

**UTSAV**  
**2024**



# Custom Plugins



**APEX**

**Speakers**

**at**

**UTSAV 2024**



**GURUGRAM**



**18, OCT 2024**



**OAUG**

India Oracle APEX User Group



**Richard Dalvi**  
AVP @4i Apps Solutions,  
President of INOAUG



**Chaitanya Koratamaddi**  
Director of Product Management / Strategy @Oracle



**Anuradha Sharma**  
Corporate Philanthropy  
South Asia @Oracle Academy



**Balamurugan Natarajan**  
MD  
@ProwessIQ Information Systems Pvt Ltd



**Toufiq Mohammed**  
Senior Product Manager  
@Oracle



**Bharat Bhatia**  
Solutions Architect  
@ROSTAN Technologies Pvt. Ltd



**Ashish Sahay**  
Founder, Ontoor Solutions

# Speaker Profile



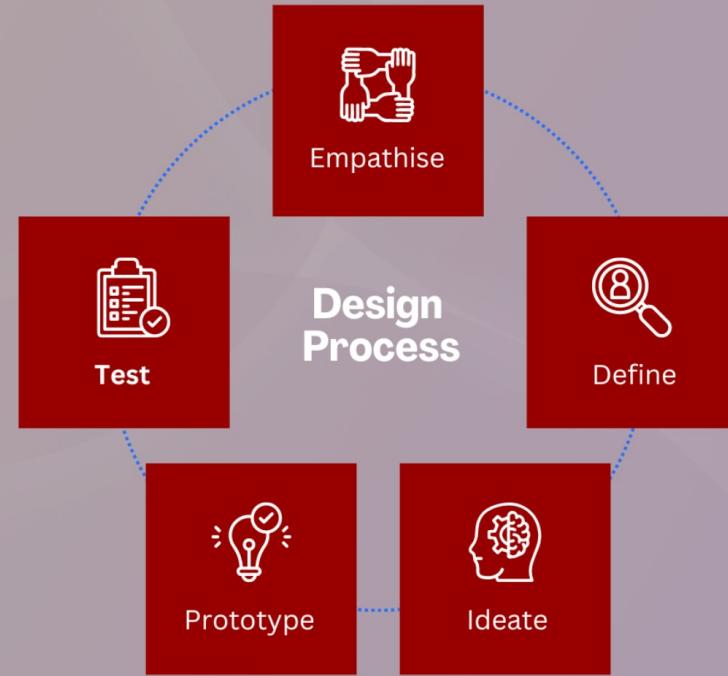
**Ashish Sahay**

*Founder, **Ontoor**  
Solutions*

- APEX Developer
- Two Times Oracle ACE Associate
- Open-Source Plugins
- Certified Scrum Master, Agile Scrum Master
- Blogger and Content Creator
- Conference Speaker
- Founder of **Ontoor Solutions**

## Transforming Ideas into Code

EXPLORE



# Tour



- Introduction to Plug-ins
- Types of Plug-ins in Oracle APEX
- Step-by-step Plug-in Creation
- Real-world Examples
- Best Practices

## What are Plug-ins?

*A Plug-in in Oracle APEX is a reusable component that extends the platform's functionality*

### Types:

- Item Plug-ins
- Region Plug-ins
- Dynamic Action Plug-ins
- Process Plug-ins
- Template Component

## Advantages

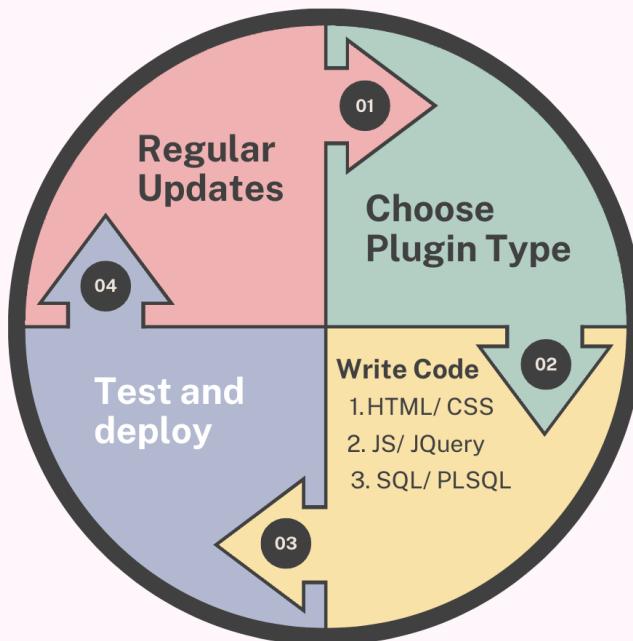
- Flexibility
- Reusability
- Centralized Maintenance
- Independent

## Why Use Custom Plug-ins?

- Enhancing User Experience
- Business Logic Customization
- Extending APEX Capabilities
- Improved Performance - Optimize for unique cases

# Plug-in Creation – Step-by-Step Guide

*Define Purpose: What problem is the plug-in solving?*



## Real-world Example

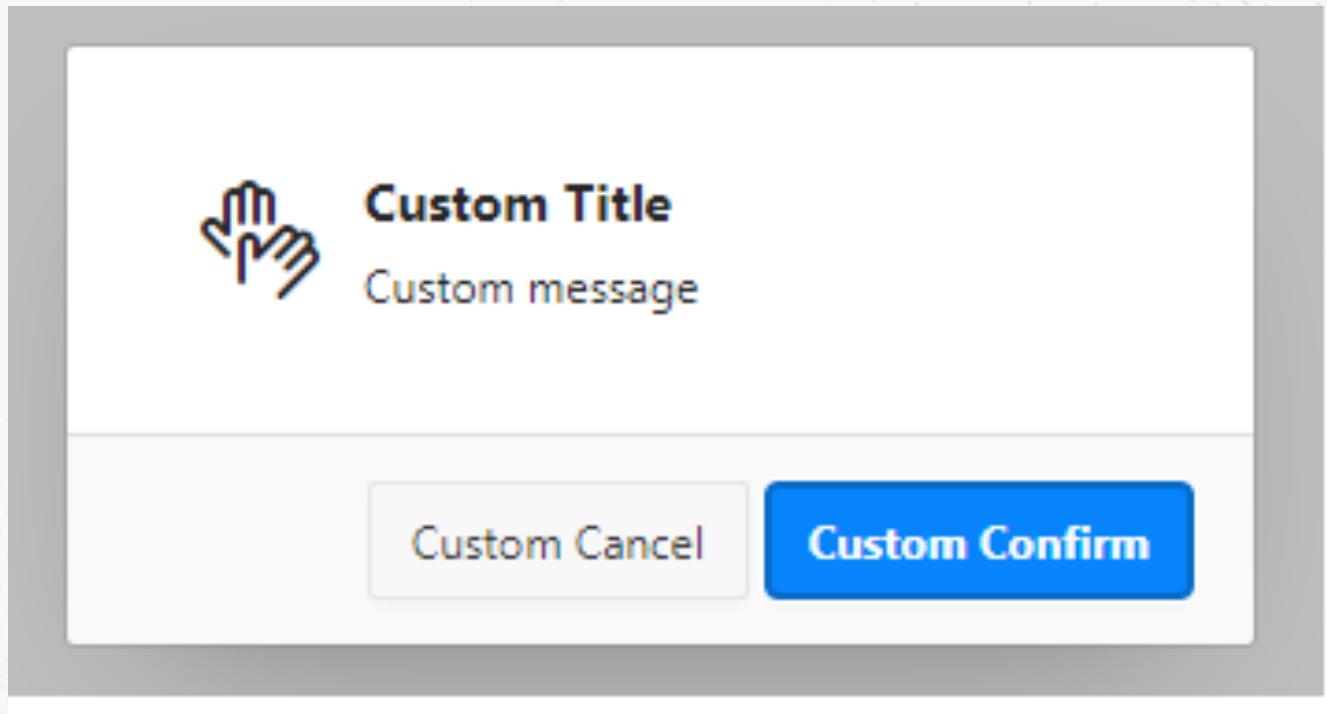
*Case Study: Custom invoice display*

- **Problem:** No components is available display invoices
- **Solution:** A plug-in with Logo and invoice details
- **Outcome:** Data visualization
- **Technical Details:** Key code snippets

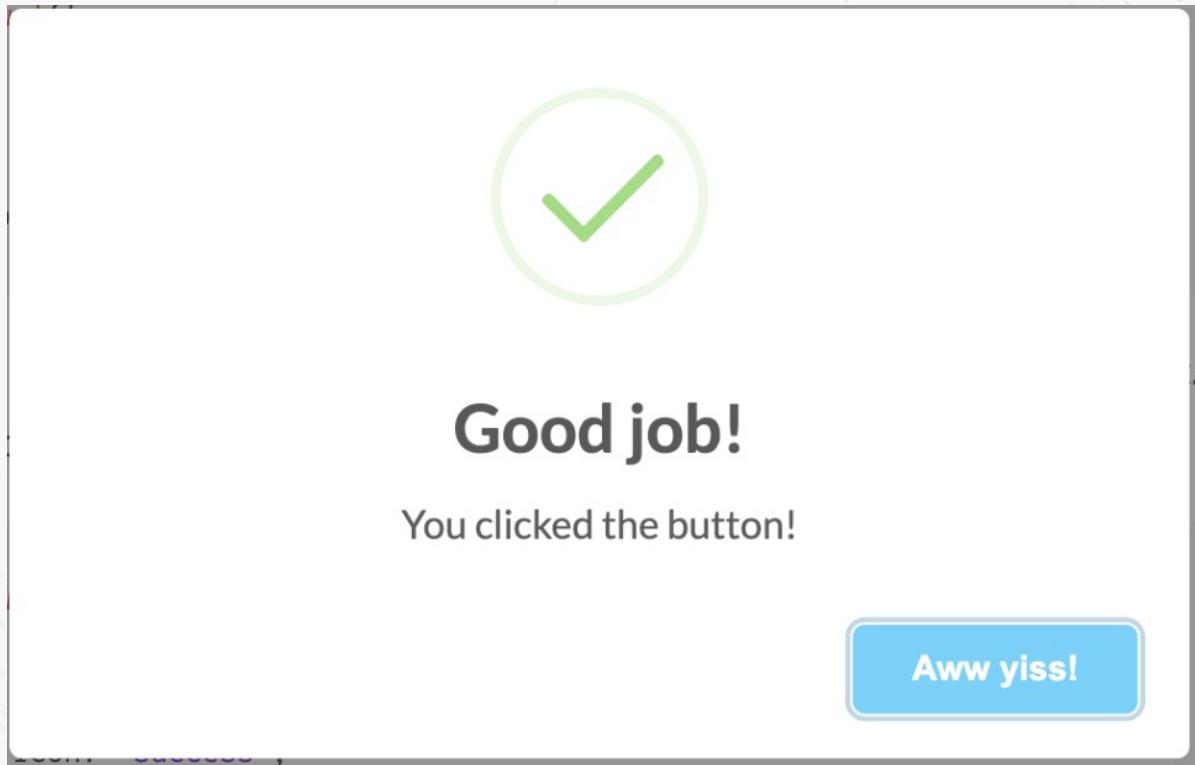


Ontoor Solutions

## APEX default Alerts/ Confirms



## Preview – Sweet alert



## Sweet Alerts

*Sample code snippet*

```
swal({  
  title: "Good job!",  
  text: "You clicked the button!",  
  icon: "success",  
  button: "Aww yiss!",  
});
```

## Use code snippet

*Multiple places to maintain*

Application 1

Page 1

Page 2

Page 3

.....

Application 2

Page 1

Page 2

Page 3

.....

# Plugin Creation

## PLSQL Source

- Render
- AJAX

Plug-in: Sweet Alert

Show All Name Subscription Source Callbacks Supported for Standard Attributes Standard Attribute additional M...

This is the "master" copy of this plug-in.

No plug-ins subscribe to this plug-in.

**Source**

PL/SQL Code

```
1  FUNCTION render_fn (p_dynamic_action  IN apex_plugin.t_dynamic_action,
2                      p_plugin          IN apex_plugin.t_plugin)
3                      RETURN apex_plugin.t_dynamic_action_render_result
4  AS
5      l_result    apex_plugin.t_dynamic_action_render_result;
6  BEGIN
7      APEX_JAVASCRIPT.ADD_LIBRARY(
8          P_NAME      => 'custom_js',
9          P_DIRECTORY => P_PLUGIN.FILE_PREFIX,
10         P_VERSION   => NULL,
11         P_KEY       => 'anythingyuyu'
12     );
13
14     l_RESULT.JAVASCRIPT_FUNCTION  := 'my_plugin.initialize';
15     l_result.attribute_01        := p_dynamic_action.attribute_01;
16     l_result.attribute_02        := p_dynamic_action.attribute_02;
17     l_result.attribute_03        := p_dynamic_action.attribute_03;
18     l_result.attribute_04        := p_dynamic_action.attribute_04;
19
20     RETURN l_result;
21 END render_fn;
```



# Plugin Creation...

## Custom Attributes

Plug-in: Sweet Alert

Cancel Apply Changes

Show All Name Subscription Source Callbacks Supported for Standard Attributes Standard Attribute additional Meta Data Custom Attributes Attribute Groups Events Files File URLs to Load Custom Attributes

**Custom Attributes** Add Attribute

Substitute Attribute Values  ?

Label	Scope	Attribute Group	Sequence	Attribute	Type	Required	Default Value	Depending on
Message	Component	Plugin Config	10	1	Text	Yes	Alert Message	
Title	Component	Plugin Config	20	2	Text	Yes	Alert Title	
Icon	Component	Plugin Config	30	3	Select List	No		
Ok Button Label	Component	Plugin Config	40	4	Text	Yes	Ok	



Ontoor Solutions

# Plugin Creation...

*Static files*

Plug-in: Sweet Alert

Cancel **Apply Changes**

Show All Name Subscription Source Callbacks Supported for Standard Attributes Standard Attribute additional Meta Data Custom Attributes Attribute Groups Events **Files** File URLs to Load

**Files** Download as Zip Create File

File Prefix  [?](#)

Name <a href="#">↑</a>	Mime Type	File Size	Reference	File	Updated	Updated By
custom_js.js	text/javascript	568	#PLUGIN_FILES#custom_js#MIN#.js	<a href="#">Download</a>	4 days ago	harish_01
custom_js.min.js	text/javascript	275	#PLUGIN_FILES#custom_js#MIN#.js	<a href="#">Download</a>	4 days ago	harish_01

1 - 2

# Plugin Creation...

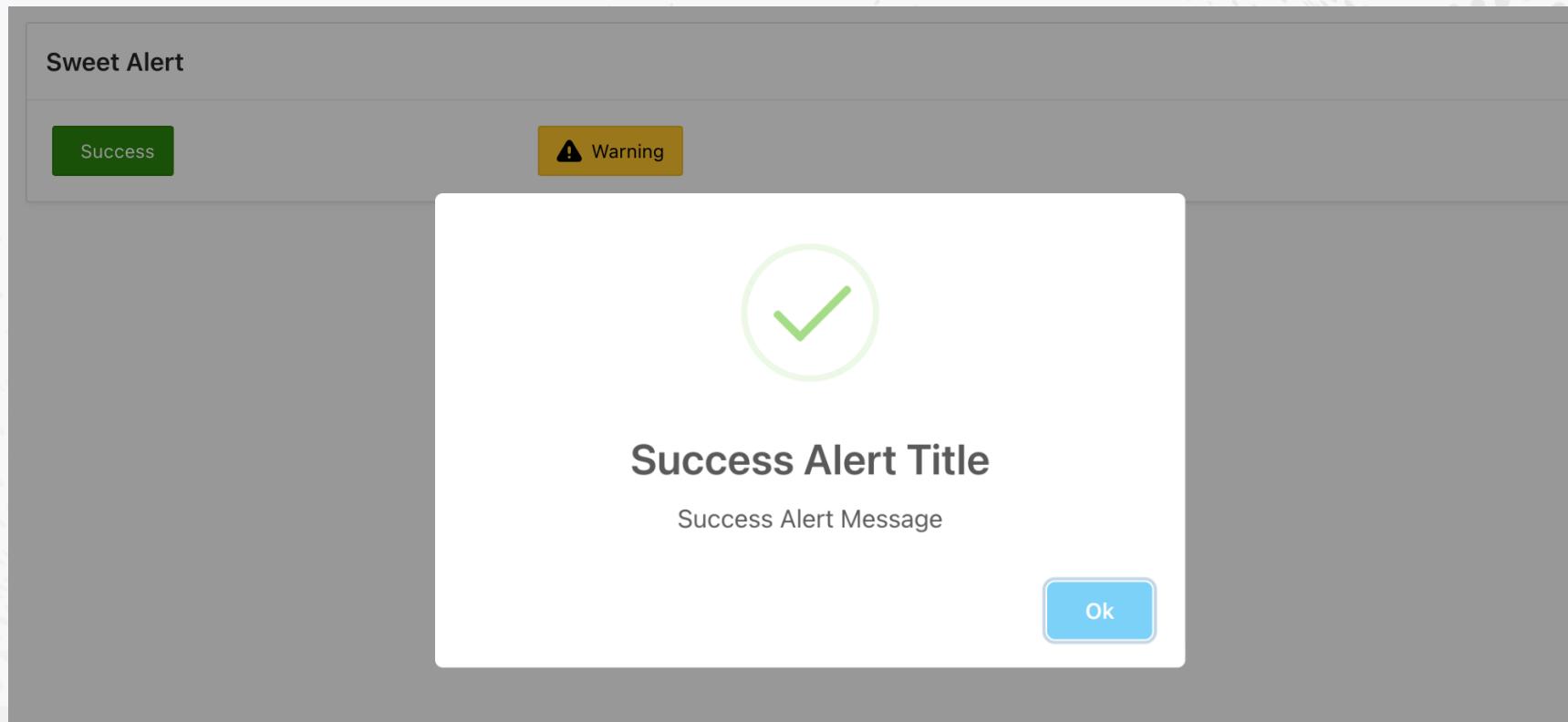
*JS file source code*

```
1  var my_plugin = {
2      initialize:function(){
3          "use strict";
4
5          var da=this;
6          apex.debug.log('my_plugin.initialize',da);
7
8          var message = da.action.attribute01;
9          var title = da.action.attribute02;
10         var icon = da.action.attribute03;
11         var btnLable = da.action.attribute04;
12
13         console.log(btnLable);
14         function alert_fn (p_message){
15             console.log(btnLable);
16             * swal({
17                 title: title,
18                 text: p_message,
19                 icon: icon,
20                 button: btnLable,
21                 });
22
23         }
24     }
25
26     alert_fn(message);
27 }
```



Ontoor Solutions

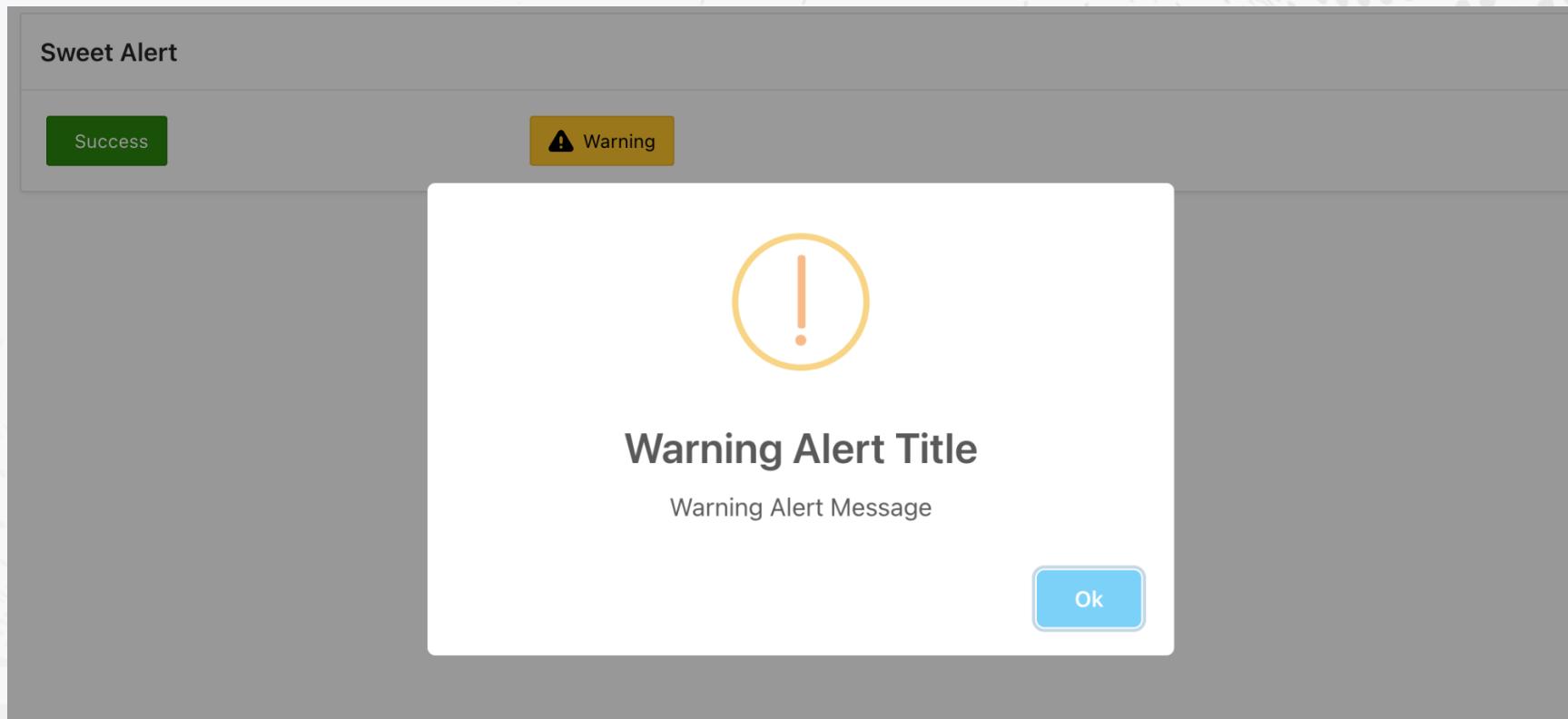
# Success Alert



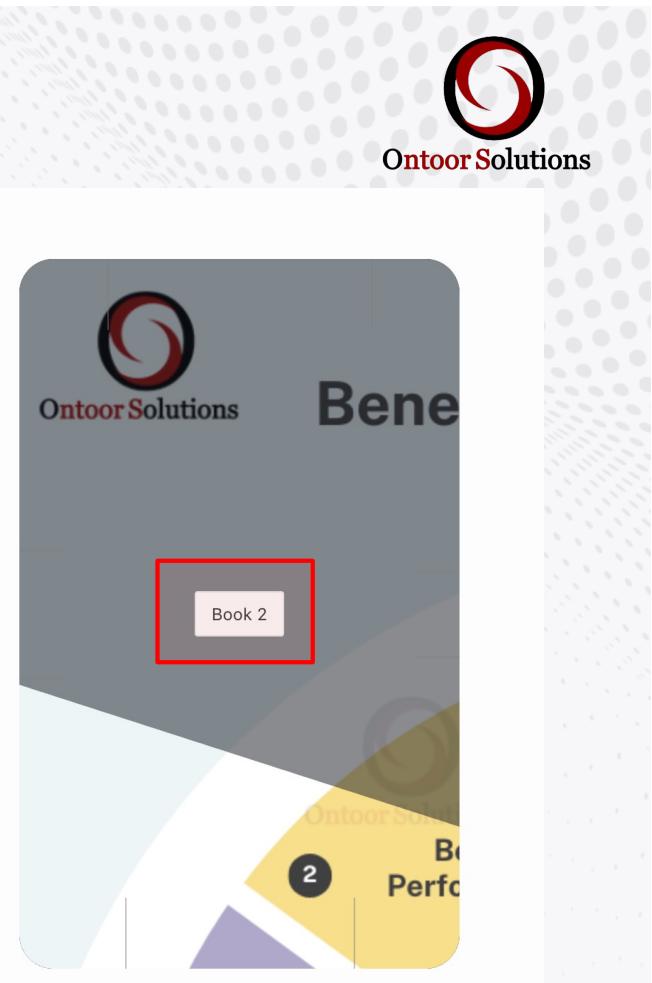
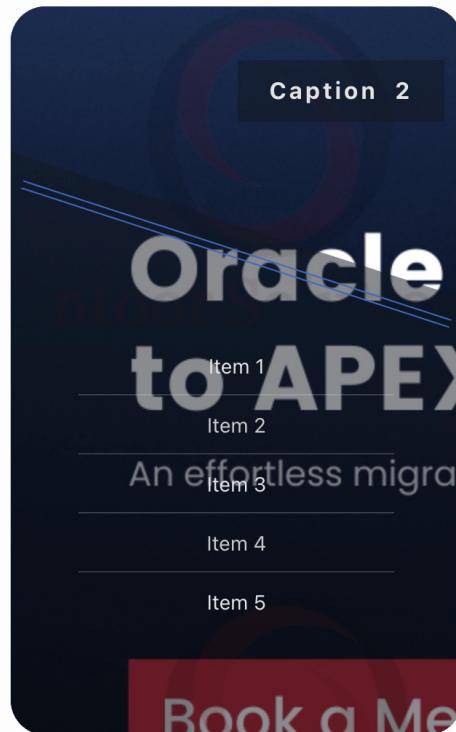
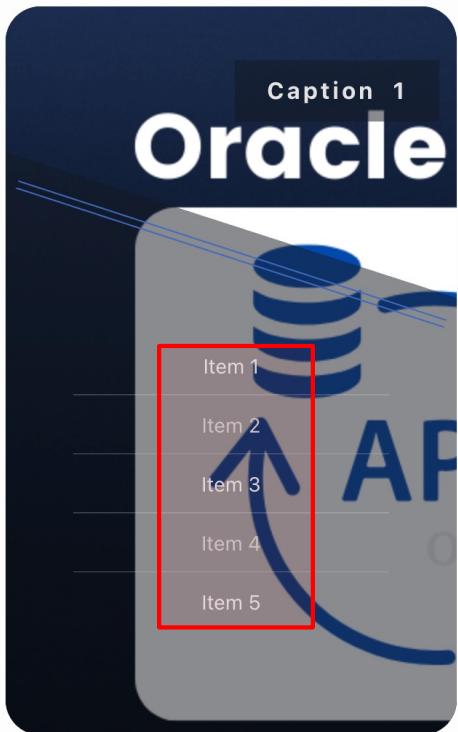


Ontoor Solutions

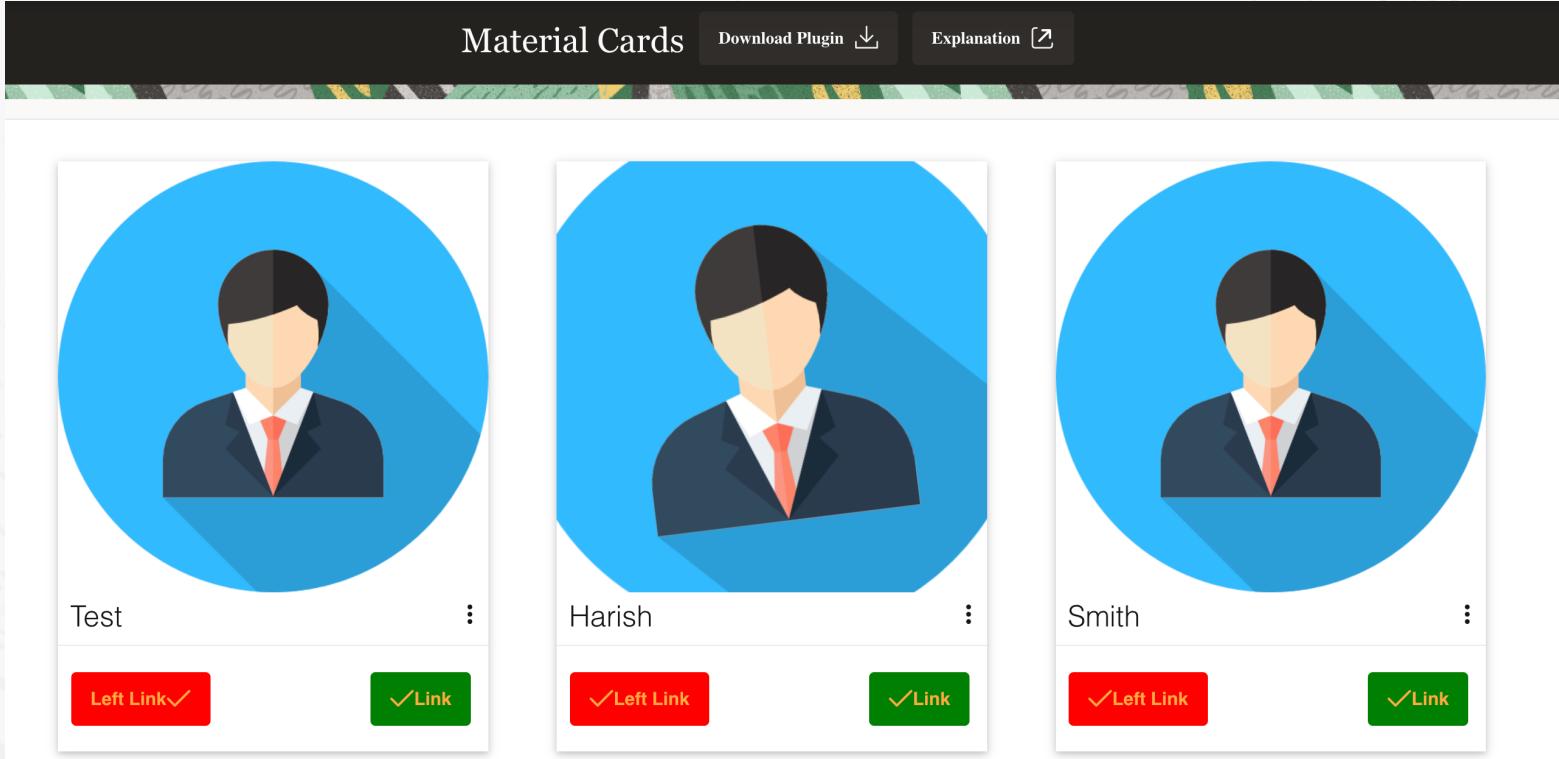
# Warning Alert



## Flip Cards



# Material Cards

A screenshot of a web application demonstrating Material Cards. The interface has a dark header bar with the title "Material Cards" and two buttons: "Download Plugin" with a download icon and "Explanation" with a question mark icon. Below the header is a decorative banner with a green and gold pattern. The main content area displays three Material Card components. Each card features a circular profile picture of a person in a suit, a name (Test, Harish, or Smith), a vertical ellipsis menu, and two buttons at the bottom: a red "Left Link" button with a checkmark and a green "Link" button with a checkmark. The cards are arranged horizontally with a slight gap between them.

# Material Cards...

*More info on Rear side*



The screenshot displays a user interface for 'Material Cards'. At the top, a black header bar contains the title 'Material Cards', a 'Download Plugin' button with a downward arrow, and an 'Explanation' button with a question mark icon. Below the header, there are three cards arranged horizontally.

- Card 1 (Test):** Features a blue circular profile picture of a person in a suit. Below the picture is the name 'Test'. At the bottom are two buttons: a red 'Left Link' button with a checkmark and a green 'Link' button with a checkmark.
- Card 2 (Harish):** Features a blue circular profile picture of a person in a suit. Below the picture is the name 'Harish'. To the right of the name is a dropdown arrow. Below the name are several details:
  - Employee No.:-101
  - JOB :: ENG
  - Dept no. :-20
  - Dept Name. :-GTF
  - Salary :-

Below these details is a paragraph of placeholder text: 'Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.'
- Card 3 (Smith):** Features a blue circular profile picture of a person in a suit. Below the picture is the name 'Smith'. At the bottom are two buttons: a red 'Left Link' button with a checkmark and a green 'Link' button with a checkmark.



Ontoor Solutions

# APEX Camera Extension (ACE)

APEX Camera Extension (ACE)

Open 

Q  Go Actions 

Seq Id	Image	File Name	Mime Type	Timestamp
1		snap_20241018054240.png	image/png	10/18/2024

1 - 1

# Front view Picture

EX Camera Extension (ACE)



Ontoor Solutions

**IN OAUG**

India Oracle APEX User Group

## Rear view Camera



Ontoor Solutions



India Oracle APEX User Group



Ontoor Solutions

# APEX Profiler

The screenshot shows a user profile page for 'Ashish Sahay' (ashishk392@gmail.com) with the following details:

- About me:** A link to the user's profile.
- Search:** A search bar with the placeholder 'apex\_public\_user'.
- APEX Profile:** A red button.
- User Profile:** A circular profile picture of Ashish Sahay, with the name 'Ashish Sahay' and email 'ashishk392@gmail.com' below it.
- Company:** Ontoor Solutions
- Role:** Founder
- See My Blogs:** A link to the user's blog section.
- Social Footer:** Buttons for GitHub and BlogsG.
- Dynamic Navigation Menu Position:** A section showing a dynamic navigation menu.



Ontoor Solutions

# Invoice

WITH CREDIT

NO: 554775/R1 | DATE: 01/01/2015

## Ontoor Solutions

RCJA Australia

Lorem Ipsum  
2 Alliance Lane VIC  
info@rcja.com

### Company Details

**Name:** RCJA  
**Address:** 1 Unknown Street  
VIC  
**Phone:** (+61)404123123  
**Email:** admin@rcja.com  
**Contact:** John Smith

### Customer Details

**Name:** RCJA  
**Address:** 1 Unknown Street VIC  
**Phone:** (+61)404123123  
**Email:** admin@rcja.com  
**Contact:** John Smith

### Item / Details

### Unit Cost

### Sum Cost

### Discount

### Tax

### Total

Lorem Ipsum Dolor  
The best lorem in town, try it now or leave forever

\$1,000.00

Before Tax

\$18,000.00

18 Units

- \$1,800.00

Special -10%

+ \$3,240.00

VAT 20%

**\$19,440.00**

\$16,200.00

Total:

\$500

\$800

\$20000.00



India Oracle APEX User Group



Ontoor Solutions

## Item Details

Item / Details	Unit Cost	Sum Cost	Discount	Tax	Total
Lorem Ipsum Dolor The best lorem in town, try it now or leave forever	\$1,000.00 Before Tax	\$18,000.00 18 Units	- \$1,800.00 Special -10%	+ \$3,240.00 VAT 20%	<b>\$19,440.00</b> \$16,200.00
Total:			\$500	\$800	\$20000.00

AMOUNT DUE (AUD):  
**\$5000.25**

### Payment Details

**Account Name:** "RJCA"  
**BSB:** 111-111  
**Account Number:** 1234101

### Notes

Payment is requested within 15 days of receiving this invoice.

## Best Practices for Custom Plug-ins

- **Keep it Simple:** Start small, add complexity as needed
- **Modular Approach:** Make the plug-in reusable across applications
- **Performance Optimization:** Efficient code, avoid heavy database calls
- **Documentation:** Clear and concise for future maintenance
- **Regular Updates:** Keep pace with APEX version upgrades

## Plug-in Security Considerations

- **Data Validation:** Ensure proper checks for SQL injections
- **Role-based Access:** Control plug-in usage based on user roles
- **APEX Security Features:** Leverage native security options like

# New in APEX 24.1 – Plug-in Enhancements

## Faster, More Flexible Template Components

Template Components now render faster, support selection and slots for nesting, and can be used without a data source.

### Selection Support

Declaratively enable single- or multi-row selection when using template component reports, and easily access primary keys of selected rows.

### Region-Only Template Components

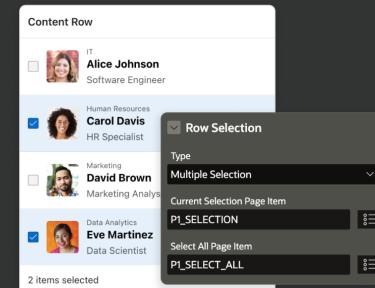
Simplify recurring UI patterns using template components that don't require a data source. Their markup can reference custom attributes and slots that can contain other components with built-in Page Designer support.

### Improved Rendering Performance

Template Components now render 33% faster than before thanks to improvements to the rendering process.

### Easy Component Composition

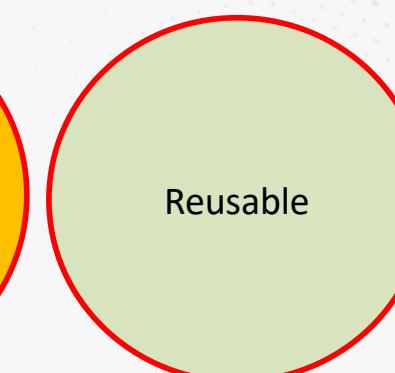
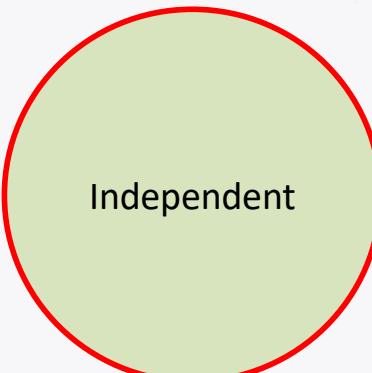
Page positions and display points have been standardized into one term: Slots. Template Component developers can define slots at the Template Component level, allowing developers to nest components inside Template Components in Page Designer.





Ontoor Solutions

## Value Proposition



## Conclusion

- **Summary:** Custom plug-ins are crucial for application enhancement in APEX
- **Next Steps:** Explore more complex plug-in capabilities, stay updated with APEX versions
- **Call to Action:** Start building your own custom plug-ins today!



# Ontoor Solutions

Thank You!