* Welcome to PROGRAMMING Salesforce LIGHTNING COMPONENTS

* (DEV 601) Session

What you will Learn

- * YOUWILLBEABLETO:
- Efficiently create custom, reusable Lightning components and applications.
- * Surface Lightning components and applications throughout the Salesforce ecosystem.
- Define input forms with client-side data validation.
- Build apps that enable a user to create, read, and update data from a Salesforce org.
- Make components available to other developers through AppExchange and unmanaged packages.
- Theme your application by using SLDS and Lightning Tokens
- * Note:Prior Knowledge of salesforce admin/configuration/Apex Classes/Triggers mandatory for this course

Lightning development Core Contents

- Lightning App Builder (Navigation .. Pages)
- Development topics
- * Introduction to the Framework
- * Components
- * UI attributes
- * JS controllers
- * Style
- * Helper Methods
- Invoking Aura(Apex controller methods in Components)
- * Events: How components communicate-component and application
- * How to communicate to nested components
- Embedding Components in apps
- Building Form s using SLDSX
- * Using Sobjects attributes to save data using aura controllers and edit using has:recordid
- Override the default record detail page
- * Misc topics tags, How to override standard button with lightning component
- * Data Sevice and similar frameworks for no aura apex sobject calls

Key Aside-Classic vs lightning

Model	Classic	Lightning
Model	Sobject	No change
View	VF pages/layouts	Lightning pages/Custom Components
Controller	Apex classes	Apex ClassesJS controllers

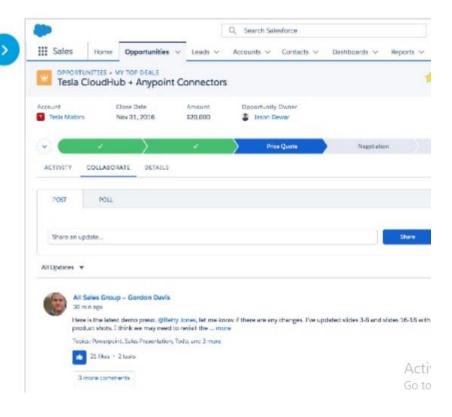
Lightning Navigation

- Lighting Navigation experience
- * Domain needs to be enabled before moving into lightning.
- * Mandatory security requirement after winter 16, as domain ensures that components created by you are encapsulated in your domain
- * Lab:
- * Please enable domain in your developer org, deploy the same and start using lightning.

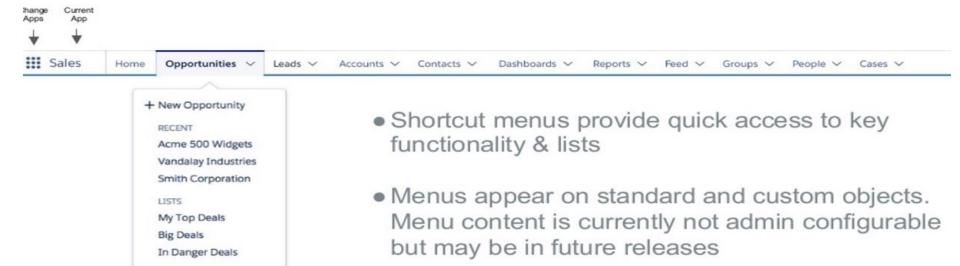
Updated Navigation UI

Winter '17 for all orgs

- Horizontal navigation bar
- Full screen width available for app content
- App switching via the
 App Launcher ##
 (now located in nav bar)
- App branding

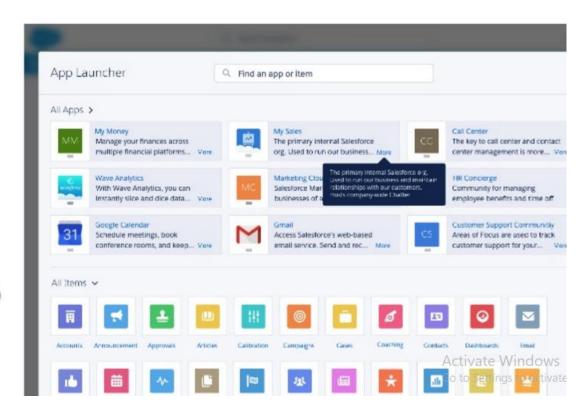


The Navigation Bar



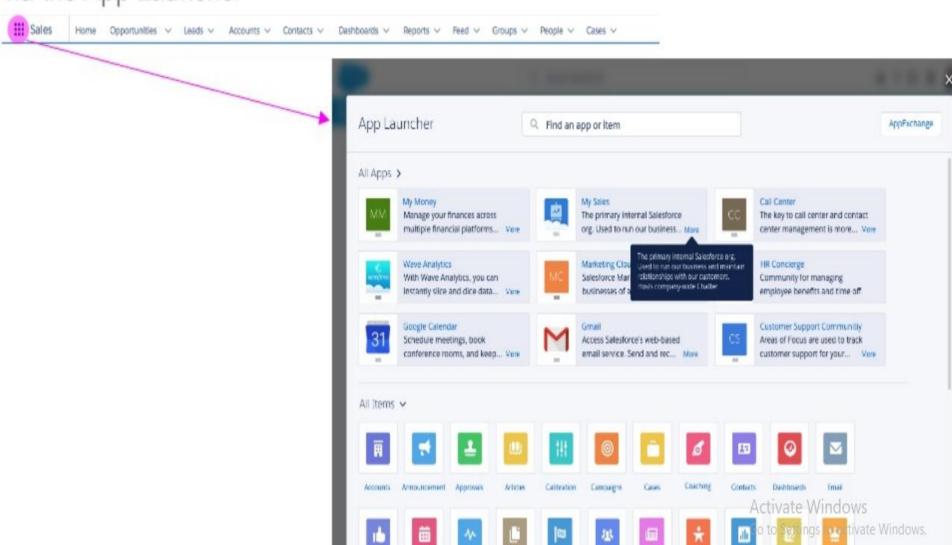
Updated App Launcher

- Organized into two sections: apps and items
- Easily search across both sections
- All Items section is equivalent to the "+" tab in Classic



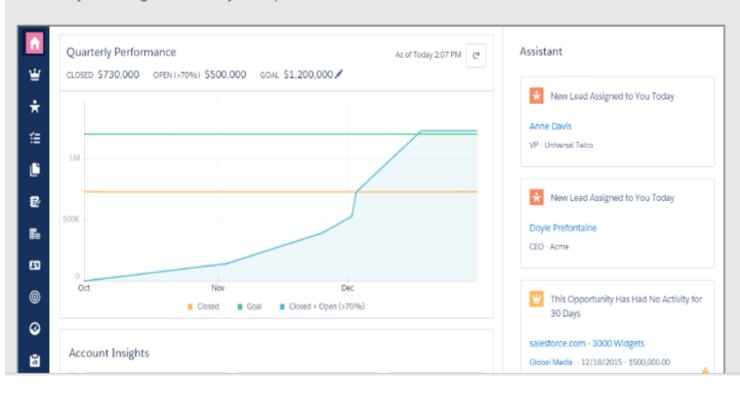
Changing Apps

via the App Launcher

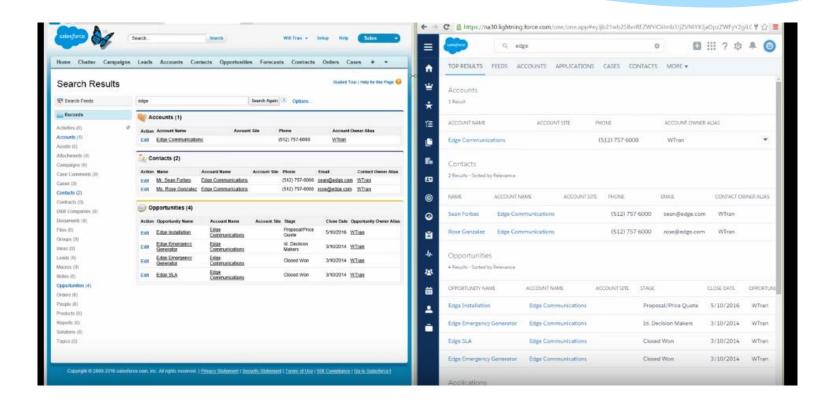


Lightning experience and App builder

- · Start your day fast with a new, intelligent page.
- · Use the Performance Chart to monitor how close you are to crushing your numbers.
- · See relevant, timely news articles about customers, partners, and competitors with Account Insights.
- · See upcoming meetings and tasks due today.
- · Use the Assistant to identify key issues to work on today.
- · Focus your selling activities on your Top Deals.



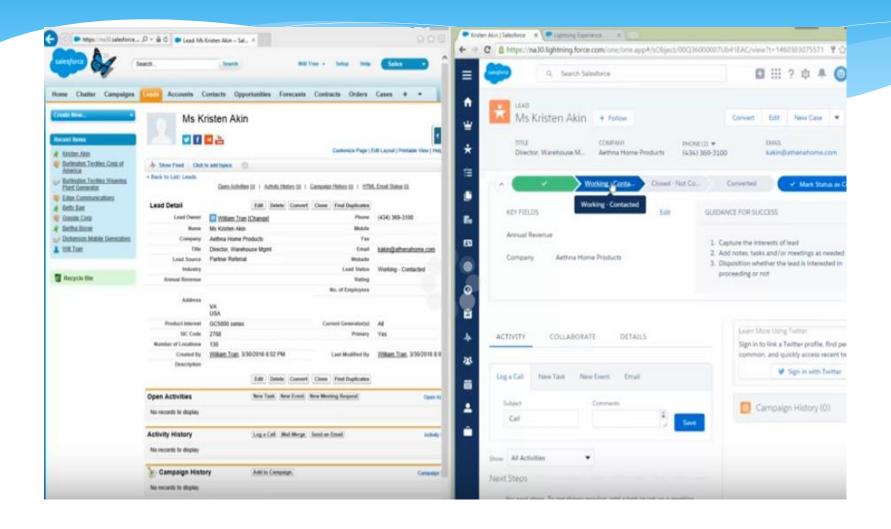
Classic vs Lighting Navigational Differences



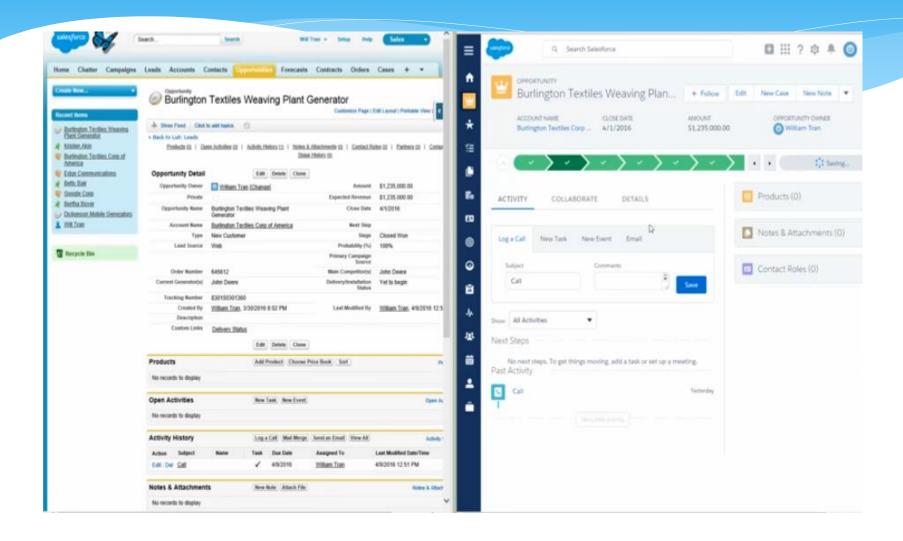
Path settings

- Can be per record type
- * For any picklist, but mainly for leads and sales process
- * Best practise is lead status and opportunity stage
- * Can have paths for any object
- * Can expose fields for each path, so as to guide sales team with best approach to close opportunities or convert leads.

SalesPath features for leads



Opportunity Progress



Reports and Dashboards

Reports and Dashboards

Sales reps will love the ability to create their own filters on reports, and you will appreciate the updated dashboard editor, with spanning columns and a new, flexible layout.

- · Create filters for reports.
- · Make visually awesome dashboards using flexible layout and spanning columns.
- Enjoy sales rep-focused enhancements, including auto-hidden details on matrix reports and the ability to hide totals and subgroups on the report run page.
- Easy migration from Salesforce Classic to Lightning Experience, with reports and dashboards automatically viewable and inheriting all permissions and sharing already defined.



Use cases for lightning

Lightning Experience might be right for some or all of your organization if:

Salesforce Classic might be right for you if:

Your sales team does business-tobusiness sales using accounts, contacts, leads, opportunities, custom objects, and the other sales features supported in the new user interface.

Your sales team makes regular use of features that aren't yet available in Lightning Experiences, such as quotes, forecasting, or territory management.

You want to pilot the new user interface with a group of sales reps.

You primarily use customer service tools or other non-sales features.

You're looking to reboot your Salesforce implementation.

You want a single experience for your sales and service teams.

Lab session -Lightning App Builder

- Create a App page
- * Create a record detail page
- Create a home page
- Explore OOB components usage .
- * Expose All three in Lightning using navigation menus
- * Expose All three in Salesforce1 using Lightning menu

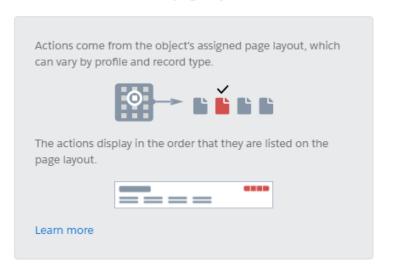
Highlights Panel

1 - Fields come from a compact layout

Fields come from the compact layout that's assigned to the object.

If you're using record types, the assigned compact layout can vary by record type.

2 - Actions come from a page layout



SPA Framework

Single Page Application Frameworks

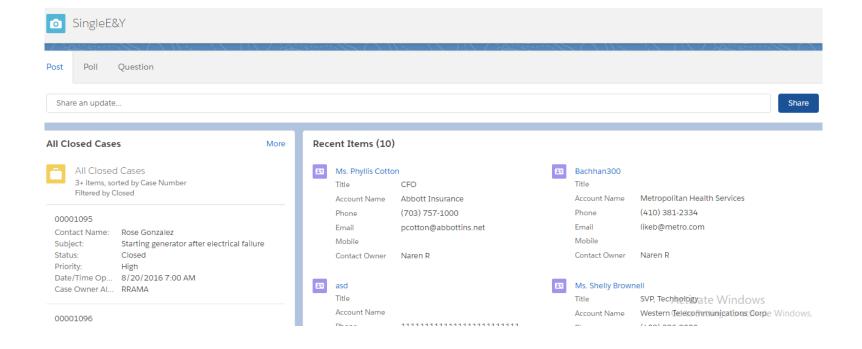




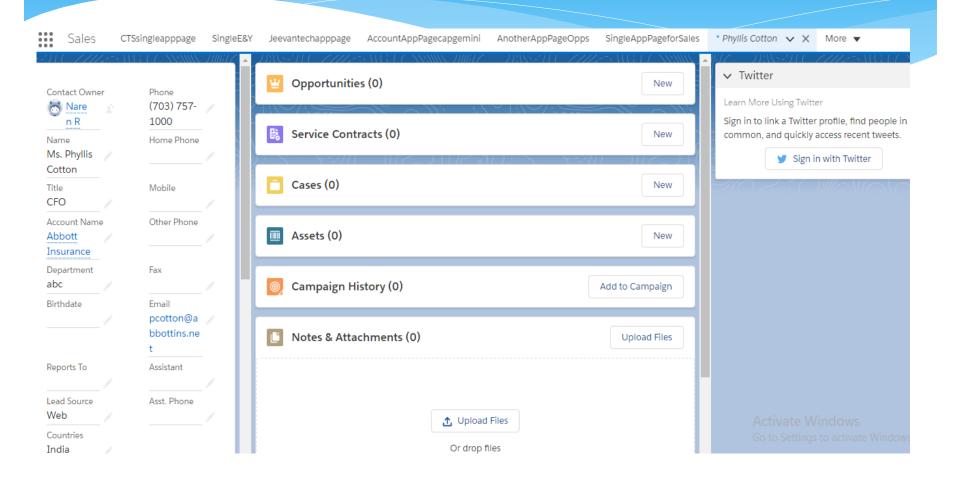




App Page



Record Detail Page



Lightning or Aura? Framework

- * First off: "Lightning" is a larger (marketing) effort to rebrand existing and new Salesforce1 platform services under one shiny new umbrella. "Salesforce1 Lightning" consists of the following pieces, among others:
- * Lightning Process Builder (rebrand of Visual Workflow)
- * Lightning Components (new port of open source Aura Framework onto Salesforce1 platform)
- * Lightning App Builder (new drag and drop assembly of Lightning Components into a page)
- * Lightning Connect (rebrand of "External Data Objects", which allows you to interact with external data sources that implement the OData spec as if they were regular Salesforce SObjects)

Lightning or Aura? Framework

- * As you've surmised, Lightning Components are essentially a rebranding of "Aura on the Platform" (AOTP), an initiative that's been going on within Salesforce for several years. Aura began as an internal initiative at Salesforce to build a scalable, component-based user interface framework, and earlier this year, Salesforce open-sourced the Aura Framework (available at http://documentation.auraframework.org/auradocs# and https://github.com/forcedotcom/aura
- * Lightning Components are Aura Components --- if you go to create a new "Lightning Component", the actual markup you use is <aura:component>, and a lot of the core XML tags available from Aura, e.g. <aura:iteration>, <aura:if>, etc. are prefixed with aura and will remain that way.
- * Key Benefits
- * Event Driven Framework
- * Lots of OOB components
- Optimised for performance if lightning tags are used
- * Provides secure encapsulation by hiding dom model.

Lightning Components –View architecture

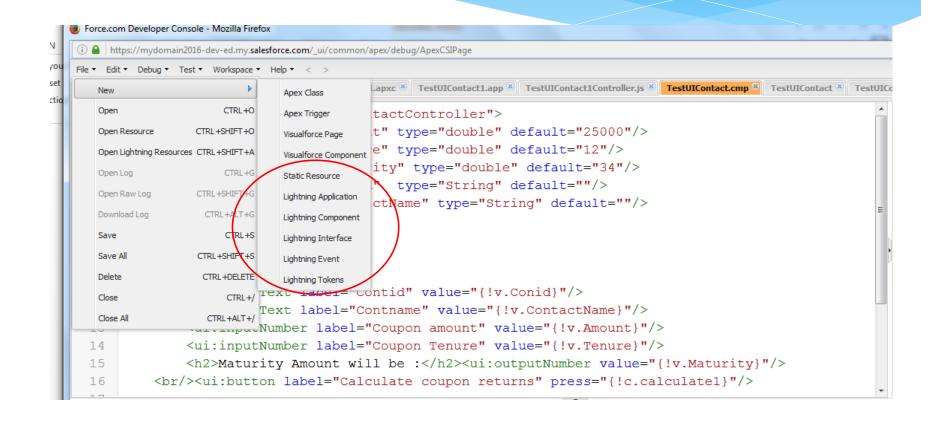
Components

Aura Attributes

Input/Output/Com mand tags

Attributes define variables inside a component and Data types
UI tags specify Input/output tags similar as in html, can also invoke methods
Methods and aura controller coupling view will be shown in an upcoming slide

How to create Lightning Components



Building the basic component

- Add Attributes and Tags to you component
- Define the attributes(variables)
- Call methods created in Component controller
- * Warning :attributes name are case sensitive, so reference in value attribute inside ui tags should have same case

```
<aura:component controller="ContactController">
    <aura:attribute name="Amount" type="double" default="25000"/>
    <aura:attribute name="Tenure" type="double" default="12"/>
    <aura:attribute name="Maturity" type="double" default="34"/>
    <aura:attribute name="Conid" type="String" default=""/>
    <aura:attribute name="ContactName" type="String" default=""/>
<div>
        <ui:inputText label="Contid" value="{!v.Conid}"/>
        <ui:inputText label="Contname" value="{!v.ContactName}"/>
        <ui:inputNumber label="Coupon amount" value="{!v.Amount}"/>
        <ui:inputNumber label="Coupon Tenure" value="{!v.Tenure}"/>
        <h2>Maturity Amount will be :</h2><ui:outputNumber value="{!v.Maturity}"/>
    <br/><ui:button label="Calculate coupon returns" press="{!c.calculate1}"/>
 </div>
    <aura:handler name="change" value="{!v.Conid}" action="{!c.getcontactname}"/>
/ / Juna · gommonont >
```

What are Aura attributes?: Variables!!

Attribute Name	Туре	Description	
access	String	Indicates whether the attribute can be used outside of its own namespace. Possible values are public (default), and global, and private.	
name	String	Required. The name of the attribute. For example, if you set <aura:attribute name="isTrue" type="Boolean"></aura:attribute> on a component called aura:newCmp, you can set this attribute when you instantiate the component; for example, <aura:newcmp istrue="false"></aura:newcmp> .	
type	String	Required. The type of the attribute. For a list of basic types supported, see Basic Types.	
default	String	The default value for the attribute, which can be overwritten as needed. When setting a default value, expressions using the \$Label, \$Locale, and \$Browser global value providers are supported. Alternatively, to set a dynamic default, use an init event. See Invoking Actions on Component Initialization.	
required	Boolean	Determines if the attribute is required. The default is false.	
description	String	A summary of the attribute and its usage.	

Aura attributes

<i>type</i> [] (Array)	<pre><aura:attribute default=" ['red', 'green', 'blue']" name="colorPalette" type="String[]"></aura:attribute></pre>	An array of items of a defined type.
List	<pre><aura:attribute default="['red', 'green', 'blue']" name="colorPalette" type="List"></aura:attribute></pre>	An ordered collection of items.
Мар	<pre><aura:attribute default="{ a: 'label1', b: 'label2' }" name="sectionLabels" type="Map"></aura:attribute></pre>	A collection that maps keys to values. A map can't contain duplicate keys. Each key can map to at most one value. Defaults to an empty object, {}. Retrieve values by using cmp.get("v.sectionLabels")['a'].
Set	<pre><aura:attribute default="['red', 'green', 'blue']" name="collection" type="Set"></aura:attribute></pre>	A collection that contains no duplicate elements. The order for set items is not guaranteed. For example, "red,green,blue" might be returned as "blue,green,red".

Aura Attributes

Standard and Custom Object Types

An attribute can have a type corresponding to a standard or custom object. For example, this is an attribute for a standard Account object:

```
1 <aura:attribute name="acct" type="Account" />
```

This is an attribute for an Expense_c custom object:

```
1 <aura:attribute name="expense" type="Expense__c" />
```



Make your Apex class methods, getter and setter methods, available to your components by annotating them with <code>@AuraEnabled</code>.

Tags

- * For example: Tag Input text accepts text values and are stored in the variable defined in "value" parameter
- * <ui:inputText label="Contid" value="{!v.Conid}"/> v.Conid means variable reference
- *

 *

 * coupon returns"

 press="{!c.calculate1}"/> invokes component controller method

 * div >

Implement tag – affects your component visibility

The following configurations are available in the New Lightning Bundle panel.

Configuration	Markup	Description		
Lightning component bundle				
Lightning Tab implements="force:appHostable"		Creates a component for use as a navigation element in Lightning Experience or Salesforce1.		

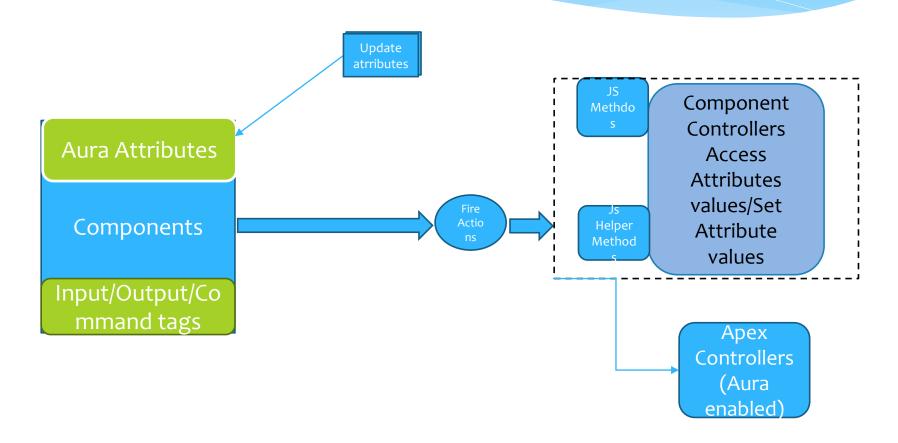
Configuration	Markup	Description
Lightning Page	<pre>implements="flexipage:availableForAllPageTypes" and access="global"</pre>	Creates a component for use in Lightning pages or the Lightning App Builder.
Lightning Record Page	<pre>implements="flexipage:availableForRecordHome, force:hasRecordId" and access="global"</pre>	Creates a component for use on a record home page in Lightning Experience.
Lightning Communities Page	<pre>implements="forceCommunity:availableForAllPageTypes" and access="global"</pre>	Creates a component that's available for drag and drop in the Community Builder.
Lightning Quick Action	implements="force:lightningQuickAction"	Creates a component that can be used with a Lightning quick action.
Lightning application bu	ındle	
Lightning Out Dependency App	extends="ltng:outApp"	Creates an empty Lightning Out dependency app.

Tags - Miscellaneous

- * <aura:html tag="div" /> Html tag We recommend that you use components in preference to HTML tags. For example, use lightning:button or ui:button instead of <button>.
- * <aura:set > is used set attributes of inherited components
- * Inherited components –example inheritance
- * Embedded components –example testuicontact header
- * <aura:component extends=c:component> can extend component

Adding transaction Logic using Component Controllers

How components become Interactive



Adding Logic using component Controllers

- * This section can hold multiple methods, enclose by ({method1},{method2}) and separate methods by ","
- * Lets understand the method signature
- Component parameter is reference to the same component
- * Component attributes can be accessed using this param
- * var x = component.get("v.Amount"); or they can also be set
- Helper parameter are addition javascript libraries you can access

Adding Logic using component Controllers

- * Click on the Controller option in the menu in lightning
- * This will open you javascript controller window
- * Enter your code here

```
calculate1 : function(component, event, helper) {
  var x = component.get("v.Amount");
  var y = component.get("v.Tenure");
  var z = 0;
  alert(y);
  if(y < 12) {
     z = x +1000;
  }
  if(y > 12) {
     z = x -1000;
  }
  component.set("v.Maturity",z);
  alert(z);
  helper.showmessage1();
}
```

Concept of Helper methods

- Click on the Helper component within developer console to open workbench window
- * Put functions that you want to reuse in the component's helper. Helper functions also enable specialization of tasks, such as processing data and firing server-side actions.
- A helper function can be called/shared from any JavaScript code in a component's bundle, such as from a client-side controller or renderer Sharing

Aura:handler

- Important tag at ui level
- * Used to detect field value changes in fields in UI aura: markups, similar to action support
- Used to handle lightning events
- * Used to fire actions at component initialisation

Storing Data temporarily

```
* sessionStorage.removeItem("lastvalue");

* sessionStorage.setItem("lastvalue", x);

* var z=
        parseInt(sessionStorage.getItem("lastvalue")) +
        +parseInt(component.get("v.firstvalue"));
```

Field Validations

- * Use aura id to designate an id to a field.
- * <ui:inputNumber aura:id="tenure" label="Coupon
 Tenure" value="{!v.Tenure}"/>
- * Find component using var inputcmp component.find("tenure"); and store in variable
- * Access values using var val =inputcmp.get("v.value")
- * Set errors using inputcmp.set("v.errors",[{message :'Value cant be greater than 21 using compset'}]);
- * If we use component.find, lightning provides us with variable v.errors against the component specifically to show errors

Changing classes dynamically, Showing and hiding markup

```
* { applyCSS: function(cmp, event)

* { var cmpTarget = cmp.fipd(c'changeIt');

* $A.util.addClass(cmpTarget, 'changeMe'); },

* removeCSS: function(cmp, event)

* { var cmpTarget = cmp.find('changeIt');

* $A.util.removeClass(cmpTarget, 'changeMe'); } }
```

Conditional rendering of tags

- * Showing and hiding tags and divs based on critiera
- * <aura:if isTrue="{!v.edit}">
- * Any section within this will be conditional displayed based on attribute value
- * Render Div based on renderred tags
- * Enable disable buttons using disabled="true" tag

Dynamically Showing or Hiding Markup

You can use CSS to toggle markup visibility. However, <aura:if> is the preferred approach because it defers the creation and rendering of the enclosed element tree until needed.

For an example using <aura:if>, see Best Practices for Conditional Markup.

This example uses \$A.util.toggleClass(cmp, 'class') to toggle visibility of markup.

```
/*toggleCssController.js*/
({
    toggle : function(component, event, helper) {
        var toggleText = component.find("text");
        $A.util.toggleClass(toggleText, "toggle");
}

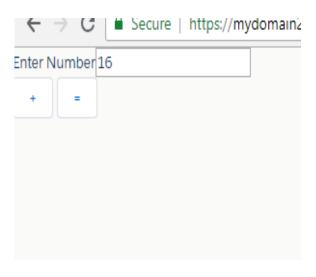
}
```

```
1 /*toggleCss.css*/
2 .THIS.toggle {
3    display: none;
4 }
```

Click the **Toggle** button to hide or show the text by toggling the CSS class.

. .

Labs:Create Calculator App



How are components rendered

- Components can be embedded in an Lightning application
- Expose them as lightning tabs or Apps
- Expose them as standard button overrides
- Within Developer console you can only preview application containing components
- Redirection may not happen within developer console
- Practise: Create the component and show it in app/tab