

Advanced Query Techniques

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Welcome!

- At the end of this course users will:
- Be able to add criteria to a left outer join.
 - Utilize subqueries to effectively search for query data information.
 - Efficiently find record and field information using the front end of PeopleSoft in conjunction with other tools.
 - Gain the knowledge and skills to check your query results to be confident of query accuracy.
 - Effectively apply aggregate functions to query results.
 - Utilize the Having tab to add criteria to fields using aggregate functions.
 - Be able to create expressions to allow complex refining of query results.
 - Understand BIND records and how they affect query development.

Standard Joins

Standard joins only display rows where there is a match between BOTH records, meaning it is possible not all of the rows from Record A will be displayed.

Record A		Record B		Standard Join
Name ID	ID	Favorite Thing	ID	Name Favorite Thing
Mike 001	001	Fishing/Pole	001	Mike Fishing/Pole
Stephen 002	002	Computer	002	Stephen Computer
Olivia 003	003	Painting	003	Olivia Painting
Ernie 004	004	DIY	004	Ernie DIY
Alfonso 005	005	Dogs	005	Alfonso Dogs
Caroline 006	006	Engines	006	Caroline Engines
Josh 007	007	Antiques	007	Josh Antiques
Lucinda 008	008	Reading	008	Lucinda Reading
Daniel 009	009	Football	009	Daniel Football
Alan 010			010	
Brett 011			011	

Outer Join

This join type will always display all of the rows in Record A. It will simply display BLANK where there is no match.

Record A		Record B		Outer Join
Name	ID	ID	Favorite Thing	ID
Mike	001	001	Fishing Pole	001
Napier	002	002	Computer	002
Olivia	003	003	Reading	003
Drake	004	004	Art	004
Amanda	005	006	Dogs	005
Camille	006	007	Engines	006
Josh	007	008	Antiques	007
Luckie	008	009	Reading	008
Carol	009	010	Reading	009
Alan	010	011	Football	010
Brett	011			011

Example: Normal Outer Join

Suppose we wanted to have a list of all our enrolled GRAD students for Fall 2016 and we want to know if they have a mobile phone number stored in our system.

Start with your base query: Add the STDNT_CAR_TERM record and define your enrollment criteria:



Next, look up the PERSONAL_PHONE record. We are going to outer join this record to STDNT_CAR_TERM. When you click the "Join Record" link, select the outer join option on the next screen:



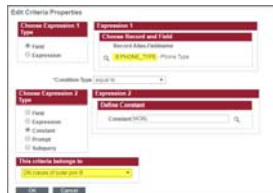
You should now notice a couple of differences in your query. The first is on your Query tab: the phone record has additional information next to its name, indicating that it is outer joined and which record it is joined to:



The second is on your Criteria tab. Any criteria for outer joins has an additional column filled in: "Belongs to".



This new criteria column will become important when we narrow our results. Go back to your Query tab and add new criteria on the PHONE_TYPE field in the phone record. Since this is an outer join, you will have to change the "belongs to" field at the bottom to the same letter as the record (in our case, since we are adding criteria to record B, the criteria should belong to outer join B). Click "OK".



Correct outer join

000842049	MOBL
000850019	MOBL
000902038	MOBL
000907080	MOBL
010033390	
000924209	
011420916	
011258329	
011000600	
011225948	

Criteria have been erroneously placed on the WHERE clause.

000690470	MOBL
000716020	MOBL
000729080	MOBL
000779490	MOBL
000930440	MOBL
000905400	MOBL
010012058	MOBL
010013065	MOBL
010033390	MOBL

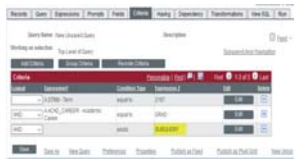
Results incorrectly display only MOBL

Add Criteria to Your Left Outer Join

Adding Criteria to a Left Outer Join – Simplified Instructions

- Create a query that has a left outer join, select a field from the record which has been left outer joined and add criteria to it, either from the Criteria tab or the Add Criteria icon.
- In the "Criteria Belongs To" box select the outer join clause that matches the record alias (for example, Record B).
- Select fields from both records.

Criteria page when you are using a subquery



Query page when you are creating a subquery



SubQueries

Edit Criteria Properties



2 common types of criteria conditions for sub-queries.

1. Using in list
2. Using exists which does not require using a field.

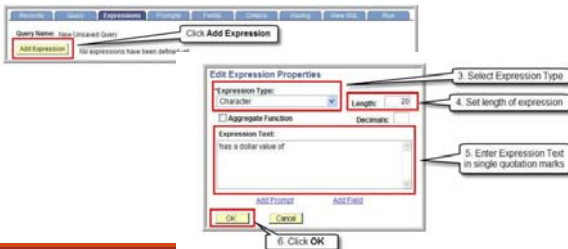
The 2 look very different.

Edit Criteria Properties



Expression Basics

Step 1: Create literal value as a column



Expression Operator Basics

Delimiter	Meaning	Delimiter	Meaning
+	Addition operator	<>	Relational operator (not equal)
'	Character string delimiter	<	Relational operator (less than)
	Concatenation operator	>	Relational operator (greater than)
/	Division operator	<=	Relational operator (less than or equal)
(Expression or list beginning delimiter	>=	Relational operator (greater than or equal)
)	Expression or list end delimiter	;	Statement terminator
,	Item Separator	-	Subtraction operator
=	Relational operator (equal)	*	Multiplication operator

Expressions

Expressions are calculations that PeopleSoft Query performs as part of a query. Use them when you must calculate a value that PeopleSoft Query does not provide by default—for example, to add the values from two fields together or to multiply a field value by a constant.

Use Expressions in two ways:

- As comparison values in selection criteria.
- As columns (fields) in the query output.

Expression Basics

Example: Translating Values

Sometimes, all you want to know is "Does this person have something in this field or not?" or "What does this funny combination of numbers and letters mean in plain English?" You don't care about the details that the system stores; you just want something that you can glance at and easily make sense of. The following will allow you to create an expression that will "translate" the system values into something that you, the query writer, define.

Suppose we wanted to look at STDNT_CAR_TERM and count the number of students enrolled in each class standing (freshman, sophomore, junior, etc.) for fall 2016. Create your new query with STDNT_CAR_TERM and add your fields:



Click the "Edit" button next to the EMPLID field and apply the count aggregate function

Next, add your criteria:

Case statement

If you run your query now, the academic level will read "10", "20", "30", and other values that may not make much sense unless you know what each value translates to. Our job is to translate these values for the user, so that they don't have to do it themselves. Doing this can make the query easier to read at a glance.

For most queries, you will want to remove the field that you are translating from the query. There's no need to have both the old, hard to read stuff *and* your new stuff. For the sake of the example, however, keep it in if you want to see the "before and after" contrast.

Head over to the Expressions tab and add a new expression.

The easiest way to translate our system values is through a CASE statement expression. They are written like this:

```
CASE
WHEN A.FIELDNAME = 'system value 1' THEN 'your value'
WHEN A.FIELDNAME = 'system value 2' THEN 'your value'
ELSE 'default value'
END
```

Expression Basics

Numeric Step 2: Use field as a column in the result set



Using Expressions vs Criteria



Advanced Functions

Function	Usage	Example	Result
NVL	Allows you to substitute a value when a NULL value is encountered.	Example 1: NVL(SUPPLIER_CITY, 'Please Complete')	If Supplier City is populated this will return the city name. If NULL it will return 'Please Complete'.
NVL2	Extends the functionality found in the NVL function. Substitute a value when NULL is encountered as well as when a non-NULL value is encountered.	Example 1: NVL2(SUPPLIER_CITY, 'Completed', 'Please Complete')	If Supplier City is populated this will return 'Completed'. If NULL it will return 'Please Complete'.
ROWNUM	Assigns a number indicating the order in which each row is returned by a query.	ROWNUM	2931
ROWNUM	Limits the number of rows returned in a result set.	ROWNUM < 10	Returns 9 rows of results.
CASE	Performs the functionality of an "if-then-else" statement	CASE WHEN A.ACAD_CAREER = 'UGRD' THEN 'Undergraduate Student' WHEN A.ACAD_CAREER = 'GRAD' THEN 'Graduate Student' ELSE 'Check Career' END	Undergraduate Student

Expression Gotchas

Case statements –

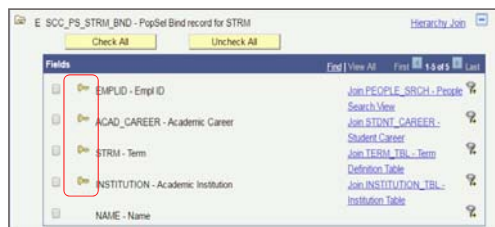
When there is a possibility of not meeting your specified condition(s) which can cause multiple rows to be returned for the same entry. To get around this you can use Aggregates such as minimum or maximum to specify which value you want to return.

ROWNUM – this is not an absolute value so if you specify a ROWNUM not greater than 200 you may for example get 210 rows.

Any time you are working with number there is a potential for data distortion. You can get around this by using a sum or count expression but that may also eliminate rows that you may need.

There are a few cases where you can still get incorrect data using this type of expression. An example is when data distortion occurs in the **STUNT_AWRD_DISB** record, where a student has multiple disbursements of the same dollar amount. The **DISTINCT** keyword will keep the first row but discard all others, resulting in a dollar amount that is too small. Be on the lookout if you think that this type of error is a possibility in your query. Removing the **DISTINCT** from your expression will bring back the data distortion, so there is no way around this issue.

Bind Records



Pop Select Query Protocol

Pop Select Queries have the following protocol:

1. Identify the Query/Batch Process relationship. If unsure what the relationship is submit a ticket to Enterprise Systems to ensure that the correct Query is tied to the correct process or look at a query that is already using a BIND record to see what it is using.
2. All key fields in the BIND record must be displayed in the Query results.
3. Only display the BIND record key fields in the Query results. a. In some batch processes if any other column is displayed besides a BIND record key field it will cause the process to fail. If it is desired to use the Pop Select Query for data values in addition to its use in the batch process it is recommended to create two separate Queries.
4. Always include POP or POPSEL in the Query name at the end of the Query. For example, **WSU_SF_MIS_NATID_POPSEL**.
5. Describe the Query as a Pop Select Query in the description.
6. Provide a full Definition, including the batch process the Query is tied to.

Field Name: A.POSTED_TOTAL_AMT - Posted Total Amount

Aggregates

Sum

	Unit	Ledger	Account	Currency	Year	Sum Total Amt	Base Curr
1	WA170	LOCAL	10110	USD	2013	48778676.320 USD	
2	WA170	LOCAL	10110	USD	2014	-15400059.840 USD	
3	WA170	LOCAL	10110	USD	2015	9639548.110 USD	
4	WA170	LOCAL	10110	USD	2016	34059059.960 USD	
5	WA170	LOCAL	10100	USD	2013	25086.430 USD	
6	WA170	LOCAL	10100	USD	2014	233865.460 USD	
7	WA170	LOCAL	10100	USD	2015	-144044.620 USD	
8	WA170	LOCAL	10100	USD	2016	14029.750 USD	
9							

Aggregates Function

Having

2. Select Expression Type 1

3. Select Condition Type

4. Select Expression Type 2

5. Click OK

Having Criteria Tab



Create
Your Own
Query!
