



regoUniversity

NASHVILLE • 2022

NSQL Portlets | Advanced

Your Guides:

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Introductions

- Take 5 Minutes
- Turn to a Person Near You
- Introduce Yourself
- Business Cards



Agenda

- Multi-Dimensional Portlets
 - NSQL Syntax
 - Creating a sample portlet
 - Limitations
 - Common errors and best practices
- Hierarchical Portlets
 - NSQL Syntax
 - Creating a sample portlet
 - Limitations and best practices
- Questions

Multi-Dimensional Portlets



Multi-Dimensional Portlets

- What does multi-dimensional look like?



Single Dimension

Dimension 1

Sample Single Dimension Portlet					
Project	Resource	Task	Slice Date▲	Cost	Hours
Project 1	Resource 1	Task 1	1/1/15	100	2
Project 1	Resource 1	Task 2	1/1/15	150	3
Project 1	Resource 1	Task 3	1/1/15	200	4
Project 1	Resource 2	Task 1	1/1/15	150	3
Project 1	Resource 2	Task 2	1/1/15	200	4
Project 1	Resource 2	Task 3	1/1/15	250	5
Project 1	Resource 3	Task 1	1/1/15	200	4
Project 1	Resource 3	Task 2	1/1/15	250	5
Project 1	Resource 3	Task 3	1/1/15	300	6
Project 2	Resource 1	Task 1	1/1/15	100	2

Two Dimensions

Dimension 2 →

Dimension 1

Sample Multi-Dimensional Portlet																
Project▲	Resource	Task	Jan 2015		Feb 2015		Mar 2015		Apr 2015		May 2015		Jun 2015		Jul 2015	
			Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Project 1	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100	2	100
Project 1	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300	6	300
Project 2	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100	2	100

Multi-Dimensional Portlets: Syntax

- NSQL Syntax

Dimension
Name

Single Dimension

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.ID:PROJECT_ID@
```

Adding Second Dimension

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.ID:PROJECT_ID@
, @SELECT:DIM:USER_DEF:IMPLIED:TIMEPERIOD:ETC.SLICE_DATE:SLICE_DATE_ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:TIMEPERIOD:TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
, @SELECT:METRIC:USER_DEF:IMPLIED:ETC.SLICE:ETC@
```

- Dimension Column
- Dimension Property

Y-Axis ↑

	DIM2	DIM2	DIM2
DIM1	METRIC	METRIC	
DIM1	METRIC		METRIC
DIM1		METRIC	
DIM1	METRIC		METRIC

→ X-Axis

DIM1 = ASSIGNMENT
 DIM2 = TIMEPERIOD (timescaled)
 METRIC = ETC

Multi-Dimensional Portlets: Syntax

- Example Multi-Dimensional Query

```

SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.CODE:PROJECT_CODE@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.NAME:PROJECT_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:T.PRNAME:TASK_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SRMR.FULL_NAME:RESOURCE_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRSTART:ASSIGNMENT_START@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRFINISH:ASSIGNMENT_FINISH@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SUM(ETC.SLICE) OVER (PARTITION BY A.PRID):ETC_TOTAL@

, @SELECT:DIM:USER_DEF:IMPLIED:TIMEPERIOD:ETC.SLICE_DATE:SLICE_DATE_ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:TIMEPERIOD:TO CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
, @SELECT:METRIC:USER_DEF:IMPLIED:ETC.SLICE:ETC@
FROM INV_INVESTMENTS INVI
JOIN PRTASK T ON INVI.ID = T.PRPROJECTID
JOIN PRASSIGNMENT A ON T.PRID = A.PRTASKID
JOIN SRM_RESOURCES SRMR ON A.PRRESOURCEID = SRMR.ID
JOIN PRJ_BLB_SLICES ETC ON A.PRID = ETC.PRJ_OBJECT_ID
WHERE 1=1
AND ETC.SLICE_REQUEST_ID = (SELECT SR.ID FROM PRJ_BLB_SLICEREQUESTS SR WHERE SR.REQUEST_NAME= @WHERE:PARAM:USER_DEF:STRING:SLICE BY STRING@ || 'RESOURCEESTCURVE')
AND ETC.SLICE_DATE BETWEEN @WHERE:PARAM:USER_DEF:DATE:START_DATE@ AND @WHERE:PARAM:USER_DEF:DATE:FINISH_DATE@
AND @FILTER@

```

← 1st Dimension (Y-Axis)

← 2nd Dimension (X-Axis)

Multi-Dimensional Portlets

The Goal!



We are going to build a portlet that displays ETC by Tasks over time (timescaled)

Overview: Rahul Test Tab



ETC by Tasks Over Time

Start Date: 1/1/2017

Finish Date: 6/30/2017

Time Scaled Value: Monthly

Filter Save Filter Clear

Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-01-01 ETC (Hours)	2017-02-01 ETC (Hours)	2017-03-01 ETC (Hours)	2017-04-01 ETC (Hours)	2017-05-01 ETC (Hours)	2017-06-01 ETC (Hours)
APP01	Bat Signal	Alfred, Al	Bat Signal	12/29/17	2/29/16	910	154	140	161	140	161	
APP01	Bat Signal	Dolak, Jerry	Bat Signal	12/29/17	10/5/15	1,040	176	160	184	160	184	
APP01	Bat Signal	Wuenstel, Chris	Bat Signal	12/29/17	2/23/15	1,040	176	160	184	160	184	
ID1015	RA Test Idea	Agrawal, Rahul	RA Test Idea	12/29/17	1/1/16	520	88	80	92	80	92	
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	35.2	32	36.8	32	36.8	
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	140.8	128	147.2	128	147.2	

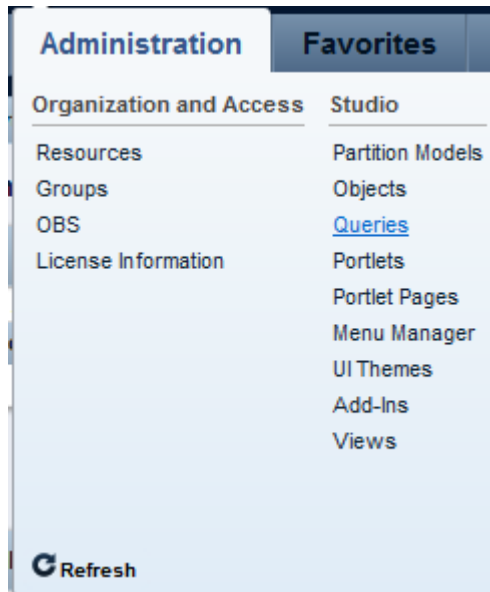


Let's begin !

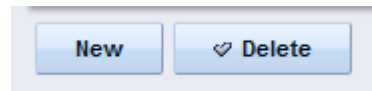
Multi-Dimensional Portlets: Query

- Create the Query

1) Administration -> Queries

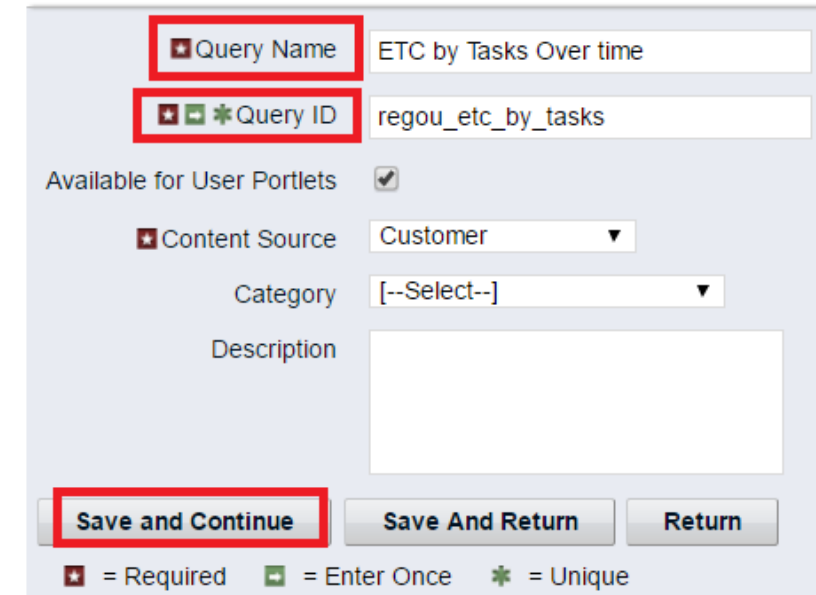


2) Click New



3) Enter Query Name and Query ID, click Save and Continue

Query Properties: General

A screenshot of the 'Query Properties: General' form. The 'Query Name' field contains 'ETC by Tasks Over time' and the 'Query ID' field contains 'regou_etc_by_tasks'. The 'Available for User Portlets' checkbox is checked. The 'Content Source' dropdown is set to 'Customer'. The 'Category' dropdown is set to '--Select--'. The 'Description' field is empty. The 'Save and Continue' button is highlighted with a red box. A legend at the bottom indicates: a red square with a plus sign for 'Required', a green square with a plus sign for 'Enter Once', and an asterisk for 'Unique'.

Multi-Dimensional Portlets: Query

- Populate NSQL

4) Remove the default query and paste your query. Click Save and Continue



Query: ETC by Tasks Over Time - NSQL

Use this template to create your Niku SQL statement.

```

NSQL SELECT @SELECT:DIM:USER_DEF:IMPLIED:ASSIGNMENT:A.PRID:ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.CODE:PROJECT_CODE@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:INVI.NAME:PROJECT_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:T.PRNAME:TASK_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SRMR.FULL_NAME:RESOURCE_NAME@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRSTART:ASSIGNMENT_START@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:A.PRFINISH:ASSIGNMENT_FINISH@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:ASSIGNMENT:SUM(ETC.SLICE) OVER (PARTITION BY A.PRID):ETC_TOTAL@
, @SELECT:DIM:USER_DEF:IMPLIED:TIMEPERIOD:ETC.SLICE_DATE:SLICE_DATE_ID@
, @SELECT:DIM_PROP:USER_DEF:IMPLIED:TIMEPERIOD:TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-DD'):SLICE_DATE@
, @SELECT:METRIC:USER_DEF:IMPLIED:ETC.SLICE:ETC@
FROM INV_INVESTMENTS INVI
JOIN PRTASK T ON INVI.ID = T.PRPROJECTID
JOIN PRASSIGNMENT A ON T.PRID = A.PRTASKID
JOIN SRM_RESOURCES SRMR ON A.PRESOURCEID = SRMR.ID
JOIN PRJ_BLB_SLICES ETC ON A.PRID = ETC.PRJ_OBJECT_ID
WHERE 1=1
AND ETC.SLICE_REQUEST_ID = (SELECT SR.ID FROM PRJ_BLB_SLICEREQUESTS SR WHERE SR.REQUEST_NAME= @WHERE:PARAM:USER_DEF:DATE:START_DATE@
AND ETC.SLICE_DATE BETWEEN @WHERE:PARAM:USER_DEF:DATE:START_DATE@ AND @WHERE:PARAM:USER_DEF:DATE:FINISH_DATE@
AND @FILTER@

```

Preview

Save and Continue

Save And Return

Return

■ = Required

Multi-Dimensional Portlets: Query

- Review Attributes

Query: ETC by Tasks Over Time - *Attributes*

Attributes							
Name	ID	Attribute Class	Data Type	Extended Data Type	Required	Lookup	
etc	etc	Metric	Numeric	Numeric			
TIMEPERIOD							
↳ slice_date_id	slice_date_id	Dimension Key	Date	Date			
↳ slice_date	slice_date	Dimension Property	String	String			
ASSIGNMENT							
↳ id	id	Dimension Key	Numeric	Numeric			
↳ project_code	project_code	Dimension Property	String	String			
↳ project_name	project_name	Dimension Property	String	String			
↳ task_name	task_name	Dimension Property	String	String			
↳ resource_name	resource_name	Dimension Property	String	String			
↳ assignment_start	assignment_start	Dimension Property	Date	Date			
↳ assignment_finish	assignment_finish	Dimension Property	Date	Date			
↳ etc_total	etc_total	Dimension Property	Numeric	Numeric			

Metric →

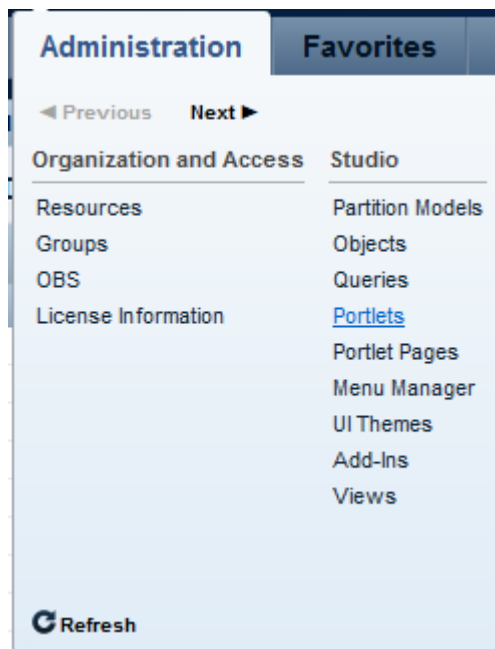
2nd Dimension →

1st Dimension →

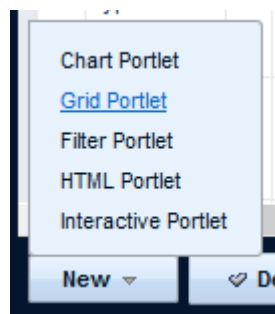
Multi-Dimensional Portlets: Portlet

- Create Portlet

1) Administration -> Portlets



2) New -> Grid Portlet



3) Enter Portlet Name and ID, browse for NSQL Query as Data Provider

4) Click Next

Grid Portlet: General

General

Portlet Name

Portlet ID

Content Source

Category

Description

Instance Type

Data Provider

Number of Dimensions

Number of Metrics

= Required = Enter Once * = Unique

Multi-Dimensional Portlets: Portlet

• Configure Portlet

1) Select Dimension for the Y Axis

Portlet: ETC by Tasks Over Time - Y Axis

Y Axis ASSIGNMENT ▼
 (Select the left-most column for the grid.)

= Required

2) Click Finish and Open

Portlet: ETC by Tasks Over Time - Finish

Click on the Finish button to create the portlet. Further options are available after you click Finish and Open.

3) Click on Layout

▼

Portlet: ETC by Tasks Over Time

Y Axis
 Layout
 Options
 Aggregation

The selected fields will appear on Y-Axis

Select Metric(s)

X-Axis column grouping

Select the field to be displayed as header

Column Layout

Available Columns: id

Selected Columns: project_code, project_name, resource_name, task_name, assignment_finish, assignment_start, etc_total, [Data Columns]*

Required Options: [Data Columns]*

Data Column Headers

This grid can show multiple columns of data. Use the arrows to show or hide the data and change the column order.

Available: etc

Selected: etc

Row Grouping

Data in this grid can be grouped by multiple dimensions. Use the arrows to change grouping order.

Row Grouping: TIMEPERIOD, [Data Columns]

Column Labels

Dimension	Label
TIMEPERIOD	slice_date

Multi-Dimensional Portlets: Portlet

- Configure Portlet
 - Select the columns to use for sorting

Always sort
on Date first

Use slice_date_id,
NOT
slice_date(label)

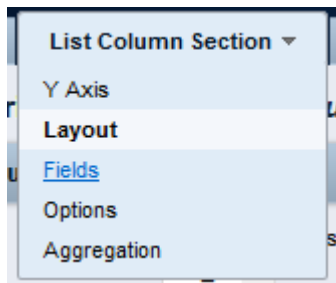
Column Sorting				
Sort By	Column	Direction		
		Ascending	Descending	
First Field	slice_date_id ▼	<input checked="" type="radio"/>	<input type="radio"/>	
Second Field	project_name ▼	<input checked="" type="radio"/>	<input type="radio"/>	
Third Field	resource_name ▼	<input checked="" type="radio"/>	<input type="radio"/>	
Fourth Field	task_name ▼	<input checked="" type="radio"/>	<input type="radio"/>	

* = required

Multi-Dimensional Portlets: Portlet

• Configure Portlet

1) Click on Fields and update labels



Portlet: ETC by Tasks Over Time - List Column Fields

Show: All Display: Selected Go

Column Label	Attribute	Data Type	Display Type
Assignment Finish	assignment_finish	Date	Date Text
Assignment Start	assignment_start	Date	Date Text
ETC (Hours)	etc	Number	Number
ETC Total	etc_total	Number	Number
Project Code	project_code	String	Text
Project Name	project_name	String	Text
Resource	resource_name	String	Text
Task	task_name	String	Text

New Delete Save Save And Return Return

2) Click on Filter Layout and select filters

Portlet: ETC by Tasks Over Time - List Filter Layout

Layout

Available	Selected (Left Column)	Selected (Right C
assignment_finish assignment_start etc etc_total id project_code project_name resource_name slice_date slice_date_id	param_start_date param_finish_date	param_slice_by_string

Add Field Move Field Move Field

3) Click on Filter Fields and update labels

Portlet: ETC by Tasks Over Time - List Filter Fields

Display: Selected

Filter Label	Column	Data Type	Display Type	Required in Filter	Read only in Filter	Filter Default
Finish Date	param_finish_date	Date	Date			
Time Scaled Value	param_slice_by_string	Lookup - String	Pull-Down			Monthly
Start Date	param_start_date	Date	Date			

Save Save And Return Return

Multi-Dimensional Portlets: Portlet

- Set Filter Defaults

Portlet: ETC by Tasks Over Time - List Filter Fields

Filter Label	Column
Finish Date	param_finish_date
Time Scaled Value	param_slice_by_string
Start Date	param_start_date

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_start_date

Filter Label: Start Date

Data Type: Date

Display Type: Date

Filter Default: Rolling Date: Start of Current Quarter

Specific Date:

Required in Filter:

Hidden in Filter:
(In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter:
(In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_finish_date

Filter Label: Finish Date

Data Type: Date

Display Type: Date

Filter Default: Rolling Date: End of Next Quarter

Specific Date:

Required in Filter:

Hidden in Filter:
(In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter:
(In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

= Required

Portlet: ETC by Tasks Over Time - Filter Field Properties

Attribute: param_slice_by_string

Filter Label: Time Scaled Value

Data Type: Lookup - String

Display Type: Pull-Down

Lookup: Slice By (String)

Filter Default: Monthly

Required in Filter:

Hidden in Filter:
(In order to make a filter field hidden a Filter Default must be selected)

Read-Only in Filter:
(In order to make a filter field read only a Filter Default must be selected)

Hint:

Tooltip:

Save Save And Return Return

= Required

Portlet is now ready but don't forget to add to a page.

Multi-Dimensional Portlets: Portlet

- Final Result



Overview: Rahul Test Tab

ETC by Tasks Over Time

Start Date: 1/1/2017

Finish Date: 6/30/2017

Time Scaled Value: Monthly

Filter Save Filter Clear

Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-01-01 ETC (Hours)	2017-02-01 ETC (Hours)	2017-03-01 ETC (Hours)	2017-04-01 ETC (Hours)	2017-05-01 ETC (Hours)	2017-06-01 ETC (Hours)
APP01	Bat Signal	Alfred, Al	Bat Signal	12/29/17	2/29/16	910	154	140	161	140	161	
APP01	Bat Signal	Dolak, Jerry	Bat Signal	12/29/17	10/5/15	1,040	176	160	184	160	184	
APP01	Bat Signal	Wuenstel, Chris	Bat Signal	12/29/17	2/23/15	1,040	176	160	184	160	184	
ID1015	RA Test Idea	Agrawal, Rahul	RA Test Idea	12/29/17	1/1/16	520	88	80	92	80	92	
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	35.2	32	36.8	32	36.8	
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	140.8	128	147.2	128	147.2	

Multi-Dimensional Portlets: 3+ Dimensions

- Portlet with additional dimension

Dimension 2 (Months) Dimension 3 (Charge Code)

Sample 3 Dimensional Portlet

			Jan 2015				Feb 2015				Mar 2015			
			Cap		Exp		Cap		Exp		Cap		Exp	
Project	Resource	Task	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost	Hours	Cost
Project 1	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 1	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150
Project 1	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250
Project 1	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200
Project 1	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300
Project 2	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 2	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150
Project 2	Resource 1	Task 3	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 2	Task 1	3	150	3	150	3	150	3	150	3	150	3	150
Project 2	Resource 2	Task 2	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 2	Task 3	5	250	5	250	5	250	5	250	5	250	5	250
Project 2	Resource 3	Task 1	4	200	4	200	4	200	4	200	4	200	4	200
Project 2	Resource 3	Task 2	5	250	5	250	5	250	5	250	5	250	5	250
Project 2	Resource 3	Task 3	6	300	6	300	6	300	6	300	6	300	6	300
Project 3	Resource 1	Task 1	2	100	2	100	2	100	2	100	2	100	2	100
Project 3	Resource 1	Task 2	3	150	3	150	3	150	3	150	3	150	3	150

Dimension 1

Multi-Dimensional Portlets: Limitations

- Limitations

- Row Limit Governor – 50,000 rows
 - 10 rows of projects with 12 months of data = 120 rows

ETC by Tasks Over Time

! ALERT: You have exceeded your maximum row limit. To see your results, please filter for the specific rows you would like to view.

- Sorting Limitations

- Sort on the Date first

ETC by Tasks Over Time

Project Code	Project Name	Resource	Task	Assignment Finish	Assignment Start	ETC Total	2017-02-01	2017-01-01	2017-05-01	2017-04-01
							ETC (Hours)	ETC (Hours)	ETC (Hours)	ETC (Hours)
PRJ0009	Save the world	Alfred, Al	Save the World	9/28/17	2/29/16	1,664.251206	256.0	281.6	294.4	256.0
ID1015	RA Test Idea	Almeida, Joe	RA Test Idea	12/29/17	1/1/16	208	32.0	35.2	36.8	32.0
ID1015	RA Test Idea	America, Captain	RA Test Idea	12/29/17	1/1/16	832	128.0	140.8	147.2	128.0



Multi-Dimensional Portlets: Common Errors

- Common Errors Seen

- Duplicate Dimensional Data

Query: ETC by Tasks Over Time - NSQL

 **ERROR** NPT-217: This query produced duplicate dimensional data. The results shown here may be invalid or incomplete.


- ERROR

- Null Dimensional Key

Query: ETC by Tasks Over Time - NSQL

 **ERROR:**

Query: ETC by Tasks Over Time - NSQL

 **ERROR** NPT-0103: Error when trying to execute the query. Native message: [CA Clarity][Oracle JDBC Driver][Oracle]ORA-00936: missing expression SQL Text: SELECT A.PRID ID , INVL.CODE PROJEC ASSIGNMENT_START , A.PRFINISH ASSIGNMENT_FINISH , SUM(ETC.SLICE) OVER (PARTITION BY A.PRID) ETC_TOTAL , ETC.SLICE_DATE SLICE_DATE_ID , TO_CHAR(ETC.SLICE_DATE, 'YYYY-MM-PRASSIGNMENT A ON T.PRID = A.PRTASKID JOIN SRM_RESOURCES SRMR ON A.PRESOURCEID = SRMR.ID JOIN PRJ_BLB_SLICES ETC ON A.PRID = ETC.PRJ_OBJECT_ID WHERE 1=1 AND ETC (RESOURCEESTCURVE) AND ETC.SLICE_DATE BETWEEN ? AND ? AND 1=? and 1=1 and 2 = 2 .

Possible causes:

- A field listed in the SELECT or WHERE clause does not specify the table name. Because the field name appears in multiple tables, the table name must precede the field name.
- A comma after the last @SELECT statement.
- A comma after the last table listed in the FROM clause.
- Incorrect table name.

Multi-Dimensional Portlets: Best Practices


- Limit number of dimensions
 - Use additional metrics if possible
- Always sort on dates first
- Return rows for each cell
- Use Export to Excel (Data Only)
- Keep the [Data Columns] as the last field in the column layout
- Format Fields to specify column widths or disallow word wrapping to alleviate formatting issues

Hierarchical Portlets



Hierarchical Portlets

- Sample portlet with three levels

Project > Task > Resource Hierarchy 

Name ▲	Start	Finish	Actuals
+ Bat Cave Re-Design	8/27/12	3/2/15	200.00
+ Batman Program	1/1/12	7/22/16	0.00
- Big Bang Theory Superhero Contest	10/29/12	2/23/15	380.00
+ Big Bang Theory Superhero Contest	10/29/12	2/23/15	241.00
+ Child	12/23/14	12/23/14	0.00
+ Deployment Complete	8/21/14	8/21/14	0.00
+ Release Planning	8/21/14	8/21/14	0.00
+ RSVP to Halloween Party	6/27/13	6/27/13	0.00
+ Sabatoge Other Teams Costumes	7/13/13	7/13/13	0.00
+ Sew Costumes	5/22/13	5/26/14	12.00
- Team Costume Planning	10/30/12	2/16/15	142.00
■ Banner, Bruce	4/8/14	2/16/15	12.00
■ Ironman, Irony	10/30/12	8/12/13	109.00
■ Kent, Clark	6/10/13	6/21/13	0.00
■ Lantern, Green	4/1/13	6/14/13	21.00

Projects (indicated by blue bracket)

Tasks (indicated by purple bracket)

Resources (indicated by black bracket)

Hierarchical Portlets: Syntax

- New NSQL Constructs
 - hg_has_children
 - Dimension Property
 - Unique for all rows in the dimension (can be null)
 - Indicates whether the row has children and shows the [+] icon for expanding
 - Null Values indicate no children and will not have a [+] icon
 - hg_row_id
 - Parameter
 - When [+] icon is clicked, the id stored in hg_has_children for that row is passed into the query as this parameter
 - Upon initial run, this parameter is passed as null
 - hg_all_rows
 - Parameter
 - Used during Export to Excel
 - Value = 1 when exporting, null otherwise
 - Note: This construct may impact performance

Hierarchical Portlets: Syntax

- NSQL Syntax
 - Unions are commonly used for the various levels
 - Most readable way to organize the query:

```
Parent Query  
UNION  
Child Query
```

- You can have as many child levels as needed

Hierarchical Portlets: Syntax

- Sample NSQL
 - Level 1 (PROJECT)

```
SELECT i.id prid,  
       i.name,  
       i.schedule_start,  
       i.schedule_finish, NVL(ROUND(i.labor_actsum/3600,2),0) actuals,  
       MAX(CASE WHEN t.prid IS NOT NULL THEN i.id ELSE null END) hg_has_children,  
       ROW_NUMBER() OVER(ORDER BY i.name) sort_order  
FROM   inv_investments i  
       LEFT JOIN prtask t ON t.prprojectid = i.id  
WHERE  i.odf_object_code = 'project'  
       AND @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ IS NULL  
GROUP BY i.id, i.name, i.schedule_start, i.schedule_finish, i.labor_actsum
```

Hierarchical Portlets: Syntax

- Sample NSQL
 - Level 2 (TASK)

```
SELECT t.prid,  
       t.pname name,  
       t.prstart schedule_start,  
       t.prfinish schedule_finish,  
       NVL(ROUND(SUM(a.practsum)/3600,2),0) actuals,  
       null hg_has_children,  
       ROW_NUMBER() OVER(PARTITION BY t.prprojectid ORDER BY t.prfinish) sort_order  
FROM   prtask t  
       LEFT JOIN prassignment a ON a.prtaskid = t.prid  
WHERE  (t.prprojectid = @WHERE:PARAM:USER_DEF:STRING:hg_row_id@  
        OR @NVL@(@WHERE:PARAM:USER_DEF:INTEGER:hg_all_rows@,0) = 1)  
GROUP BY t.prid, t.pname, t.prstart, t.prfinish, t.prprojectid
```

Hierarchical Portlets: Syntax

- Sample NSQL
 - Full Query

```
SELECT @SELECT:DIM:USER_DEF:IMPLIED:ACTUALS:t.prid:PRID@,  
        @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.name:NAME@,  
        @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.start_date:START_DATE@,  
        @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.finish_date:FINISH_DATE@,  
        @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.hg_has_children:HG_HAS_CHILDREN@,  
        @SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.sort_order:SORT_ORDER@,  
        @SELECT:METRIC:USER_DEF:IMPLIED:t.actuals:ACTUALS@  
  
FROM   (/*PROJECT QUERY*/  
        SELECT ...  
        UNION  
        /*TASK QUERY*/  
        SELECT ...  
        ) t  
WHERE @FILTER@
```

Hierarchical Portlets

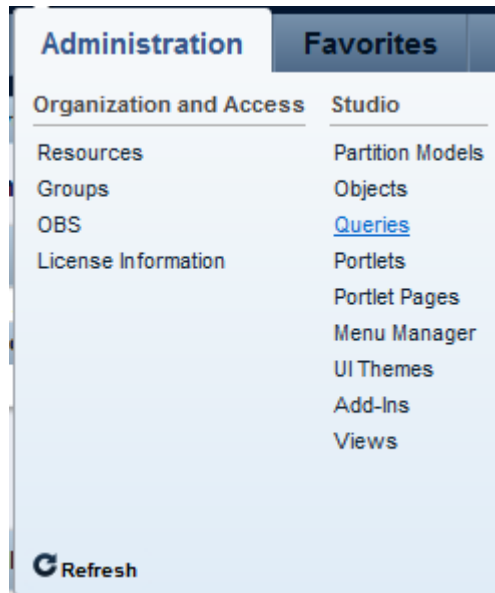
- Let's build a portlet that lists Projects and their associated Tasks

Sample Hierarchical ▾					
Project / Task	Start	Finish	Actuals		
Project 1	1/1/15	12/10/15	12		
Task 1	1/1/15	1/10/15	1		
Task 2	2/1/15	2/10/15	1		
Task 3	3/1/15	3/10/15	1		
Task 4	4/1/15	4/10/15	1		
Task 5	5/1/15	5/10/15	1		
Task 6	6/1/15	6/10/15	1		
Task 7	7/1/15	7/10/15	1		
Task 8	8/1/15	8/10/15	1		
Task 9	9/1/15	9/10/15	1		
Task 10	10/1/15	10/10/15	1		
Task 11	11/1/15	11/10/15	1		
Task 12	12/1/15	12/10/15	1		
Project 2	1/1/15	12/10/15	24		
Project 3	1/1/15	12/10/15	36		

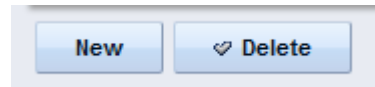
Hierarchical Portlets: Query

- Create Query

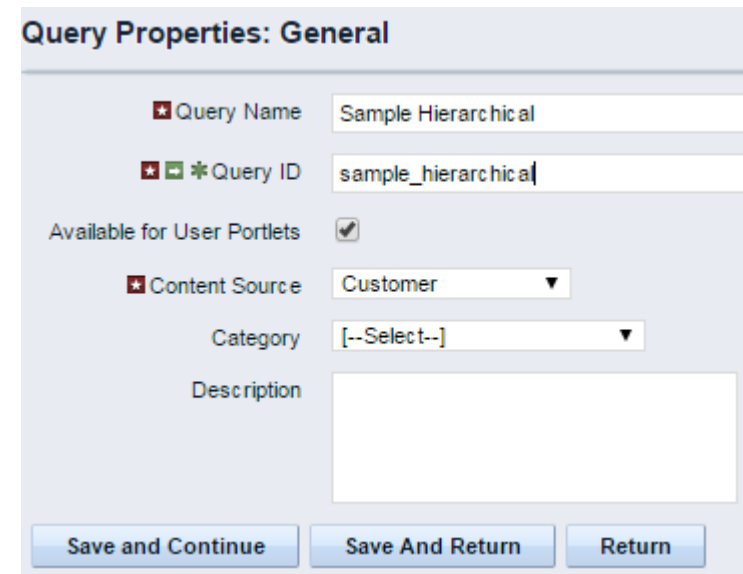
1) Administration -> Queries



2) Click New



3) Enter Query Name and ID, click Save and Continue



A screenshot of the 'Query Properties: General' form. The form contains the following fields and options:

- Query Name:** Sample Hierarchical
- Query ID:** sample_hierarchical
- Available for User Portlets:**
- Content Source:** Customer
- Category:** [--Select--]
- Description:** (empty text area)

At the bottom, there are three buttons: 'Save and Continue', 'Save And Return', and 'Return'.

Hierarchical Portlets: Query

- Populate NSQL

- 4) Remove the default query and paste your query.
Click Save and Continue

Query: Sample Hierarchical - NSQL

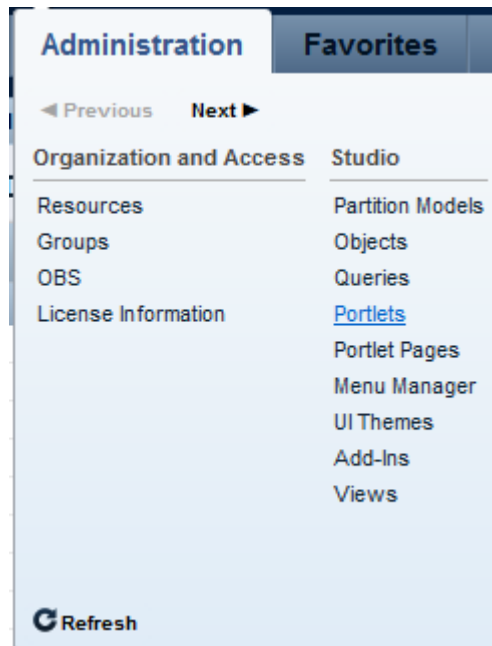
```
NSQL SELECT @SELECT:DIM:USER_DEF:IMPLIED:ACTUALS:t_prid:PRID@,
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t_name:NAME@,
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.schedule_start:SCHEDULE_START@,
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.schedule_finish:SCHEDULE_FINISH@,
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.hg_has_children:HG_HAS_CHILDREN@,
@SELECT:DIM_PROP:USER_DEF:IMPLIED:ACTUALS:t.sort_order:SORT_ORDER@,
@SELECT:METRIC:USER_DEF:IMPLIED:t.actuals:ACTUALS@
FROM (SELECT i.id prid,
i.name,
i.schedule_start,
i.schedule_finish,
NVL(ROUND(i.labor_actsum/3600,2),0) actuals,
MAX(CASE WHEN t.prid IS NOT NULL THEN i.id ELSE null END) hg_has_children,
ROW_NUMBER() OVER(ORDER BY i.name) sort_order
FROM iny_investments i
LEFT JOIN prtask t ON t.prprojectid = i.id
WHERE i.odf_object_code = 'project'
AND @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ IS NULL
GROUP BY i.id, i.name, i.schedule_start, i.schedule_finish, i.labor_actsum
UNION
SELECT t.prid,
t.pname name,
t.prstart schedule_start,
t.prfinish schedule_finish,
NVL(ROUND(SUM(a.practsum)/3600,2),0) actuals,
null hg_has_children,
ROW_NUMBER() OVER(PARTITION BY t.prprojectid ORDER BY t.prfinish) sort_order
FROM prtask t
LEFT JOIN prassignment a ON a.prtaskid = t.prid
WHERE (t.prprojectid = @WHERE:PARAM:USER_DEF:STRING:hg_row_id@ OR @NVL@(@WHERE:PARAM:USER_
```

Preview Save and Continue Save And Return Return

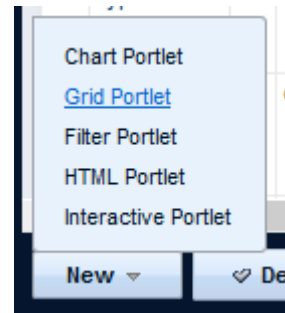
Hierarchical Portlets: Portlet

- Create Portlet

1) Administration -> Portlets

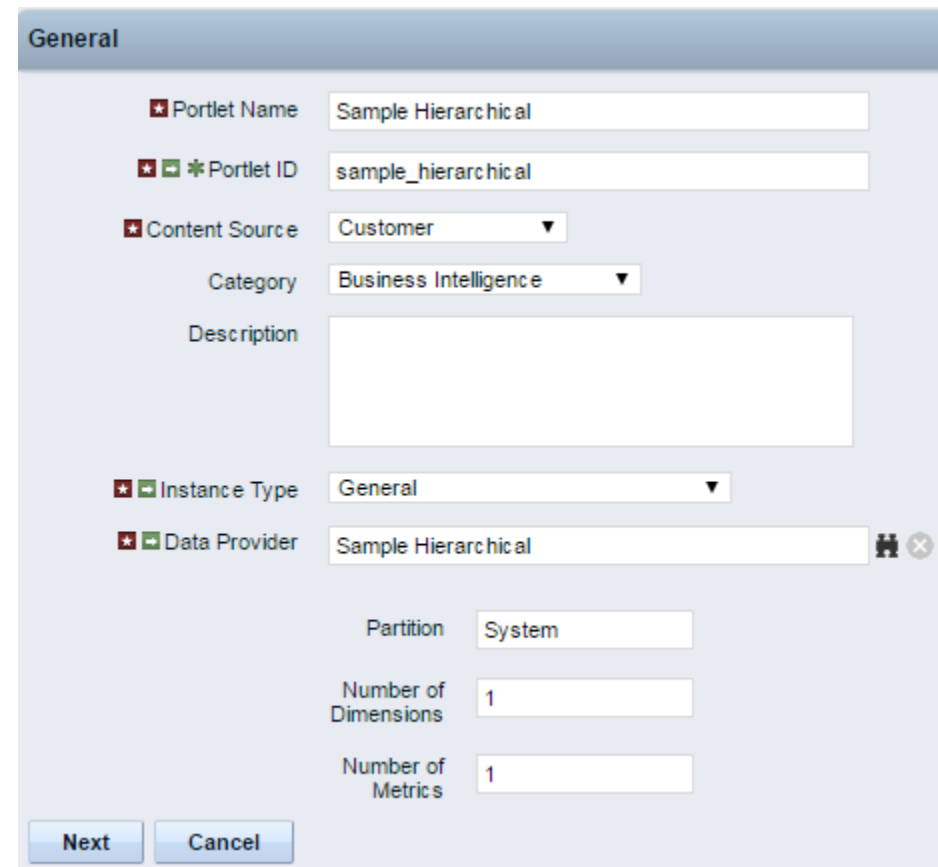


2) Click New -> Grid Portlet



3) Enter Portlet Name and ID, browse for NSQL Query as Data Provider

4) Click Next, then Finish and Open

A screenshot of the "General" configuration form for a portlet. The form has several fields and dropdown menus. The "Portlet Name" field contains "Sample Hierarchical". The "Portlet ID" field contains "sample_hierarchical". The "Content Source" dropdown is set to "Customer". The "Category" dropdown is set to "Business Intelligence". The "Description" field is empty. The "Instance Type" dropdown is set to "General". The "Data Provider" field contains "Sample Hierarchical". Below these fields, there are three more fields: "Partition" (set to "System"), "Number of Dimensions" (set to "1"), and "Number of Metrics" (set to "1"). At the bottom of the form, there are "Next" and "Cancel" buttons.

Hierarchical Portlets: Portlet

- Configure Portlet

1) Choose fields for the layout
(do not need to include
“hg_has_children”)

2) Label Fields in a way that
would make sense for all levels

3) Sort using sort_order field
to allow for different sorting
for the different levels

Portlet: Sample Hierarchical - List Column Layout

Column Layout

Available Columns

- hg_has_children
- PK ID
- sort_order

Selected Columns

- Project / Task
- Start
- Finish
- Actuals

Column Sorting

Sort By	Column	Direction	
		Ascending	Descending
First Field	sort_order	<input checked="" type="radio"/>	<input type="radio"/>
Second Field	[--Select--]	<input checked="" type="radio"/>	<input type="radio"/>
Third Field	[--Select--]	<input checked="" type="radio"/>	<input type="radio"/>
Fourth Field	[--Select--]	<input checked="" type="radio"/>	<input type="radio"/>

Save Save And Return Return

Hierarchical Portlets: Portlet

- Configure Portlet
 - Default is to show only the top level on initial view
 - Option exists to Automatically Expand the list
 - **Use selectively due to potential performance impact**

The screenshot shows the configuration interface for a portlet, specifically the 'Options' tab. The interface includes a navigation menu on the left with tabs for 'General', 'List Column Section', 'List Filter Section', and 'Access to this Portlet'. The 'Options' tab is selected, and a dropdown menu is open showing 'Layout', 'Fields', 'Options', and 'Aggregation'. The main configuration area contains several settings:

- Secondary Value Display:** A radio button is selected for 'mouseover only'. Below it are two options: 'Mouseover and redline text (Used when any list column field displays a secondary value)' and 'Show Null Secondary Values'.
- Filter:** Two radio buttons are present: 'Automatically show results' (selected) and 'Do not show results until I filter'.
- Rows per Page:** A dropdown menu is set to '20'.
- Highlight Row by Attribute:** A dropdown menu is set to '[--Select--]'. Below it is the text '(A row will be highlighted when this attribute is not zero)'.
- Display Currency Code in Column:** A checkbox is unchecked. Below it is the text '(Applies when only a single currency is active)'.
- Allow Configuration:** A checked checkbox.
- Allow Label Configuration:** A checked checkbox.
- Automatically Expand:** An unchecked checkbox, which is highlighted with a red rectangular box.

At the bottom of the configuration area, there are three buttons: 'Save', 'Save And Return', and 'Return'.

Hierarchical Portlets: Portlet

- Add to Portlet Page

Sample Hierarchical ▾				
Project / Task	Start	Finish	Actuals	
Project 1	1/1/15	12/10/15		12
Task 1	1/1/15	1/10/15		1
Task 2	2/1/15	2/10/15		1
Task 3	3/1/15	3/10/15		1
Task 4	4/1/15	4/10/15		1
Task 5	5/1/15	5/10/15		1
Task 6	6/1/15	6/10/15		1
Task 7	7/1/15	7/10/15		1
Task 8	8/1/15	8/10/15		1
Task 9	9/1/15	9/10/15		1
Task 10	10/1/15	10/10/15		1
Task 11	11/1/15	11/10/15		1
Task 12	12/1/15	12/10/15		1
Project 2	1/1/15	12/10/15		24
Project 3	1/1/15	12/10/15		36

Hierarchical Portlets: Limitations

- Limitations
 - Filtering
 - Filters applied to each level
 - Implement filters using parameters
 - Export
 - By default, export only exports the highest level
 - When `hg_all_rows` parameter is implemented in query, the export doesn't sort the rows based on the hierarchy
 - Layout
 - All levels must have the same field layout
 - Lower levels implement pagination based on Rows per Page
 - Sorting
 - All levels use the same field sorting
 - One way around this is to have a column for sort order

Hierarchical Portlets: Best Practices

- Best Practices
 - Limit number of filters, and use parameters for these
 - Limit number of levels in the portlet
 - Avoid potential loops in the data
 - Label column headers so that they make sense for all levels
 - Use a sort order column if trying to sort each level differently (ex. Sort Project by name, Sort Tasks by finish date)

Questions?



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- Click on **Course or Training**
- Class Provider = **Rego Consulting**
- Class Name = **regoUniversity**
- Course **Description**
- Date Started = **Today's Date**
- Date Completed = **Today's Date**
- Hours Completed = **1 PDU per hour of class time**
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