

***UTSAV
2024***



India Oracle APEX User Group

Custom Plugins





Speakers at

UTSAV 2024

📍 GURUGRAM | 📅 18, OCT 2024



India Oracle APEX User Group



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Director of Product Management
/ Strategy @Oracle



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Corporate Philanthropy
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Senior Product Manager
@Oracle



Bharat Bhatia
Solutions Architect
@ROSTAN Technologies Pvt. Ltd



Ashish Sahay
Founder, Ontoor Solutions

Speaker Profile



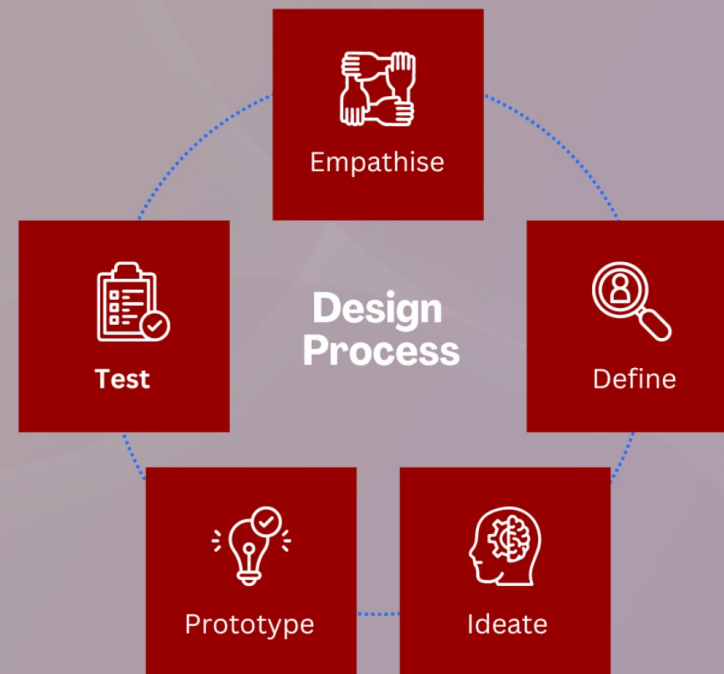
Ashish Sahay

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



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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?

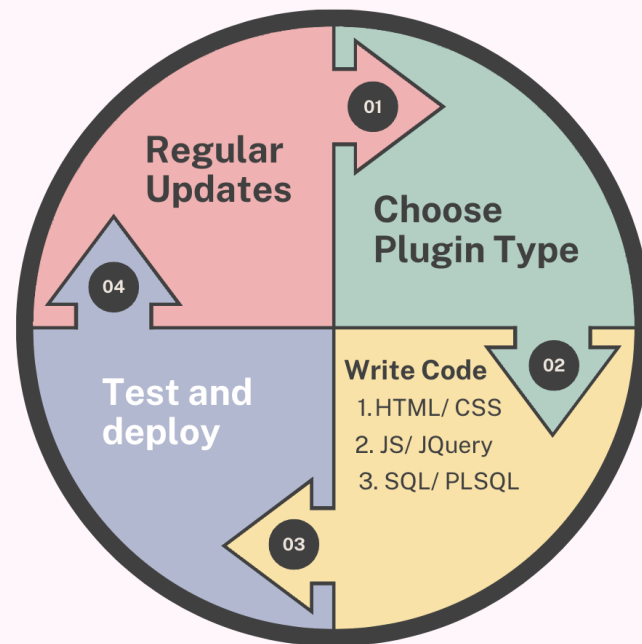
- **Enhancing User Experience**
- **Business Logic Customization**
- **Extending APEX Capabilities**
- **Improved Performance** - Optimize for unique cases



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Plug-in Creation – Step-by-Step Guide

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





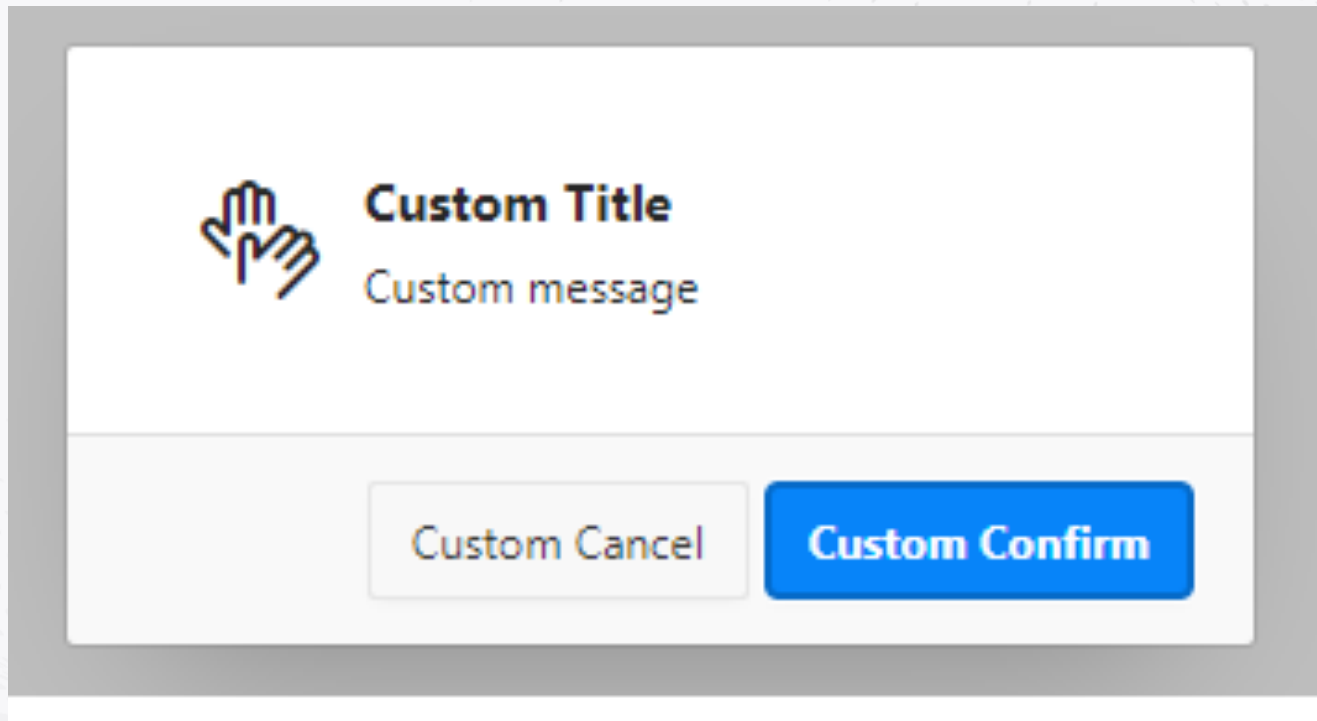
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Real-world Example

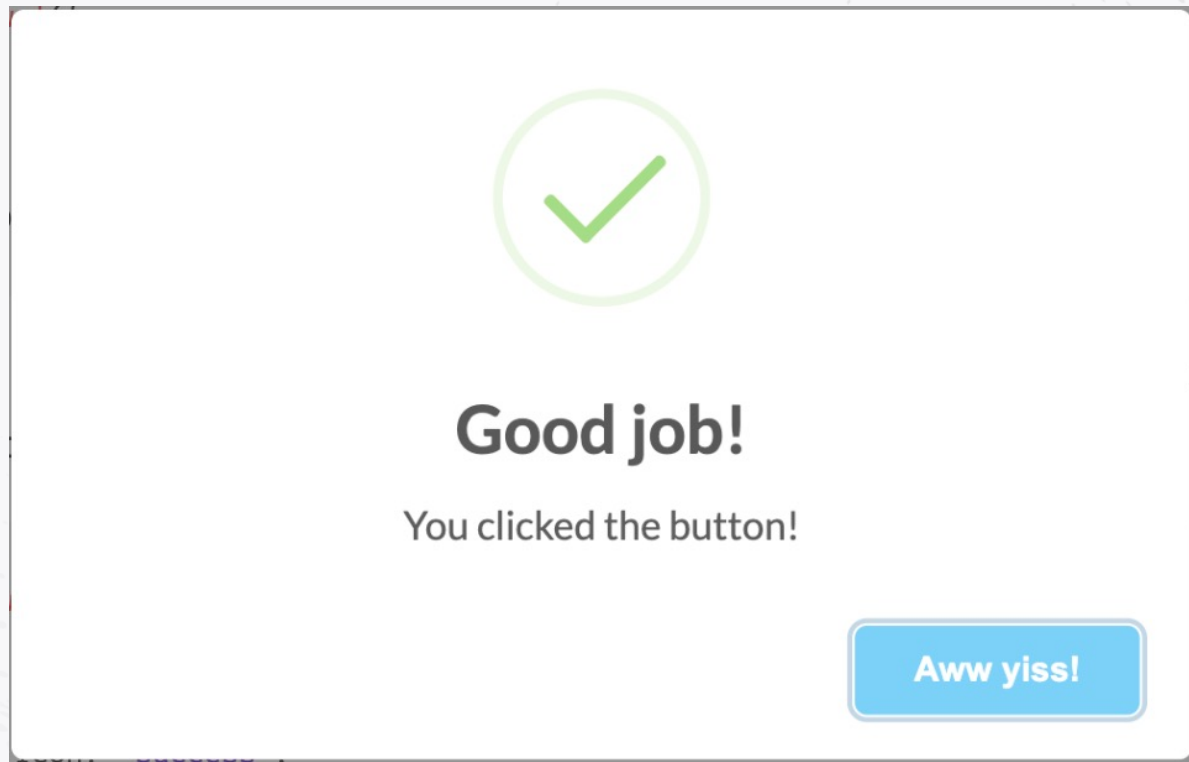
Case Study: Custom invoice display

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

APEX default Alerts/ Confirms



Preview – Sweet alert





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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



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Plugin Creation

PLSQL Source

- Render
- AJAX

Plug-in: Sweet Alert

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

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       => 'anythinguyyu'
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;
```



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Plugin Creation...

Custom Attributes



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Plug-in: Sweet Alert

CancelApply Changes

Show AllNameSubscriptionSourceCallbacksSupported forStandard AttributesStandard Attribute additional Meta DataCustom AttributesAttribute GroupsEventsFilesFile URLs to LoadIn

Custom AttributesAdd 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	

Plugin Creation...

Static files



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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 ↑≡	Mime Type	File Size	Reference	File	Updated	Updated By
custom_js.js	text/javascript	568	#PLUGIN_FILES#custom_js#MIN#.js	Download	4 days ago	harish_01
custom_js.min.js	text/javascript	275	#PLUGIN_FILES#custom_js#MIN#.js	Download	4 days ago	harish_01

1 - 2



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Plugin Creation...

JS file source code

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

Success Alert



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Sweet Alert

Success

Warning



Success Alert Title

Success Alert Message

Ok



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Warning Alert



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Sweet Alert

Success

Warning



Warning Alert Title

Warning Alert Message

Ok

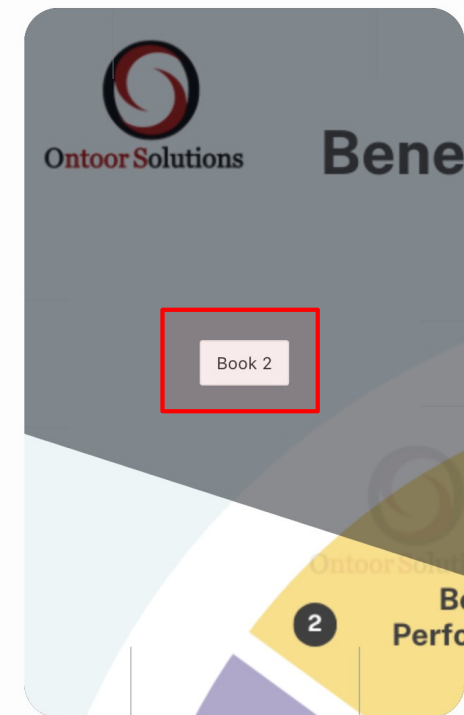
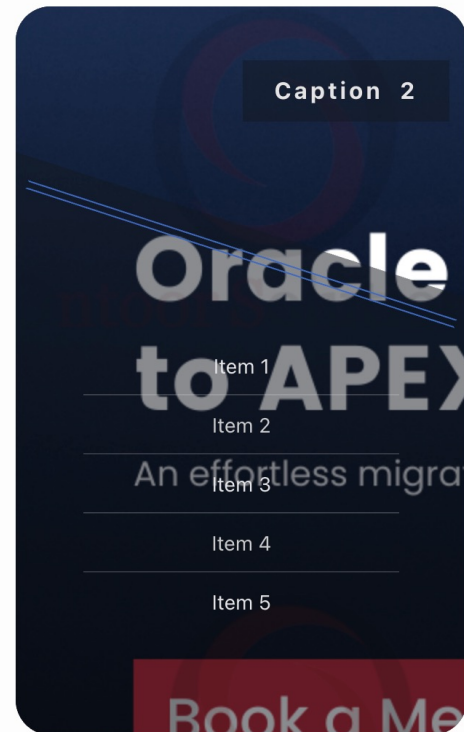
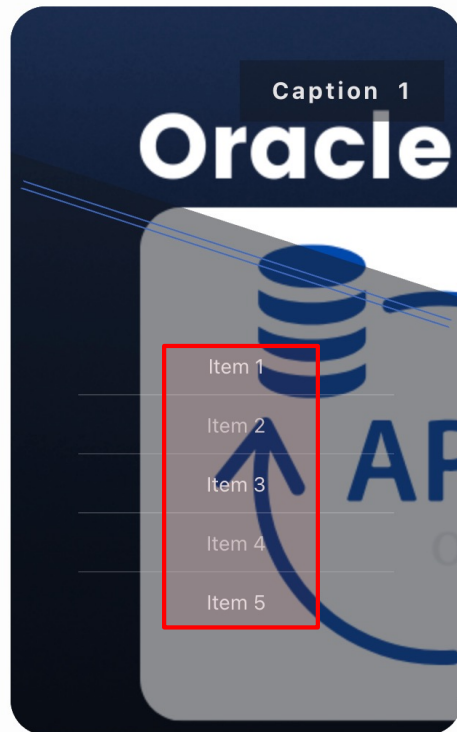


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Flip Cards





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Material Cards


Material Cards


Download Plugin 


Explanation 




Test


Left Link 


Link




Harish


Left Link

Link



Smith

Left Link

Link

Material Cards...

More info on Rear side

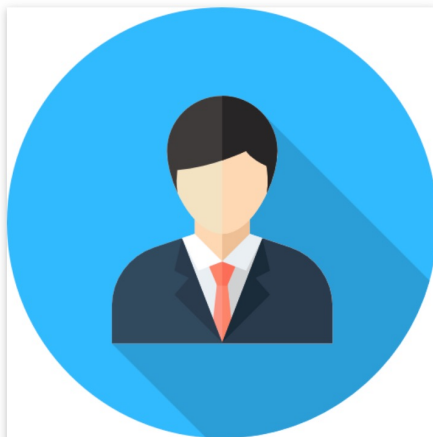


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Material Cards

Download Plugin

Explanation



Test



Left Link ✓

✓Link

Harish



Employee No.:-101

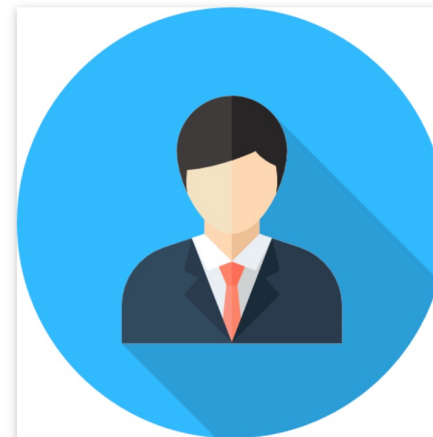
JOB :- ENG

Dept no. :-20

Dept Name. :-GTF

Salary :-

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.



Smith



✓Left Link

✓Link



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APEX Camera Extension (ACE)



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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)



Save

Switch Camera

Rear view Camera

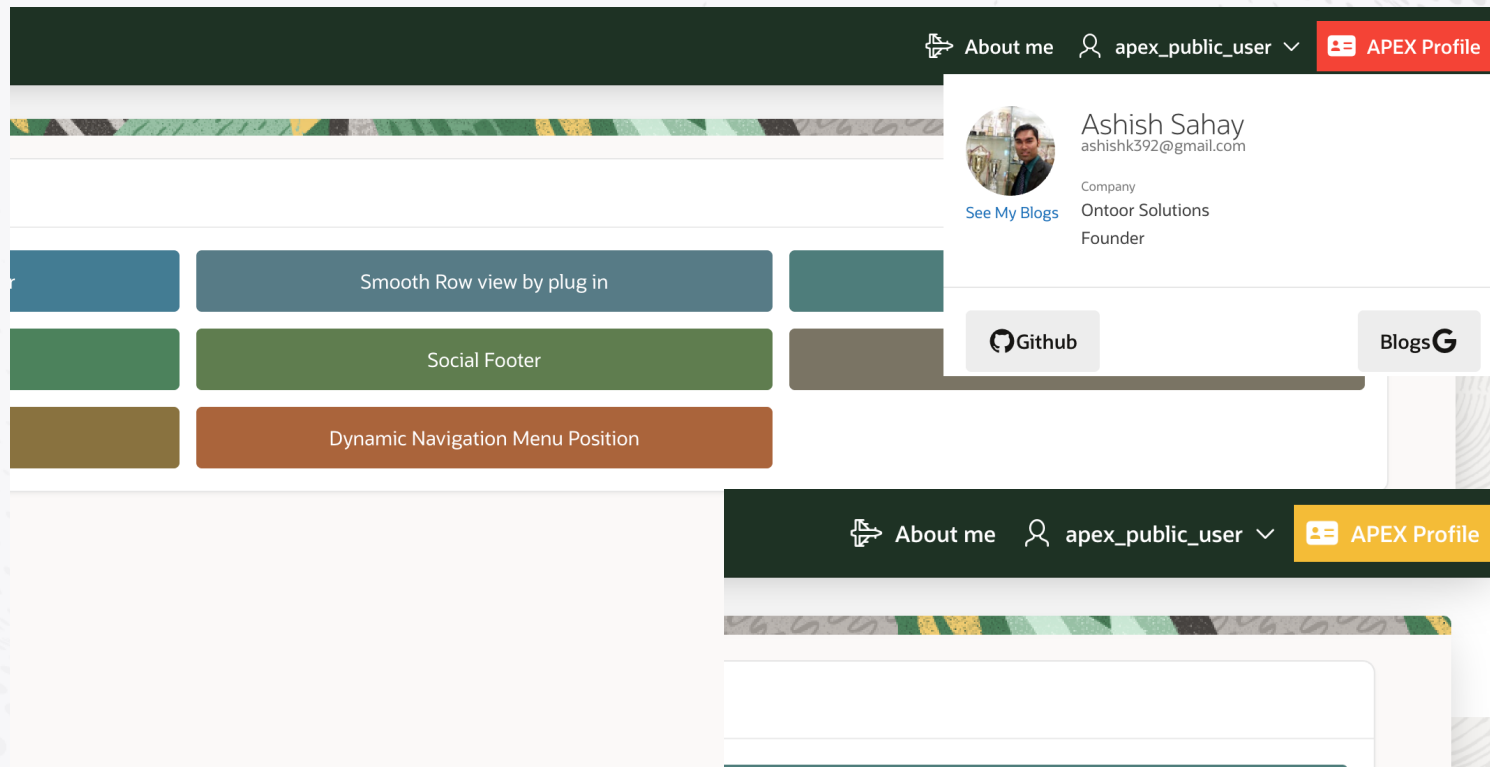


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APEX Profiler



The screenshot displays the APEX Profiler interface. At the top, a dark green navigation bar contains links for 'About me', 'apex_public_user', and 'APEX Profile'. Below this, a user profile for Ashish Sahay is shown, including a profile picture, email address (ashishk392@gmail.com), company (Ontoor Solutions), and title (Founder). A 'See My Blogs' link is also present. The main content area features a list of items with colored buttons: 'Smooth Row view by plug in' (blue), 'Social Footer' (green), and 'Dynamic Navigation Menu Position' (orange). At the bottom, a dark green navigation bar repeats the 'About me', 'apex_public_user', and 'APEX Profile' links.



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Invoice

WITH CREDIT

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

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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



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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%	\$19,440.00 \$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.



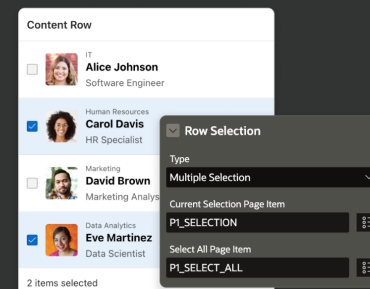
Improved Rendering Performance

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

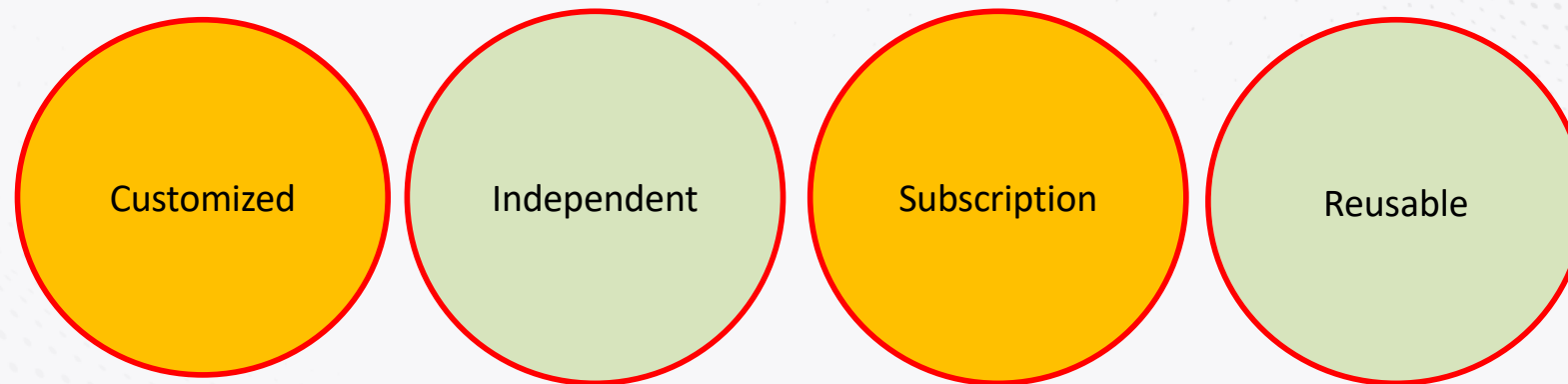


Easy Component Composition

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.



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!



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Thank You!