

Dynamic Actions for Superheroes



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APEX 19.2 EA



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Oracle APEX 19.2
Early Adopter

Now Available

[→ tryapexnow.com](https://tryapexnow.com)

New features in APEX 19.2

Major

- Faceted Search
- Enhanced Popup LOV
- New Team Development

Medium

- Improved Shared LOVs
- UT dark style
- Markdown item
- Star rating item
- Display switch as on/off
- REST enabled IG
- Data dictionary cache
- Improved login page
- Upload app logo
- Multi edit template options

Minor

- Data load into existing table
- Code highlighting in SQL workshop
- Extra features SQL workshop
- Improved spotlight search
- Set debug level from dev toolbar
- Updated JS libs
- Deprecated packaged apps



Oracle Cloud Infrastructure

New Free Tier

oracle.com/gbtour



Dimitri Gielis 

Free Cloud - Create a 2nd Compute Instance and a Load Balancer - Part 12
Cloud, Free Cloud, Hosting, Installation

[Link](#)

05-Oct-2019 02:48:06 by: Maxime Tremblay

Always Free

Services you can use for unlimited time



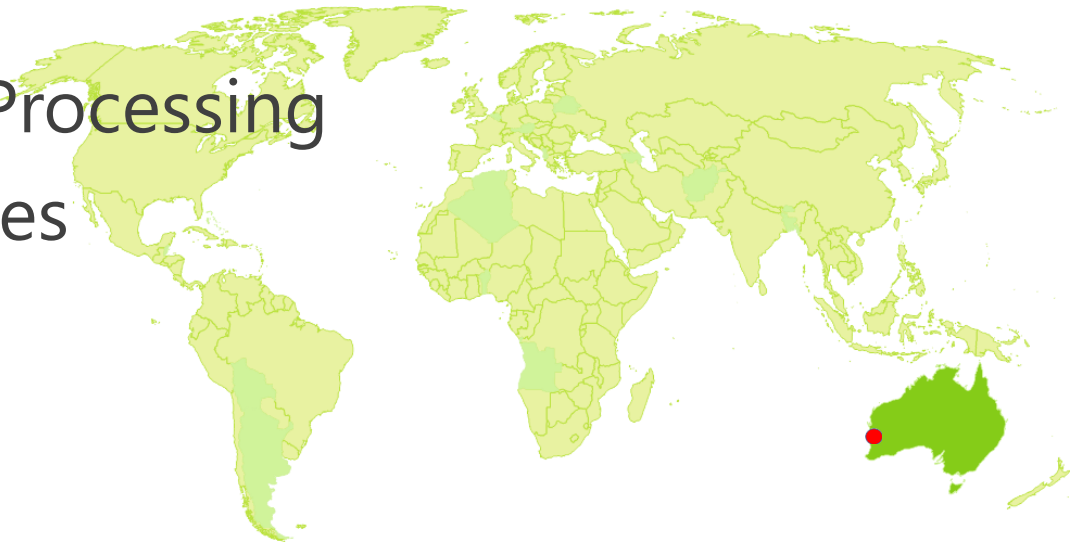
30-Day Free Trial

Free credits you can use for more services

Agenda

This is what we will do today

- Simple 'Hello World'
- DA Event Scope
- Custom Selectors
- Debugging
- Passing Data for Processing
- Good/Bad Practices
- Q&A



My journey



AUSOUG



- AUSOUG APEX webinars
- NZ APEX meetup organizer
- APEX blogger
- Conference speaker
- Developer since 2006

@LinoSchilder



Dynamic Actions FAQ

Gathered info from the field:

- Colleagues
- Mentored/trained people
- New developers
- From conferences

Q#1

What are DA? What do they allow me to do?



Rookie

Definition

DA is a reaction to a page event!



DA at glance

Client side code

Change the look or content on a page without the need for page submit, providing a seamless user experience

Declarative low code behaviour

Without (or little) knowledge of JavaScript all you need to do is configure their properties

Event module manager

Event listener is part of Dynamic Actions. It attaches listener to an event

Expandable

Component have events that can be exposed with plugin architecture making it very flexible

Loved by end users and developers

Easy to learn and “must have” feature of any modern application today. They act as “bridge” in user interaction

FOEX survey 2018

A top 3 of the most appreciated APEX features / components by the community also includes the Interactive Grid and, on equal percentages, for the 3rd place: Dynamic Actions and APEX's low-code development capabilities.

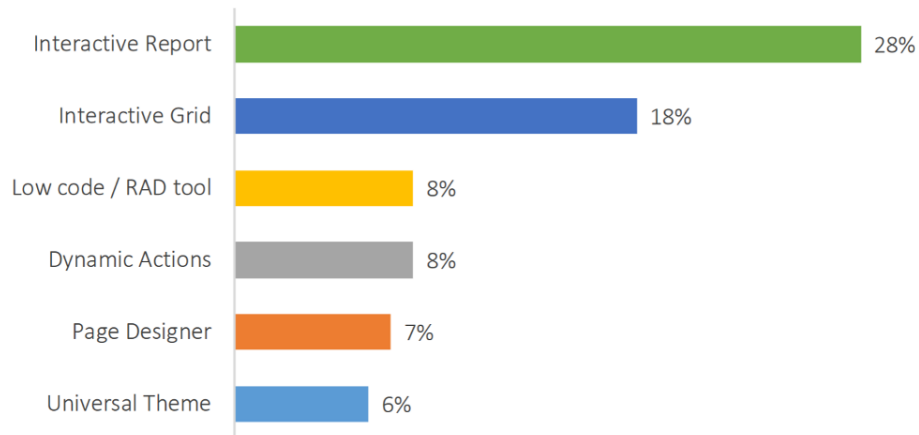


Figure 10: Favorite component / feature of APEX

3.2 vs today

2008

```
<script language="JavaScript1.1" type="text/javascript">
function getEmployeeList (narrowText, empSelect)
{
  var empSelectObj = document.getElementById(empSelect);
  var ajaxRequest = new xmlhttp_Get(null, &APP_ID., 'APPLICATION_PROCESS=getEmployees', 0);
  ajaxRequest.add('P1_EMPLOYEE_NARROW', narrowText.value);
  ajaxResult = ajaxRequest.get();
  if(ajaxResult)
  {
    empSelectObj.options.length = 0;
    var empArray = ajaxResult.split("~empsep~");
    for(var i=0; i < empArray.length; i++) {
      var colArray = empArray[i].split("~colsep~");
      empSelectObj.options[i] = new Option(colArray[1], colArray[0]);
    }
  }
  else
  {
    empSelectObj.options.length = 0;
  }
  ajaxRequest = null;
}
</script>
```

2019

List of Values

Type	Shared Component	▼
List of Values	DEPARTMENT	▼ >
Display Extra Values	<input checked="" type="button" value="Yes"/> No	
Display Null Value	<input checked="" type="button" value="Yes"/> No	
Null Display Value	_____	
Null Return Value	_____	
Cascading LOV Parent Item(s)	_____ ☰	

Let's create our first DA

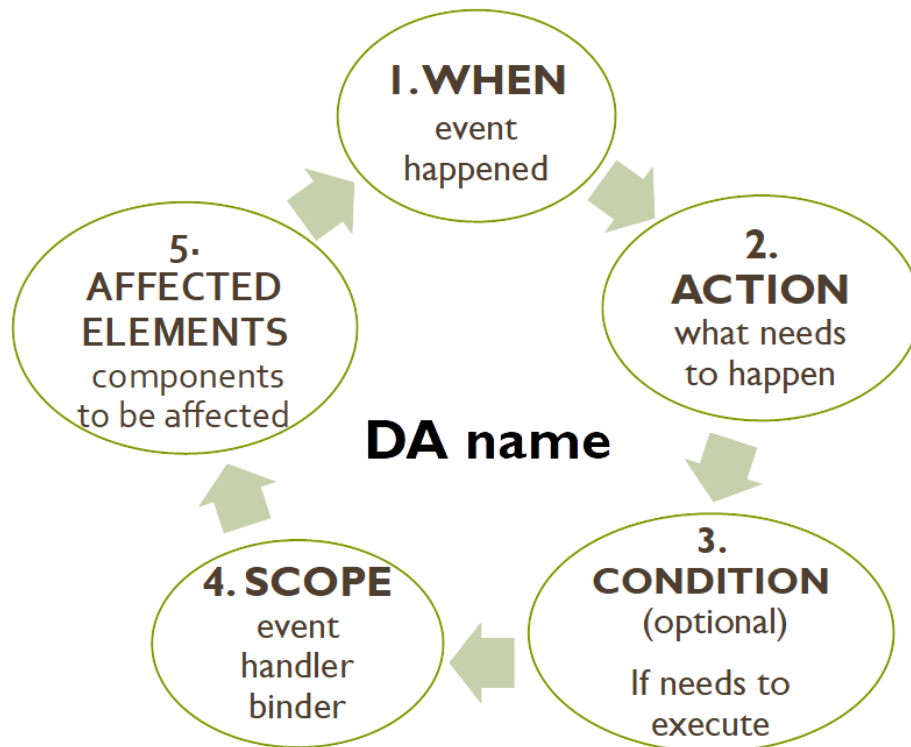
Q#2

When should I use a DA?
How do I create one?



Rookie

DA Skeleton



EVENTS

24

Browser events

18

Component events

4

Framework events

* Custom events

ACTIONS

Component actions

Navigation actions

Style actions

Notifications

Execute actions

Q#3

What are most common
DA?



Rookie

Examples

Events triggered by user interaction

EVENTS

- On change
- On button click
- On page load
- On data save

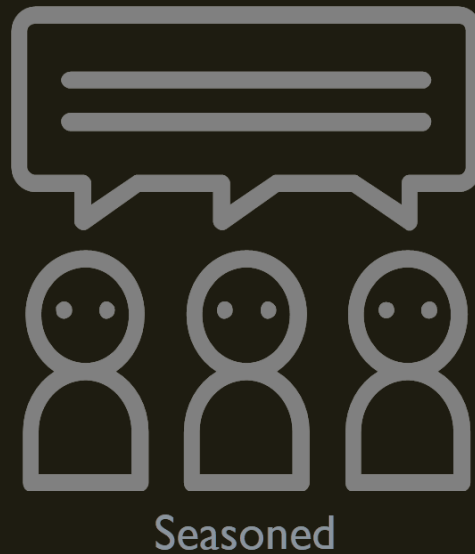


ACTIONS

- Show/Hide
- Enable/Disable
- Set value
- Refresh report

Q#4

What is an Event Scope?



<input checked="" type="checkbox"/> When	
Event	Click
Selection Type	jQuery Selector
jQuery Selector	<code>td[headers="ENAME"]</code>
<input type="checkbox"/> Client-side Condition	
<input checked="" type="checkbox"/> Advanced	
Event Scope	Static

Q#5

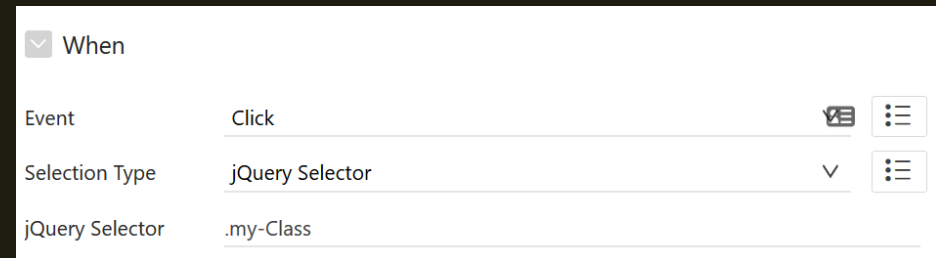
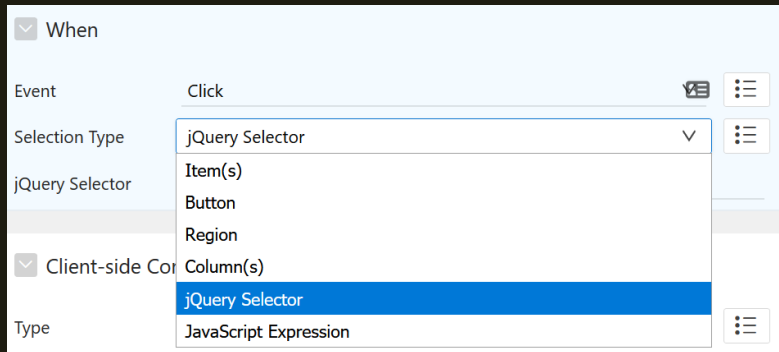
How to respond to any
element on the page?



Seasoned

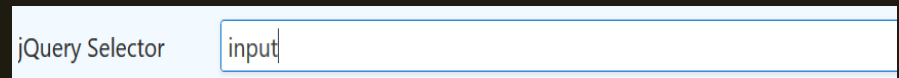
Demo time

Learn your selectors...



Select a page element

With an DOM id → #my_id
With a class → .my_class
Or any HTML tag



`$("div.alert").parent()`

Q#6

Why did my DA stop
working?



Senior

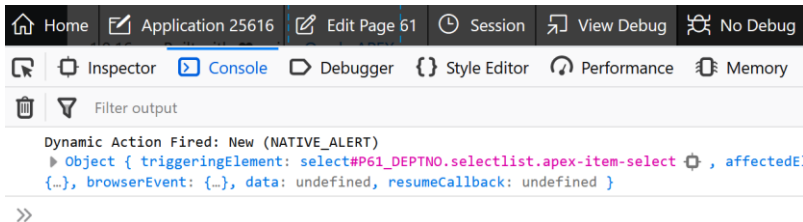
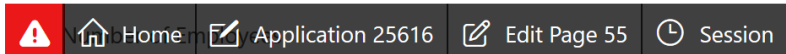
Many reasons... but no need to panic

101 Debugging

Commission

* Department

Location



Step #01



To know what is happening click DEBUG on developer console

Step #02



Open Browser Console log (Chrome more tools -> Dev tools F12)

Step #03



You can see what happened and what triggered the event

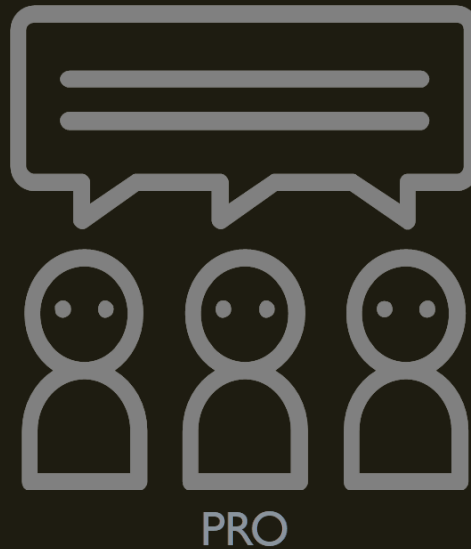
Step #04



Check DA metadata and all details.
Open Network tab for traffic

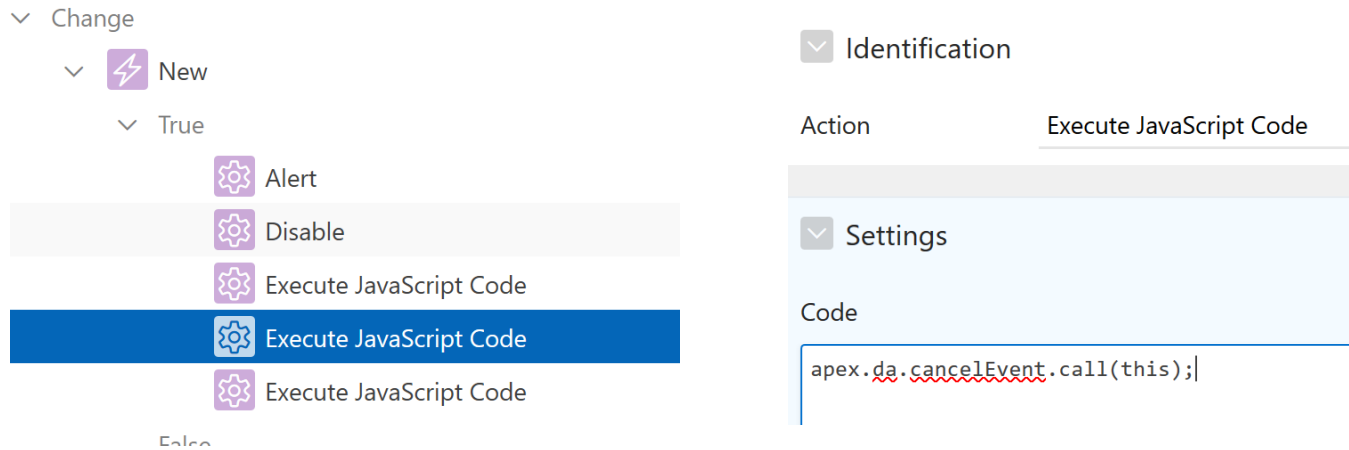
Q#7

How do I stop subsequent
DA from triggering?



Why?

Since individual actions do not have conditions associated



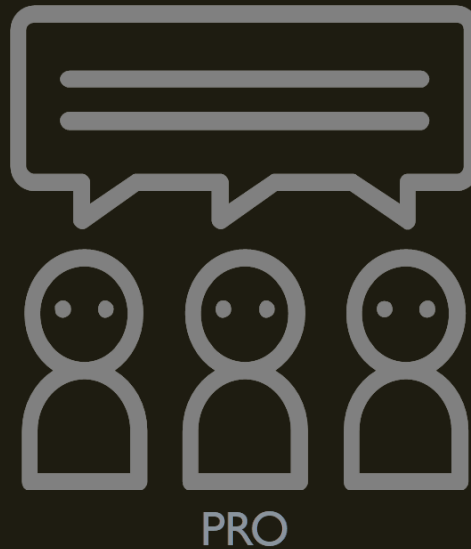
The image shows a screenshot of the Salesforce Lightning Action menu and its configuration. On the left, the 'Change' menu is expanded to show 'New', which is further expanded to 'True'. Under 'True', there are four 'Execute JavaScript Code' actions, with the second one highlighted in blue. On the right, the configuration for the selected 'Execute JavaScript Code' action is shown. It includes a 'Settings' section with a 'Code' field containing the JavaScript code: `apex.da.cancelEvent.call(this);`. The code is underlined in red, indicating it is an undocumented function.

Undocumented JS function

- apex.da.cancelEvent
- It will run all code in same action

Q#8

How do I pass data to DA
for processing?



Demo time

Passing data

1. Using element attributes and classes

Link

Target

#

Link Text

` `

Link Attributes

`id='#ID#' class="deleteMe t-Button t-Button--danger t-Button--si`

Passing data

2. Using data attributes

Link

Target

Link Text

```
<span class="t-Icon fa fa-trash-o" aria-l
```

Link Attributes

```
data-id="#EMPNO#" class="deleteMe t
```

Passing data

3. Using APEX.event api

```
apex.event.trigger  
(document, 'deleteEmp', [{action: 'rejecting',  
id: '#ID#' }]);
```

Bad practices?

Example #1

Events

Page Load

New (for a Name?)

True

 Set Value

 Set Value

False

Good example

Change EMPNO hide summary report
Set event address from webservice

- Naming
- Multiple set value actions over using one single action

Example #2

Action * Destination Location *

Go Actions

- Move
- Receive
- Ship

Move Selected

Consolidate if possible
Review as you go

- Page Load
- Change
 - Show/Hide Buttons
 - True
 - Execute JavaScript Code
 - False
 - Hide
 - Show/Hide Move Button
 - True
 - Show
 - False
 - Hide

RIGHT COLUMN

CONTENT BODY

PREVIOUS

ITEMS

REGION CONTENT

SUB REGIONS

Se

PREV

DELE

Identification

Action Execute JavaScript Code

Settings

Code

```
$(".[class*='MyBtn']").hide();  
var val = apex.item( "P70_ACTION" ).getValue();  
var btn = '.' + val.toLowerCase() + 'MyBtn';  
$(btn).show();
```

Affected Elements

Selection Type - Select -

Example #3

▶ ⚡ On page load - submit cascading lov keys

▶ ⚡ On page load - get epi overview

▼ ⚡ Set Event address from webservice

▼ True

⚠ Execute PL/SQL Code

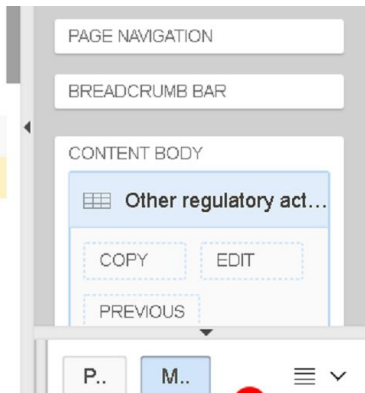
False

Change

▶ ⚡ OnChange Objective Doc ID - All docs NOT USED

▶ ⚡ OnChange_DOC_REF_ajax2Get_values

▶ ⚡ On Event no not null enable add buttons



Settings

⚠ PL/SQL Code

```
declare
  lv_address varchar2(4000) := NULL;
  l_property lbs_property_pkg.t_property;
begin
  if :P300_PROPERTY_ID is not null then
    l_property := get_property_by_pid(:P300_PROPERTY_ID);
    lv_address := l_property.address;
  end if;

  :P300_ADDRESS := lv_address;
end;
```

l_response :=

```
APEX_WEB_SERVICE.MAKE_REST_REQUEST (p_url
  p_http_method
  p_username
  p_password
  p_proxy_override
  p_transfer_timeout
  p_body
  p_body_blob
  p_parm_name
  p_parm_value
  p_wallet_path
  p_wallet_pwd
=> l_service_url,
=> 'GET',
=> NULL,
=> NULL,
=> NULL,
=> 180,
=> EMPTY_CLOB (),
=> EMPTY_BLOB (),
=> l_vc_params,
=> l_vc_values,
=> l_wallet,
=> NULL);
```

RETURN l_response;

- Slow loading code is better on page load JS than on PL/SQL process
- Better user experience where we do not have to wait for page to load

Example #4

I have got 2 applications one is working with 479 form items.

But the same 2nd application with extra 13 forms items is not working or populating data on the form.

- No sub regions
- Values loaded with page automatic DML process
- Same the save process
- Hundreds of DA's per single elements

For the records it does work using manual page PL/SQL code using a package!!!!!!

Example #5

from FABE factory – too much custom JS is bad or is it?

```
/**
 * @function show
 */
show: function () {
  if (fabe.navigation.back.stack.length > 0 ||
      !apex.item("PO_BACK_URL").isEmpty()) {
    $(".fabe-back-all").show();
    $(".brand-logo img").hide();
  }

  if (!apex.item("PO_BACK_URL_MOBILE").isEmpty()) {
    $(".fabe-back-mobile").show();
    $(".brand-logo img").addClass("hide-on-med-and-down");
  }
},

/**
 * @function hide
 * @example
 * fabe.navigation.back.hide();
 */
hide: function () {
  console.log(fabe.navigation.back.stack.length === 0,
              apex.item("PO_BACK_URL").isEmpty());

  if (fabe.navigation.back.stack.length === 0 &&
      apex.item("PO_BACK_URL").isEmpty()) {
    $(".fabe-back-all").hide();
    $(".brand-logo img").show();
  }

  if (fabe.navigation.back.stack.length === 0 &&
      apex.item("PO_BACK_URL_MOBILE").isEmpty()) {
    $(".fabe-back-mobile").hide();
    $(".brand-logo img").removeClass("hide-on-med-and-down");
  }
},
```

Dynamic Actions configuration for P61_DEPTNO:

- Dynamic Actions
 - New
 - True
 - Alert
 - Alert
 - Alert
 - Show
 - Show
 - Show
 - Disable
 - Disable
 - Disable
 - Execute JavaScript Code
 - Execute JavaScript Code
 - Execute JavaScript Code
 - False

Summary

- Find balance
 - You still have to maintain and debug when issues arise
- Consolidate
 - if it can trigger on same event or global page
- Minimize custom code
 - Don't be afraid to use it
 - Structure it well and have standards
- Think security
 - Apply server side security too
 - Don't trust user inputs

Questions

Thank you for attending



Presentation challenge



<https://emedcert.com/blog/thoughts-on-ALS-ice-bucket-challenge>

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Resources

- Documentation apex.oracle.com/JSAPI
- Sample Dynamic Actions application
- APEX office hours video - <http://tiny.cc/nx0scz>
- Jackie Mcilroy - <http://tiny.cc/uz0scz>
- Juergen Schuster - <http://dynamic-actions.com>
- DA by Explorer - <http://tiny.cc/rf1scz>
- Vincent Morneau - vmorneau.me/avoid-javascript-mess/
- 5.1 tutorial - <http://tiny.cc/8m1scz>

DEMO APP (download the application)

- <https://apex.oracle.com/pls/apex/f?p=84111:13>