

PeopleSoft Reporting Tools Workshop

PS Query

Agenda

- How is Data Stored in PeopleSoft?
- What is PS Query?
- Writing a PS Query
 - Filtering Criteria
 - Prompts
 - Joins
 - Aggregate Functions
 - Expressions
 - Distinct Results
- Determining Table Names





How is Data Stored?

- PeopleSoft uses a RELATIONAL DATABASE to store data.
 - Other types of databases include DIMENSIONAL databases (often used for data warehouses) and NOSQL databases (often used by search engines or other “big data” applications).
- Relational Databases are by far the most common type of database for transactional data systems.


Relational Data Models

- In a Relational database, data FIELDS are organized into TABLES.
- A goal in Relational database design is to AVOID DUPLICATION of the same data in multiple tables.
 - The practice of minimizing data duplication when designing data models is called NORMALIZATION.
- ID or Key values are used to link rows of data from multiple tables together.

Student



http://peoplesoft.myschool.edu



Student Information

Student ID:


1001

Name:

Savanah Miller

Birthdate:

8/21/1986



Save


Student

http://peoplesoft.myschool.edu

Student Information

Student ID:



Name:

Birthdate: 

STUDENT
STUDENT_ID
NAME
BIRTHDATE

STUDENT_ID	NAME	BIRTHDATE
1001	Savanah Miller	08/21/1986
1002	Roger Reynolds	1/21/1984

Classes



Class Information

Class ID:

Subject:

Catalog Nbr:

Title:

Save

Classes

http://peoplesoft.myschool.edu

Class Information

Class ID:

1234

Subject:

MATH

Catalog Nbr:

100

Title:


College Algebra

Save

CLASSES
CLASS_ID
SUBJECT
CATALOG_NBR
TITLE

CLASS_ID	SUBJECT	CATALOG_NBR	TITLE
1234	MATH	100	College Algebra
4567	ENGL	100	Intro to Literature

Enrollments



Enrollment Information

Student ID:

1001

Savanah Miller

Class ID:

1234

MATH 100 - College Algebra

Grade:

A+


Save

STUDENT
STUDENT_ID
NAME
BIRTHDATE

CLASSES
CLASS_ID
SUBJECT
CATALOG_NBR
TITLE

ENROLLMENTS
STUDENT_ID
NAME
CLASS_ID
SUBJECT
CATALOG_NBR
TITLE
GRADE

Enrollments



Enrollment Information

Student ID: 1001 Savannah Miller

Class ID: 1234 MATH 100 - College Algebra

Grade: A+

Save

STUDENT
STUDENT_ID
NAME
BIRTHDATE

CLASSES
CLASS_ID
SUBJECT
CATALOG_NBR
TITLE

ENROLLMENTS
STUDENT_ID
NAME
CLASS_ID
SUBJECT
CATALOG_NBR
TITLE
GRADE

Enrollments

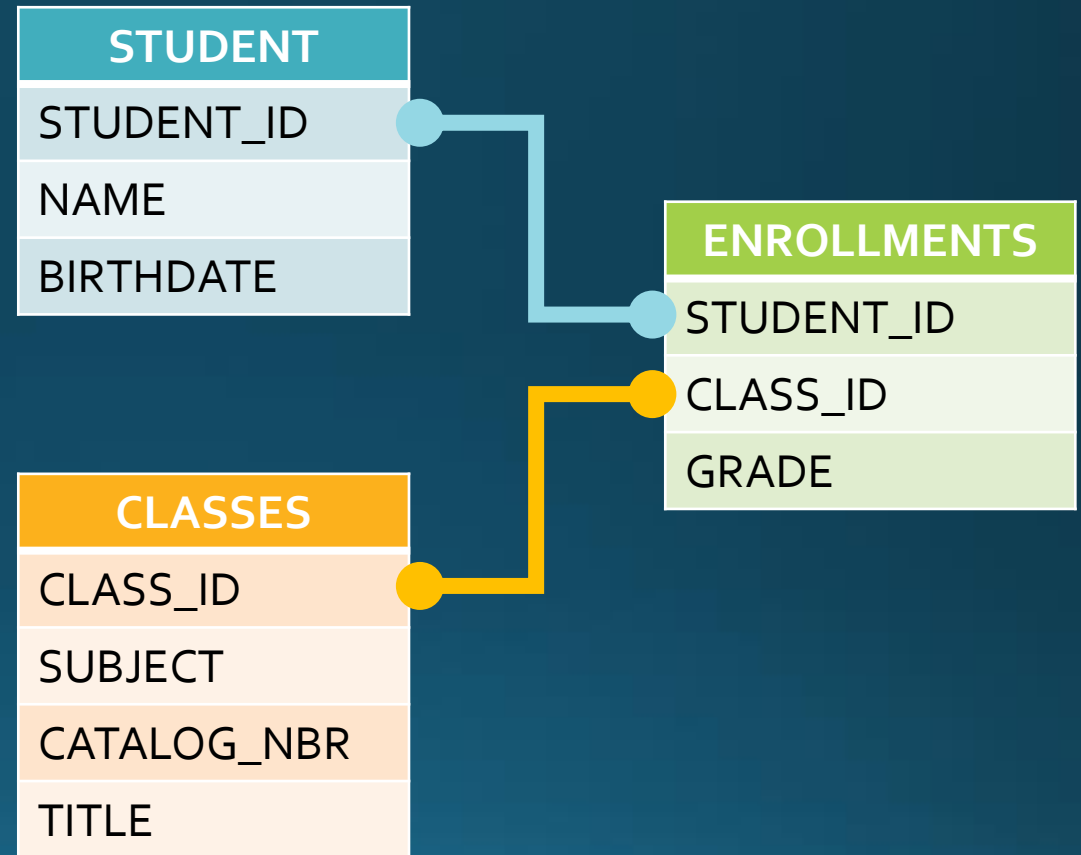
http://peoplesoft.myschool.edu

Enrollment Information

Student ID: Savannah Miller

Class ID: MATH 100 - College Algebra

Grade:



SQL (Structured Query Language)

- In a relational database, data is accessed and manipulated using SQL (Structured Query Language).
- This language includes commands for:
 - Retrieving data from tables (SELECT * FROM Students...)
 - Adding data to tables (INSERT INTO Students...)
 - Updating data in tables (UPDATE Students SET Name = 'Mark'...)
 - Deleting data from tables (DELETE FROM Students...)
- Whenever you search for data or save data on a page in PeopleSoft, there is SQL being executed behind the scenes.

What is PS Query?

- PS Query is a graphical query tool within PeopleSoft.
- It provides an interface for users to **graphically define the data they want to retrieve** from the database, eliminating the need for query writers to have to know SQL.
- After you define your query parameters using the PS Query interface, **PS Query generates the SQL** to execute against the database for you, and **then returns the resultant data back to you** in tabular format.

PS Query Security

- To write queries, users need access to the **Query Manager**.
- Users also need **Query Tree** access to the specific database tables (called Records in PeopleSoft) that they intend to query.
- For some tables, users also need **row-level security** to access specific rows of data within a table.
- For more information:
 - PeopleBooks
 - PeopleTools
 - Reporting and Analysis Tools
 - Query
 - PeopleSoft Query Security

Writing Our First PS Query

- Need a query to pull student enrollment data.
 - Student enrollment data is stored in table: **PS_STDNT_ENRL**
 - Need to include the following fields:
 - Student ID
 - Academic Career
 - Institution
 - Term
 - Class Number
 - Save the query as: **MJS_STDNT_ENROLLMENTS**

Data Model for Query

PS_STDNT_ENRL	
EMPLID	Key
ACAD_CAREER	Key
INSTITUTION	Key
STRM	Key
CLASS_NBR	Key
...	

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Filtering Criteria

- Need a query to pull student enrollment data.
 - Only include enrollment rows in the **BUSN** Academic Career.
 - Only include enrollment rows for Term **0330**.

Records

Query

Expressions

Prompts

Fields

Criteria

Having

Dependency

Transformations

View SQL

Run

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	ID	Career	Institution	Term	Class Nbr
1	AA0007	UGRD	PSUNV	0290	4037
2	AA0007	UGRD	PSUNV	0290	4047
3	AA0007	UGRD	PSUNV	0290	4070
4	AA0007	UGRD	PSUNV	0310	2053
5	AA0007	UGRD	PSUNV	0310	2150
6	AA0007	UGRD	PSUNV	0310	2344
7	AA0007	UGRD	PSUNV	0330	3101
8	AA0007	UGRD	PSUNV	0330	3106
9	AA0007	UGRD	PSUNV	0330	3189
10	AA0007	UGRD	PSUNV	0350	4054
11	AA0007	UGRD	PSUNV	0350	4055
12	AA0007	UGRD	PSUNV	0370	1078
13	AA0007	UGRD	PSUNV	0370	1082
14	AA0007	UGRD	PSUNV	0370	1127
15	AA0007	UGRD	PSUNV	0390	1256
16	AA0008	UGRD	PSUNV	0290	4037
17	AA0008	UGRD	PSUNV	0290	4047
18	AA0008	UGRD	PSUNV	0290	4070
19	AA0008	UGRD	PSUNV	0290	4182
20	AA0008	UGRD	PSUNV	0310	2150
21	AA0008	UGRD	PSUNV	0310	2161
22	AA0008	UGRD	PSUNV	0310	2320

Prompts

- Need a query to pull student enrollment data.
 - Only include enrollment rows in the BUSN Academic Career.
 - Only include enrollment rows for a **Term specified by the user.**

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Records

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View SQL

Run

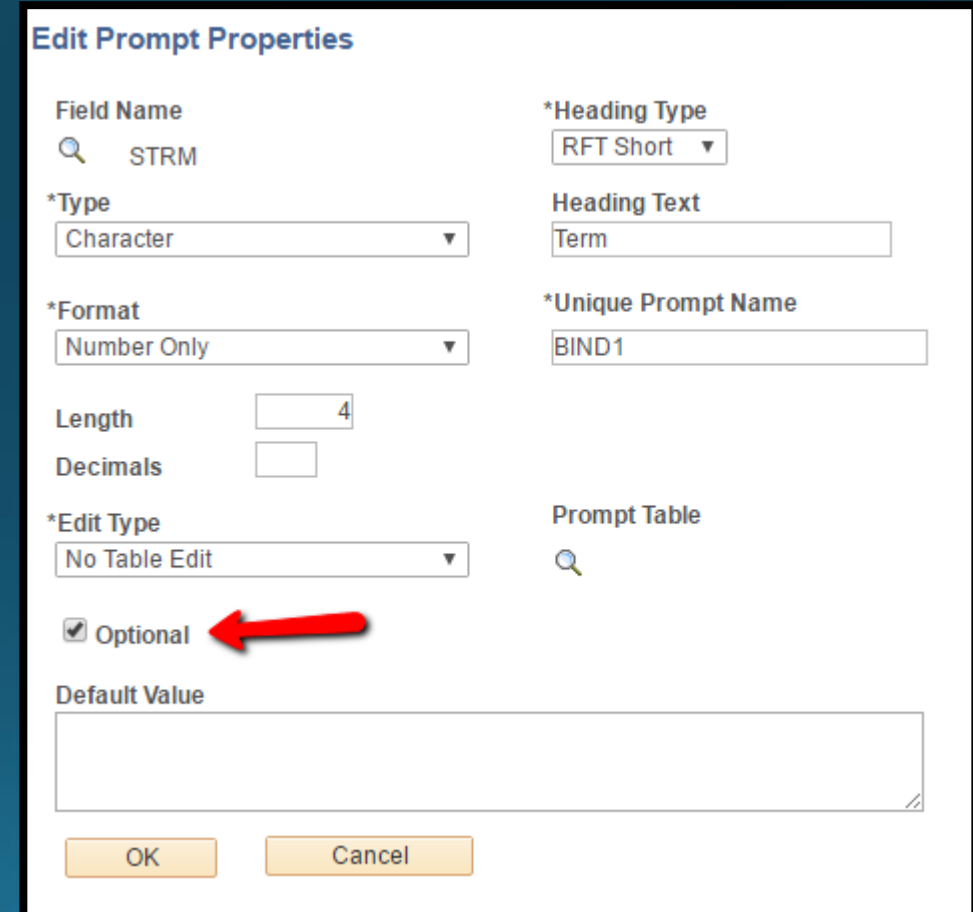
[View All](#) | [Rerun Query](#) | [Download to Excel](#) | [Download to XML](#)

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	ID	Career	Institution	Term	Class Nbr
1	SR0684	BUSN	PSUNV	0330	3319
2	SR0684	BUSN	PSUNV	0330	3323
3	SR0685	BUSN	PSUNV	0330	3037
4	SR0685	BUSN	PSUNV	0330	3323
5	SR0685	BUSN	PSUNV	0330	3328
6	SR0686	BUSN	PSUNV	0330	3037
7	SR0686	BUSN	PSUNV	0330	3319
8	SR0686	BUSN	PSUNV	0330	3323
9	SR0697	BUSN	PSUNV	0330	3037
10	SR0697	BUSN	PSUNV	0330	3323
11	SR0698	BUSN	PSUNV	0330	3037
12	SR0698	BUSN	PSUNV	0330	3323
13	SR0698	BUSN	PSUNV	0330	3328
14	SR0699	BUSN	PSUNV	0330	3037
15	SR0700	BUSN	PSUNV	0330	3037
16	SF0303	BUSN	PSUNV	0330	3319
17	SF0303	BUSN	PSUNV	0330	3321
18	SF0303	BUSN	PSUNV	0330	3324
19	SF0303	BUSN	PSUNV	0330	3326
20	SR0484	BUSN	PSUNV	0330	3319
21	SR0484	BUSN	PSUNV	0330	3323
22	SR0484	BUSN	PSUNV	0330	3331

Optional Prompts

- Beginning in PeopleTools 8.54 Prompts can now be Optional.
- Users will be presented with Optional prompts, but may choose to leave the value blank.
- Note this could result in very large resultsets being returned.



Edit Prompt Properties

Field Name  STRM


*Type

*Format

Length

Decimals


*Edit Type

☒ Optional 

*Heading Type

Heading Text

*Unique Prompt Name

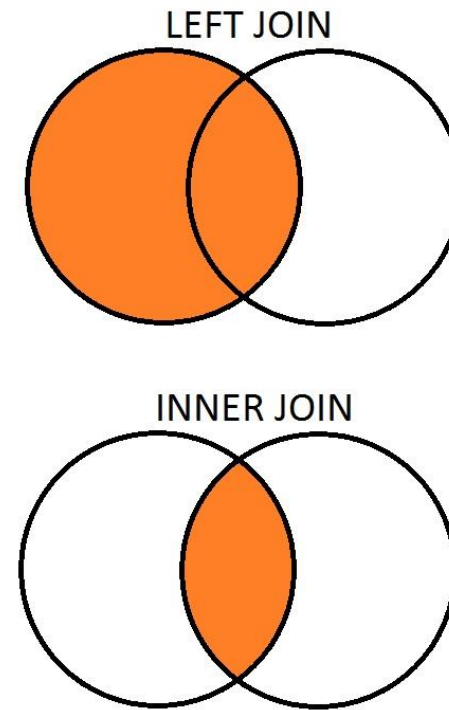
Prompt Table 

Default Value

OK Cancel

Joins

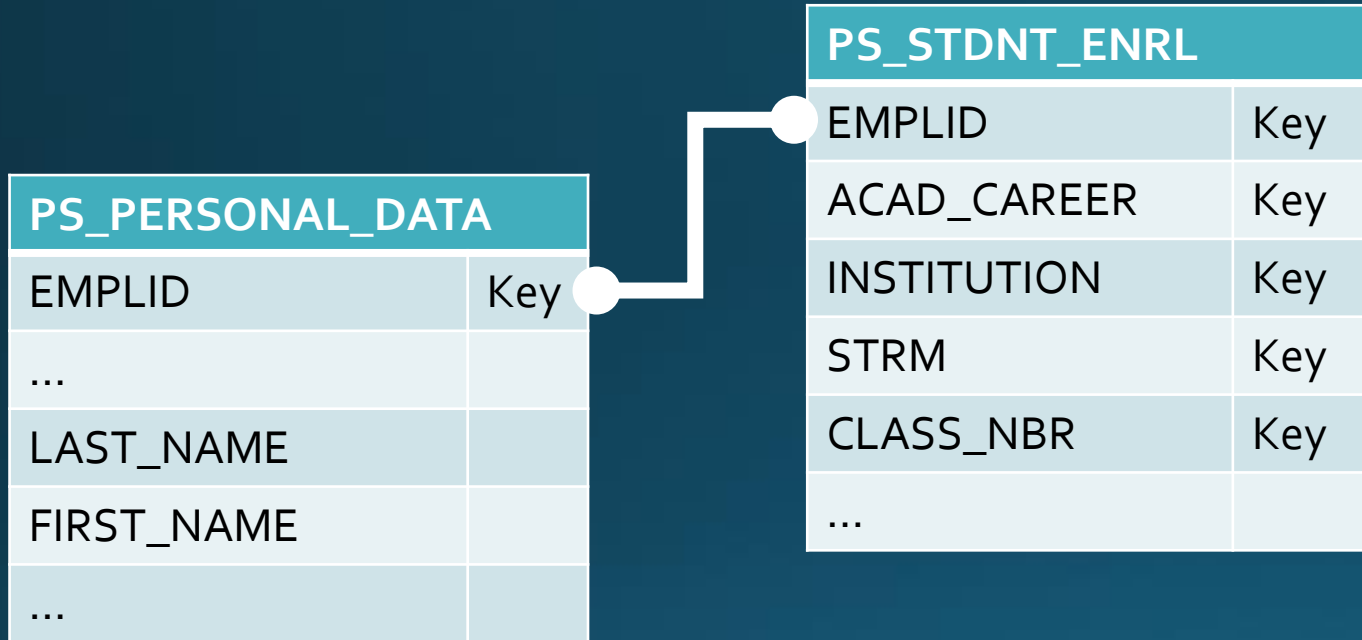
- **Left (Outer) Joins:** All records in the first (left) record are present, even if no matches are in the joining record.
- **Inner Join:** Only rows with a match in both records are returned.



Joins to Display Additional Fields

- Need a query to pull student enrollment data.
 - Only include enrollment rows in the BUSN Academic Career.
 - Only include enrollment rows for a Term specified by the user.
 - Include the **Student's Name** from **PS_PERSONAL_DATA**.

Updated Data Model for Query



Records

Query

Expressions

Prompts

Fields

Criteria



Having

Dependency

Transformations

View SQL

Run

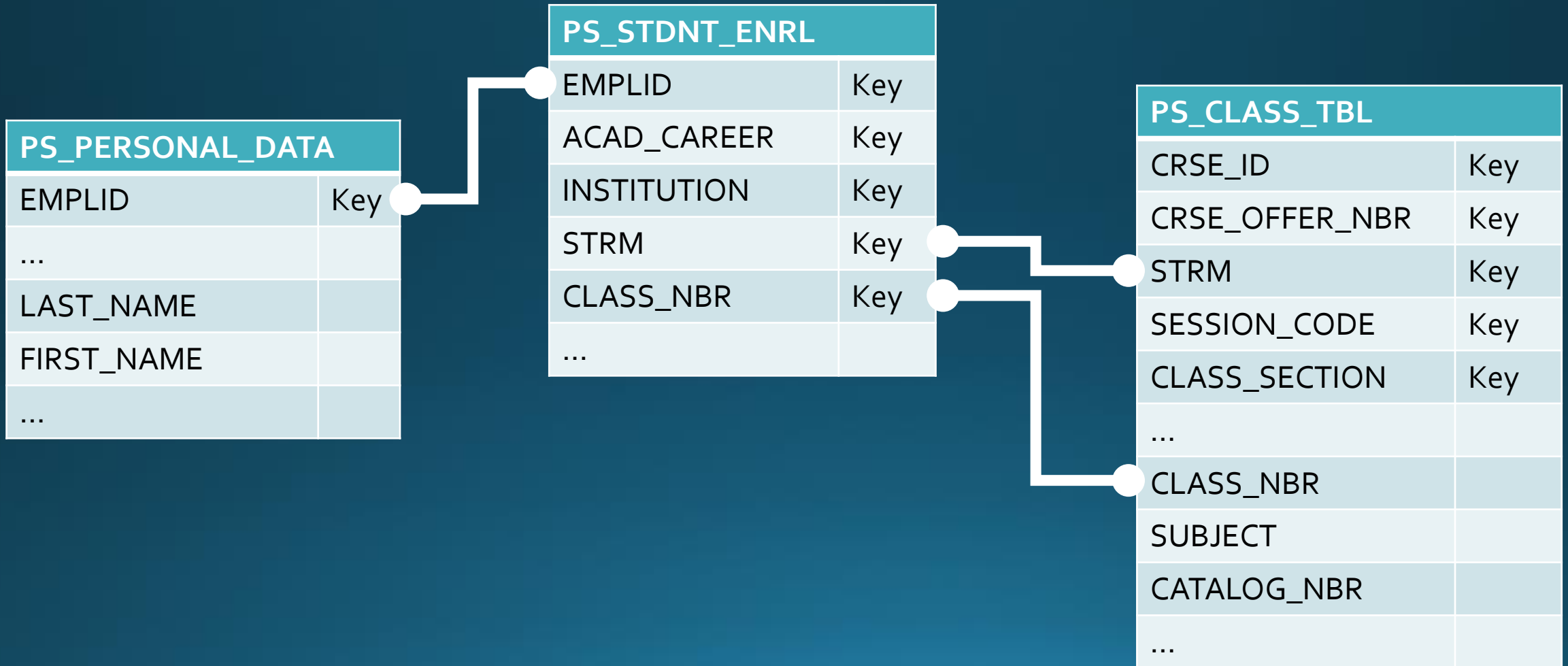
Term = 0440[View All](#) | [Rerun Query](#) | [Download to Excel](#) | [Download to XML](#)First  1-3 of 3  Last

	ID	Career	Institution	Term	Class Nbr
1	SR13499	BUSN	PSUNV	0440	1036
2	SR13423	BUSN	PSUNV	0440	1033
3	SR13440	BUSN	PSUNV	0440	1011

Joins to Display Additional Fields

- Need a query to pull student enrollment data.
 - Only include enrollment rows in the BUSN Academic Career.
 - Only include enrollment rows for a Term specified by the user.
 - Include the Student's Name from PS_PERSONAL_DATA.
 - Include the **Class Subject and Catalog Nbr** from PS_CLASS_TBL.

Updated Data Model for Query



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Term = 0440

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	ID	Last	First Name	Career	Institution	Term	Class Nbr
1	SR13499	Healey	Dennis	BUSN	PSUNV	0440	1036
2	SR13423	Soleiman	Mooi	BUSN	PSUNV	0440	1033
3	SR13440	Ingalls	Donald	BUSN	PSUNV	0440	1011

Joins to Filter Results

- Need a query to pull student enrollment data.
 - Only include enrollment rows in the BUSN Academic Career.
 - Only include enrollment rows for a Term specified by the user.
 - Include the Student's Name from PS_PERSONAL_DATA.
 - Include the Class Subject and Catalog Nbr from PS_CLASS_TBL, and filter to only include ECON classes.

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Term = 0440

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	ID	Last	First Name	Career	Institution	Term	Class Nbr	Subject	Catalog
1	SR13499	Healey	Dennis	BUSN	PSUNV	0440	1036	ECON	10
2	SR13423	Soleiman	Mooi	BUSN	PSUNV	0440	1033	BUSADM	561
3	SR13440	Ingalls	Donald	BUSN	PSUNV	0440	1011	BUSADM	510

Aggregate Functions

- Aggregate functions allow you to summarize information from multiple rows of data into a single value.

Aggregate Function	Description
SUM	Adds the values from each row and displays the total.
COUNT	Counts the number of all rows in the query result including the null-value rows and duplicated rows.
COUNT DISTINCT	Counts the number of nonnull-value rows in the query result, and the duplicated rows are counted once.
MIN	Checks the value from each row and returns the lowest one.
MAX	Checks the value from each row and returns the highest one.
AVERAGE	Adds the values from each row and divides the result by the number of rows.

Aggregate Example

- Need a query to pull a COUNT of student enrollments PER CLASS for a specified Term.

Query Manager

Enter any information you have and click Search. Leave fields blank for a list of all values.

Find an Existing Query | [Create New Query](#)

*Search By

Query Name ▾

begins with

Search

[Advanced Search](#)

Expressions

- Expressions are calculations performed by PS Query to derive a value not stored in the system. For example:
 - Adding two numeric values together.
 - Determining the number of days between two dates.
 - Concatenating two character strings together.
- The result of an Expression can be displayed as a column in the query output, or used as a comparison value in selection Criteria.
- TIP: You can use database-specific functions in Expressions, or Meta-SQL keywords which PeopleSoft will translate to the appropriate database-specific function.

Expression Example

- Need a query to retrieve all Classes.
 - Create a field that displays the Subject, Catalog Nbr, and Class Title in the following format:

MUSC 107 – Acoustics for Musicians

Query Manager

Enter any information you have and click Search. Leave fields blank for a list of all values.

Find an Existing Query | [Create New Query](#)

*Search By

begins with

Search

[Advanced Search](#)

Making Results Distinct

- Need a query to retrieve all Classes.
 - Create a field that displays the Subject, Catalog Nbr, and Class Title in the following format:

MUSC 107 – Acoustics for Musicians

- Only return one row per unique combination of values (remove duplicates).

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Records Query Expressions Prompts Fields Criteria Having Dependency Transformations View SQL Run

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	Subject	Catalog	Descr	Class (Formatted)
1	ECON	115	Economic Statistics	ECON 115 - Economic Statistics
2	ECON	150	Microeconomics	ECON 150 - Microeconomics
3	ECON	115	Economic Statistics	ECON 115 - Economic Statistics
4	ECON	901	PhD Research (Economics)	ECON 901 - PhD Research (Economics)
5	ECON	104	Quantitative Methods:B	ECON 104 - Quantitative Methods:B
6	ECON	104	Quantitative Methods:B	ECON 104 - Quantitative Methods:B
7	ECON	101	Microeconomics 1	ECON 101 - Microeconomics 1
8	ECON	103	Quantitative Methods:A	ECON 103 - Quantitative Methods:A
9	ECON	103	Quantitative Methods:A	ECON 103 - Quantitative Methods:A
10	ECON	100	Intro to Microeconomics	ECON 100 - Intro to Microeconomics
11	ECON	101	Intro to Macroeconomics	ECON 101 - Intro to Macroeconomics
12	ECON	200	Macroeconomics & Policy	ECON 200 - Macroeconomics & Policy
13	ECON	200E	Macroeconomics & Policy	ECON 200E - Macroeconomics & Policy
14	ECON	901	PhD Research (Economics)	ECON 901 - PhD Research (Economics)
15	ECON	104	Quantitative Methods:B	ECON 104 - Quantitative Methods:B
16	ECON	104	Quantitative Methods:B	ECON 104 - Quantitative Methods:B
17	ECON	101	Microeconomics 1	ECON 101 - Microeconomics 1
18	ECON	103	Quantitative Methods:A	ECON 103 - Quantitative Methods:A
19	ECON	103	Quantitative Methods:A	ECON 103 - Quantitative Methods:A
20	ECON	100	Intro to Microeconomics	ECON 100 - Intro to Microeconomics
21	ECON	101	Intro to Macroeconomics	ECON 101 - Intro to Macroeconomics
22	ECON	200	Macroeconomics & Policy	ECON 200 - Macroeconomics & Policy

Determining Table Names

Navigation: Favorites ▾ Main Menu ▾ > Records and Enrollment ▾ > Enroll Students ▾ > Enrollment Home Sign out

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Student Enrollment 1 Student Enrollment 2 Student Enrollment 3 Student Enrollment 4 Last Enrollment Action

Daniel Lender FA0782
Term 2003 Fall Career Undergraduate Institution PeopleSoft University

Class Details Find | View All First 1 of 1 Last

*Class Nbr	1160	Description	General Biology I	Component	Lecture
Subject	Biology	Catalog Nbr	100	Class Section	1
Academic Group	College of Liberal Arts	Career	Undergrad	Session	Regular
Status	Enrolled	Reason Enrolled		Status Date	05/27/2004
Action		Reason		Program	LAU

Grading

☐ Override Grading Basis

*Grading Basis GRD Graded

Grade In/Official

Repeat Code

Units

Units Taken	16.00	Units E
Course Count	1.00	Pro
Billing Units	16.00	FA Pro

Go to Term History Enrollment Summary

Save Return to Search Previous in List Next in List Notify Refresh

Student Enrollment 1 | Student Enrollment 2 | Student Enrollment 3 | Student Enrollment 4 | Last Enrollment Action

Press CTRL-J
(or CTRL-SHIFT-J)

Browser	CHROME/51.0
Operating System	WIN
Browser Compression	ON (gzip)
Tools Release	8.54.21
Application Release	HRMS and Campus Solutions 9.00.05.041
Service Pack	5
Page	STDNT_ENRL1
Component	STDNT_ENRL
Menu	MANAGE_ACADEMIC_RECORDS
User ID	PS

Determining Table Names

Using App Designer

STDNT_ENRL1 (Page)

Layout | Order

PERS_SRCH_CS_SBP

STDNT_ENRL_HDR_SBP

Calculate End Date

Class Nbr: 22

Subject: N AAAAAAAAAA

Academic Group: N AAAAAAAAAA

Status: N AAAAAAAAAA

Action: N

Start Date:

Grading

Override Grading Basis

Grading Basis: AAA

Grade In/Official: N N N

Go to: Term History Enrollment

Edit Box Properties

Record | Label | Use | General | Fluid

Field

Record Name: STDNT_ENRL

Field Name: GRADING_BASIS_ENRL

Style: Use Default Style Fill Character:

Size

Alignment

Family Name: Display Name:

Display Options

Display Zero Display Century

Password Currency Symbol

Using a Query

```
SELECT RECNAME, FIELDNAME  
FROM PSPNLFIELD  
WHERE PNLNAME = 'STDNT_ENRL1'
```

Coming Up Next: BI Publisher

5 Minute Break!