #	Department	Status	Destination State	Trip Start Date
January 2020 (9)	(9)	TA-00769	Audit Services	Approved	OK	12/27/2019
		TA-00707	Contract Management	Approved	TX	12/22/2019
		TA-00931	Disability Determination Bureau	Approved	CA	12/30/2019
		TA-00981	Human Resources	Approved	FL	12/29/2019
		TA-00864	Office of Communications and Media	Rejected	CA	12/22/2019
		TA-00855	Office of General Counsel	Rejected	TX	12/23/2019
		TA-00837	Division of Aging	Rejected	GA	12/24/2019
		TA-00967	Division of Mental Health and Addiction	Approved	CA	12/13/2019
		TA-00954	Division of Mental Health and Addiction	Approved	GA	12/24/2019
Subtotal						
February 2023 (2)	(2)	TA-00500	Contract Management	New	jk	2/22/2023
		TA-00001	Technology	Approved	CA	2/6/2023
Subtotal						
March 2023 (1)	(1)	TA-00501	Technology	Draft	CA	2/21/2023
Subtotal						
Total (302)						

Row Counts Detail Rows Subtotals Grand Total

## STEP 4:

### Final Dashboard



# MODULE 3

## Exercise 1:-

### STEP 1:

#### Creating Code Playground Lightning App

The screenshot shows the Salesforce Code Playground interface. The top navigation bar includes 'Leads', 'Accounts', 'Opportunities', 'Contacts', and 'Cases'. A search bar at the top right contains the placeholder 'Search this list...'. On the left, a sidebar shows 'Leads' and 'All Open Leads'. The main area displays a table of 15 leads, each with columns for Name, Company, Status, Email, Lead Status, Created Date, and Last Activity. The table is sorted by Name. A context menu is open on the right side of the screen, showing options like 'Comfy' (which is checked), 'Compact', 'OPTIONS', 'Switch to Salesforce Classic', and 'Add Username'. The user's profile is visible at the top right.

#### Creating Custom Object : Customer

The screenshot shows the Salesforce Setup page under 'Object Manager'. The 'Customer' object is selected. The left sidebar lists various configuration tabs: 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, Triggers, and Flow Triggers. The 'Details' tab is active, showing fields for API Name ('Customer\_\_c'), Singular Label ('Customer'), and Plural Label ('Customers'). The right side of the screen displays the object's details, including 'Description', 'Enable Reports' (checked), 'Track Activities', 'Track Field History', 'Deployment Status' (Deployed), 'Help Settings', and 'Standard salesforce.com Help Window'. A context menu is open on the right, similar to the one in the previous screenshot, with options like 'Comfy' (checked), 'Compact', 'OPTIONS', 'Switch to Salesforce Classic', and 'Add Username'. The user's profile is visible at the top right.

## Creating Custom Fields on Customer Object

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

- Page Header:** Mail - SAKAM SWETHA - Outbox, (4) Training Invitation | Wip, Hands-On Orgs, All Open Leads | Leads | Sales, Customer | Salesforce.
- Search Bar:** Search Setup.
- Navigation:** Setup, Home, Object Manager.
- Section:** SETUP > OBJECT MANAGER Customer.
- Table:** Fields & Relationships (7 Items, Sorted by Field Label).

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Active	Active__c	Checkbox		
Created By	CreatedBy	Lookup(User)		
Customer	Customer__c	Master-Detail(Customer)		✓
Customer Name	Name	Text(80)		✓
Customer Type	Customer_Type__c	Picklist		
Description	Description__c	Text Area(255)		
Last Modified By	LastModifiedBy	Lookup(User)		

## Creating Custom Object : Billing

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

- Page Header:** Mail - SAKAM SWETHA - Outbox, (4) Training Invitation | Wip, Hands-On Orgs, All Open Leads | Leads | Sales, Customer | Salesforce.
- Search Bar:** Search Setup.
- Navigation:** Setup, Home, Object Manager.
- Section:** SETUP > OBJECT MANAGER Billing.
- Table:** Details.

Description	Enable Reports
API Name Billing__c	✓
Custom	Track Activities
✓	Track Field History
Singular Label Billing	Deployment Status
Plural Label Billings	Deployed
	Help Settings
	Standard salesforce.com Help Window
- User Profile Overlay:** sakam swetha, d2w00000qtbadean-dev-ed.develop.my.salesforce.com, Settings, Log Out. Options: Comfy (selected), Compact, Switch to Salesforce Classic, Add Username.

# Creating Custom Fields on Billing Object

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

- Setup** tab selected.
- Object Manager** dropdown selected.
- Billing** object selected.
- Fields & Relationships** section is active.
- Fields & Relationships** table:
  - 7 items, Sorted by Field Label.
  - Columns: FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING.
  - Rows:
    - Amount Paid (Amount\_Paid\_\_c, Currency(18, 0))
    - Billing Number (Name, Auto Number)
    - Created By (CreatedById, Lookup(User))
    - Customer Type (Customer\_Type\_\_c, Picklist)
    - Last Modified By (LastModifiedById, Lookup(User))
    - Owner (OwnerId, Lookup(User,Group))
    - Status (Status\_\_c, Picklist)
- Display Density** dropdown set to **Comfy**.
- Options** menu:
  - Switch to Salesforce Classic
  - Add Username

# Testing the App

The screenshot shows the Salesforce Code Playground interface with the following details:

- Code Playground** tab selected.
- Accounts** tab selected.
- All Accounts** list view:
  - 13 items, Sorted by Account Name.
  - Columns: Account Name, Account Site, Billing State/Province, Phone, Type.
  - Rows (partial list):
    - 1 Burlington Textiles Corp of America (NC, (336) 222-7000, Customer - Direct)
    - 2 Dickenson plc (KS, (785) 241-6200, Customer - Channel)
    - 3 Edge Communications (TX, (512) 757-6000, Customer - Direct)
    - 4 Express Logistics and Transport (OR, (503) 421-7800, Customer - Direct)
    - 5 GenePoint (CA, (650) 867-3450, Customer - Channel)
    - 6 Grand Hotels & Resorts Ltd (IL, (312) 596-1000, Customer - Direct)
    - 7 Pyramid Construction Inc. (CA, (014) 427-4427, Customer - Channel)
    - 8 Sample Account for Entitlements (CA, (415) 901-7000, autoproc)
    - 9 sForce (CA, (415) 901-7000, sswet)
    - 10 United Oil & Gas Corp. (NY, (212) 842-5500, Customer - Direct)
    - 11 United Oil & Gas, Singapore (Singapore, (650) 450-5810, Customer - Direct)
    - 12 United Oil & Gas, UK (UK, +44 191 4956203, Customer - Direct)
    - 13 University of Arizona (AZ, (520) 773-9050, Customer - Direct)
- Display Density** dropdown set to **Comfy**.
- Options** menu:
  - Switch to Salesforce Classic
  - Add Username

## Exercise 2 :-

### 1. Define a String Variable & use string method ‘endsWith’ to display the output.

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and a status bar indicating 'Log executeAnonymous @21/02/2023, 11:55:29' and 'Log executeAnonymous @21/02/2023, 11:56:45'. Below the menu is an 'Execution Log' table:

Timestamp	Event	Details
11:56:45:004	USER_DEBUG	[2]DEBUG true

Below the log is an 'Enter Apex Code' window containing the following code:

```
1 String name='sakam swetha';
2 System.debug(name.endsWith('a'));
```

At the bottom of the interface is a toolbar with buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted. There is also a 'Logs' tab selected in the navigation bar.

The logs table below the toolbar shows several entries:

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:56:45	Success		2.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:55:29	Success		2.52 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:53:06	Success		2.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:52:35	Success		2.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:52:16	Success		2.14 KB

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

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and a status bar indicating 'Log executeAnonymous @21/02/2023, 11:55:29'. Below the menu is an 'Execution Log' table:

Timestamp	Event	Details
11:55:29:002	USER_DEBUG	[2]DEBUG 2023-02-20 00:00:00
11:55:29:002	USER_DEBUG	[4]DEBUG 2023-03-22 00:00:00

Below the log is an 'Enter Apex Code' window containing the following code:

```
1 Date day1=Date.today();
2 System.debug(day1);
3 Date day2=day1.addDays(30);
4 System.debug(day2);
```

At the bottom of the interface is a toolbar with buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted. There is also a 'Logs' tab selected in the navigation bar.

The logs table below the toolbar shows several entries:

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:55:29	Success		2.52 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:53:06	Success		2.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:52:35	Success		2.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 11:52:16	Success		2.14 KB

### 3. Display the output of an Integer variable from string '10' and then add 20 to it.

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and several status indicators. Below the menu is a toolbar with icons for New, Open, Save, and so on. A central window titled "Execution Log" displays a table of log entries with columns for Timestamp, Event, and Details. The log shows five entries related to the execution of an anonymous block. Below the log is a modal window titled "Enter Apex Code" containing the following Apex code:

```
1 String a='10';
2 Integer i=Integer.valueOf(a);
3 System.debug(a);
4 System.debug(i);
5 System.debug(i+20);
```

At the bottom of the interface, there are tabs for Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The "Logs" tab is selected. To the right of the logs is a table showing application usage statistics.

### 4. Define a String Variable & use string method length() to display the output.

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and several status indicators. Below the menu is a toolbar with icons for New, Open, Save, and so on. A central window titled "Execution Log" displays a table of log entries with columns for Timestamp, Event, and Details. The log shows one entry related to the execution of an anonymous block. Below the log is a modal window titled "Enter Apex Code" containing the following Apex code:

```
1 String str='length of string';
2 System.debug('Length:'+str.length());
```

At the bottom of the interface, there are tabs for Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The "Logs" tab is selected. To the right of the logs is a table showing application usage statistics.

## 5. Define a List of integer and display the output using add(), get(), set(), clear() methods.

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and a status bar indicating "Log executeAnonymous @21/02/2023, 12:20:34". Below the menu is the "Execution Log" section, which displays the following log entries:

Timestamp	Event	Details
12:20:34:005	USER_DEBUG	[6][DEBUG]Using ADD: (1, 2, 3, 4)
12:20:34:005	USER_DEBUG	[7][DEBUG]Using GET method: 1
12:20:34:005	USER_DEBUG	[9][DEBUG]Using SET method: (1, 2, 5, 4)
12:20:34:006	USER_DEBUG	[11][DEBUG]Using CLEAR method: ()

Below the log is the "Enter Apex Code" window containing the following code:

```

1 List<Integer> l=new List<Integer>();
2 l.add(1);
3 l.add(2);
4 l.add(3);
5 l.add(4);
6 System.debug('Using ADD: '+l);
7 System.debug('Using GET method: '+l.get(0));
8 l.set(2,5);
9 System.debug('Using SET method: '+l);
10 l.clear();
11 System.debug('Using CLEAR method: '+l);

```

At the bottom of the interface is a table showing logs for the current session, with the "Logs" tab selected. The table has columns for User, Application, Operation, Time, Status, Read, and Size.

## 6. Use Execute Anonymous to define and execute the following code to display the value of x = 0 to 9.

The screenshot shows the Salesforce IDE interface. At the top, there's a menu bar with File, Edit, Debug, Test, Workspace, Help, and a status bar indicating "Log executeAnonymous @21/02/2023, 12:23:16" and "Log executeAnonymous @21/02/2023, 12:23:38". Below the menu is the "Execution Log" section, which displays the following log entries:

Timestamp	Event	Details
12:23:38:002	USER_DEBUG	[4][DEBUG]Value of x is: 0
12:23:38:002	USER_DEBUG	[4][DEBUG]Value of x is: 1
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 2
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 3
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 4
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 5
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 6
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 7
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 8
12:23:38:003	USER_DEBUG	[4][DEBUG]Value of x is: 9

Below the log is the "Enter Apex Code" window containing the following code:

```

1 Integer x=20;
2 v while(x>12){
3 v   for(x=0;x<10;x=x+1){
4     System.debug('Value of x is: '+x);
5   }
6 }

```

At the bottom of the interface is a table showing logs for the current session, with the "Logs" tab selected. The table has columns for User, Application, Operation, Time, Status, Read, and Size.

## Exercise 3

Integer myluckyNumber = 15; Integer myunluckyNumber = 7; myluckyNumber != myunluckyNumber + 8

The screenshot shows the Salesforce IDE interface. At the top is the navigation bar with File, Edit, Debug, Test, Workspace, Help, and a log message: "Log executeAnonymous @21/02/2023, 12:25:52". Below it is the "Execution Log" window with columns for Timestamp, Event, and Details. A single entry is shown: "12:25:52:005 USER\_DEBUG [4]||DEBUG|false". The main area is the "Enter Apex Code" window containing the following Apex code:

```
1 Integer myunluckyNumber = 15;
2 Integer myluckyNumber = 7;
3 if(myluckyNumber != myunluckyNumber + 8){
4     System.debug('False');
5 } else{
6     System.debug('True');
7 }
```

Below the code editor is a toolbar with buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted. At the bottom is the "Logs" tab of the "View" menu, showing a list of log entries from a user named "sakam swetha".

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:25:52	Success		2.62 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:23:38	Success		5.61 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:23:16	Success		2.01 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:20:34	Success		4.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:07:37	Success		4.14 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:01:40	Success		2.25 KB

## Exercise 4

Answer the following in True Or False: isTrue || isFalse      Boolean isFalse = false;      Boolean isTrue = True;

The screenshot shows the Salesforce IDE interface. At the top is the navigation bar with File, Edit, Debug, Test, Workspace, Help, and a log message: "Log executeAnonymous @21/02/2023, 12:25:52" and "Log executeAnonymous @21/02/2023, 12:28:14". Below it is the "Execution Log" window with columns for Timestamp, Event, and Details. Two entries are shown: "12:28:14:004 USER\_DEBUG [3]||DEBUG|true" and "12:25:52:005 USER\_DEBUG [4]||DEBUG|false". The main area is the "Enter Apex Code" window containing the following Apex code:

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

Below the code editor is a toolbar with buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted. At the bottom is the "Logs" tab of the "View" menu, showing a list of log entries from a user named "sakam swetha".

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:28:14	Success		2.35 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:25:52	Success		2.62 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:23:38	Success		5.61 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:23:16	Success		2.01 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:20:34	Success		4.15 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:07:37	Success		4.14 KB

## Exercise 5

today != tomorrow

Date tomorrow = Date.today().addDays(1);

Date today = Date.today();

The screenshot shows the Salesforce IDE interface. At the top is a menu bar with File, Edit, Debug, Test, Workspace, Help, and navigation icons. Below the menu is a toolbar with Log executeAnonymous @21/02/2023, 12:29:00. 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 table with columns: Timestamp, Event, and Details. One entry is visible: 12:29:00:002 USER\_DEBUG [4] DEBUG|true. Below the logs is the Enter Apex Code editor with the following code:

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

At the bottom of the interface are buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted.

## Exercise 6

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

The screenshot shows the Salesforce IDE interface. At the top is a menu bar with File, Edit, Debug, Test, Workspace, Help, and navigation icons. Below the menu is a toolbar with Log executeAnonymous @21/02/2023, 12:33:45. 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 table with columns: User, Application, Operation, Time, Status, Read, and Size. Multiple entries from "sakam swetha" are listed, all successful. Below the logs is the Enter Apex Code editor with the following code:

```
1 Integer Score=80;
2 if(Score==100){
3     System.debug('Grade: A+');
4 }
5 else if (Score>=90){
6     System.debug ('Grade: A');
7 }
8 else if(Score>=80){
9     System.debug ('Grade: B');
10 }
11 else{
12     System.debug ('Grade: Failed');
13 }
```

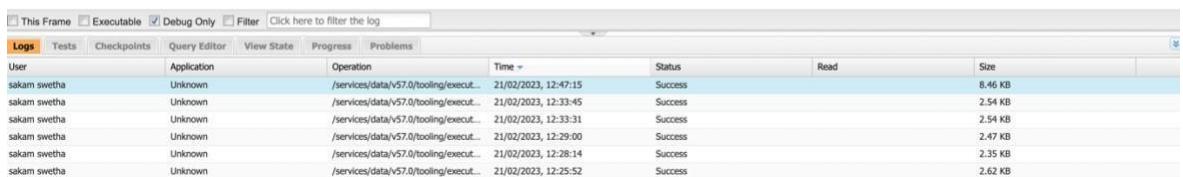
At the bottom of the interface are buttons for This Frame, Executable, Debug Only, Filter, Click!, Open Log, Execute, and Execute Highlighted.

## Exercise 7

Write a program to execute and demo the use of “Apex – for Loop”



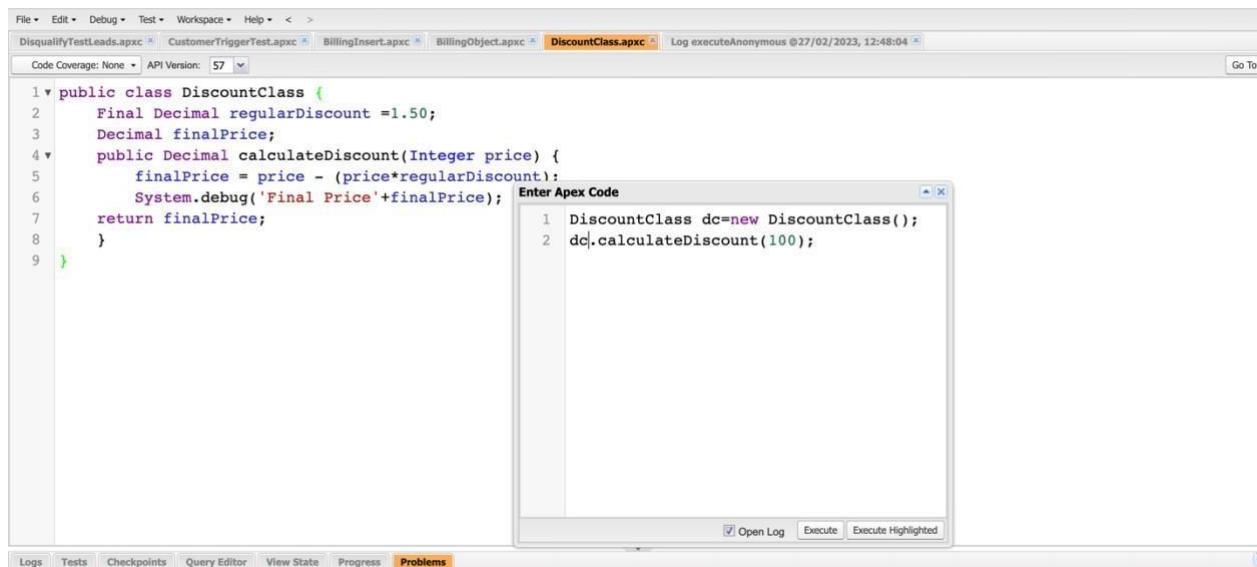
```
File Edit Debug Test Workspace Help < >
BillingObject.apxc Log executeAnonymous @21/02/2023, 12:33:45 Log executeAnonymous @21/02/2023, 12:47:15
Execution Log
Timestamp Event Details
12:47:15:114 USER_DEBUG [19][DEBUG]Value of Billing List:(Billing__c:{Id=a052w00000EwqW8AAJ, Name=B-0001, Status__c=Paid}, Billing__c:{Id=a052w00000EwqW9AAJ, Name=B-0002, Status__c=Unpaid}, Billing__c:{Id=a052w00000EwqWA0AZ, Name=B-0003, Status__c=Unpaid})
12:47:15:115 USER_DEBUG [22][DEBUG]Value of Current Record in the LoopBilling__c:{Id=a052w00000EwqW8AAJ, Name=B-0001, Status__c=Paid}
12:47:15:115 USER_DEBUG [23][DEBUG]Billing Records are:B-0001
12:47:15:116 USER_DEBUG [22][DEBUG]Value of Current Record in the LoopBilling__c:{Id=a052w00000EwqWA0AZ, Name=B-0003, Status__c=Unpaid}
12:47:15:116 USER_DEBUG [23][DEBUG]Billing Records are:B-0003
```



Logs						
User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:47:15	Success		8.46 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:33:45	Success		2.54 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:33:31	Success		2.54 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:29:00	Success		2.47 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:28:14	Success		2.35 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	21/02/2023, 12:25:52	Success		2.62 KB

## Exercise 8

Write a Class to demo the use of Constants in Apex



```
File Edit Debug Test Workspace Help < >
DisqualifyTestLeads.apxc CustomerTriggerTest.apxc BillingInsert.apxc BillingObject.apxc DiscountClass.apxc Log executeAnonymous @27/02/2023, 12:48:04
Code Coverage: None API Version: 57 Go To
1 public class DiscountClass {
2     Final Decimal regularDiscount =1.50;
3     Decimal finalPrice;
4     public Decimal calculateDiscount(Integer price) {
5         finalPrice = price - (price*regularDiscount);
6         System.debug('Final Price'+finalPrice);
7         return finalPrice;
8     }
9 }
```

Enter Apex Code

```
1 DiscountClass dc=new DiscountClass();
2 dc.calculateDiscount(100);
```

Open Log Execute Execute Highlighted

Logs Tests Checkpoints Query Editor View State Progress Problems

## Exercise 9

### Write a Class to demo the use of Interface in Apex

The screenshot shows the Salesforce IDE interface. At the top, there are tabs for 'File', 'Edit', 'Debug', 'Test', 'Workspace', and 'Help'. Below the tabs, the 'Execution Log' window is open, showing a single log entry:

Timestamp	Event	Details
12:59:42:025	USER_DEBUG	[3] DEBUG 0.1

Below the log is the 'Enter Apex Code' window containing the following code:

```
1 normalCustomer nc=new normalCustomer();
2 Double d=nc.percentageDiscountToBeApplied();
3 System.debug(d);
```

At the bottom of the interface, there are tabs for 'Logs', 'Tests', 'Checkpoints', 'Query Editor', and 'View State'. The 'Logs' tab is selected. There are also buttons for 'Open Log', 'Execute', and 'Execute Highlighted'.

## Exercise 10

### Demo on DML Insert Operation Using Database methods

The screenshot shows the Salesforce IDE interface. At the top, there are tabs for 'File', 'Edit', 'Debug', 'Test', 'Workspace', and 'Help'. Below the tabs, the 'Execution Log' window is open, showing a single log entry:

Timestamp	Event	Details
10:59:55:071	USER_DEBUG	[16] DEBUG Record inserted. Billing ID: a052w00000EwsFBAAJ

Below the log is the 'Enter Apex Code' window containing the following code:

```
1 BillingInsert.recordInsert();
```

At the bottom of the interface, there are tabs for 'Logs', 'Tests', 'Checkpoints', 'Query Editor', 'Progress', and 'Problems'. The 'Logs' tab is selected. There are also buttons for 'Open Log', 'Execute', and 'Execute Highlighted'.

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	22/02/2023, 10:59:55	Success		5.87 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	22/02/2023, 10:50:50	Success		9.07 KB
sakam swetha	Unknown	/services/data/v57.0/tooling/execut...	22/02/2023, 10:47:01	Success		9.02 KB

## Exercise 11

### Write and execute SOQL queries from Developer Console

The screenshot shows the Salesforce Developer Console interface. At the top, there's a navigation bar with links like File, Edit, Debug, Test, Workspace, Help, and a back/forward button. Below the bar, a message says "Opportunity@2:41 PM Opportunity@2:43 PM". A query is being run:

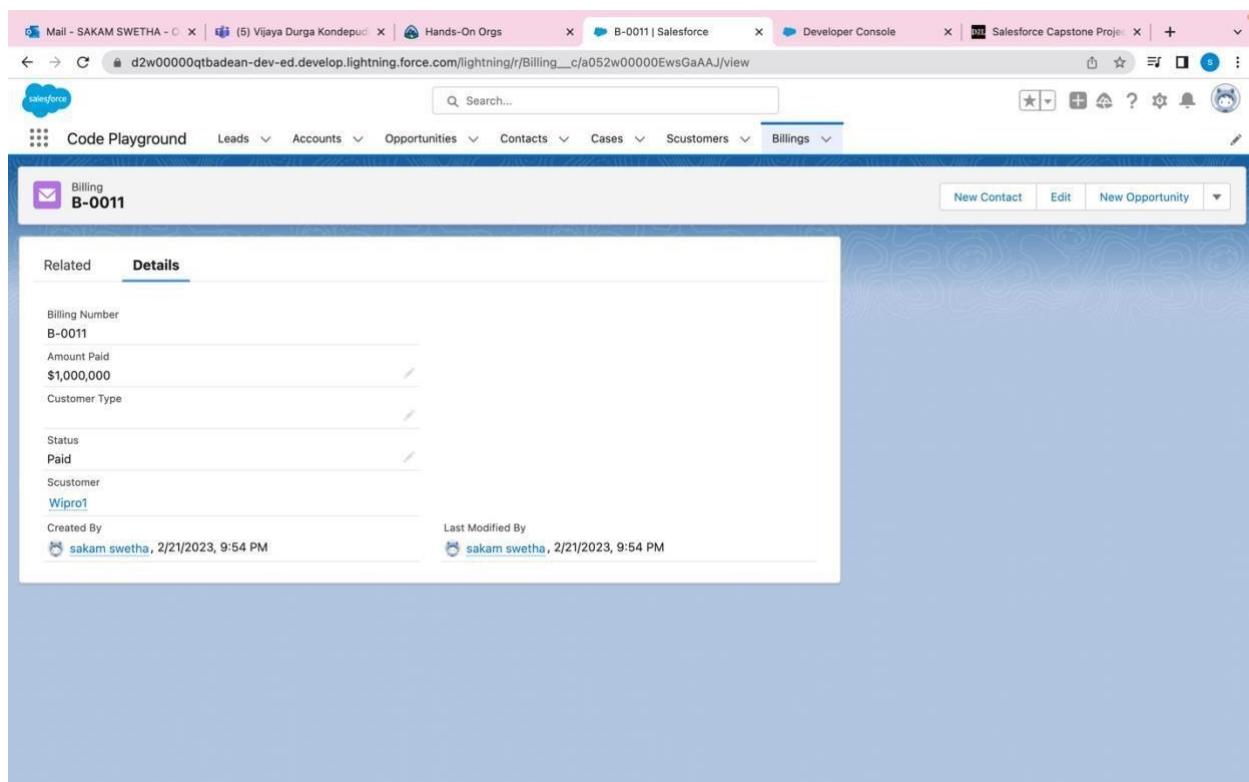
```
SELECT AccountId, Amount, StageName, Account.Industry, Account.website From Opportunity Where Account.Industry='Energy' AND Account.AnnualRevenue>5000
```

The results table has columns: AccountId, Amount, StageName, Account.Industry, and Account.Website. It shows 10 rows of data. The StageName column includes values like Negotiation/Review, Proposal/Price Quote, Closed Won, and Needs Analysis. The Account.Industry column is consistently 'Energy'. The Account.Website column lists various URLs starting with 'http://www.usos.com'.

At the bottom of the developer console, there are tabs for Logs, Tests, Checkpoints, Query Editor (which is selected), View State, Progress, and Problems. There's also a History section on the right showing the executed query. Buttons for Save Rows, Insert Row, Delete Row, Refresh Grid, Create New, Open Detail Page, and Edit Page are visible at the bottom.

## Exercise 12

### Write an Apex Trigger, Name = CustomerTrigger.



The screenshot shows a Salesforce Lightning Experience page for a customer record. The top navigation bar includes tabs for Mail, (5) Vijaya Durga Kondepudi, Hands-On Orgs, Wipro1 | Salesforce, Developer Console, and Salesforce Capstone Project. The main header has a search bar and navigation links for Code Playground, Leads, Accounts, Opportunities, Contacts, Cases, Scustomers, and Billings. The current page is under the Scustomers tab. The customer record for 'Wipro1' is displayed, with tabs for Related and Details. The Details tab shows fields for Customer Name (Wipro1), Active (unchecked), Customer Type (Premium), and Description. The Owner is listed as 'sakam swetha'. The Created By field shows 'sakam swetha, 2/21/2023, 9:29 PM' and the Last Modified By field shows 'sakam swetha, 2/21/2023, 9:29 PM'. Action buttons at the top right include New Contact, Edit, and New Opportunity.

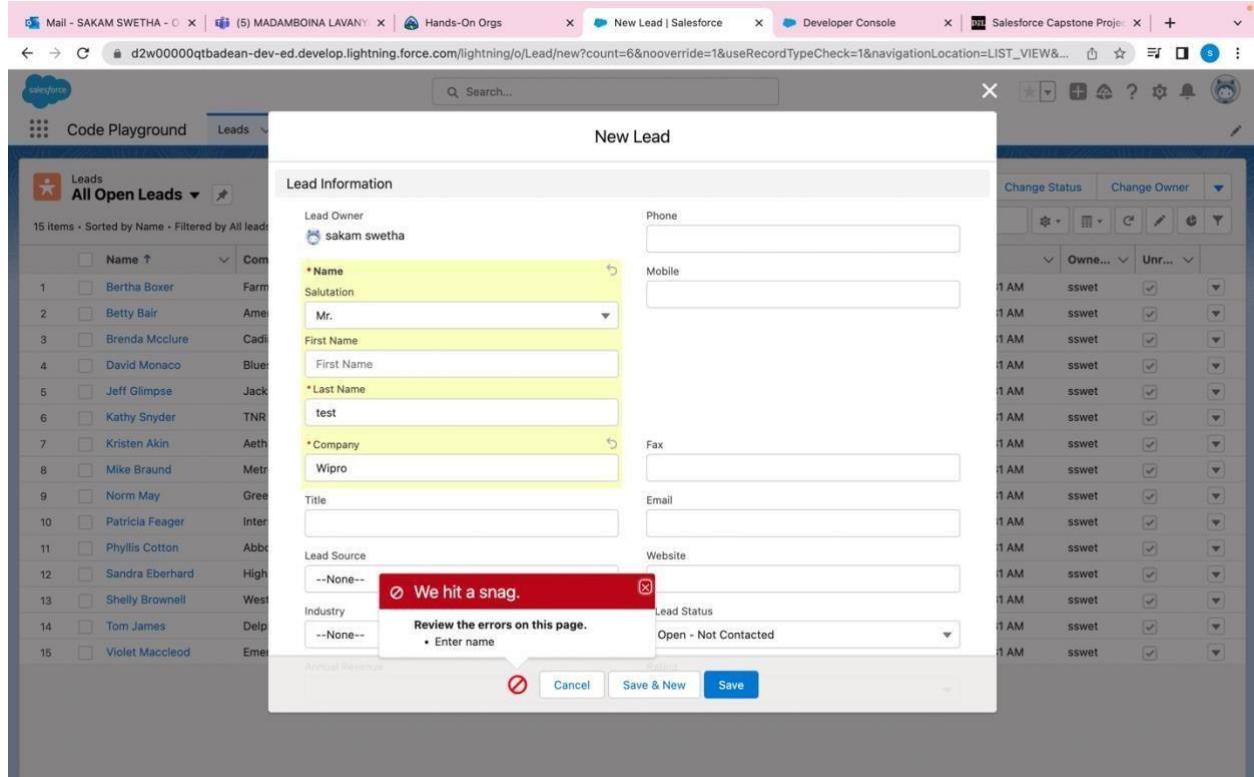
The screenshot shows the Salesforce Developer Console interface. The top menu includes File, Edit, Debug, Test, Workspace, Help, and a workspace switcher. The current workspace is 'CustomerTriggerTest.apxc'. Below the menu, it says 'Code Coverage: None' and 'API Version: 57'. The main area contains the code for the 'CustomerTriggerTest' class:

```
1 @IsTest
2 v public class CustomerTriggerTest {
3     @isTest
4     static void testCustomer(){
5         //Creating Customer
6         Scustomer__c cust1 = new Scustomer__c();
7         cust1.Name='test1';
8         cust1.Customer_Type__c = 'Premium';
9         insert cust1;
10        //Updating Customer
11        cust1.Active__c = True;
12        update cust1;
13        //After Updating, changing the billing information
14        if(cust1.Active__c == True){
15            Test.startTest();
16            Billing__c billing = new Billing__c();
17            billing.Status__c = 'Paid';
18            billing.Amount_Paid__c = 1000000;
19            Test.stopTest();
20            system.assertEquals('Paid', billing.Status__c);
21            system.assertEquals(1000000, billing.Amount_Paid__c);
22        }
}
```

Below the code editor, there are tabs for Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The 'Tests' tab is selected, showing a table for the 'Test Run' named 'TestRun @ 2:23:58 pm'. The table columns are Status, Enqueued Time, Duration, Failures, Total, and Overall Code Coverage. The 'Overall Code Coverage' section shows coverage details for classes like BillingInsert, BillingObject, CustomerTrigger, DiscountClass, and DisqualifyTestLeads.

## Exercise 14

### Write an Apex Trigger, Name = DisqualifyTestLeads.



## Exercise 15

### Write a Test Class for DisqualifyTestLeads.

```
File ▾ Edit ▾ Debug ▾ Test ▾ Workspace ▾ Help ▾ < >
BillingInsert.apxc ▾ DisqualifyTestLeads.apxc ▾ DisqualifyTestLeadsTest.apxc ▾ TestRun @ 12:33:13 pm ▾ Log executeAnonymous @22/02/2023, 12:33:14 ▾
Code Coverage: None ▾ API Version: 57 ▾ Run Test Go To
1  @isTest
2  public class DisqualifyTestLeadsTest {
3      @isTest
4      private static void insertData(){
5          List<Lead> leadlist = new List<Lead>();
6          Lead l = new Lead();
7          l.FirstName = 'Test';
8          l.LastName = 'Test';
9          l.Company = 'Test';
10         leadlist.add(l);
11         Test.startTest();
12         insert leadlist;
13         Test.stopTest();
14         Lead updateLead =[Select FirstName,LastName,Company From Lead order by CreatedDate];
15         system.Assert(updateLead.LastName!= Null,'Record cannot be created');
16         Database.SaveResult res = Database.insert(l,false);
17         System.assertEquals('Will be Disqualified', res.getErrors()[0].getMessage());
18     }
19 }
20 }
```

Logs Tests Checkpoints Query Editor View State Progress Problems

User	Application	Operation	Time	Status	Read	Size
sakam swetha	Unknown	/services/data/v57.0/tooling/runTest...	22/02/2023, 12:33:14	Insert failed. First exception on row ...		15.29 KB
sakam swetha	Browser	/aura	22/02/2023, 12:05:11	Success	Unread	4.61 KB
sakam swetha	Browser	/aura	22/02/2023, 12:04:58	Success	Unread	1.27 KB
sakam swetha	Browser	/aura	22/02/2023, 12:04:57	Success	Unread	4.61 KB
sakam swetha	Browser	/aura	22/02/2023, 12:04:52	Success	Unread	1.27 KB
sakam swetha	Browser	/aura	22/02/2023, 12:04:45	Success	Unread	1.27 KB

Filter Click here to filter the log list

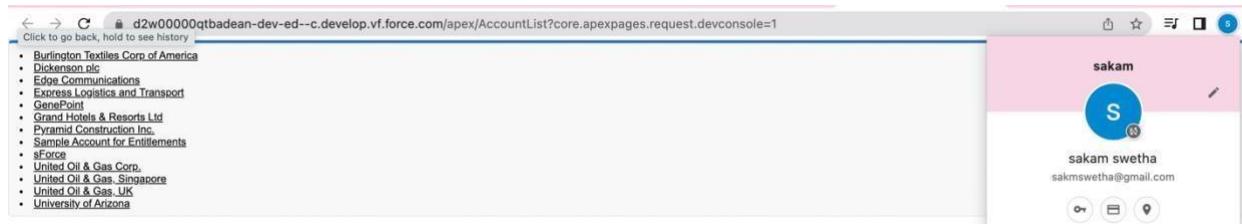
## Exercise 16

Create a Visualforce page which displays Opportunity fields as output fields.



## Exercise 17

Create a Visualforce page which shows a list of Accounts linked to their record pages



## Exercise 18

Create a Visualforce page that uses a custom controller to display a list of cases with the status of 'New'. The page must be named NewCaseList.



## 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](#)