

What are Joins? How do they work?

Joining Categories

Categories

- What is a category?
 - Set of Column Names
 - No limit on how many columns there can be in a category
 - Rows of Data
 - The only limit is the amount of data in your SI Database
 - Think of it like an Excel spreadsheet
 - Also known as Views in our StudentInformation package

Mammals		
GUID	Name	Description
A1-32-100	Otters	Brown, Furry, Wet
B2-64-182	Dolphins	Gray, Wet, Smart
C3-75-987	Rabbits	White, Furry, Fluffy

← Category Name
← Column Names
← Data Rows

Jumps		
GUID	Name	Description
B2-64-182	Dolphins	Gray, Wet, Smart
C3-75-987	Rabbits	White, Furry, Fluffy
D4-12-645	Frogs	Slimy, Ribbits

Swims		
GUID	Name	Description
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D4-12-645	Frogs	Slimy, Ribbits
E5-32-920	Fish	Scaley, Blup blup blup
B2-64-182	Dolphins	Gray, Wet, Smart

Why Join Categories?

- Most Student categories are designed to return all students whether they have related data or not; however, there are always caveats.
 - Student Categories -> data contains specific student related data pieces
- Categories are designed to include the most essential pieces of data so only one category is needed by any report.
 - This makes reports run faster
 - There are standard fields – to learn about what fields are standard within categories refer to the 'Ad Hoc View Information and Report List' Doc
- So why join Categories?
 - 1 or more columns from another category may be essential in making reports useful so it may be truly necessary to bring in a category.

How do we join?

- Find unique items that are found in all categories
- In our case we use GUIDs also known as Unique IDs

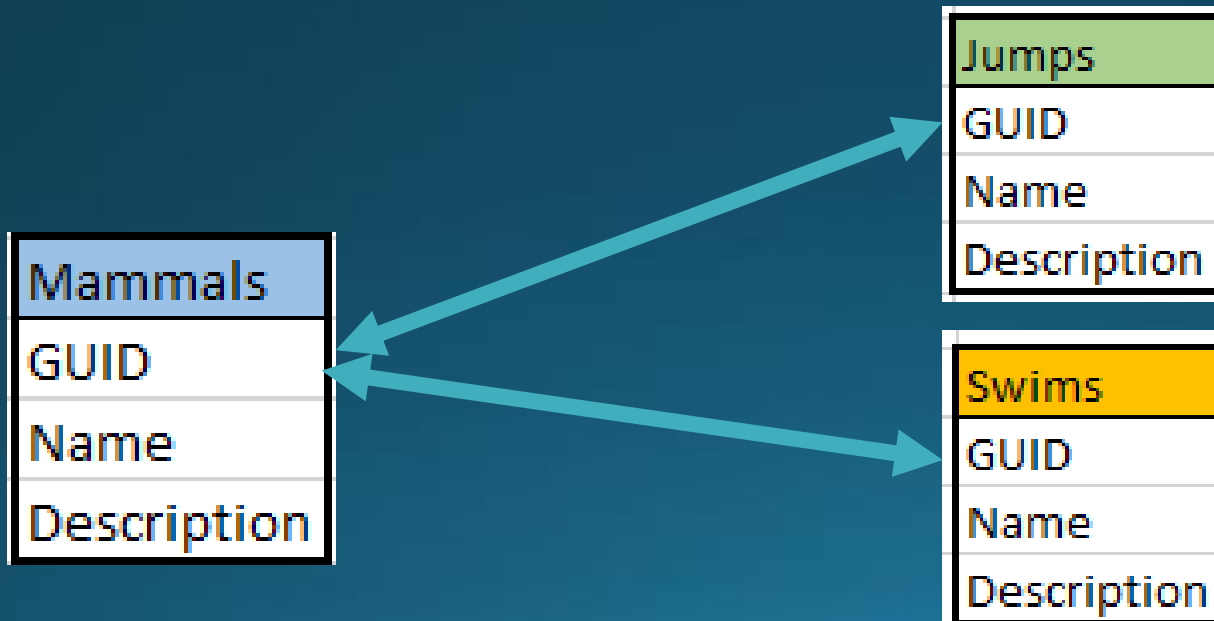
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It's about the Columns

- We're matching on uniqueness between categories
- The Column Names contain the unique data
- We Match Column Names!

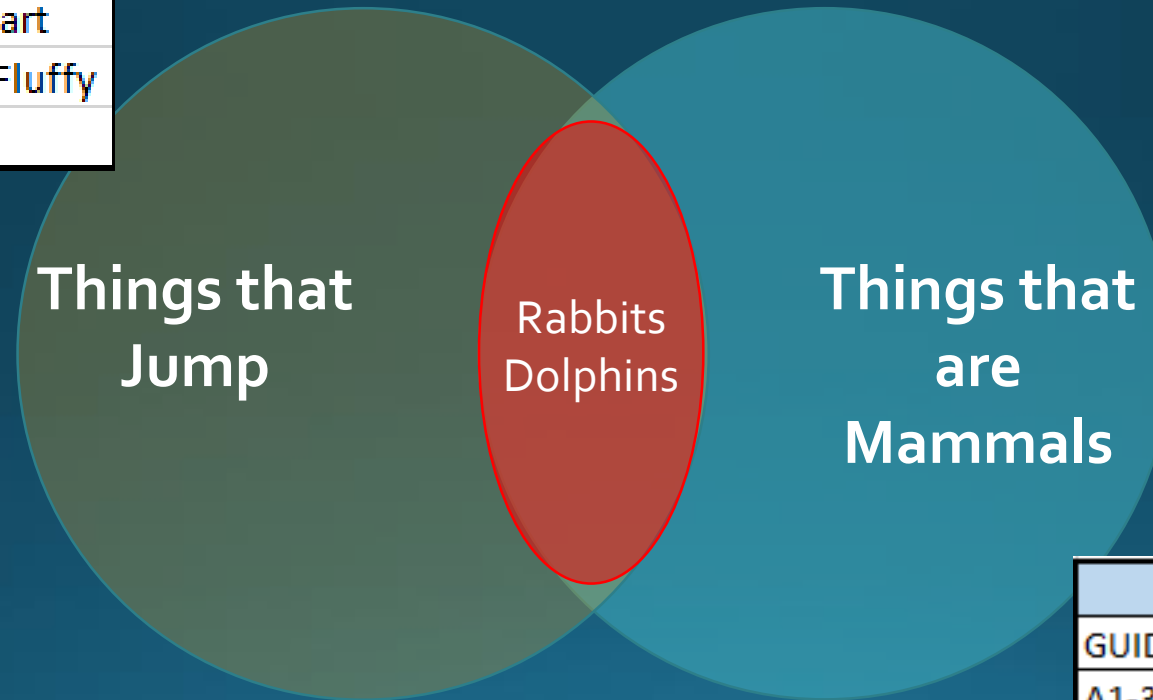


Types of Joins

- INNER JOIN – Only produces results that show up in both categories
- OUTER JOIN – produces all results from one category + whatever shows in both
- Report Designer Default - when joining two or more categories together is an INNER JOIN.
- Report Designer allows a change from INNER JOIN to an OUTER JOIN between categories with Check Box options

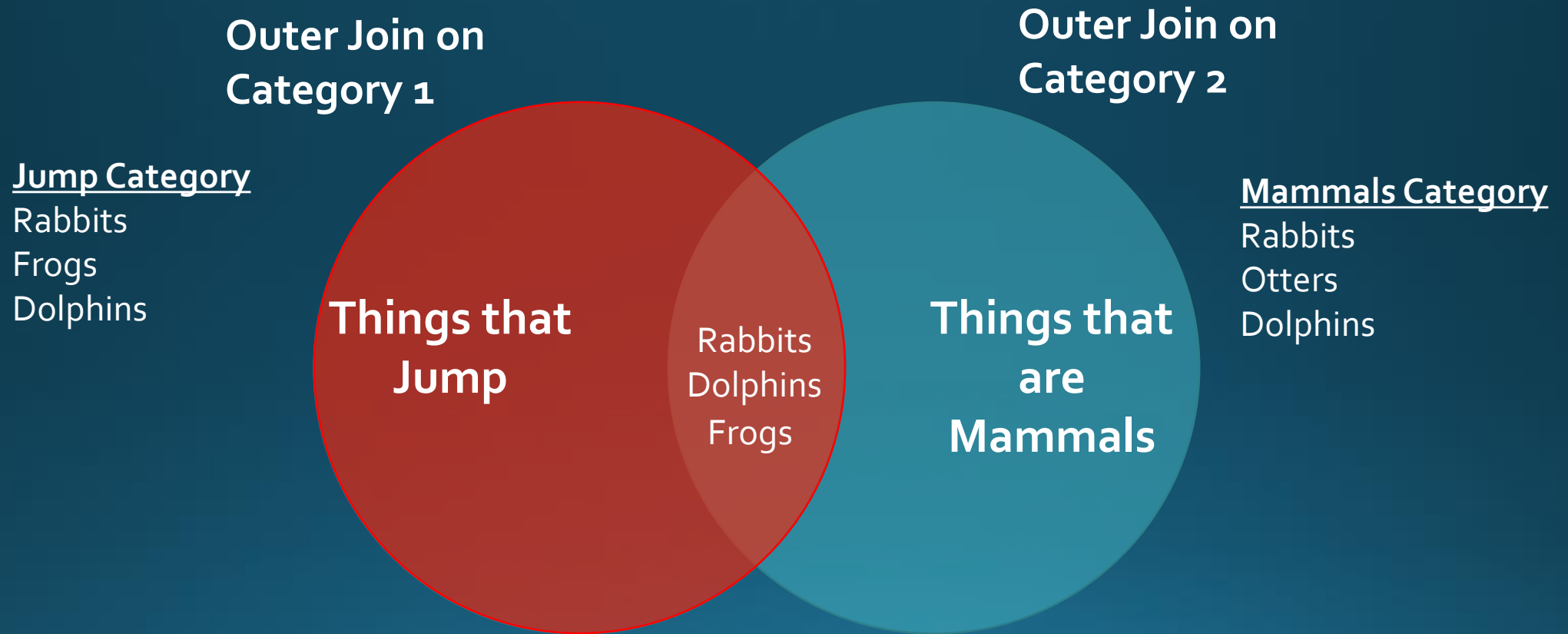
Inner Join

Jumps		
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D4-12-645	Frogs	Slimy, Ribbits

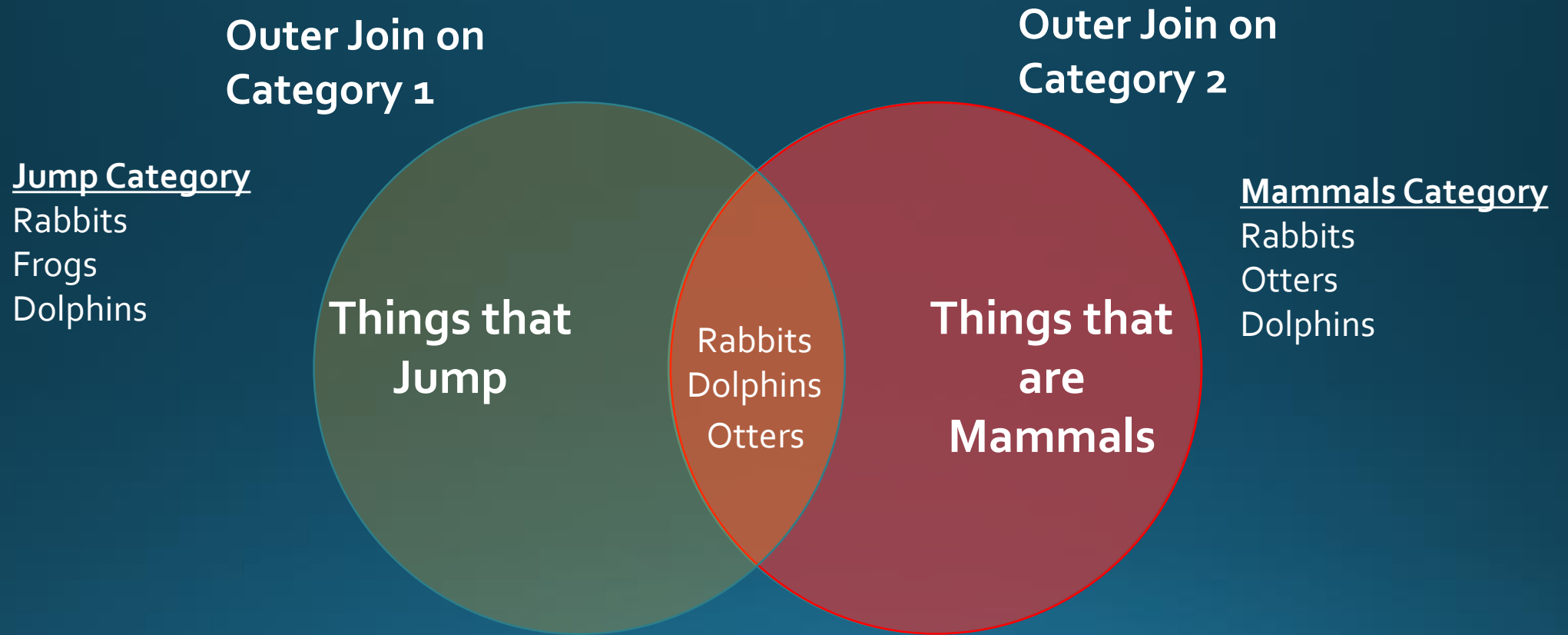


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Outer Join 1



Outer Join 2



Let's add another

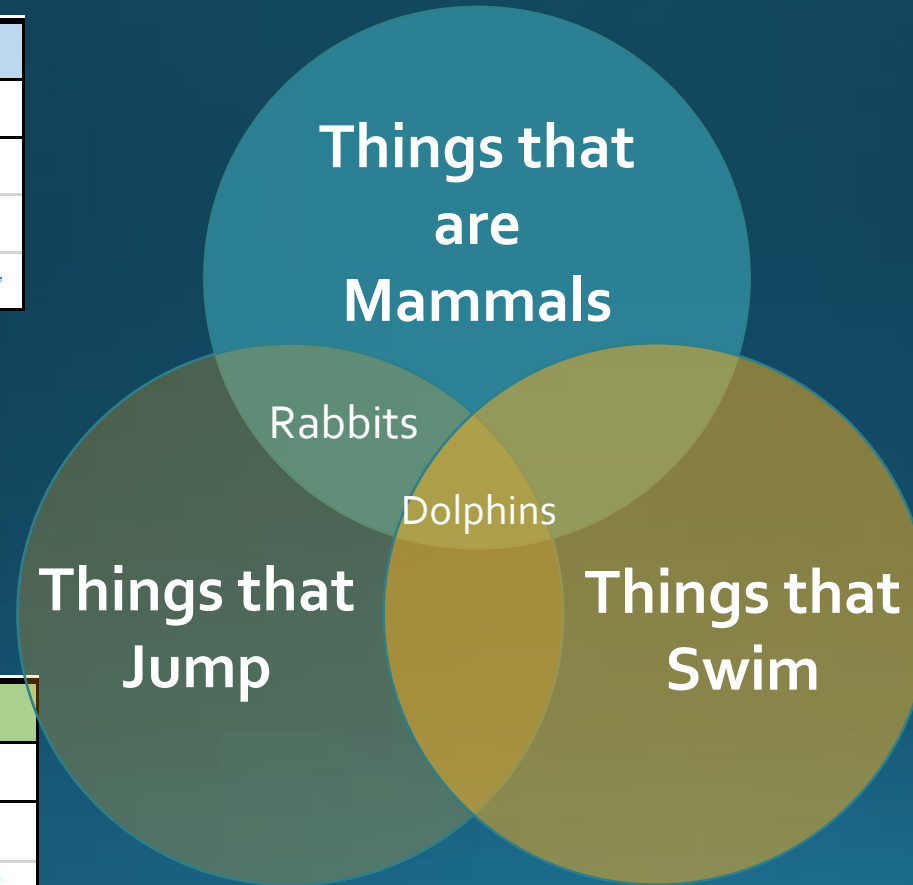
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Mammals INNER JOIN Jumps

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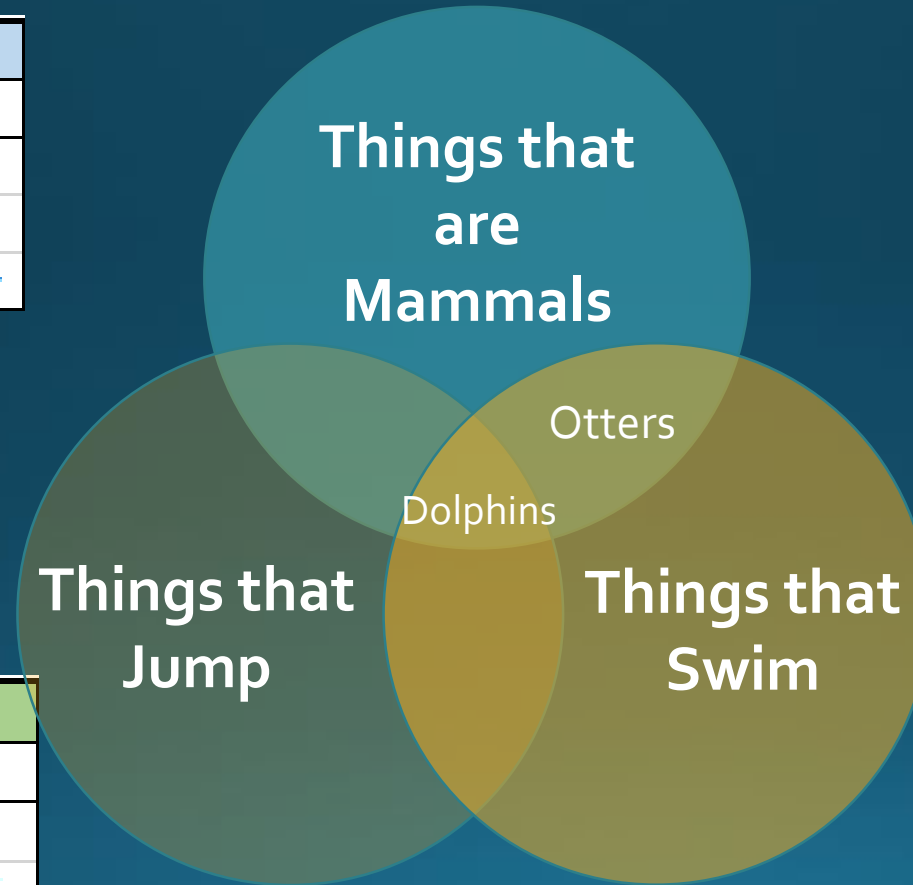
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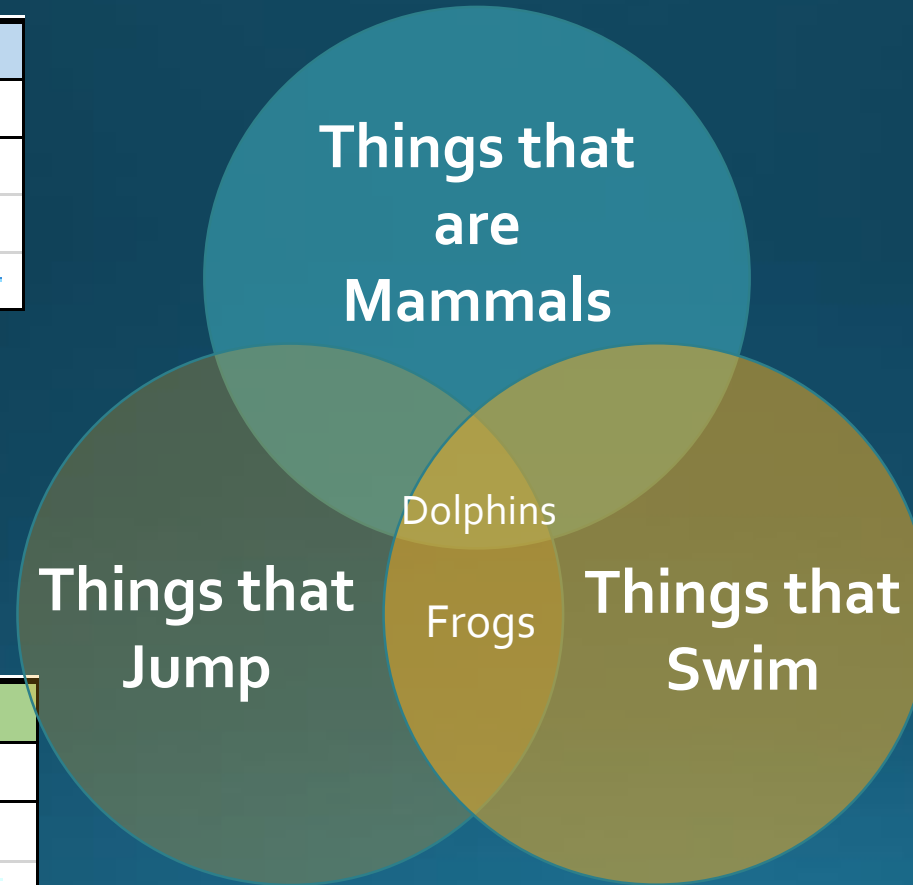


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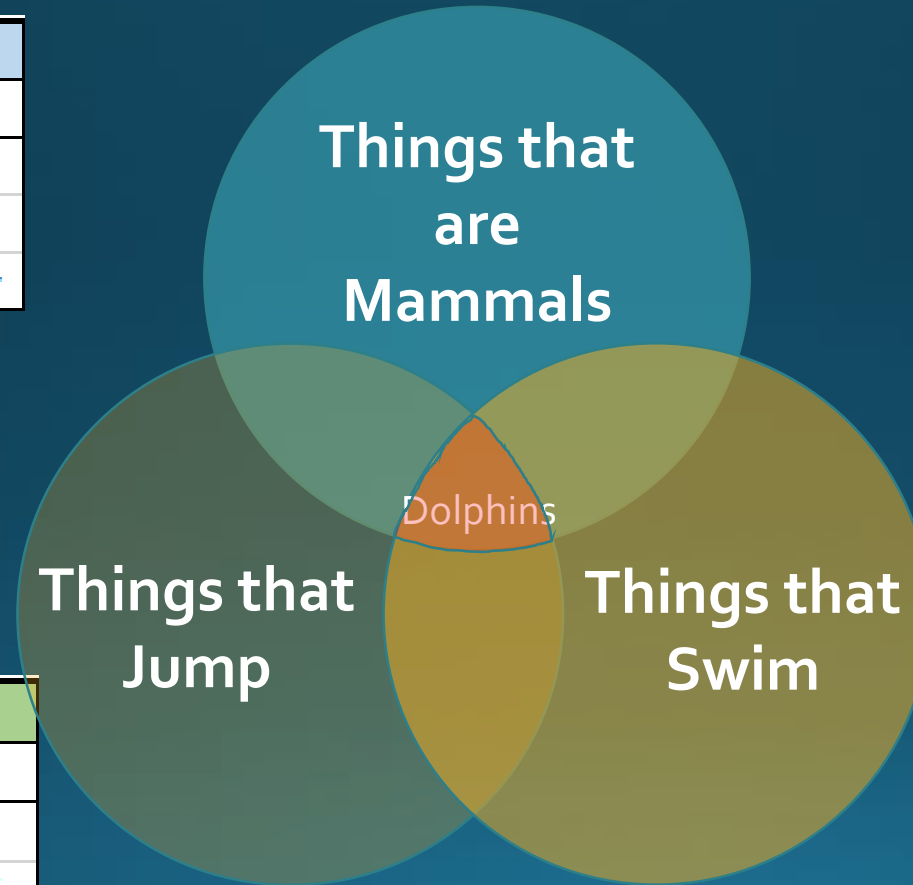


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INNER JOIN All Categories

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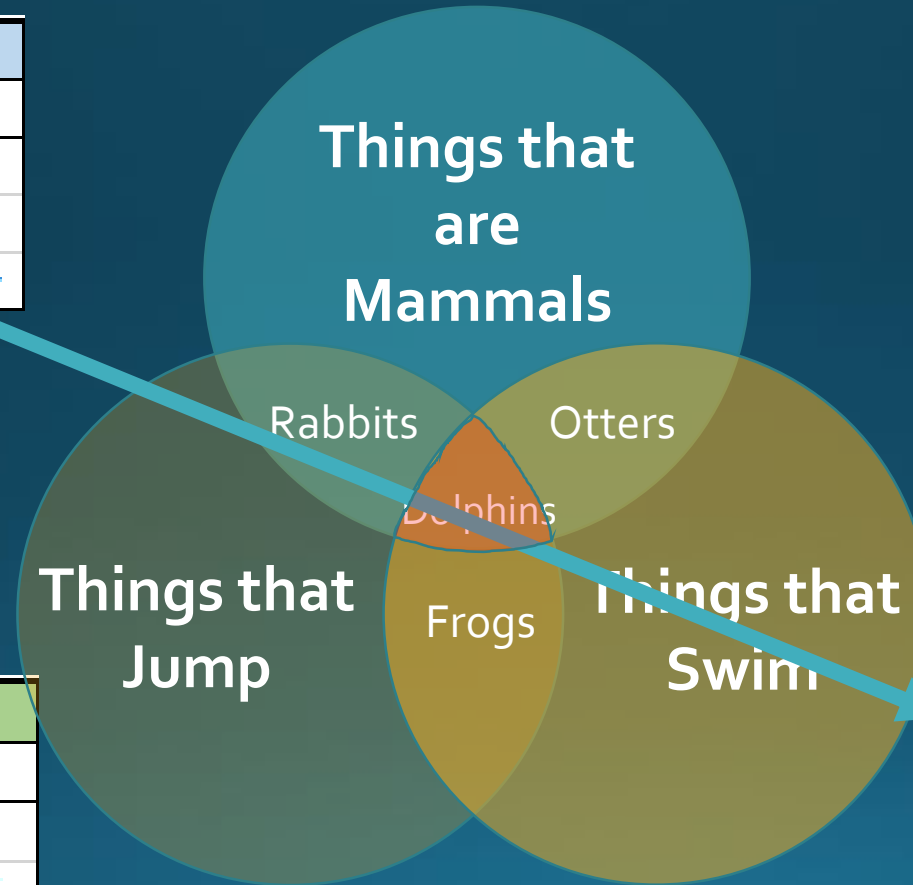


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How do we apply this to StudentInformation Categories?

- Future Examples will show SI Categories
- Previews Example Translates to Following SI Categories
 - Mammals = StudentDemographicCore
 - Jumps = StudentCourseInfo
 - Swims = StudentEMISFD

What is a GUID?

- GUIDs are Unique IDs
- Contained within Column Names of the Category
- Refer to Ad Hoc View/Report documentation
- Use the GUID columns to join between the SI Ad-Hoc Categories
- Look like meaningless randomly generate number/letter data
- They have meaning...But we won't get into that!

SI GUID
3A0F623F-5DD8-48A9-B699-94A700D95C1B

- Next set of examples refer to SI GUIDs but we will not show actual id because they are so long and it's messy

The Nature of the Beast

- Let's recall how our school districts work and describe our example
- We know the following:
 - Students are registered into a specific building and into a specific school year
 - Students can have multiple FS & FD records for each building and each school year
 - Each student will have several courses specific to each building and each school year
- It's a lot of data and we're only talking about Students!

2 SI Categories

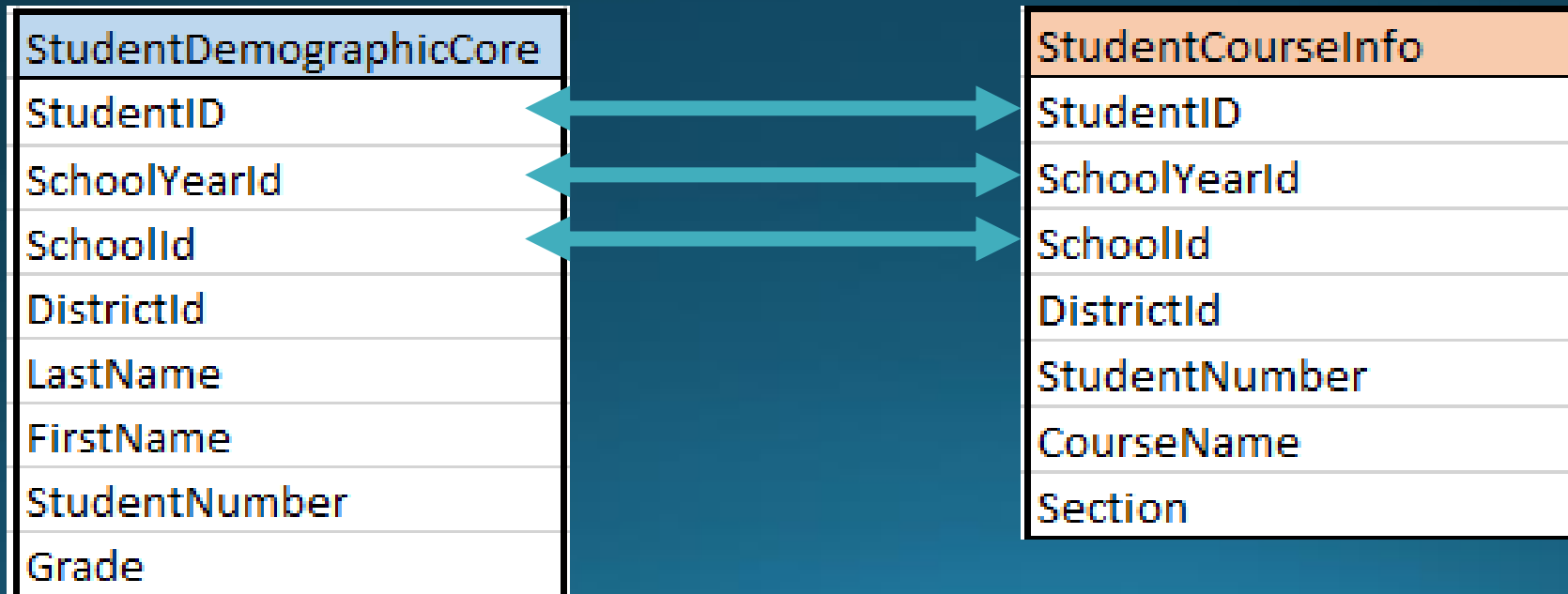
- We have students
 - Notice one student is registered @ 2 different buildings
- We have courses
 - Notice one student is taking classes at both buildings
- We need to ensure everything matches
Students ->
Buildings & School
Years

StudentDemographicCore							
StudentID	SchoolYearId	SchoolId	DistrictId	LastName	FirstName	StudentNumber	Grade
GUID1A	GUID2E	GUID1B	GUID1D	Bauer	Melissa	000023	8
GUID1A	GUID2E	BUID1C	GUID1D	Bauer	Melissa	000023	8
GUID2A	GUID2E	GUID1B	GUID1D	Launer	Devin	001045	12
GUID3A	GUID2E	BUID1C	GUID1D	Recker	Amy	012300	7

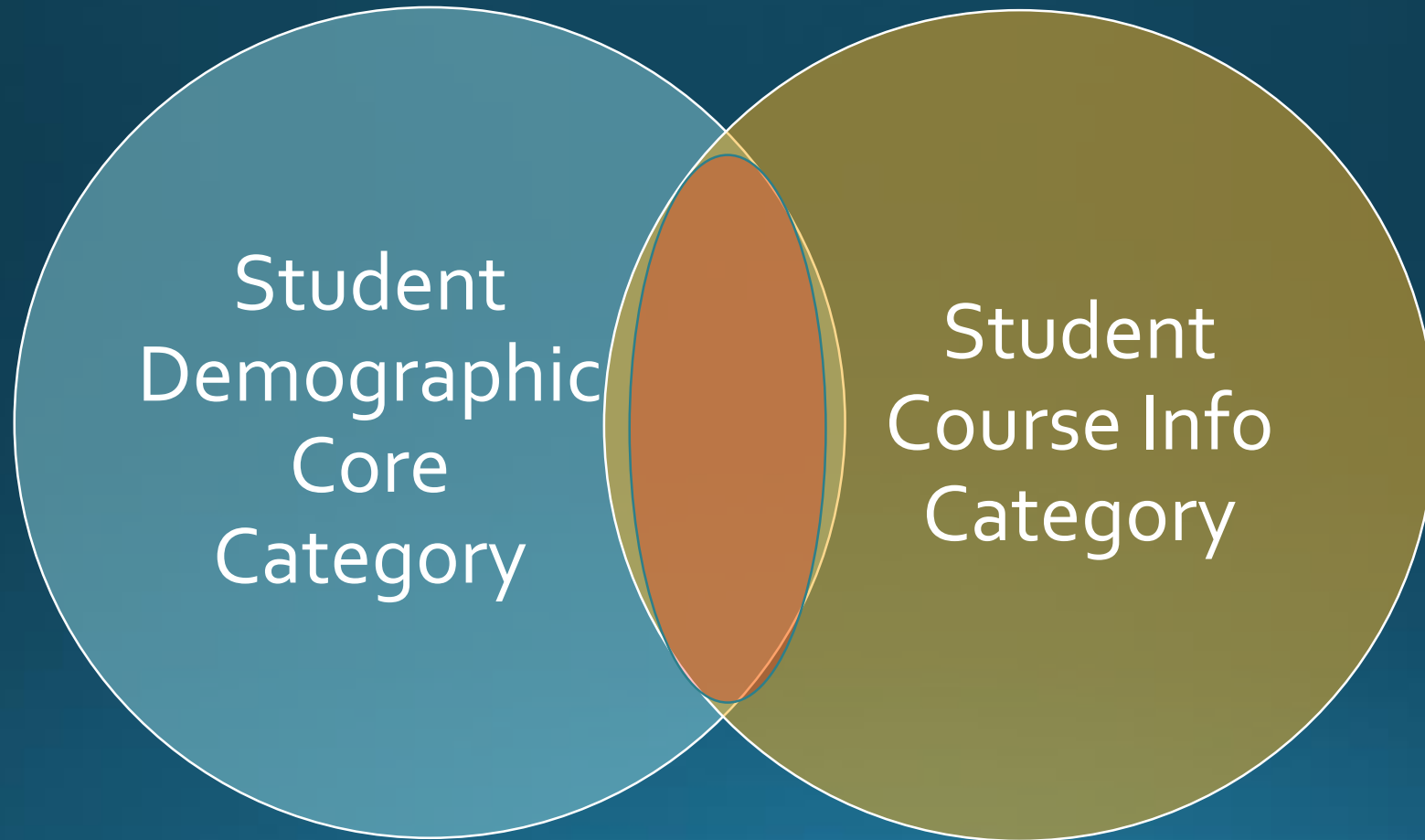
StudentCourseInfo						
StudentID	SchoolYearId	SchoolId	DistrictId	StudentNumber	CourseName	Section
GUID1A	GUID2E	GUID1B	GUID1D	000023	Speech	1
GUID1A	GUID2E	GUID1B	GUID1D	000023	Geometry	5
GUID1A	GUID2E	BUID1C	GUID1D	000023	Social Studies	8
GUID2A	GUID2E	GUID1B	GUID1D	001045	Algebra I	23
GUID2A	GUID2E	GUID1B	GUID1D	001045	Geometry	5
GUID2A	GUID2E	GUID1B	GUID1D	001045	US History	8
GUID3A	GUID2E	BUID1C	GUID1D	012300	Math	8
GUID3A	GUID2E	BUID1C	GUID1D	012300	Science	8
GUID3A	GUID2E	BUID1C	GUID1D	012300	Social Studies	8

Let's Practice Joins

- How do we ensure that we pull unique data for Students?
- What do we Join? Hint: Consult the View/Report Document
- Let's Discuss



SI Example – 2 Categories - INNER

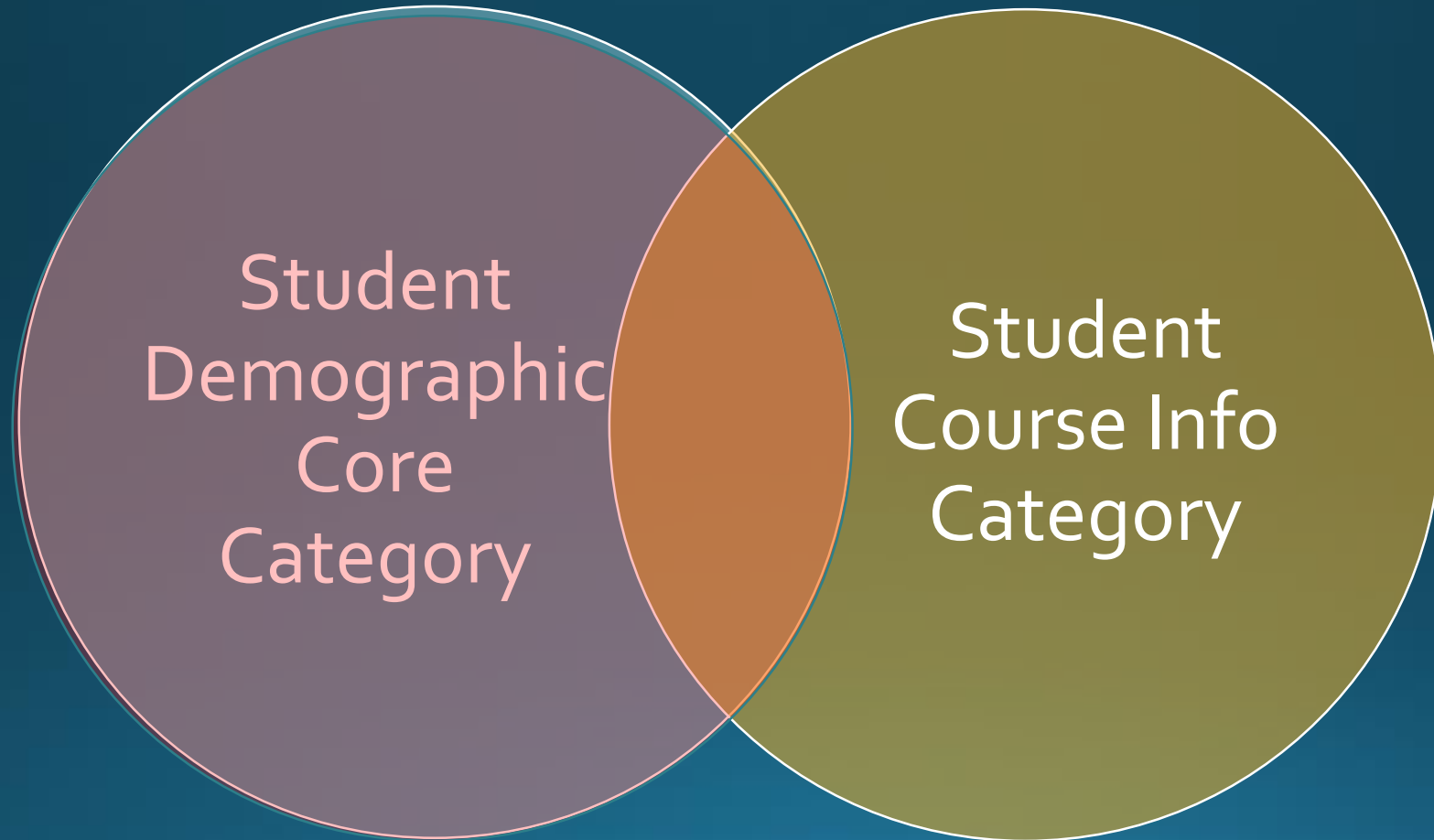


INNER JOIN –
Our results are
Students who
have data in
both the
Student
Demographic
Core AND
Student Course
Info Categories

* - REMEMBER: **Most** Student categories are designed to return all students whether they have related data or not –
Therefore in most cases, outer joins are unnecessary

SI Example – 2 Categories – Outer SD

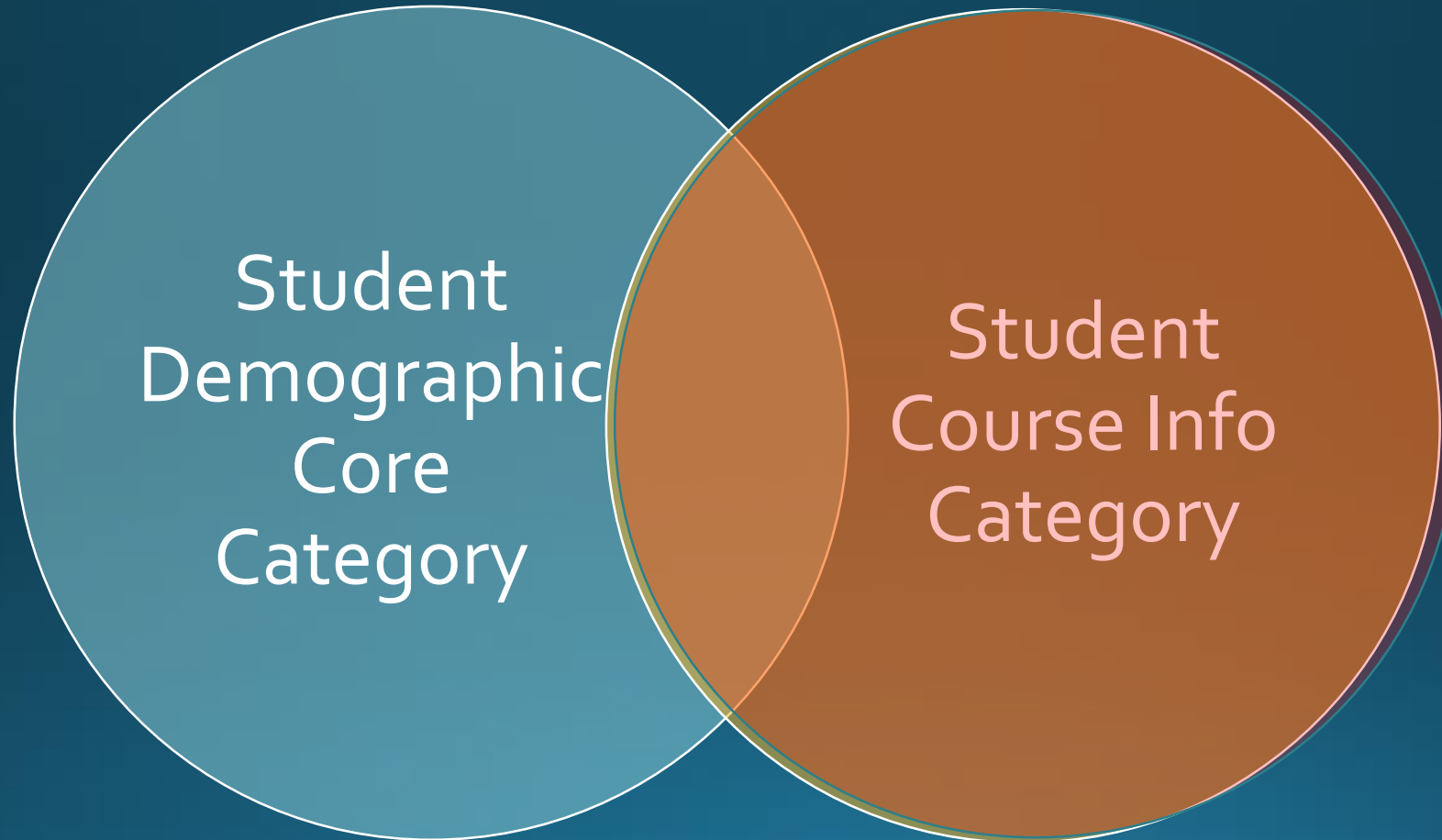
Outer Join –
either
category will
give you all
students in
StudentDemo
graphicCore –
OR- all
students in
StudentCourse
Info Category*



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StudentCourse
Info Category*



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What's the INNER JOIN result?

Student Course Report					
StudentNumber	LastName	FirstName	Grade	CourseName	Section
000023	Bauer	Melissa	8	Speech	1
000023	Bauer	Melissa	8	Geometry	5
000023	Bauer	Melissa	8	Social Studies	8
001045	Launder	Devin	12	Algebra I	23
001045	Launder	Devin	12	Geometry	5
001045	Launder	Devin	12	US History	8
012300	Recker	Amy	7	Math	8
012300	Recker	Amy	7	Science	8
012300	Recker	Amy	7	Social Studies	8

What if I don't make joins?

- Depending on report and who is reading it
 - Mismatched data!! -> UTTER CHAOS, Catastrophe
 - What seems like data row duplication
 - Missing data fields
 - more data returned which could be incorrect
- RULE: If you are using more than one category -> MUST USE JOINS
- RULE: Working with Student Categories -> ALWAYS Match StudentId, SchoolId, SchoolYearId
- Missing GUID aka Unique IDs to match between Categories -> Submit a ticket and let us know

Example: Not Matching SchoolId

+ Student Course Report					
StudentNumber	LastName	FirstName	Grade	CourseName	Section
000023	Bauer	Melissa	8	Geometry	5
000023	Bauer	Melissa	8	Geometry	5
000023	Bauer	Melissa	8	Social Studies	8
000023	Bauer	Melissa	8	Social Studies	8
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000023	Bauer	Melissa	8	Speech	1
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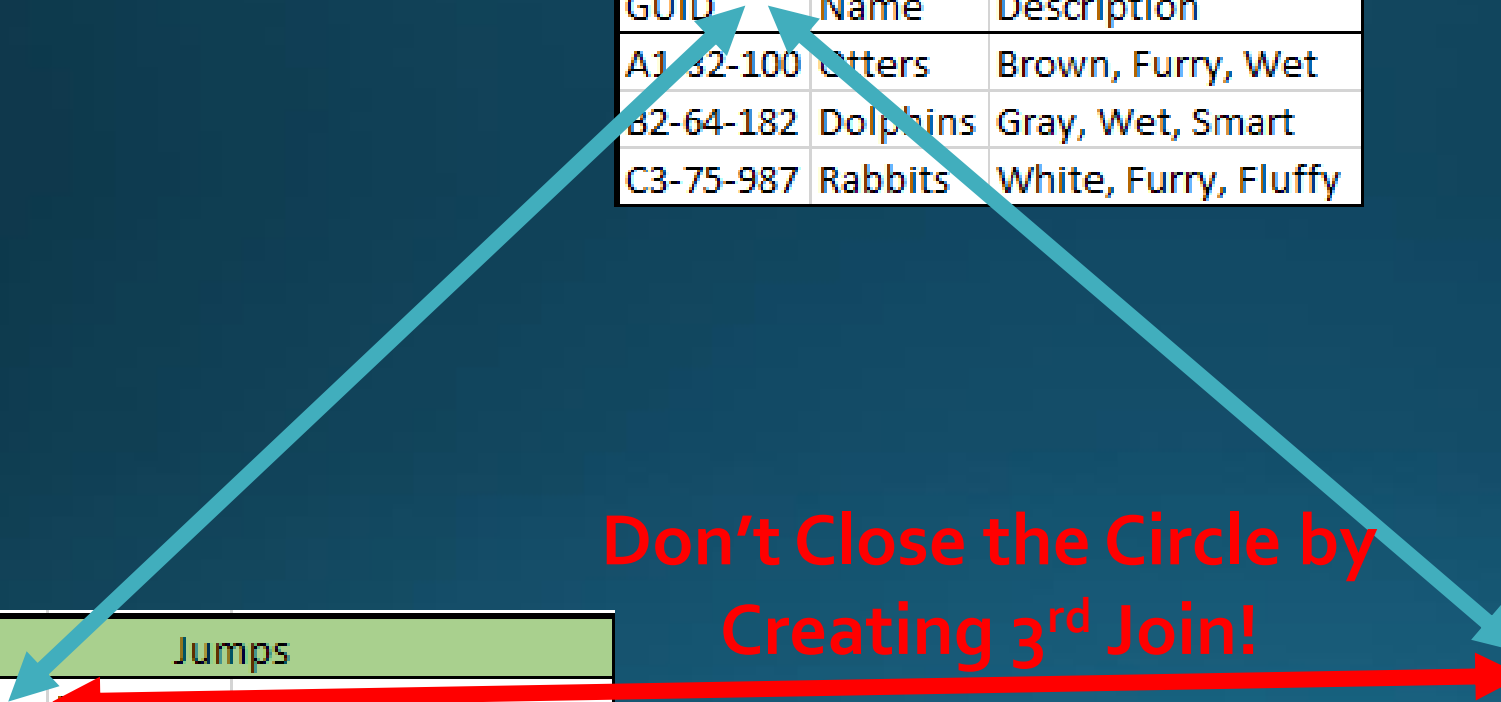
Tip: Create Non-Circular Joins

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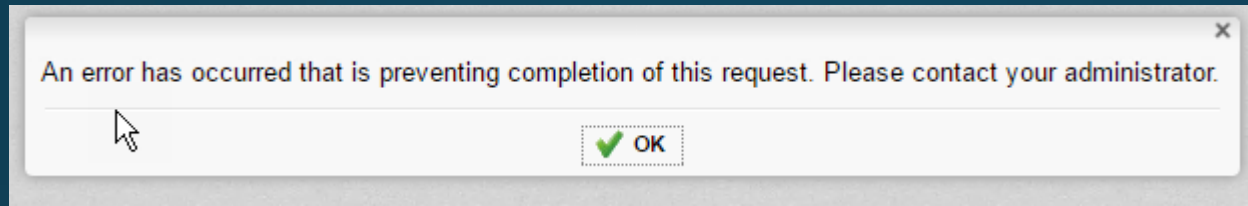
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Don't Close the Circle by
Creating 3rd Join!



What Happens?

- Circular Join will create a Generic Report Error



- Generic Report error means there is an issue with the report. Error logs are on the web server
 - Need to go to the Web Server:
C:\windows\Temp\Exago\WebReportsLog.txt
 - File generally keeps errors around for about 24 hours and then resets

3 SI Categories

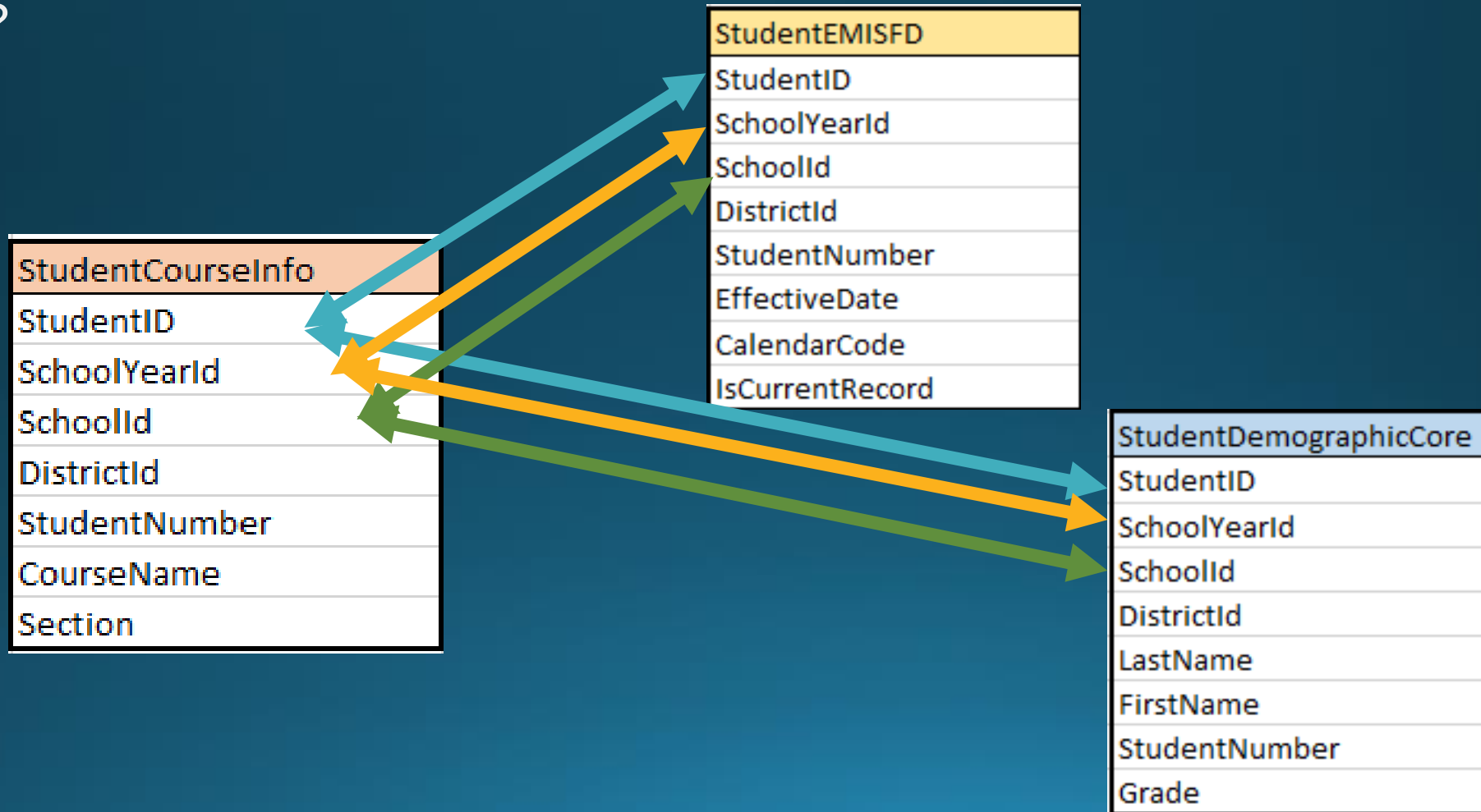
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GUID3A	GUID2E	BUID1C	GUID1D	012300	Science	8
GUID3A	GUID2E	BUID1C	GUID1D	012300	Social Studies	8

StudentEMISFD							
StudentID	SchoolYearId	SchoolId	DistrictId	StudentNumber	EffectiveDate	CalendarCode	IsCurrentRecord
GUID1A	GUID2E	GUID1B	GUID1D	000023	7/1/2016	DFLT	Y
GUID1A	GUID2E	BUID1C	GUID1D	000023	7/1/2016	8	Y
GUID2A	GUID2E	GUID1B	GUID1D	001045	7/1/2016	11	Y
GUID3A	GUID2E	BUID1C	GUID1D	012300	7/1/2016	Sen	Y

3 Category Joins

- What is your main category and why are you bringing the others in?



Final Recommendations

- Until you're comfortable with the categories -> Map it Out!
- Test, Test, Test
 - Compare what you see on the screens to what you see in the report.
 - Ask yourself –
 - Is this useful to my users?
 - How will they use it?
 - How often are they using it?
 - Why is there a need?
- Let your users test it out! Listen to them! Let them make recommendations!

Where do I create JOINS?

- Report Options -> Advanced -> Joins

The screenshot shows the ACT Export software interface. On the left, a list of fields under the 'StudentContact' table is visible, including _DistBldg, _Year, Address, Address2, Address3, AddressType, AddressTypeId, City, County, DistrictCode, DistrictId, DistrictIRN, DistrictName, Email_Address, and FiscalYear. A context menu is open over the data table, showing options: Rename, Description, Categories, Sorts, Filters, Options, Template, and Advanced. The 'Advanced' option is highlighted, and a sub-menu is shown with the 'Joins' option. The data table has columns A, B (SchoolIRN), C (LastName), and D (FirstName). Row 1 contains 'Student Code' and 'Organization Code'. Row 2 contains 'StudentDemographi' and 'StudentDemograp'.

	A	B (SchoolIRN)	C (LastName)	D (FirstName)
1	Student Code	Organization Code	Last Name	First Name
2			StudentDemographi cCore.LastName	StudentDemograp cCore.FirstName

JOIN Management

Advanced

Select options below

Advanced Options

In addition to StudentContact data that has matching StudentDemographicCore data, include:

- ☐ StudentContact data that does not have StudentDemographicCore data
- ☐ StudentDemographicCore data that does not have StudentContact data

Convert Inner Join between Categories to Outer Join

Edit Join

Delete Join

+ Add ↺ Recreate

✓ OK ✗ Cancel

Edit Joins

Select join fields

StudentContact

_DistBldg

_Year

Address

Address2

Address3

AddressType

AddressTypeeld

City

County

DistrictCode

Districtld

DistrictlRN

DistrictName

Email_Address

FiscalYear

Grade

Is_Unlisted

IsPrimaryBuilding

+ Add From

+ Add To

Report Join

Join From

StudentContact.SchoolYearld

StudentContact.Schoolld

StudentContact.Studentld

Join To

StudentDemographicCore.SchoolYearld

StudentDemographicCore.Schoolld

StudentDemographicCore.Studentld

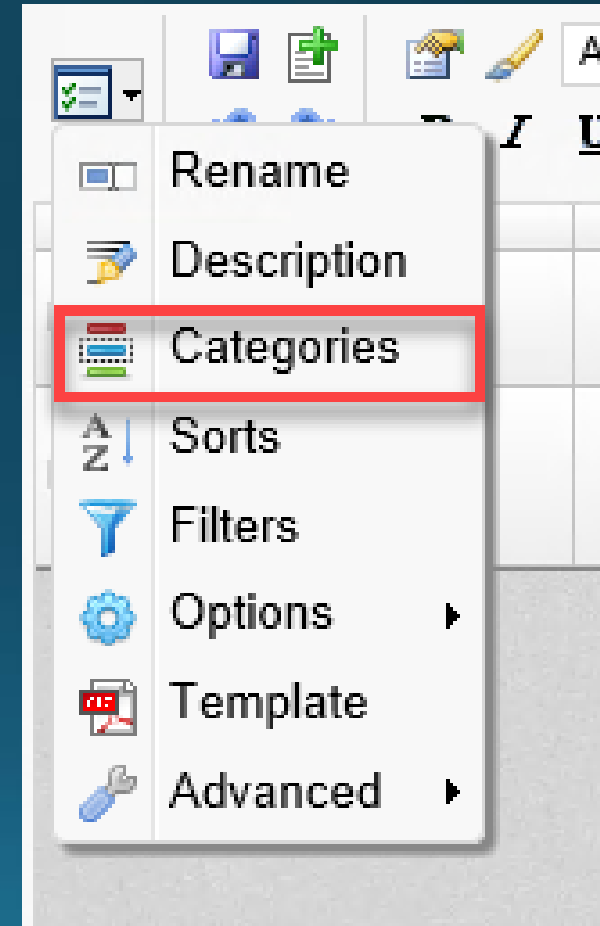
Top Field Order MUST match Bottom Field Order!

OK

Cancel

Final Tip/Trick

- If you make a change or look at Categories in Ad Hoc – JOINS will disappear.
- If you are editing a Report, be prepared to recreate JOINS if you go into Categories.



Questions?

