

# Salesforce Developer Day

App Cloud Declarative Workshop

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July 13, 2017



# Safe Harbor

"Safe harbor" statement under the Private Securities Litigation Reform Act of 1995:

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# Agenda



Welcome & Introductions



Customize the User Interface:  
Views, Page Layouts, Social



Salesforce Platform Overview &  
Core Services



Declarative Application Logic:  
Formulas, Validation, Workflow



Declarative Application Development:  
Create an Application & Database



Building Reports and  
Dashboards



Mobile





Two  
Things. . .





1) Be interactive. Ask questions. Have fun.



2) Think about the projects you are planning...

# developer.salesforce.com/signup

Explore Force.com, the fastest way to create enterprise cloud apps

Get your very own Developer Edition  
A full-featured copy of Force.com, for FREE.

Name  
First: Last

Email  
Your email address

Role  
Developer

Company  
Company Name

Country  
United States

Postal Code

Username  
Ex.named@yourcompany.com

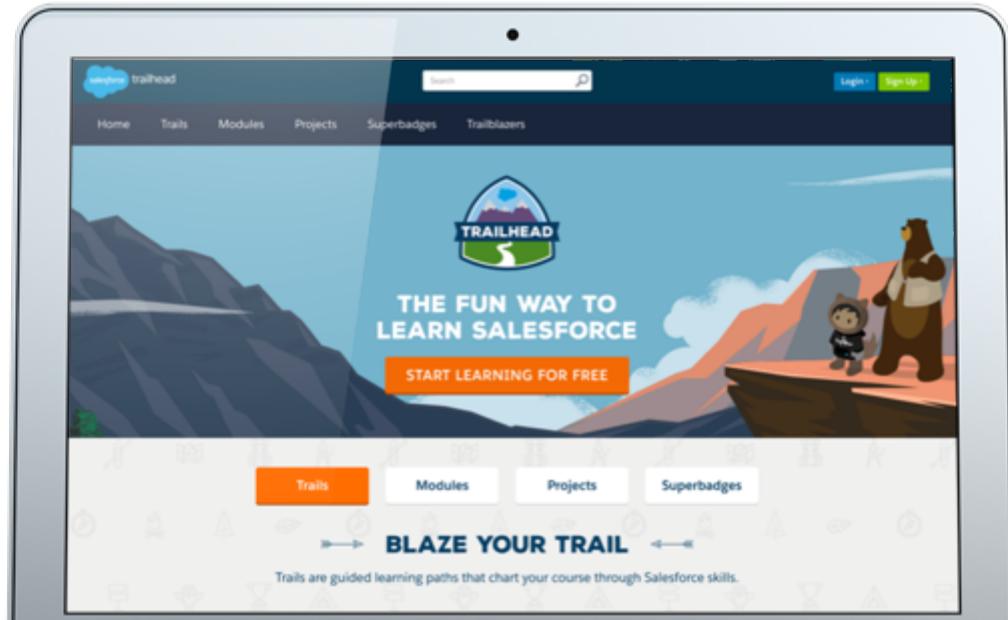
By registering, you confirm you have read and agree to the [Terms of Use](#) and the [Master Subscription Agreement](#) and agree that my data is subject to the [Privacy Statement](#), including use for marketing purposes.

Sign me up >

Org Sign-up

salesforce app cloud

# trailhead.salesforce.com



salesforce app cloud

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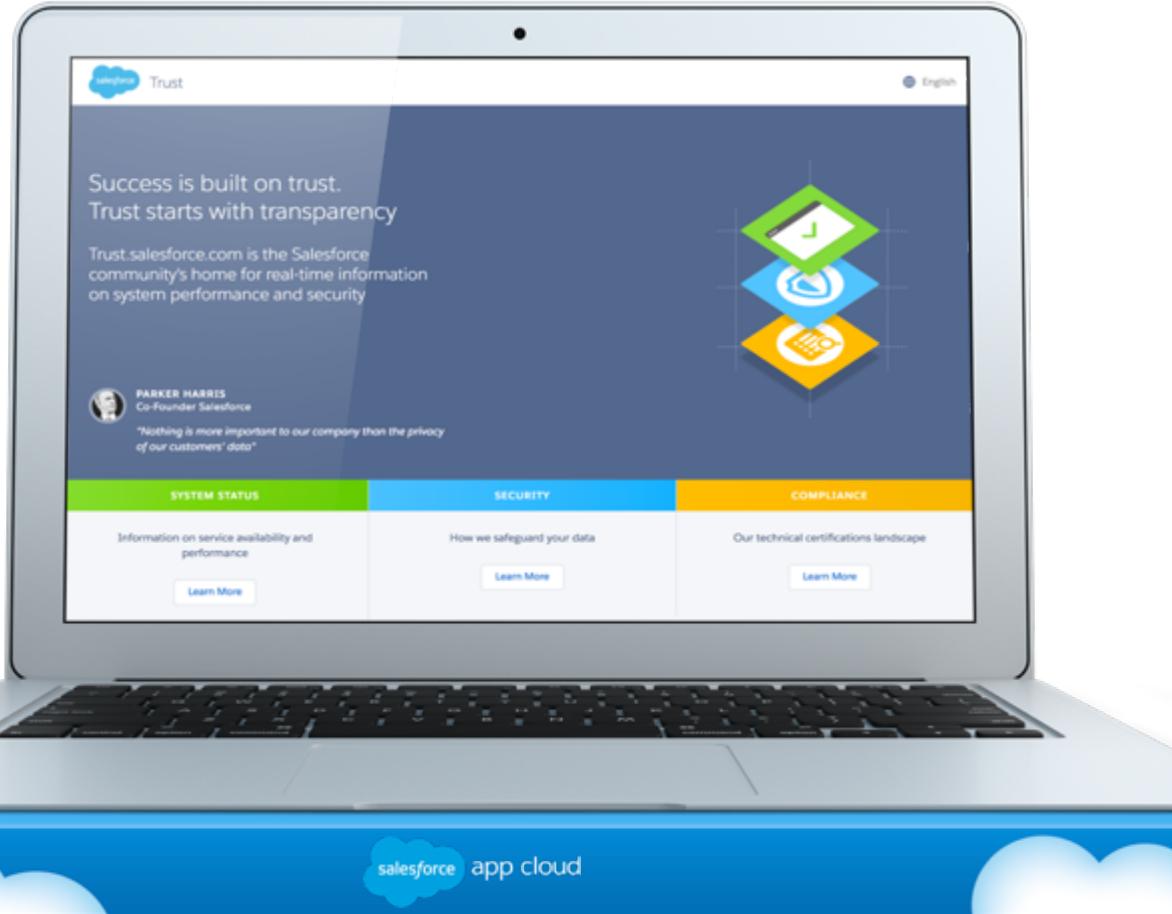
Live & up to date system performance data

Up-to-the minute information on planned maintenance

Phishing, malicious software and social engineering threats

Security best practices for your organization

Information on how we safeguard your data



# Development Lifecycle Guide

## Enterprise Development Best Practices

[https://resources.docs.salesforce.com/sfdc/pdf/salesforce\\_development\\_lifecycle.pdf](https://resources.docs.salesforce.com/sfdc/pdf/salesforce_development_lifecycle.pdf)

This guide prepares you to undertake the development and release of applications on the Force.com platform.

It starts with the most basic scenario, using a developer sandbox and change sets.

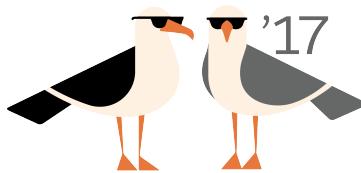
Later chapters address other development environments, tools, and processes for more complex enterprise scenarios.



## Development Lifecycle Guide

Enterprise Development on the Force.com Platform

Version 40.0, Summer '17



@salesforcedocs  
Last updated: June 13, 2017





A large, white, lowercase "salesforce" wordmark inside a white cloud shape. To its right, the words "app cloud" are written in a white, lowercase, sans-serif font.



# Salesforce Addresses the Compliance Chaos

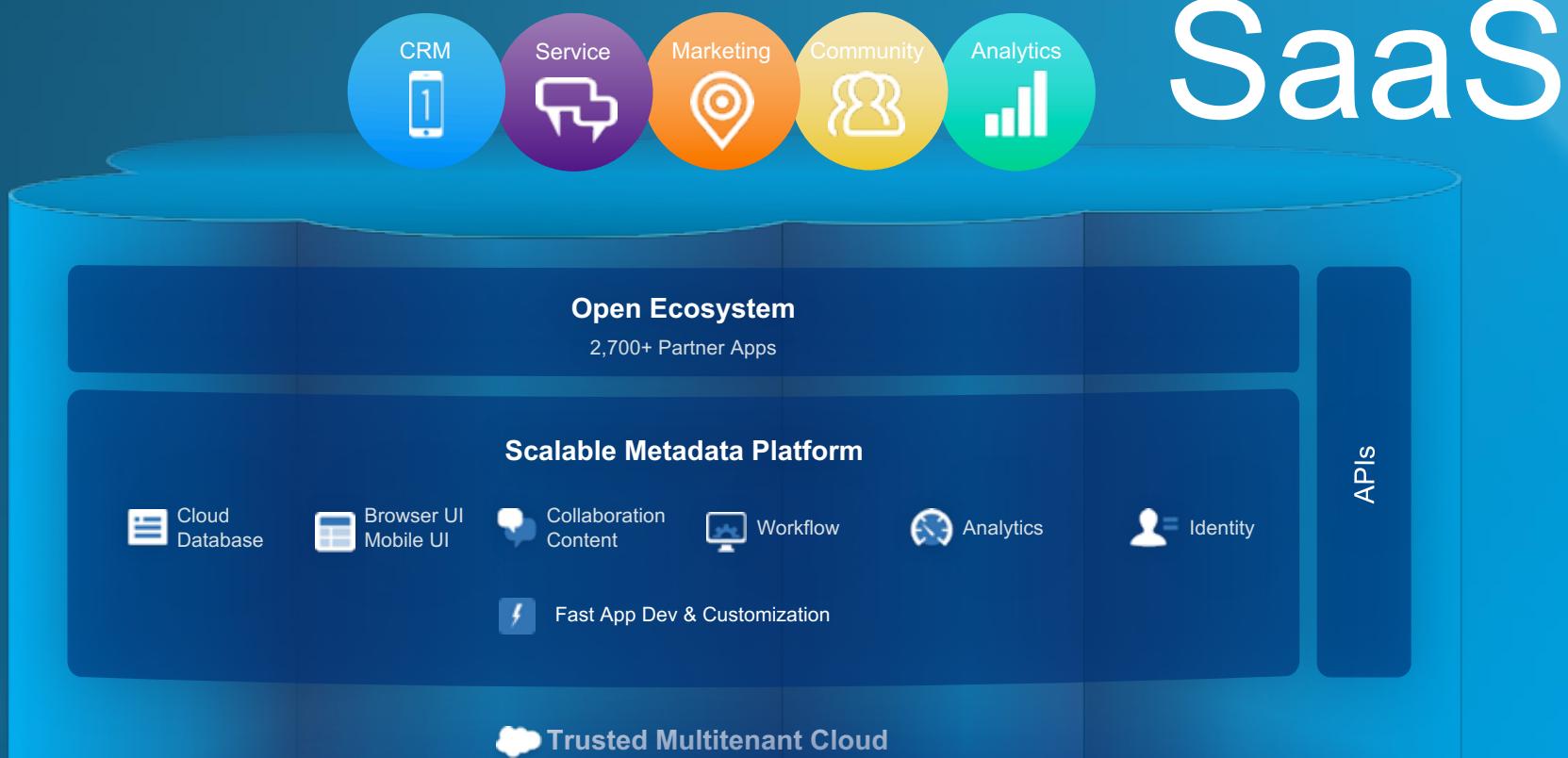
Complying with security and government regulations worldwide



- FedRAMP Moderate Level Authority to Operate for SaaS and PaaS
- ISO 27001 Certification
- SOC 1 Audit Report (SSAE 16)
- SOC 2 Audit Report (Trust Principles)
- SOC 3 Audit Report ('SysTrust')
- TRUSTe
- PCI DSS Compliance
- FISMA Compliance

# The **salesforce** Intelligent Customer Success Platform

PaaS



# appexchange.salesforce.com

## World's Largest Business App Marketplace

Approximately 3000 apps across all industries and business lines

Over 4M app downloads

2.4M+ developers

Government-specific AppExchange



salesforce app cloud



**salesforce**

public sector  
DEVELOPER WORKSHOP

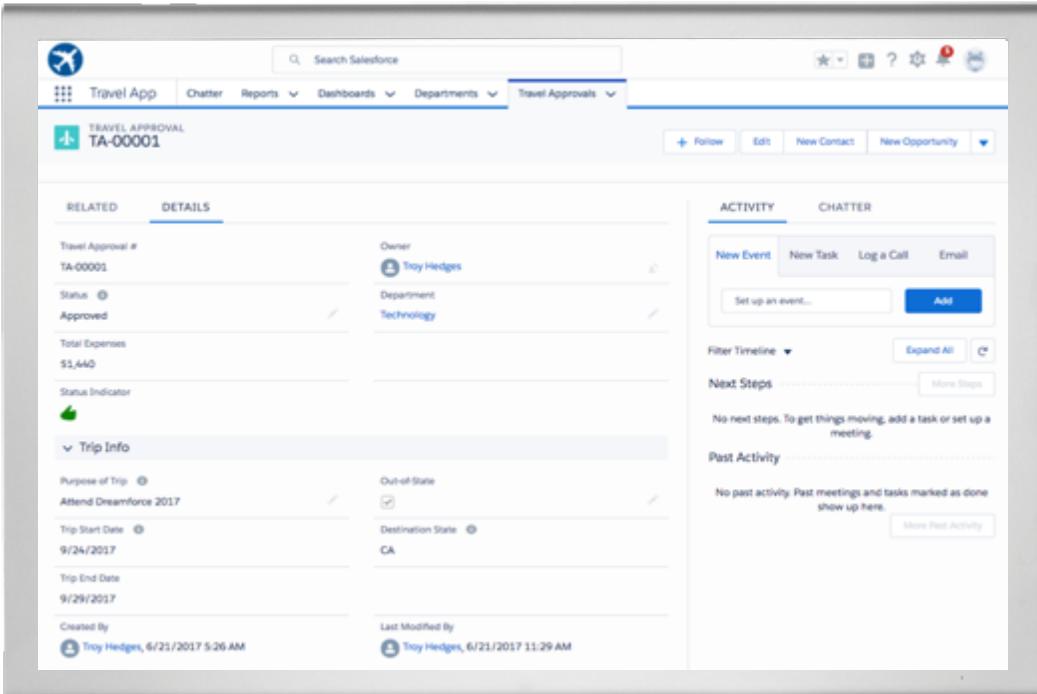
# The Travel Approval App

January 26, 2014

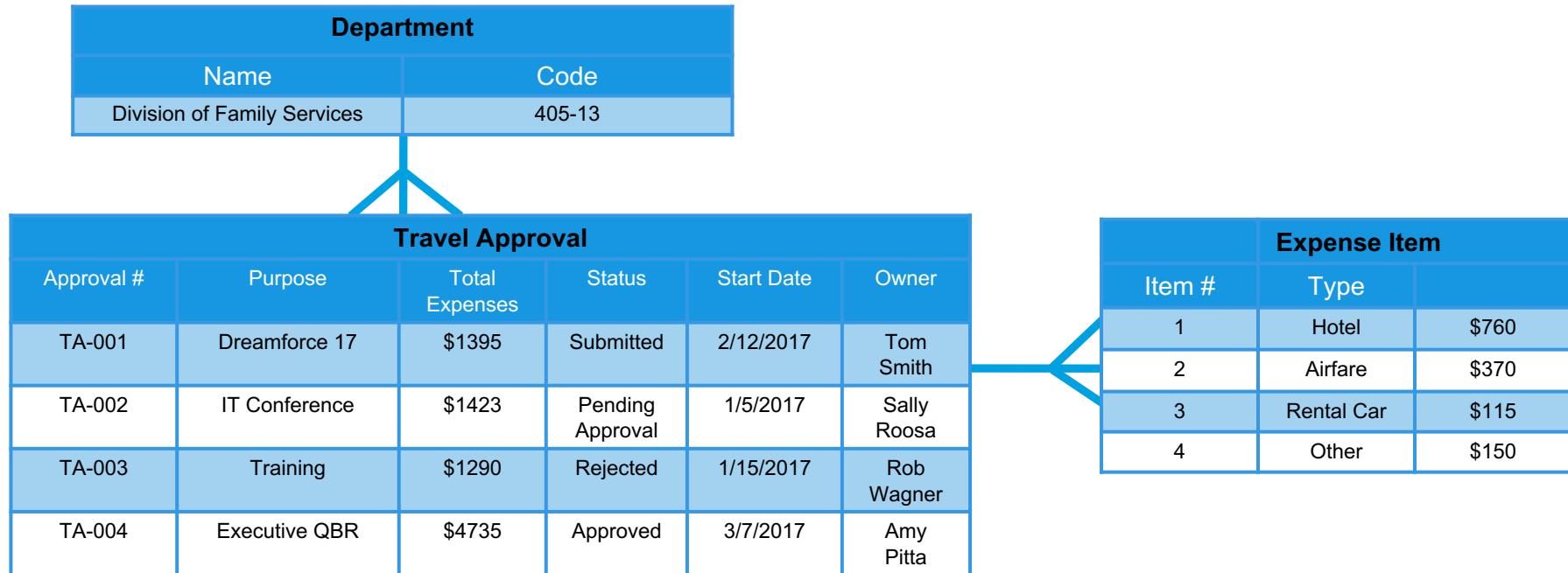


# The Travel Approval App

- At the heart of this app are **Travel Approval** requests
  - Employees requesting approval before taking a trip that will have expenses
- Create **Travel Approval** request containing one or more expenses as an **expense items**
- Relate **Department** to **Travel Approval**
- Start by creating a **custom app**, **objects** and **fields**



# Travel Approval Data Model Schema



# Workshop Files

- Download the following zip file
  - <http://bit.ly/TravelAppWorkshop>
- Unzip the file on your computer
- You should have a list of files like the following

Name	Date Modified	Size	Kind
Departments.csv	Jan 3, 2017, 11:14 AM	599 bytes	Comm...t (.csv)
Status_Indictor_Formula.txt	Jan 4, 2017, 8:18 AM	285 bytes	Plain Text
StatusImages.zip	Jan 4, 2017, 7:35 AM	39 KB	ZIP archive
travel.png	Jan 1, 2017, 10:20 AM	5 KB	PNG image
TravelApprovals.csv	Jan 4, 2017, 12:57 PM	25 KB	Comm...t (.csv)

# Workshop Configuration

- Setup Session Management

- Click on Gear icon  in top-right and select “Setup”
- Type in “Session” in Quick Find in top-left
- Click on **Session Settings**
- In the **Caching** section, make sure the option “**Enable secure and persistent browser caching to improve performance**” is un-selected





## public sector DEVELOPER WORKSHOP

# Create an Application and Database



# Overview: Create an Application & Database

- Create an application
- How to design your Salesforce Data Model
- Create custom objects and fields
- Relate objects
- Data import tools



# Open Cloud Database

## Database Services

Structured relational data storage

Unstructured file-oriented content

Database-level caching for improved performance

Triggers and validation rules

Automatic indexing, backup, replication, and disaster recovery

Full text search and SOQL for querying relational data

Auto-scaling to support any size application



# What is a Salesforce Object?

A logical business entity you track in your business

- Think of a Salesforce Object as a Data Table

- Records are rows
  - Columns are Fields

- Examples

- Accounts
  - Contacts
  - Cases
  - Contracts
  - Policies
  - Service Plans
  - Benefits
  - Incidents
  - Travel Approval

Delete	Name	Purpose_of_Trip__c	Department__c	Destination_Stat__c	Out_of_State__c	Status__c	Total_Expenses__c	Trip_Start_Date__c	Trip_End_Date__c	OwnerId
<input type="checkbox"/>	TA-00001	Attend Dreamforce 2017	a0241000005GcUqAAK	CA	true	Pending Appr...	1370.0	2017-09-24	2017-09-30	00541000001sCs4AAE
<input type="checkbox"/>	TA-00219	Stamm, Poulos and Bechtelar	a0241000005GcUqAAK	FL	true	Rejected	0.0	2016-04-21	2016-04-21	00541000001sCs4AAE
<input checked="" type="checkbox"/>	TA-00220	Ebert Group	a0241000005GcV0AAK	CA	true	Approved	0.0	2016-08-25	2016-09-01	00541000001sCs4AAE
<input type="checkbox"/>	TA-00221	Orn Group	a0241000005GcUmAAK	OK	true	Approved	0.0	2016-07-08	2016-07-08	00541000001sCs4AAE
<input type="checkbox"/>	TA-00095	Ward, Wills and Sanford	a0241000005GcUvAAK	TX	false	Approved	0.0	2016-09-18	2016-09-30	00541000001sCs4AAE
<input type="checkbox"/>	TA-00096	Schaefer, Von and Bins	a0241000005GcUuAAK	FL	true	Approved	0.0	2016-10-04	2016-10-04	00541000001sCs4AAE
<input type="checkbox"/>	TA-00097	Upton, Murphy and Block	a0241000005GcUuAAK	FL	true	Approved	0.0	2016-07-19	2016-07-26	00541000001sCs4AAE
<input type="checkbox"/>	TA-00098	Bode Inc	a0241000005GcUuAAK	OK	true	Rejected	0.0	2016-03-31	2016-04-18	00541000001sCs4AAE
<input type="checkbox"/>	TA-00099	Roberts Inc	a0241000005GcUuAAK	CA	true	Rejected	0.0	2016-07-05	2016-07-09	00541000001sCs4AAE
<input type="checkbox"/>	TA-00100	Mayer, Hayes and Strosin	a0241000005GcUmAAK	FL	true	Approved	0.0	2016-09-21	2016-10-06	00541000001sCs4AAE
<input type="checkbox"/>	TA-00101	Gottlieb, Braun and Swaniawski	a0241000005GcUvAAK	GA	true	Approved	0.0	2016-02-06	2016-02-15	00541000001sCs4AAE
<input type="checkbox"/>	TA-00102	Howell-Douglas	a0241000005GcUuAAK	GA	true	Approved	0.0	2016-09-03	2016-09-03	00541000001sCs4AAE
<input type="checkbox"/>	TA-00174	Marquardt LLC	a0241000005GcV0AAK	TX	false	Approved	0.0	2016-10-13	2016-10-25	00541000001sCs4AAE
<input type="checkbox"/>	TA-00175	Ondricka-Glover	a0241000005GcUzAAK	GA	true	Approved	0.0	2016-07-16	2016-07-21	00541000001sCs4AAE
<input type="checkbox"/>	TA-00176	Purdy-Hyatt	a0241000005GcUrAAK	TX	false	Approved	0.0	2016-11-21	2016-12-03	00541000001sCs4AAE
<input type="checkbox"/>	TA-00177	Eichmann-Blick	a0241000005GcUvAAK	TX	false	Rejected	0.0	2016-12-23	2017-01-13	00541000001sCs4AAE
<input type="checkbox"/>	TA-00178	Senger-Schowalter	a0241000005GcUuAAK	GA	true	Approved	0.0	2016-09-21	2016-09-25	00541000001sCs4AAE
<input type="checkbox"/>	TA-00179	King-Gottlieb	a0241000005GcV1AAK	TX	false	Rejected	0.0	2016-11-25	2016-12-05	00541000001sCs4AAE
<input type="checkbox"/>	TA-00180	Ulrich Group	a0241000005GcV0AAK	GA	true	Rejected	0.0	2016-03-16	2016-03-22	00541000001sCs4AAE
<input type="checkbox"/>	TA-00181	Ebert, Smitham and Bashirian	a0241000005GcUuAAK	FL	true	Approved	0.0	2016-01-29	2016-01-29	00541000001sCs4AAE
<input type="checkbox"/>	TA-00182	Hane-Marvin	a0241000005GcUvAAK	OK	true	Approved	0.0	2016-10-14	2016-10-17	00541000001sCs4AAE
<input type="checkbox"/>	TA-00183	Monahan Group	a0241000005GcUuAAK	GA	true	Approved	0.0	2016-08-04	2016-08-11	00541000001sCs4AAE
<input type="checkbox"/>	TA-00238	Cronin LLC	a0241000005GcUuAAK	TX	false	Approved	0.0	2016-12-21	2016-12-25	00541000001sCs4AAE
<input type="checkbox"/>	TA-00239	Klein-Conroy	a0241000005GcUvAAK	TX	false	Rejected	0.0	2016-07-07	2016-07-14	00541000001sCs4AAE
<input type="checkbox"/>	TA-00240	Weissnat, Kub and Gulgowski	a0241000005GcUqAAK	CA	true	Approved	0.0	2016-06-21	2016-06-30	00541000001sCs4AAE
<input type="checkbox"/>	TA-00241		a0241000005GcUuAAK	CA	true	Announced	0.0	2016-04-09	2016-04-21	00541000001sCs4AAE



# Field Data Types

Salesforce offers multiple field data types

Numeric	Limited Option	Text	Calendar	Formatted Text	Calculation
Number	Checkbox	Text	Date	Email	Auto-Number
Currency	PickList	Text Area	Date & Time	Phone	Formula
Percent	PickList	Text (Long)		URL	Roll-up
	Multi-Select	Text (Rich)			Summary
		Encrypted			



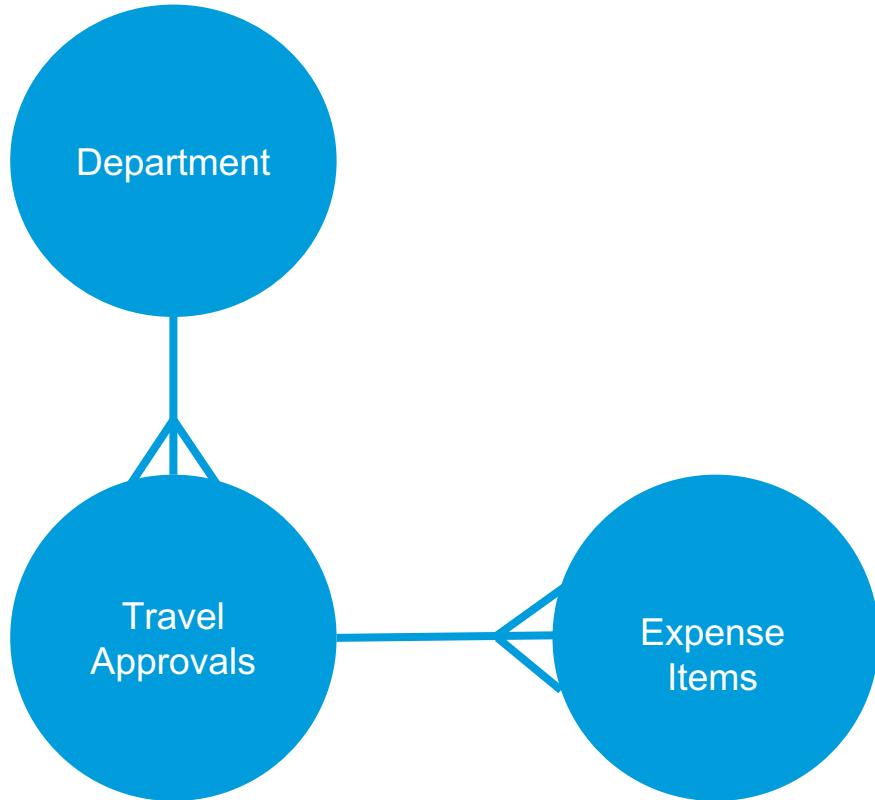
Geolocation



# Relating Objects

1:M, M:M, M:1

- Parents-to-Children
- 1-to-Many
- Relationship is defined at the child level by a field type
  - Master-Detail Relationship
  - Lookup Relationship
- Many-to-Many
  - Via Junction Object



# Setup Home

The screenshot shows the Salesforce Setup Home interface. The left sidebar contains navigation links under 'Setup' and 'Platform Tools'. Under 'Platform Tools', 'Apps' is expanded, showing 'App Manager' (highlighted with a red box), 'AppExchange Marketplace', 'Connected Apps', and 'Installed Packages'. Under 'Objects and Fields', 'Object Manager' (highlighted with a red box) is listed along with 'Picklist Value Sets'. The main content area features a 'SETUP Home' banner with three cards: 'Go Mobile' (Prepare the Salesforce1 mobile app for your users), 'Visit AppExchange' (Extend Salesforce with the #1 business app marketplace), and 'Click to Customize' (Use the Object Manager to add fields, build layouts, and more). Below this is a section titled 'Most Recently Used' listing 10 items.

NAME	TYPE	OBJECT
Marketing: Product Inquiry Response	Email Template	
Travel Approval Request	Process Definition	Travel Approval
Set Status to Rejected	Field Update	Travel Approval
Set Status to Approved	Field Update	Travel Approval
Status Indicator	Custom Field Definition	Travel Approval
StatusImages	Static Resource	

# Create New Object

The screenshot shows the Salesforce Object Manager page. At the top, there is a navigation bar with icons for Setup, Home, and Object Manager. A red box highlights the 'Object Manager' tab. Below the navigation bar is a search bar labeled 'Search Salesforce'. To the right of the search bar are several small icons. The main area is titled 'Object Manager' with a gear icon and shows '30 items, Sorted by Label'. There is a 'Find in page' search bar and a 'Schema Builder' button. On the far right, there is a 'Create' button with a dropdown menu. A red box highlights this dropdown menu, which is open and shows the option 'Custom Object'. The main table lists various objects with columns for Label, API Name, Description, Last Modified, Deployed, and Custom. The objects listed include Account, Activity, Asset, Asset Relationship, Campaign, Campaign Member, Case, Contact, Content Version, Contract, D&B Company, Department, Duplicate Record Item, Duplicate Record Set, Email Message, and Event.

Label	API Name	Description	Last Modified	Deployed	Custom
Account	Account				
Activity	Activity				
Asset	Asset				
Asset Relationship	AssetRelationship				
Campaign	Campaign				
Campaign Member	CampaignMember				
Case	Case				
Contact	Contact				
Content Version	ContentVersion				
Contract	Contract				
D&B Company	DandBCompany				
Department	Department	6/20/2017	✓	✓	▼
Duplicate Record Item	DuplicateRecordItem				
Duplicate Record Set	DuplicateRecordSet				
Email Message	EmailMessage				
Event	Event				

Setup > Object and Fields > Object Manager



# Schema Builder

The screenshot shows the Salesforce Schema Builder interface. At the top, there's a navigation bar with a globe icon, the word "Setup", "Home", "Object Manager", and a search bar. Below the navigation bar, the title "Schema Builder" is displayed, along with a "Help for this Page" link.

The main area contains three object definitions:

- Department**:
  - Created By: Lookup(User)
  - Department Code: Text(10) (Unique Case Insensitive)
  - Department Name: Text(80)
  - Last Modified By: Lookup(User)
  - Owner: Lookup(User+1)
- Travel Approval**:
  - Created By: Lookup(User)
  - Department: Lookup(Department)
  - Destination State: Text(2)
  - Last Modified By: Lookup(User)
  - Out-of-State: Checkbox
  - Owner: Lookup(User+1)
  - Purpose of Trip: Text Area(255)
  - Status: Picklist
  - Status Indicator: Formula (Text)
  - Total Expenses: Roll-Up Summary (SUM Expense Item)
  - Travel Approval #: Auto Number
  - Trip End Date: Date
  - Trip Start Date: Date
- Expense Item**:
  - Amount: Currency(18, 0)
  - Created By: Lookup(User)
  - Expense Item Number: Auto Number
  - Expense Type: Picklist
  - Last Modified By: Lookup(User)
  - Travel Approval: Master-Detail(Travel Approval)

On the left side, there's a sidebar titled "Select objects to display on the builder." It includes a dropdown "Select from All Objects" and a "Quick Find..." input field. A list of available objects is provided, with several checkboxes checked, including "Department", "Expense Item", and "Travel Approval".

At the bottom right, there's a "DRAFTED" watermark.



# Tools for Data Management

- Data Import Wizard

- Easy to use data migration tool within Salesforce
- Imports accounts, contacts, leads, solutions, and custom objects.
- Imports up to 50,000 records.

- API-based Tools

- Open Source Tools
- Data Loader
- Partner Tools
- Custom-built Tools
  - Load any object
  - Load > 50k records
  - Schedule regular data loads
  - Export data for backup
  - Mass delete

The image shows two screenshots illustrating data management tools. The top screenshot is a screenshot of the 'Data Import Wizard' within the Salesforce interface. It displays a table titled 'Recent Import Jobs' showing four completed imports for the 'Travel Approval' object. The bottom screenshot is a screenshot of the 'Apex Data Loader' application window, showing its main interface with various data manipulation buttons at the bottom.

Status	Object	Records Created	Records Updated	Records Failed	Start Date	Processing Time (ms)
Closed	Travel Approval	300	0	0	01-04-2017 06:58	6776
Closed	Travel Approval	5	0	0	01-04-2017 06:56	383
Closed	Travel Approval	5	0	0	01-04-2017 06:51	75
Closed	Travel Approval	10	0	0	01-04-2017 06:46	183

**Data Import Wizard**

**Apex Data Loader**



# Lab Exercises: Create an Application & Database

- Create a Travel Approval Application
- Create your Data Model: Departments, Travel Approval & Expense Items
- Test Your Application

PAGES: 13-57

TIME: 1 Hour





# Mobile



# Salesforce1 Mobile

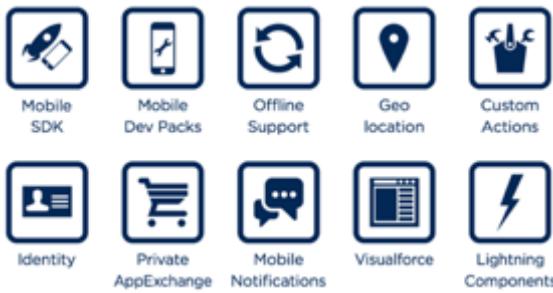
## Instantly Mobile

Browser-based configurations are instantly mobile

## Multiple Platform Support

Android, iOS (native); Microsoft (via Browser)

## Mobile Services



The image illustrates the integration of mobile and web development. On the left, a smartphone displays the Salesforce1 mobile application interface, showing a feed for a user named Jordan Amy. On the right, a laptop screen shows the Salesforce1 mobile configuration interface, where a user is customizing the mobile experience for the same user profile. The configuration screen lists various actions with corresponding icons, such as Log a Call, New Task, Convert, Post, Edit, New Note, File, Link, New Event, and Delete.

# Lab Exercises: Mobile

- Access Travel Approval app with mobile device

PAGES: **136-141**

TIME: **20 Minutes**





# Branding / Custom UI

# Two Approaches to Development

## Declarative Approach

Lightning Apps/Pages  
Page Layouts  
Record Types

## Programmatic Approach

Lightning Components  
VisualForce Pages

### User Interface

Formula Fields  
Validation Rules  
Workflows and Approvals

Apex Controllers  
Apex Triggers

### Business Logic

Custom Objects  
Custom Fields  
Relationships

Metadata API  
REST API  
Bulk API

### Data Model



# Lightning: A New Way to Deliver Engaging Enterprise Apps

## Democratizing Component-Based App Building

### Lightning Components



### Lightning App Builder



### AppExchange for Components

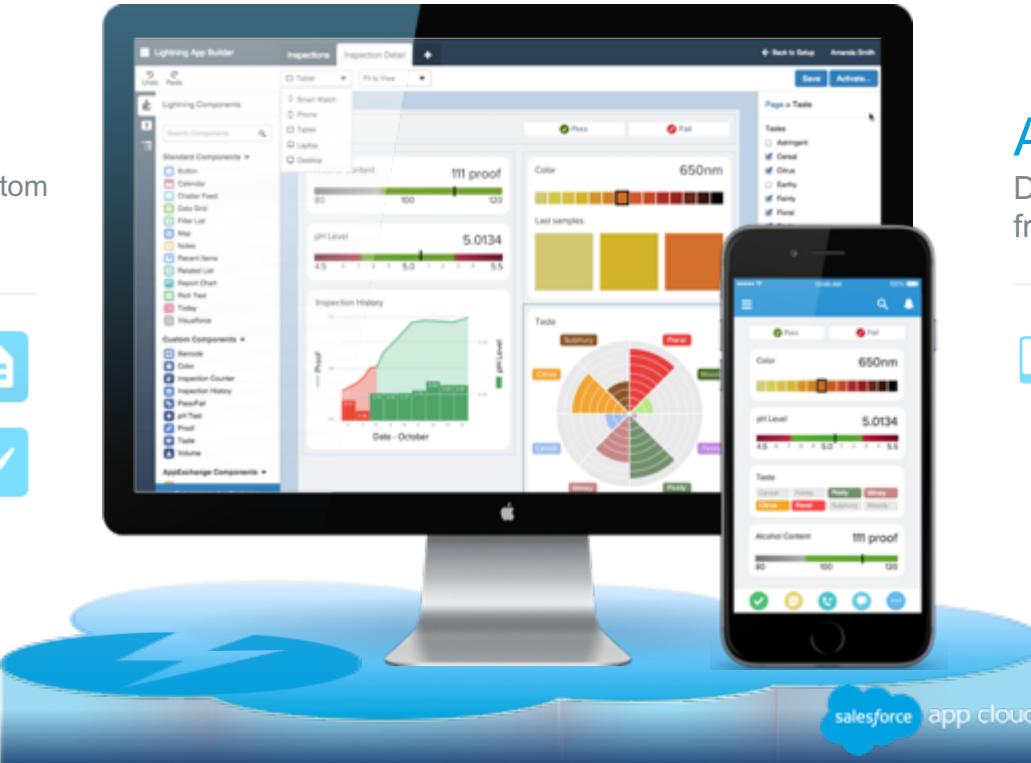
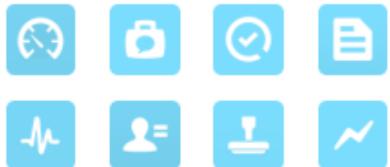


# Empower Everyone with the Lightning App Builder

Now Anyone Can Build Apps for Every Device

## Drag & Drop

Build with standard and custom Lightning Components



## Any Device

Design apps for every screen from one canvas



# Visualforce

- Framework to build custom user interfaces
- Hosted natively on Force.com
- Build streamlined UX
- Extend Salesforce.com
- Customize for different devices
- Leverage other web technologies

The image shows a laptop screen displaying various Visualforce features. On the left, a vertical sidebar labeled "Application Developers" lists several options: "Custom Pages", "Dashboard Components", "Custom Tabs", "Email Templates", "Embedded Sections in Detail Pages", and "Implement Custom Logic". To the right of the sidebar, the laptop screen displays a white card with the heading "What can you do with Visualforce?". Below the heading are six icons, each with a corresponding label: "Custom Pages" (stack of blue squares), "Dashboard Components" (map with data points), "Custom Tabs" (green bar with "Your Visualforce Page" and "Ch" labels), "Charts" (bar chart), "Email Templates" (envelope icon), and "Embedded Sections in Detail Pages" (webpage icon). The laptop is resting on a blue surface with a white cloud graphic underneath. In the bottom right corner, there is a "salesforce app cloud" logo.

# Visualforce Markup

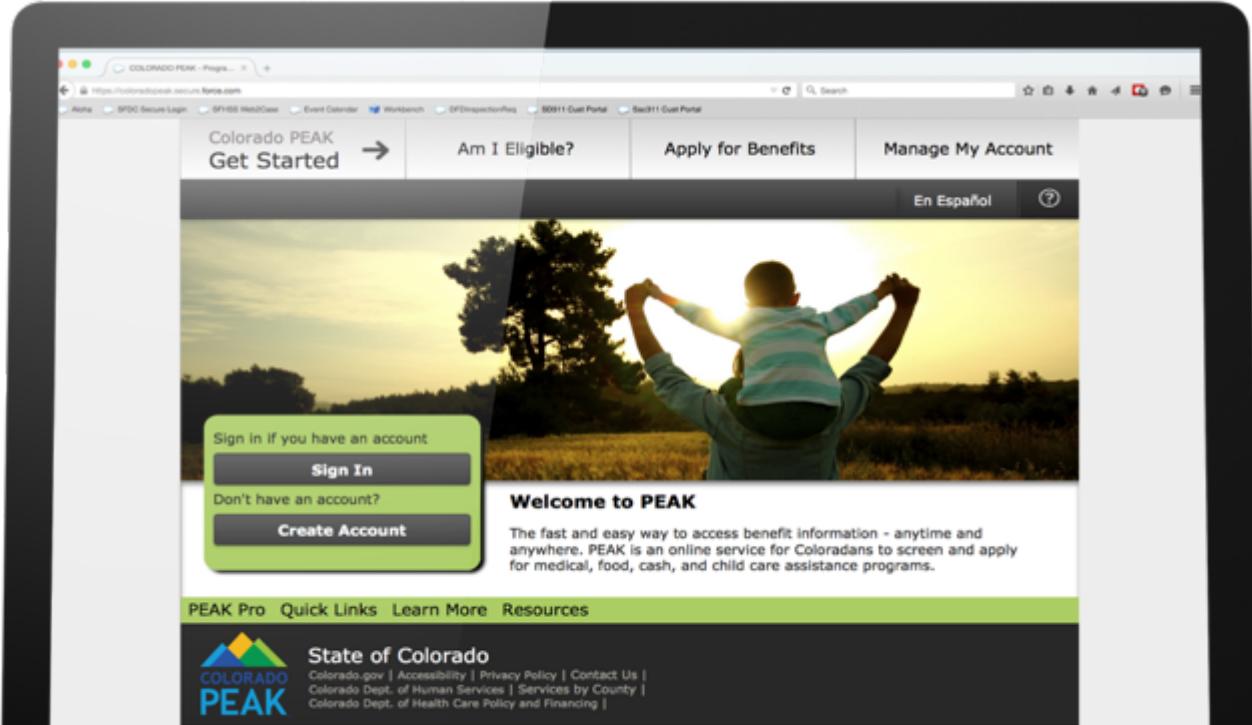
- Visualforce tags
  - 80+ standard components
  - Custom components
- Include standard web technology
  - CSS
  - Javascript (jquery, extJs etc)
  - HTML
  - Flash
  - Or any other web-enabled code



The screenshot shows a code editor window titled "CountSheet.page". The code is a Visualforce page definition. It includes an apex:page tag with attributes like "standardStylesheets=false", "showHeader=false", "sidebar=false", "standardController='Merchandise\_\_c'", and "recordSetVar='products'". It also includes an apex:stylesheet tag pointing to a CSS file. The page contains a style block defining body properties such as line-height, color, background, margin-left, margin-right, and width. It features an h1 tag for the title "Inventory Count Sheet". Below that is an apex:form tag containing an apex:dataTable. The dataTable has a value of "{!products}" and a var of "pitem". It uses rowClasses="odd,even" for alternating row colors. The table has three columns defined by apex:column tags. The first column has a headerValue of "Product" and contains outputText and outputField tags for the product name and total inventory. The second column has a headerValue of "Advertisement" and contains outputText and outputField tags for the advertisement count. The third column has a headerValue of "Inventory" and contains outputField and inputField tags for the physical count. The input field has a value of "{!pitem.Total\_Inventory\_\_c}" and a width of "150px". The code editor also shows line numbers from 1 to 36 and various status indicators at the bottom.

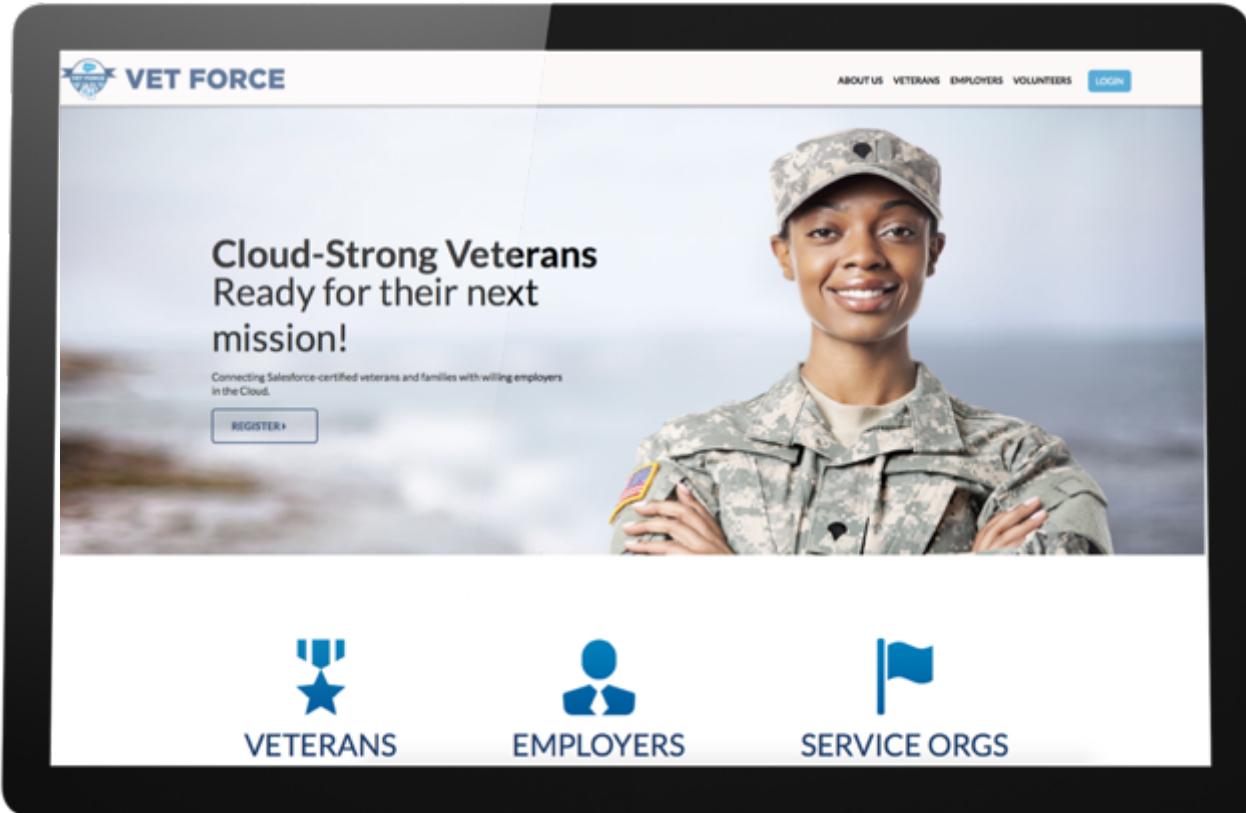
```
<apex:page standardStylesheets="false" showHeader="false" sidebar="false" standardController="Merchandise__c" recordSetVar="products">
<apex:stylesheet value="{!URLFOR($Resource.styles, 'styles.css')}">
<style type="text/css">
body {
    line-height: 1;
    color: black;
    background: white;
    margin-left:auto;
    margin-right:auto;
    width:1300px;
}
</style>
<h1>Inventory Count Sheet</h1>
<apex:form >
<apex:dataTable value="{!products}" var="pitem"
    rowClasses="odd,even">
<apex:column headerValue="Product">
    <apex:outputText value="{!pitem.name}"><br/>
    <apex:outputField value="{!pitem.Total_Inventory__c}">
        <apex:column>
            <apex:column headerValue="Advertisement">
                <apex:outputText value="{!pitem.Advertisement__c}">
                    <apex:column escape="false">
                </apex:column>
            <apex:column headerValue="Inventory">
                <apex:outputField value="{!pitem.Total_Inventory__c}">
            </apex:column>
            <apex:column headerValue="Physical Count" width="150px">
                <apex:inputField value="{!pitem.Total_Inventory__c}" />
            </apex:column>
        </apex:column>
    </apex:column>
</apex:table>

```



Example UI  
State of Colorado PEAK





**Example UI**  
<https://veterans.force.com/>





**salesforce** public sector  
DEVELOPER WORKSHOP

# Customize a User Interface



# Overview: Customize a User Interface

- Create Views of Data
- Modify a Page Layout
- Enable Social Collaboration



# Create Views

Create list views for frequently performed searches / queries

- Save list views for future use
- Filter on specific field or combinations of fields
- Specify which groups of users have access to the view
- Follow records and view related Chatter posts

The screenshot shows the Salesforce interface with the following elements:

- Header:** Includes the Salesforce logo, a search bar labeled "Search Salesforce", and standard navigation icons.
- Top Navigation Bar:** Shows "Travel Approval", "Chatter", "Travel Approvals", "Departments", "Reports", and "Dashboards".
- Left Sidebar:** A sidebar titled "TRAVEL APPROVALS" with a "All" button, which is highlighted with a red box.
- Table View:** A list of 50+ items sorted by Travel Approval #. The columns are: TRAVEL APPROVAL #, DEPARTMENT, CREATED BY, STATUS, TRIP START DATE, and TRIP END DATE. The data rows are:

1	TA-00001	Technology	Troy Hedges	Pending Approval	9/24/2017	9/30/2017
2	TA-00017	Division of Finance	Troy Hedges	Rejected	8/1/2016	8/3/2016
3	TA-00018	Office of General Counsel	Troy Hedges	Approved	7/10/2016	7/22/2016
4	TA-00019	Contract Management	Troy Hedges	Rejected	3/10/2016	3/10/2016
5	TA-00020	Audit Services	Troy Hedges	Rejected	5/5/2016	5/10/2016
- Right Sidebar:** Labeled "LIST VIEW CONTROLS" with a "VIEW" button, which is highlighted with a red box. It includes options: New, Rename, Sharing Settings, Edit List Filters, Select Fields to Display, and Delete, each with a dropdown arrow.

# Create Views (continued)

## Creating a list view

Sharing Settings

Who sees this list view?

Only I can see this list view

All users can see this list view  ⓘ

Cancel Save

Specify Visibility

Filters

Show me  
All travel approvals

Matching all of these filters

Out-of-State equals True

Status not equal to Approved, Rejected

Add Filter Remove All

Add Filter Logic

Specify filters

Select Fields to Display

Available Fields	Visible Fields
Created By	Travel Approval #
Created By Alias	Department
Last Activity Date	Created Date
Last Modified By	Status
Last Modified By Alias	Destination State
Last Modified Date	Trip Start Date
Out-of-State	Trin Fndr Date

Cancel Save

Select up to 15 Columns

# What is a Page Layout?

A page layout controls the fields, sections, related lists and buttons that appear when users view or edit a record of data. You can modify an object's default page layout or create new ones and associate them to different profiles.

The screenshot shows the Salesforce Object Manager interface for customizing a page layout. A callout bubble points to the main layout editor area with the text: "Select Fields, Actions, Buttons, Related Lists; Drag/Drop to Layout".

**Object Manager**

**Fields**

- Buttons
- Quick Actions
- Salesforce1 & Lightning Actions
- Expanded Lookups
- Related Lists
- Report Charts

**Travel Approval Sample**

**Highlights Panel**

Customize the highlights panel for this page layout...

**Quick Actions in the Salesforce Classic Publisher**

Actions in this section are currently inherited from the global publisher layout. You can [override the global publisher layout](#) to set a customized list of actions for this page.

**Salesforce1 and Lightning Experience Actions**

Actions in this section are predefined by Salesforce. You can [override the predefined actions](#) to set a customized list of actions on Salesforce1 and Lightning Experience pages that use this layout. If you customize the actions in the Quick Actions in the Salesforce Classic Publisher section, and have saved the layout, then this section inherits that set of actions by default. Click here to click to override.

**Travel Approval Detail**

**Information** (Header visible on edit only)

Travel Approval #	GEN-2004-001234
Status	Sample Status
Total Expenses	\$123.45
Status Indicator	Sample Status Indicator

Owner Department

**Standard Buttons**

Edit Delete Clone Change Owner Change Record Type Sharing Submit for Approval

**Trip Info**

Purpose of Trip Sample Purpose of Trip

Out-of-State ✓



# Social Collaboration via Chatter

## Feed Tracking

Keep up with your critical projects, topics, and teams. Work together on case knowledge in a single location.

## File Access

Secure, Social and Mobile file sharing puts files in the context of business processes.

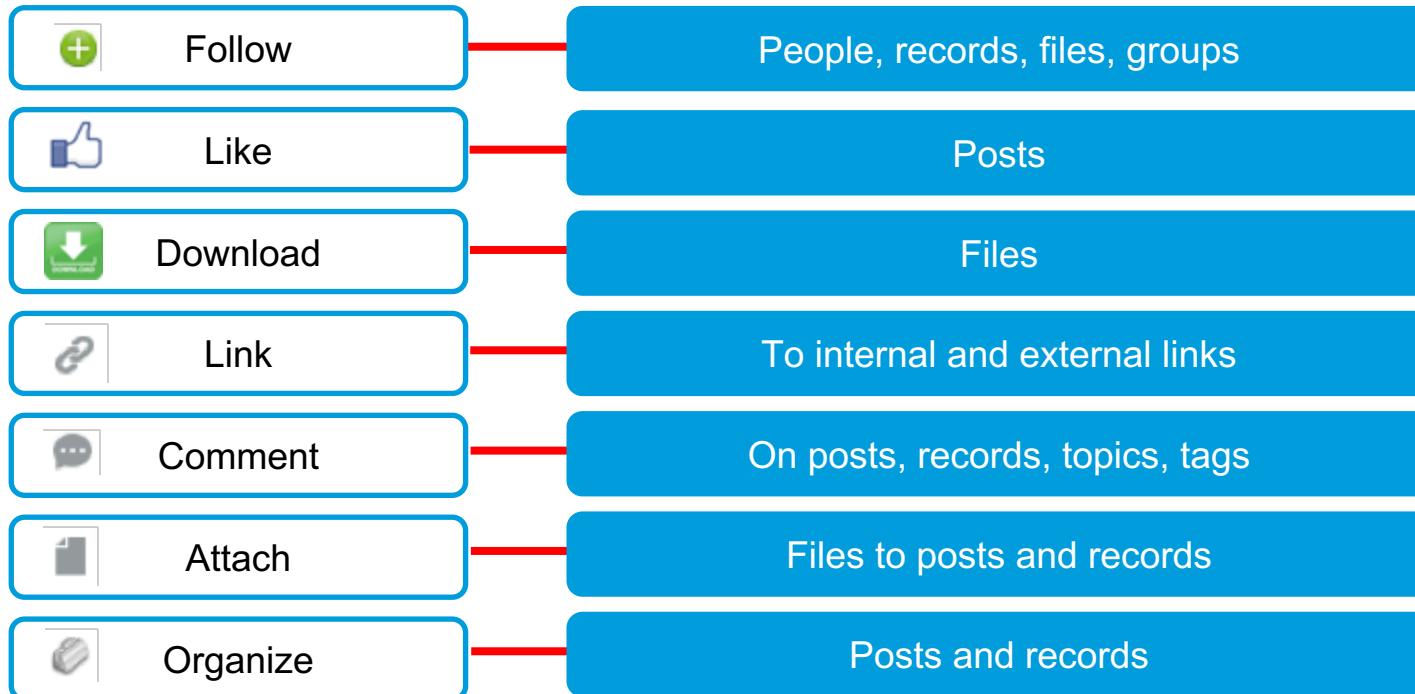
## Action Bar

Create instant actions for any business process; create records, post to feed, add files, request approvals



# What is Chatter?

Chatter lets you collaborate with fellow employees, partners and customers on files, records and groups. Chatter is automatically enabled in all orgs.



# Lab Exercises: Customize a User Interface

- Create Views of Data
- Modify a Page Layout
- Enable Social Collaboration



Complete by 1:15 PM

PAGES: **55-86**

TIME: **45 Minutes**



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DEVELOPER WORKSHOP

Adding Application Logic  
with Clicks, not Code



# Overview: Add App Logic w Clicks, not Code

- Add a Validation Rule
- Add a Roll-up Summary Field
- Add a Formula Field to show status indicator image



# What are Validation Rules?

Validation rules are used to conditionally require field values, format data

- Validation rules verify that the data a user enters in a record meets the standards you specify before the record is saved.
- A validation rule contains a formula or expression that evaluates the data in one or more fields and returns a value of True or False.
- Validation rules also include an error message to display to the user when the rule returns a value of True due to an invalid value.
- Error message can be displayed directly below field or at top of the page.
  - Multiple error messages may be displayed at one time

Line Item is added or Updated

Quantity\_\_c <= 0

Error: “Line Item’s Quantity  
Should Be Greater Than 0”

**WHEN**

Record is  
inserted or updated

**IF**

Statement evaluates  
to true

**THEN**

Block Insert/Update  
Return error message



# Validation Rule

Validation Rule Edit     

Rule Name:

Active:

Description:

Error Condition Formula

Example:  [More Examples...](#)

Display an error if Discount is more than 30%

If this formula expression is true, display the text defined in the Error Message area

Functions

-- All Function Category --

- ABS
- AND
- BEGINS
- BLANKVALUE
- BR
- CASE

ABS(number)  
Returns the absolute value of a number, a number without its sign  
[Help on this function](#)

Syntax for Rule

Specify your “Error” Message

## Error Message

Example:

This message will appear when Error Condition formula is true

Error Message:

This error message can either appear at the top of the page or below a specific field on the page

Error Location:  Top of Page  Field [?](#)



# What are Roll-up Summaries?

Roll-up Summary fields are read only formula fields that can display the sum, min, or max value or record count of a field in a related list

- For all custom master-detail relationships
- There is an option to include ALL records in the roll-up or just records that meet certain filter criteria that you define

Select Object to Summarize

Master Object	Invoice
Summarized Object	Line Items

Select Roll-Up Type

COUNT  
 SUM  
 MIN  
 MAX

Field to Aggregate: Line Item Total

Select Summarized Object

Select NUMERIC field to summarize

Filter Criteria

All records should be included in the calculation  
 Only records meeting certain criteria should be included in the calculation

Save Cancel

# What are Formula Fields?

“Smart” custom fields that can be used to build business-specific calculations using simple wizards and an Excel-like formula language

- Can reference standard, custom, or other formula fields
- Can reference fields on related (cross) objects
- Can return a dynamic image based on logic

The screenshot shows the configuration interface for a formula field named "Line\_Item\_Total". The top section contains fields for "Field Name" (Line\_Item\_Total), "Description" (empty), and "Help Text" (empty). Below this is a "Formula Options" section with "Formula Return Type" set to "Currency" and "Decimal Places" set to 2. A note below the options says: "Enter your formula and click Check Syntax to check for errors. Click the Advanced Formula subtab to use additional fields, operators, and functions." An example formula is provided: "Gross Margin = Amount - Cost\_\_c". There are tabs for "Simple Formula" (selected) and "Advanced Formula". At the bottom, there are buttons for "Insert Field" and "Insert Operator", and a formula editor showing "Line Item Total (Currency) = Unit\_Price\_\_c \* Quantity\_\_c".



# Useful Formula Fields Reference Guide

[https://help.salesforce.com/help/pdfs/en/salesforce\\_useful\\_formula\\_fields.pdf](https://help.salesforce.com/help/pdfs/en/salesforce_useful_formula_fields.pdf)

## Bloomberg™ News Search

This formula creates a link to an account's ticker symbol on the Bloomberg website.

```
HYPERLINK(  
    "http://www.bloomberg.com/markets/symbolsearch?query="&TickerSymbol,  
    "Bloomberg News")
```

## Google™ Search

This formula creates a link to a Google search site using the Account Name.

```
HYPERLINK(  
    "http://www.google.com/#q="&Name,  
    "Google")
```

## Suggested Offers

This formula suggests a product based on the support history for a computer reseller. When the Problem custom field matches a field, the formula field returns a suggestion.

```
CASE(Problem__c,  
    "Memory", "Suggest new memory cards", "Hard Drive failure", "Suggest  
    new hard drive with tape backup",  
    "")
```

The screenshot shows a page titled 'USEFUL FORMULA FIELDS' with a blue header and sidebar. The main content area contains sections for 'Summary', 'Examples of Advanced Formula Fields', and 'Sample Account Management Formulas'. The 'Summary' section includes a note about the document containing examples of various formula types. The 'Examples of Advanced Formula Fields' section lists numerous examples such as 'Sample Account Management Formula', 'Sample Case Management Formula', 'Sample Contact Management Formula', etc. The 'Sample Account Management Formulas' section lists formulas like 'Account Rating' and 'Account Score'. At the bottom right, there is a note indicating the page was last updated on May 22, 2013.



# **Lab Exercises: Add App Logic w Clicks, not Code**

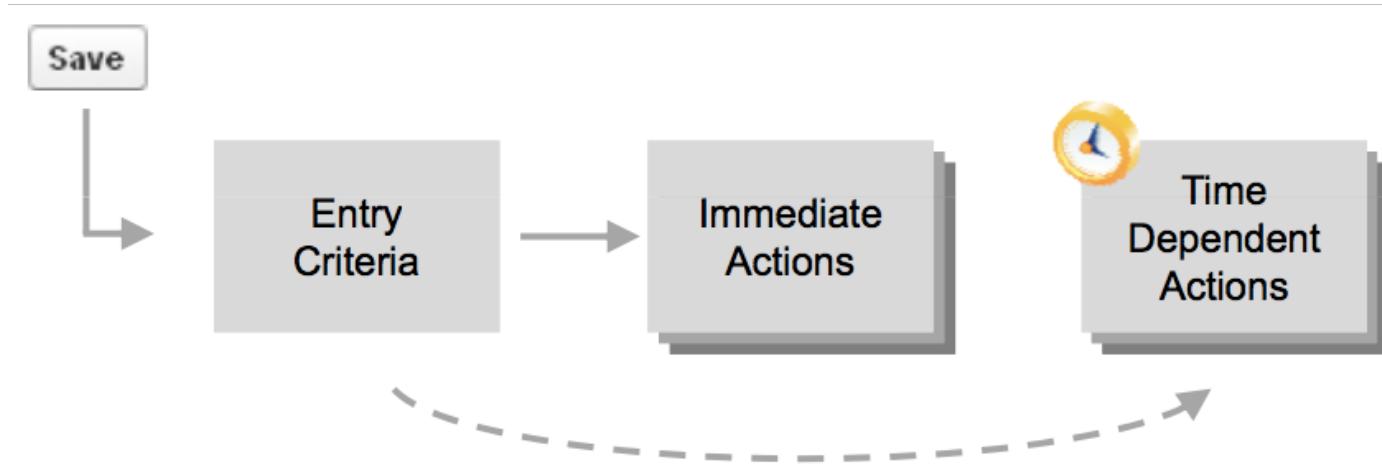
- Create validation rule
- Create roll-up summary field
- Create formula field status indicator image

**PAGES: 87-95      TIME: 20 Minutes**



# Workflow Rules

- Automate Business Processes
- Triggered on record creation or update
- Execute actions
  - Immediately and/or
  - Later - only if record still meets the entry criteria (Time-based Workflow)
  - Actions: Update Record, Send Email, Create Task, Send Outbound (SOAP) Message



# Workflow Process Builder

## Visualize

Visualize the entire process in one place to design and collaborate directly with lines of business owners

## Easy to Use

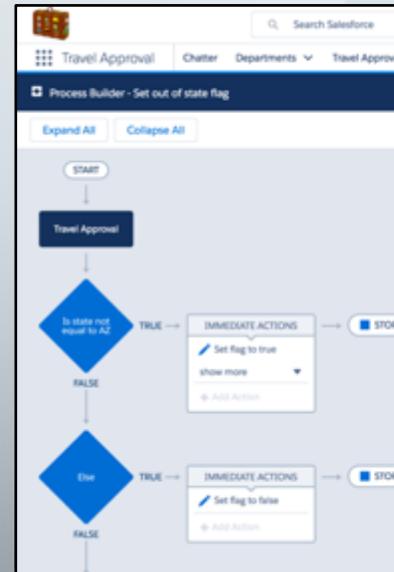
Easily automate complex business processes with point-and-click tools

## Event-driven Actions

Automatically update or create new records, emails, and tasks or send data to an external system



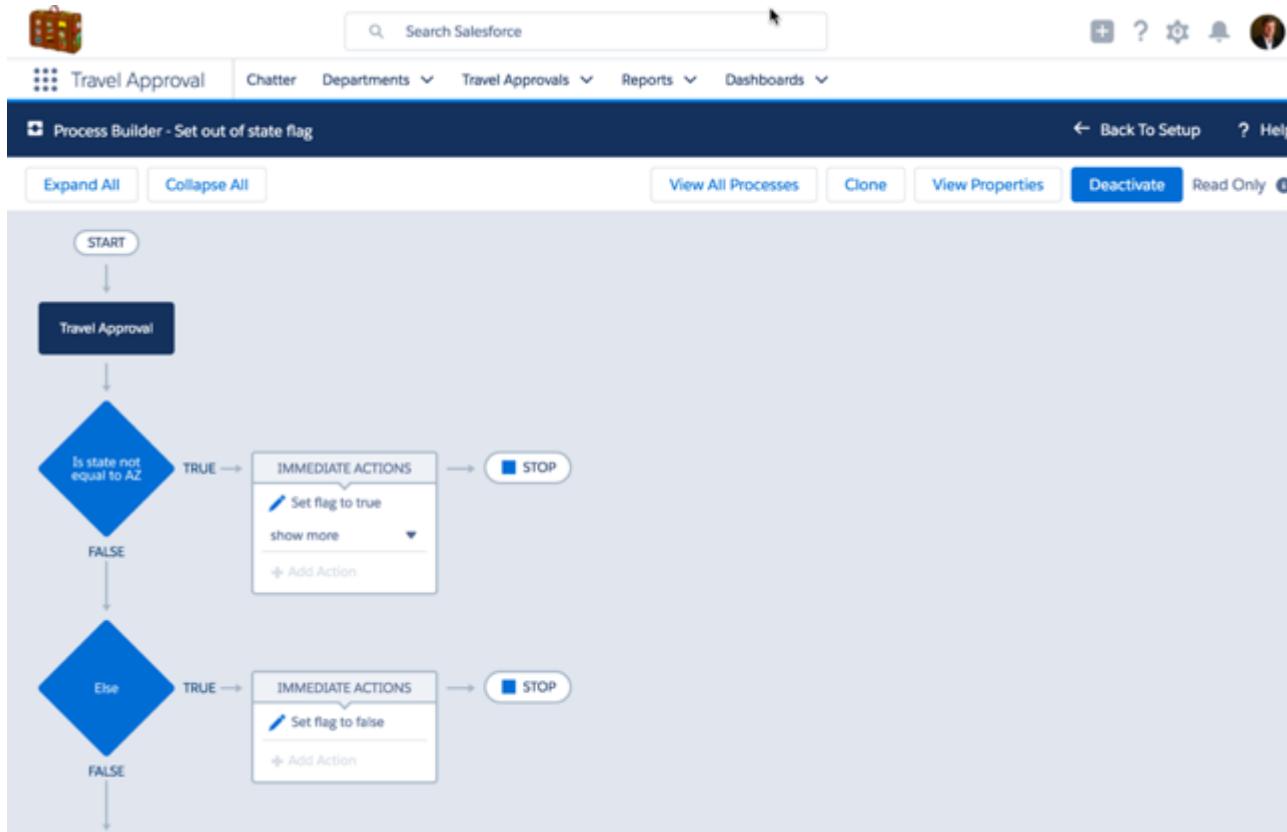
Workflows



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# Overview: Add App Logic w Clicks, not Code

Automate a Field Update using Workflow Process Builder



# **Lab Exercises: Add App Logic w Clicks, not Code**

- Automate a Field Update using Workflow Process Builder
- Test your application

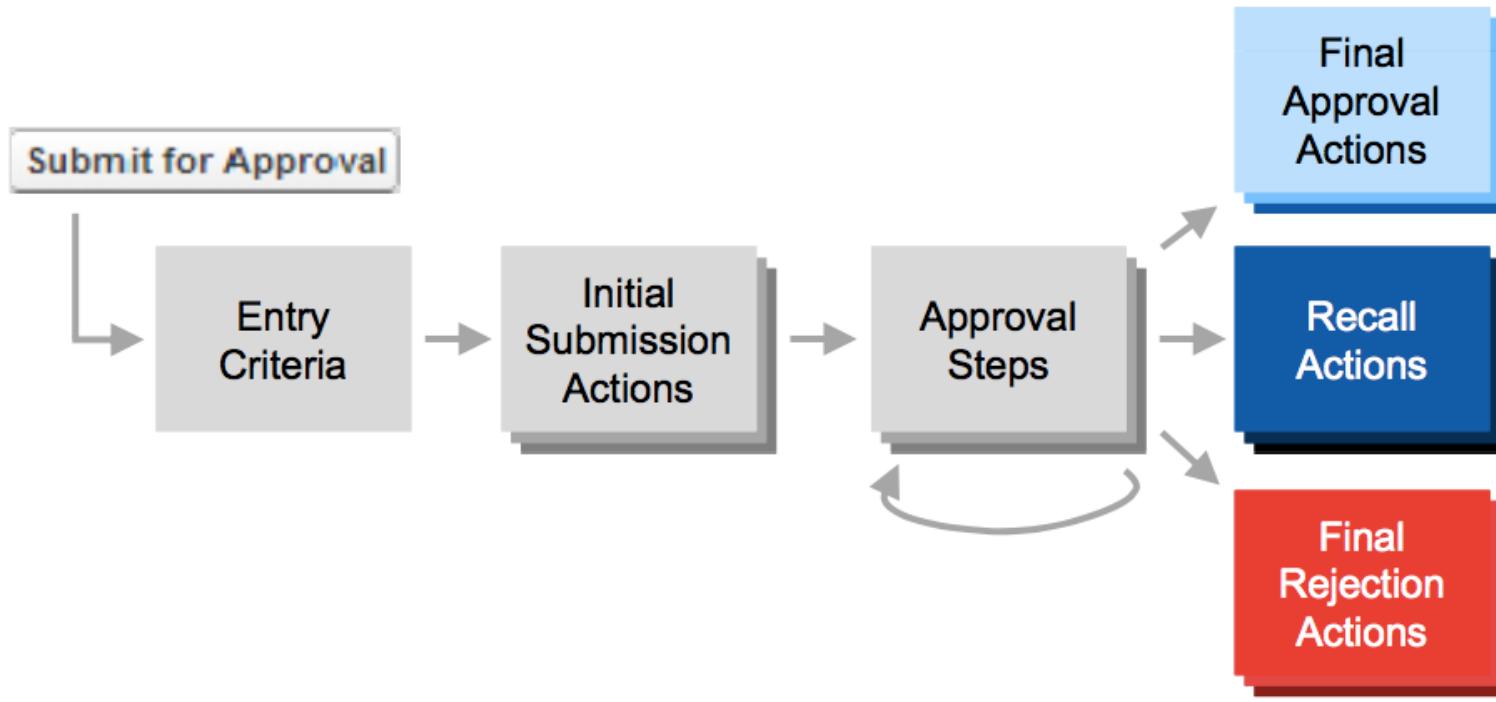
PAGES: **95-103**

TIME: **15 Minutes**



# What is an Approval Process?

Approval processes are single or multi-step business processes that require end user authorization for record promotion



# Overview: Add App Logic w Clicks, not Code

Create an Approval Process for travel requests

SETUP

Approval Processes

Create

Approval Processes

Travel Approval: Travel Approval Request

< Back to Approval Process List

Help for this Page

Process Definition Detail

Process Name	Travel Approval Request	Active	<input checked="" type="checkbox"/>
Unique Name	Travel_Approval_Request	Next Automated Approver Determined By	Manager or Record Submitter
Description			
Entry Criteria	Travel Approval: Total Expenses GREATER THAN 0		
Record Editability	Administrator ONLY	Allow Submitters to Recall Approval Requests	<input type="checkbox"/>
Approval Assignment Email Template			
Initial Submitters	Travel Approval Owner		
Created By	Michael Yeganeh, 1/24/2017 1:34 PM	Modified By	Michael Yeganeh, 1/24/2017 1:43 PM

Initial Submission Actions

Add Existing	Add New
--------------	---------

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: Michael Yeganeh	Final Rejection

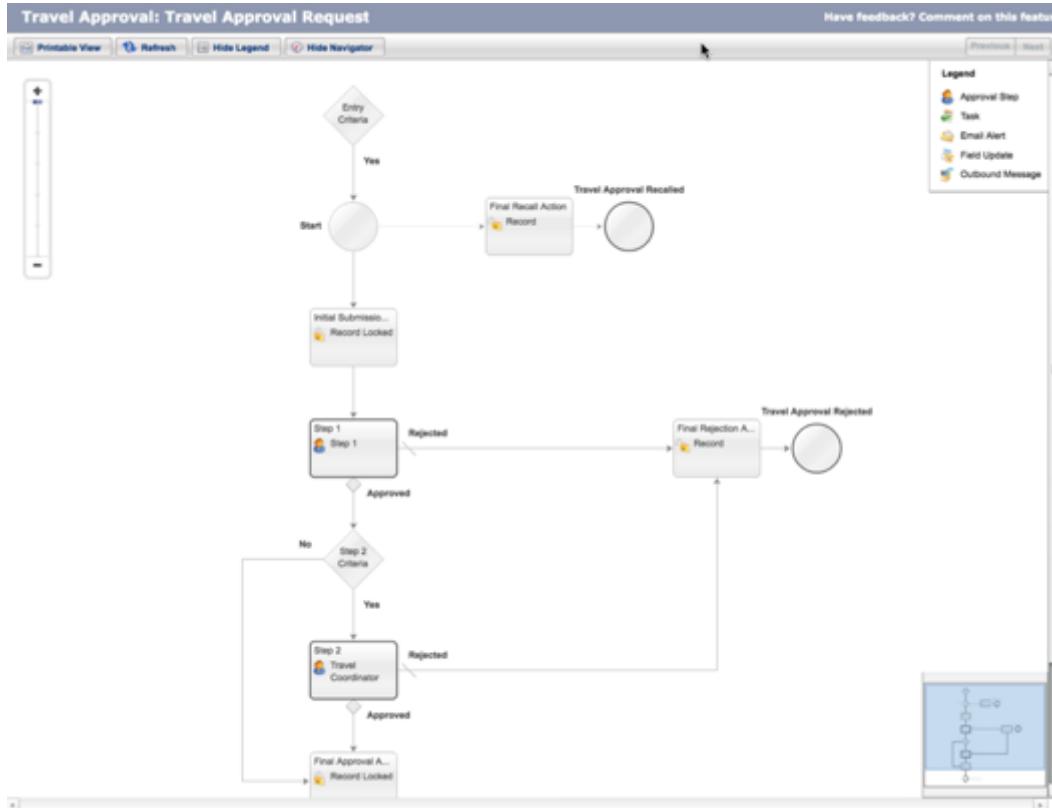
Final Approval Actions

Add Existing	Add New
--------------	---------

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# Add App Logic w Clicks, not Code

Create an Approval Process for travel requests



# **Lab Exercises: Add App Logic w Clicks, not Code**

- Create an Approval Process for travel requests
- Test your approval process

**PAGES: 103-116**

**TIME: 25 Minutes**





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DEVELOPER WORKSHOP

Analyze Data with  
Reports and Dashboards



# Overview: Analyze Data with Reports and Dashboards

- Create a Report
- Create a Dashboard



# Embedded Analytics

Make smarter business decisions  
to drive service transformation

## Personalized

Create personalized reports and dashboards  
on your transactional business data via drag  
& drop

## Secure

Reporting data maintains access control,  
based on roles and profiles

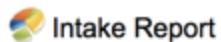


Analytics

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# Salesforce Reports

Salesforce Reports are lists, summaries or matrices that allow you to aggregate and analyze your data in different ways



## Table Report

Report Generation Status: Complete

Report Options:

Summarize information by:  
--None--  My Intake

Time Frame

Date Field	Range
Date Occurred	<input type="radio"/> Custom <input type="radio"/> From _____ To _____

[Run Report](#) [Hide Details](#) [Customize](#) [Save As](#) [Printable View](#) [Export Details](#)

Intake: Intake Id	Intake: Created Date	Reporter Type	Status	Sub-Category	Category
INT0002	5/31/2015	School Official	Investigation	Neglect	Child Abuse / Neglect
INT0003	5/31/2015	Clergy	New	Medical Neglect	Child Abuse / Neglect
INT0004	5/31/2015	School Personnel	Screening	Information Only	Information and/or Ref
INT0005	5/31/2015	Medical Personnel	Assessment	Baby Doe/Disabled Infant	Child Abuse / Neglect
INT0001	5/31/2015	-	-	-	-
INT0019	5/31/2015	Anonymous	Assessment	Emotional Maltreatment	Child Abuse / Neglect
INT0020	5/31/2015	Medical Personnel	Investigation	Physical Abuse	Child Abuse / Neglect
INT0021	5/31/2015	Citizen	Screening	Physical Abuse	Child Abuse / Neglect
INT0022	5/31/2015	Medical Personnel	Assessment	Physical Abuse Shaken Baby	Child Abuse / Neglect
INT0023	5/31/2015	Anonymous	Investigation	Medical Neglect	Child Abuse / Neglect
INT0024	5/31/2015	Legal Personnel	Screening	Information Only	Child Abuse / Neglect
INT0007	5/31/2015	Citizen	Disposition	Sexual Abuse	Child Abuse / Neglect
INT0008	5/31/2015	Anonymous	New	Physical Abuse Shaken Baby	Child Abuse / Neglect

## Summary Report

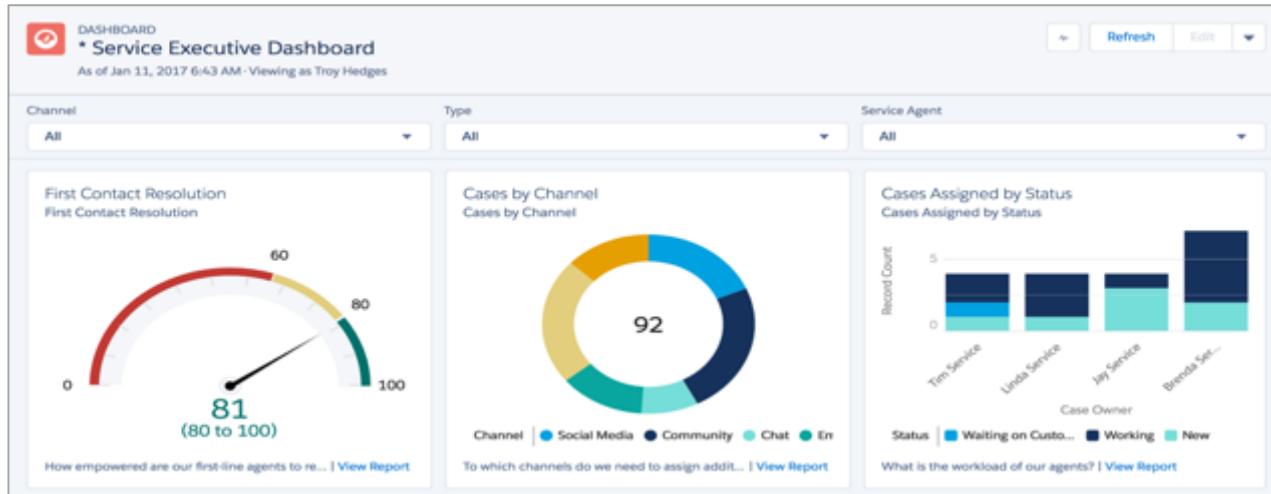
Opportunity Name	Amount	Close Date
<input type="checkbox"/> Stage: Prospecting (2 records)		
	USD 5,341,500.00	
<a href="#">Universal Motors - Laptops</a>	USD 3,504,000.00	12/7/2010
<a href="#">Ferris Media - Laptops</a>	USD 1,837,500.00	12/5/2010
<input type="checkbox"/> Stage: Qualification (2 records)		
	USD 4,561,250.00	
<a href="#">House Central - Laptops</a>	USD 2,461,250.00	11/29/2010
<a href="#">Santek - Laptops</a>	USD 2,100,000.00	11/28/2010
<input type="checkbox"/> Stage: Needs Analysis (2 records)		
	USD 6,400,000.00	
<a href="#">Starfish Publishing - Laptops</a>	USD 3,650,000.00	11/20/2010
<a href="#">Firefly Insurance - Desktops</a>	USD 2,750,000.00	11/18/2010
<input type="checkbox"/> Stage: Value Proposition (1 record)		
	USD 4,800,000.00	
<a href="#">ZiffCorp - Laptops</a>	USD 4,800,000.00	11/1/2010
<b>Grand Totals (7 records)</b>		
	<b>USD 21,102,750.00</b>	



# What is a Dashboard?

A dashboard is a visual representation of data from multiple reports, and:

- Comprises up to 20 components
- Displays data from custom source reports
- Can use Visualforce Pages to present data from other sources
- Has a “running user” to determine what data is visible
- Displays data as of the last time the dashboard was refreshed
- Can be scheduled to refresh and be automatically emailed



# **Lab Exercises: Analyze Data with Reports and Dashboards**

- Import Travel Approval data
- Create a Report
- Create a Dashboard

**PAGES: 117-135**

**TIME: 25 Minutes**





# Closing Thoughts

# 4 million...and growing



# success.salesforce.com

4 million active community members



Customer Community

Partner Community

User Groups

Ask Questions

Post Ideas



A screenshot of the success.salesforce.com homepage. At the top, there is a banner with the text "Welcome to the Community" and "Share. Learn. Join. Succeed." Below the banner is a search bar labeled "Search the Community...". To the right of the search bar is a magnifying glass icon. The main content area includes sections for "FIND ANSWERS" (with a "Post your questions to the Community" button), "COMMUNITY LEADERS" (a grid of user profiles), "DISCUSS" (with a "Join groups for discussion and share ideas to improve the way you work" button), and "User Groups" (a section showing 209 User Groups). On the right side, there is a sidebar with a "Browse Help &amp; Training" button and a "Browse official documentation" section. At the bottom right, there are statistics for the AppExchange: 2,660 apps and 2,789,835 installs.

# Become a Salesforce Superhero

Professional Certifications  
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FORCE.COM  
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FORCE.COM  
ADVANCED DEVELOPER



Salesforce  
SERVICE CLOUD CONSULTANT



Salesforce  
SALES CLOUD CONSULTANT



Salesforce  
TECHNICAL ARCHITECT

A large, semi-transparent blue cloud shape containing the word "salesforce" in white, lowercase, sans-serif font.

**salesforce** Thank you

