

# **St. Thomas International Admission Analysis II:**

*Understanding Application Trends & Building a Power BI  
Prototype Dashboard (2023–2025)*

Morgan Meng  
International Admission

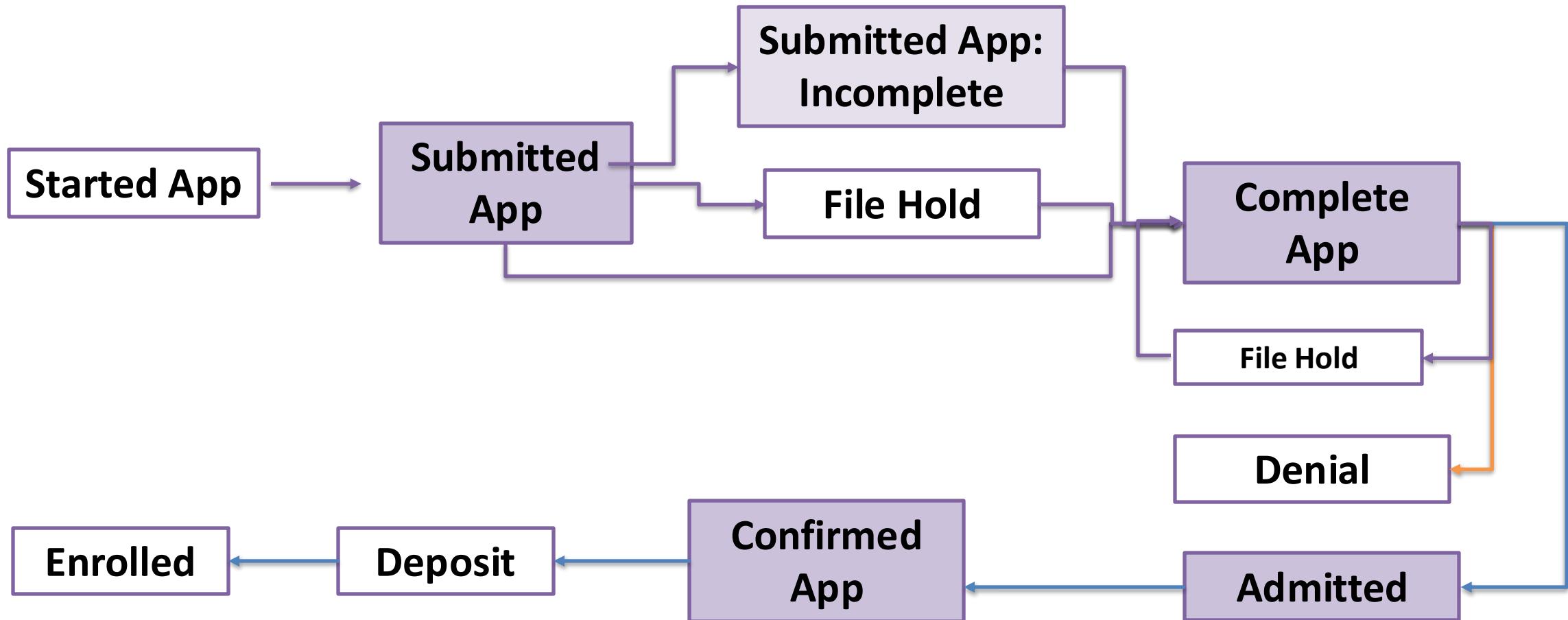
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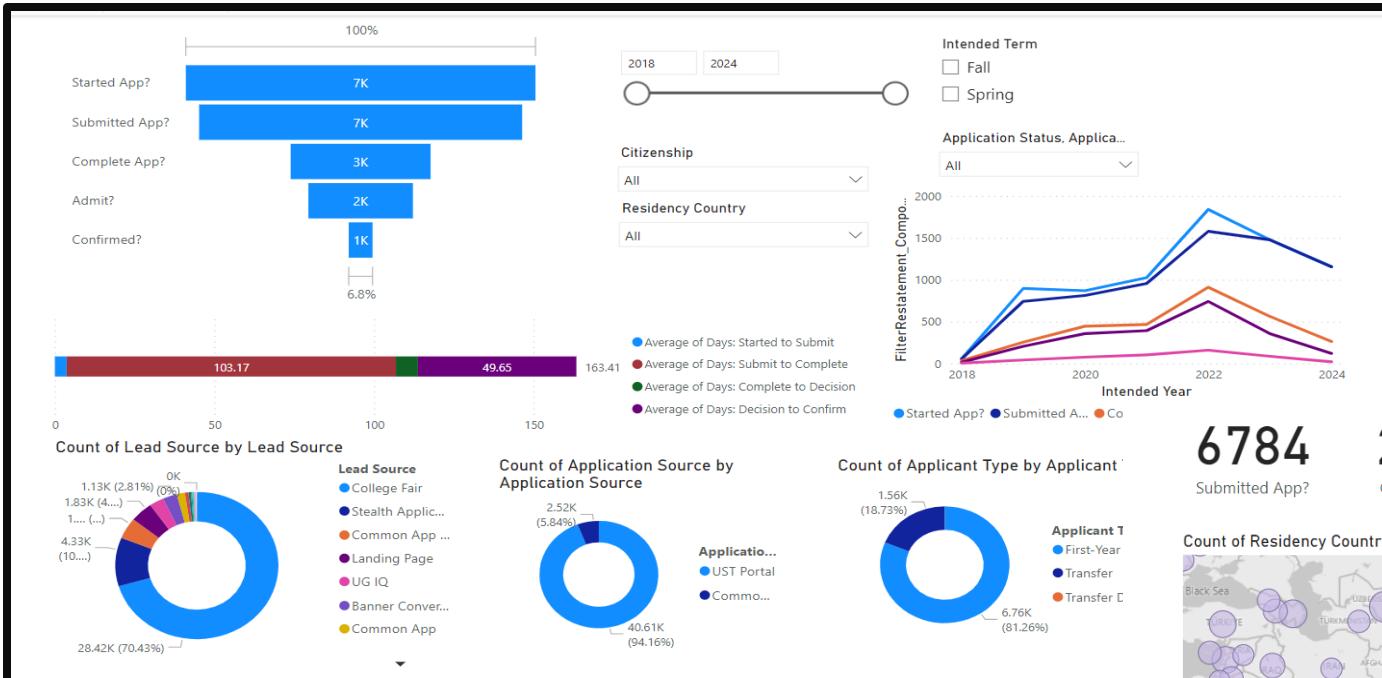
# Objectives:

- Identify trends for Transfer vs. First-Time First-Year (FTFY) applicants who are from U.S. high schools and colleges
- Analyze “domestic” international student patterns.
- Evaluate top feeder schools, states, and countries.
- Build Power BI dashboards to support Cognos dashboards
- Provide data-driven insights for future recruitment strategies.

# Background: Understanding Admission Process

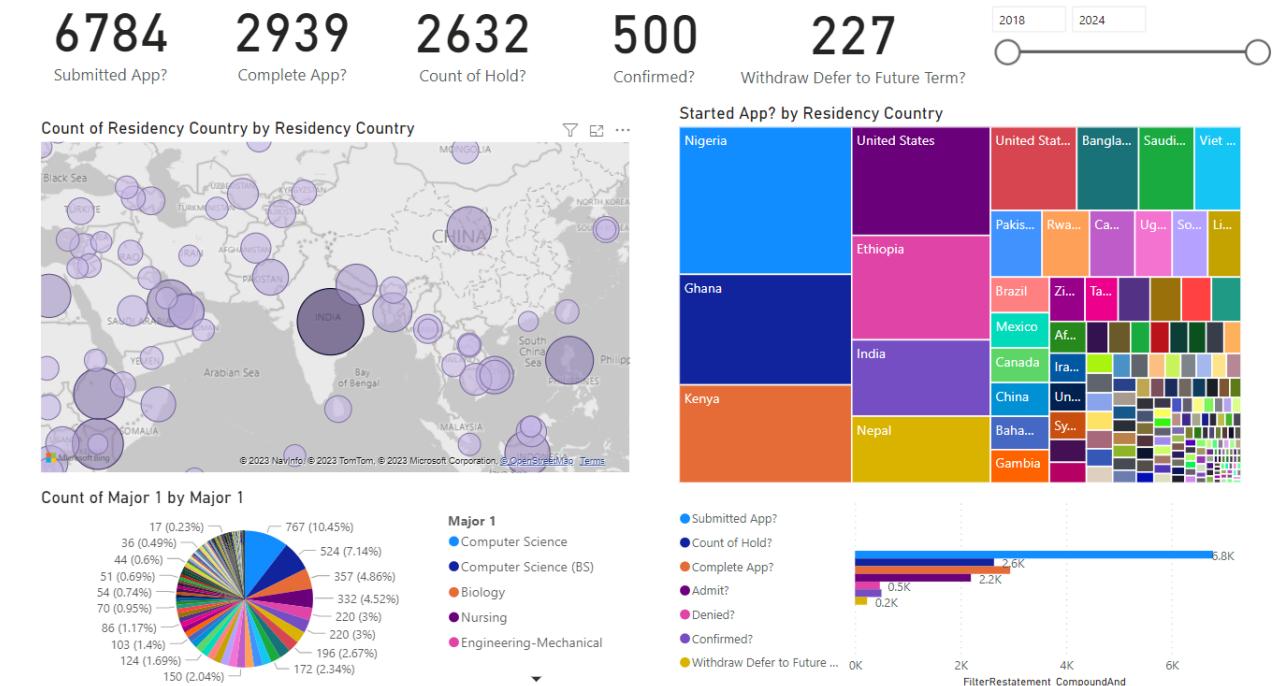


# Background: AI Analysis I (Previous)- Power BI Dashboards



➤ Admission Summary

➤ Key KPI & Workload



# Data Sources

Dataset	Source	Description	Usage in Dashboard	Primary Key
Application	Salesforce	Application details, intended majors, statuses	Funnel, Trends	Application ID
Contact	Salesforce	Demographics, legal sex, citizenship, etc.	Segmentation	Contact ID
Education History	Salesforce	High school & college attended	Top Schools	Education History Name
CEEB Data	Enrollment/Salesforce	U.S. school geolocation + CEEB codes	Mapping & Aggregation	CEEB code
NCES Geo Datasets	NCES	College & HS coordinates	Map visuals	NCES Number
Opportunity Data (included)	Salesforce	Counselor outreach info	Pipeline Tracking	-----

# Python & Alteryx — Heavy Data Cleaning & Integration

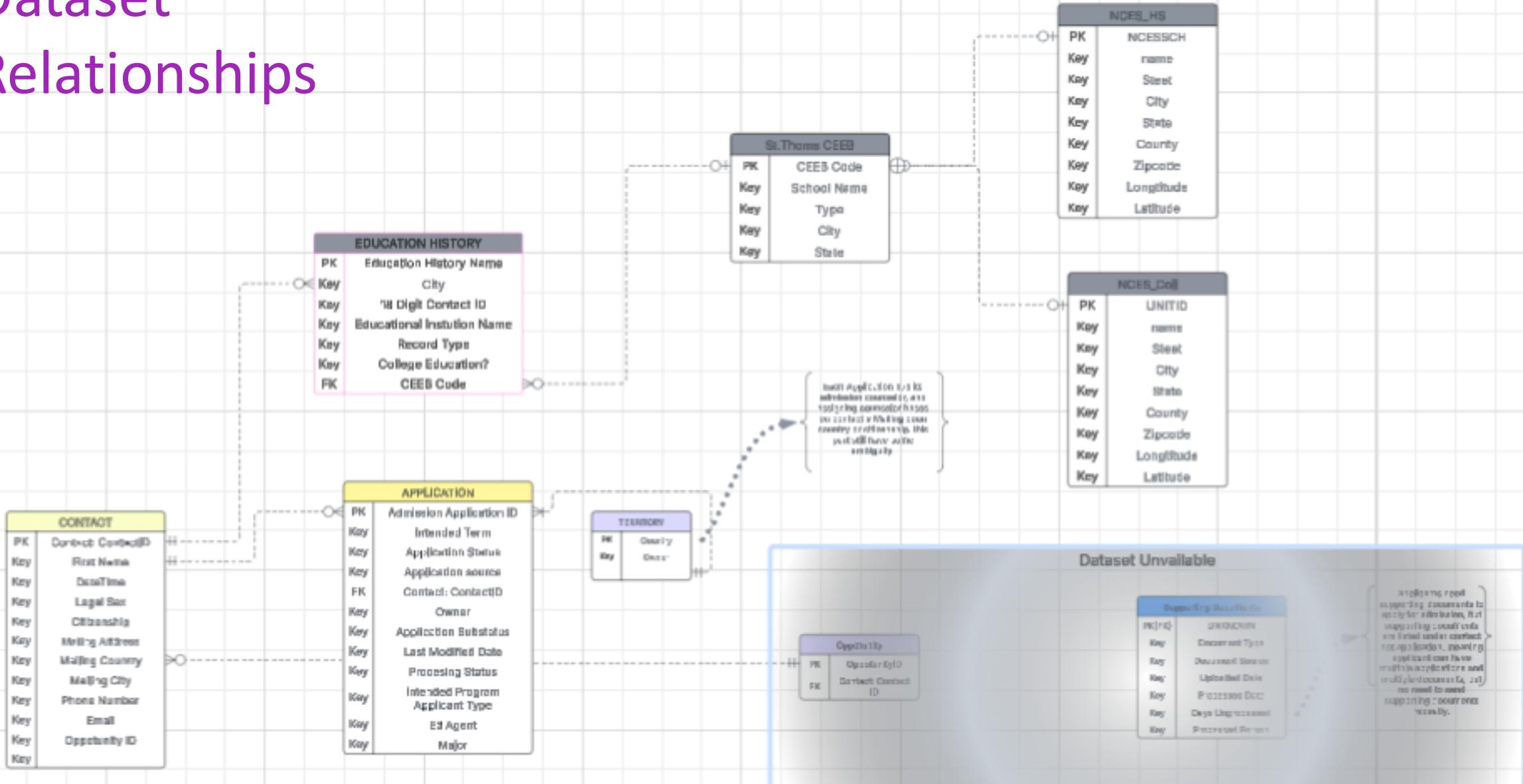
(Front-end ETL stage)

- **Raw Data Ingestion** → Loaded applications, contacts, education history, NCES, CEEB, visa, and opportunity datasets
- **Deduplication** → Removed duplicate records based on Contact ID and App ID
- **Data Standardization** → Normalized App ID, Contact ID, and CEEB codes for clean joins
- **Data Restructuring** → Separated **Contact demographics** from the **Application** table
- **Education History Enrichment** → Joined Education History with NCES school geo data via CEEB
- **Geocoding Integration** → Added city, state, and coordinates for all matched schools
- **Data Validation** → Flagged missing NCES matches, filled gaps where possible
- **Intermediate Outputs** → Cleaned datasets exported for Power Query modeling

\*Appendix I : Alteryx Workflow

# ER-Diagram

## Dataset Relationships



## ~~Python & Alteryx — Heavy Data Cleaning & Integration~~

## Future Optimization: Direct Salesforce → Cognos Integration

### Current Process- Manual ETL & Integration

Data pulled from multiple sources: Applications, Contacts, Education History, NCES, CEEB

Python + Alteryx for:

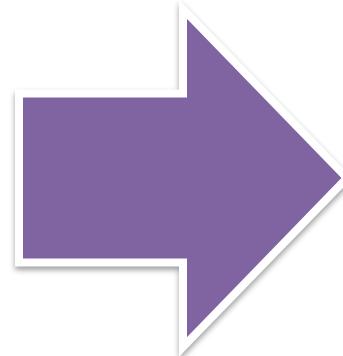
Deduplication

Data standardization

NCES-CEEB integration

Geolocation enrichment

Time-consuming multi-step process before data reaches Power BI dashboards



### Future Process- Optimized Salesforce-Cognos Pipeline

- Clean, consistent data → no duplicate handling required
- Properly mapping using Salesforce geo data → skip geolocation joins
- Complete demographic, education, and application data in one source
- Outputs ready for dashboards without heavy preprocessing

# Data Cleaning & Transformation

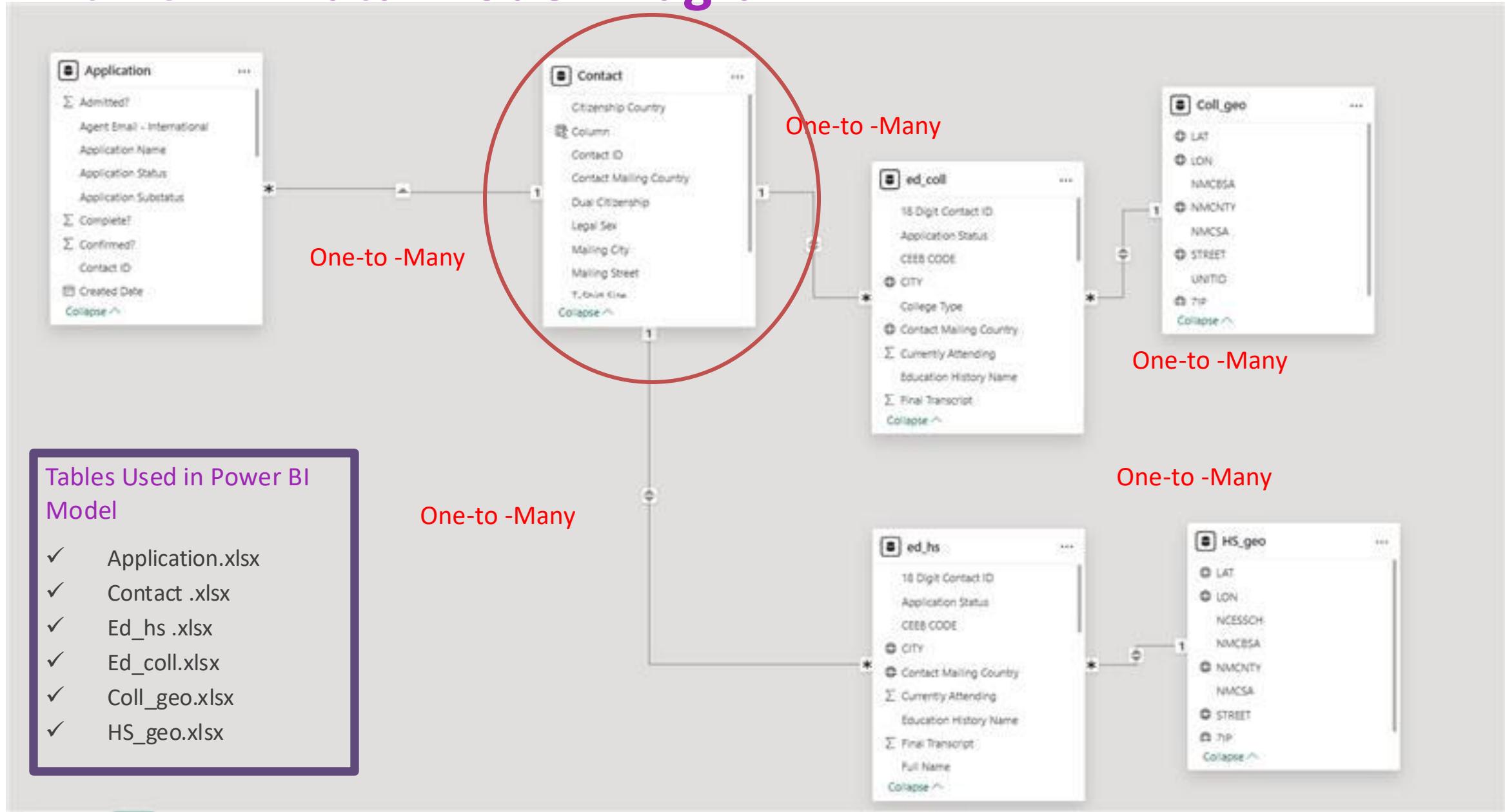
## Power Query/Power BI

(Model structuring for Power BI dashboards)

- **Relationship Optimization** → Resolved **many-to-many** issues by creating **bridge tables**
- **Field Formatting** → Standardized date fields, entry terms, and citizenship attributes
- **Integration of GEO Data** → Linked **HS\_geo** and **Coll\_geo** tables for map visuals
- **Application Status Simplification** → Applied dummy variables for app funnel visualization
- **Final Output Preparation** → Produced **clean, ready-to-load tables** for Power BI

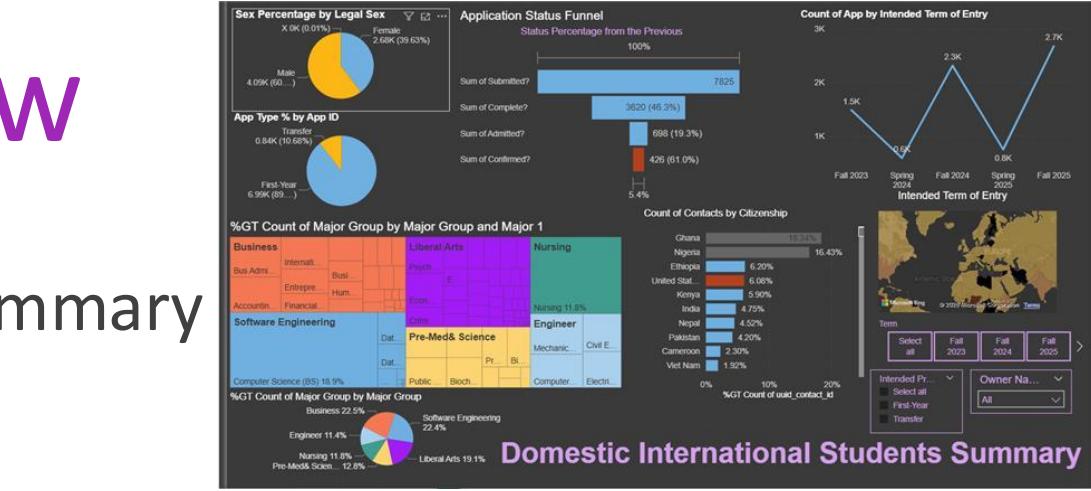
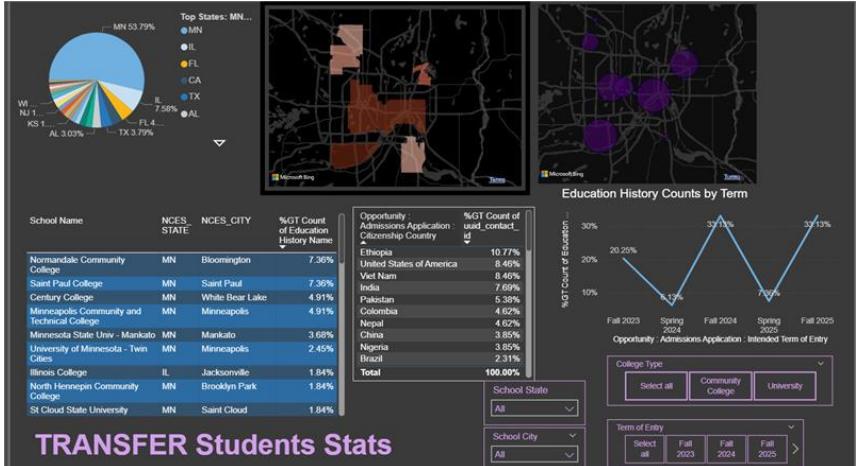


# Power BI Data Model Diagram



# IA Dashboard II Overview

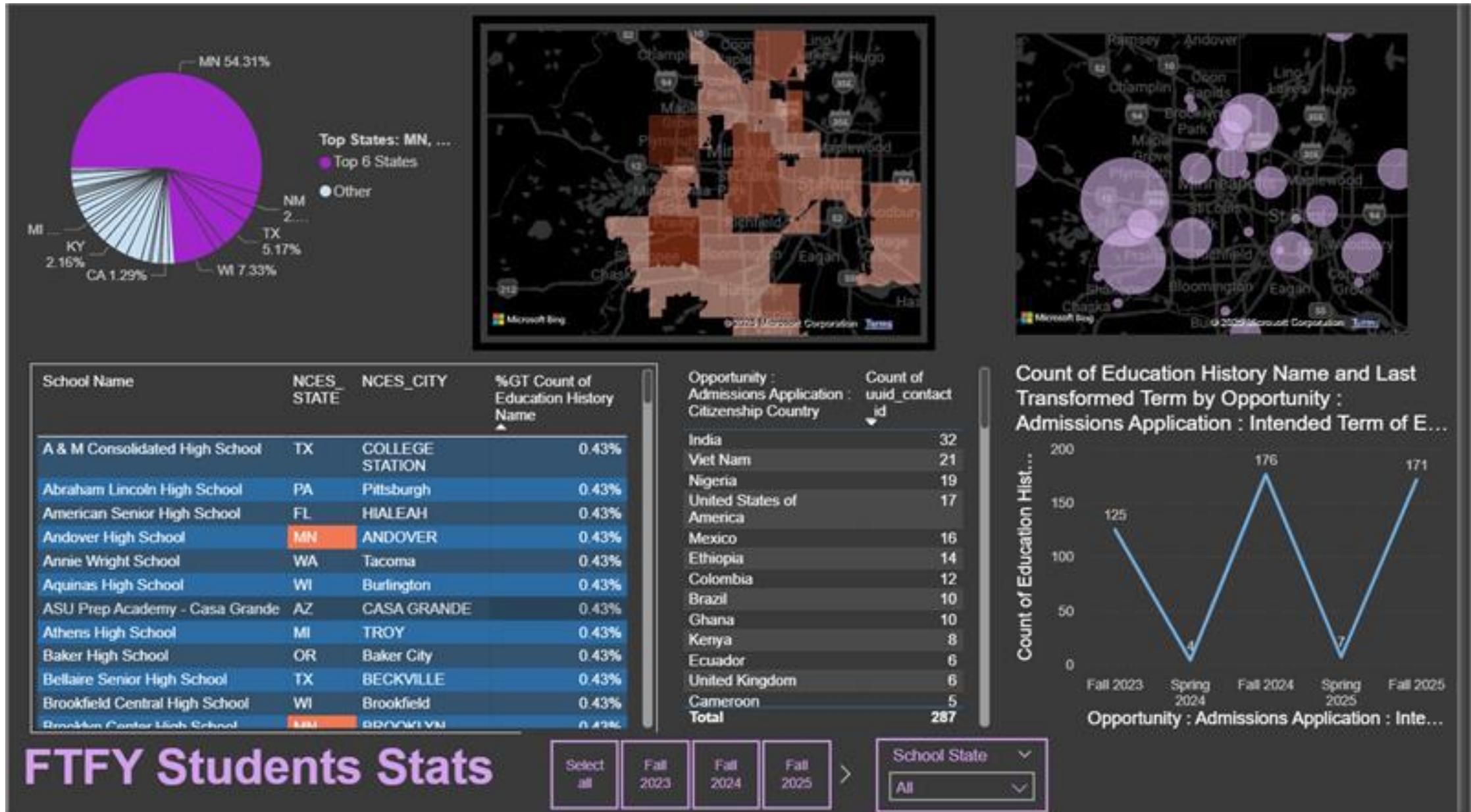
- ✓ “Domestic” International Students Summary
- ✓ FTFY Students Education History Stats
- ✓ Transfer Students Education History Stats



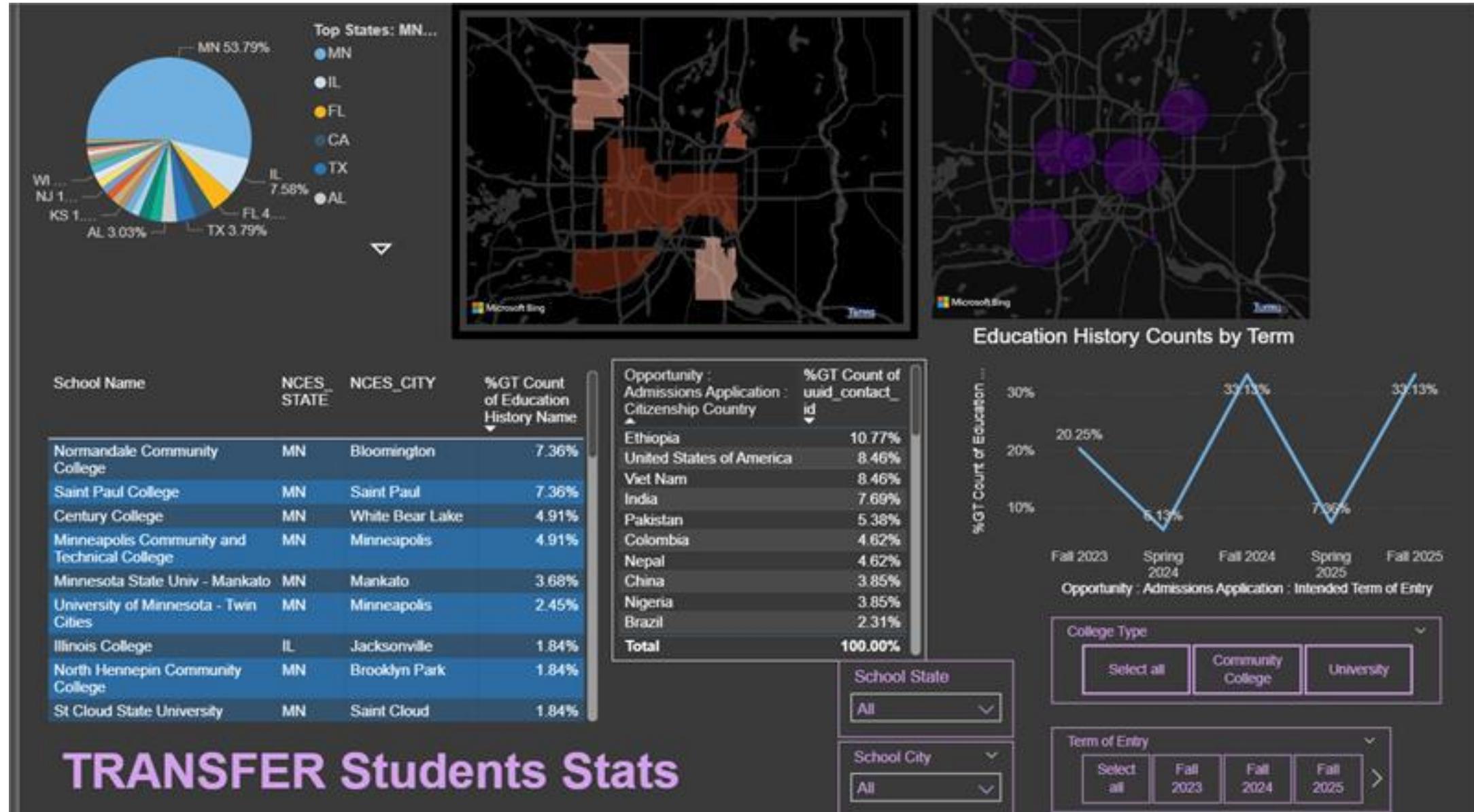
# Domestic International Students Summary- Contact/Application



# FTFY Student Education History Stats - ed\_hs & hs\_geo



# Transfer Student Education History Stats - ed\_coll & coll\_geo



# NEXT STEP

- Build Cognos Dashboard Part II leveraging Power BI learnings.
- Integrate visa denial prediction model.
- Enhance opportunity tracking and outreach optimization.
- Automate reports for the International Admission team.

# A Tour of the Dashboards

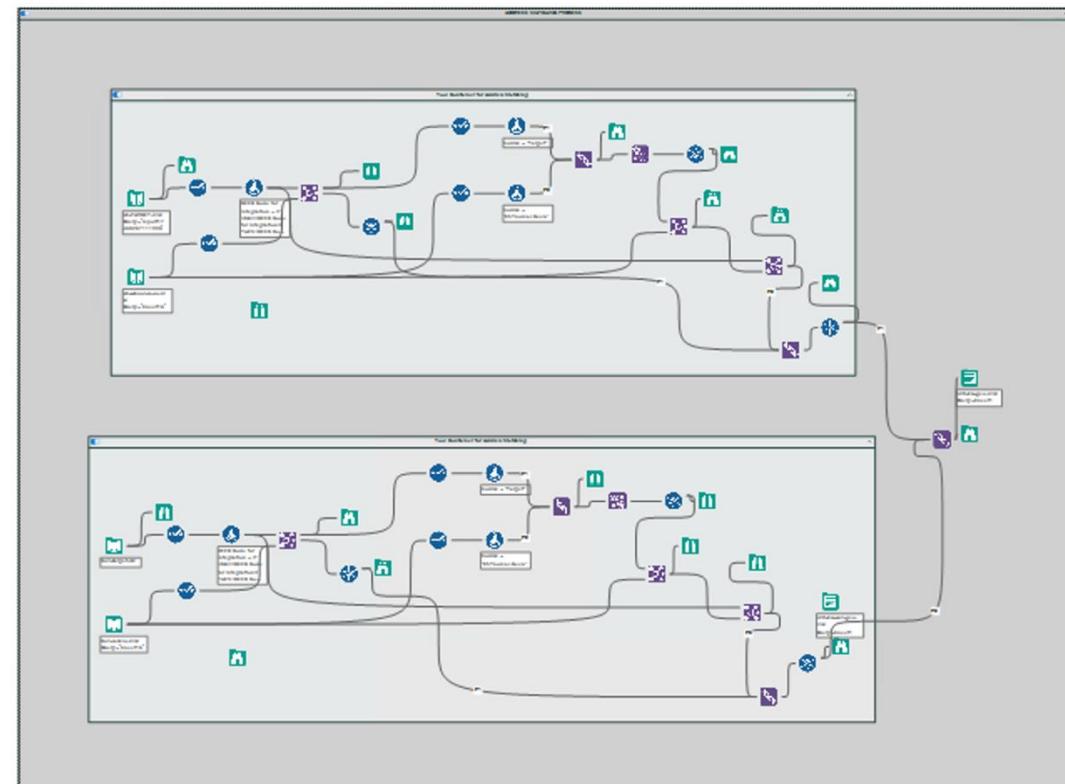
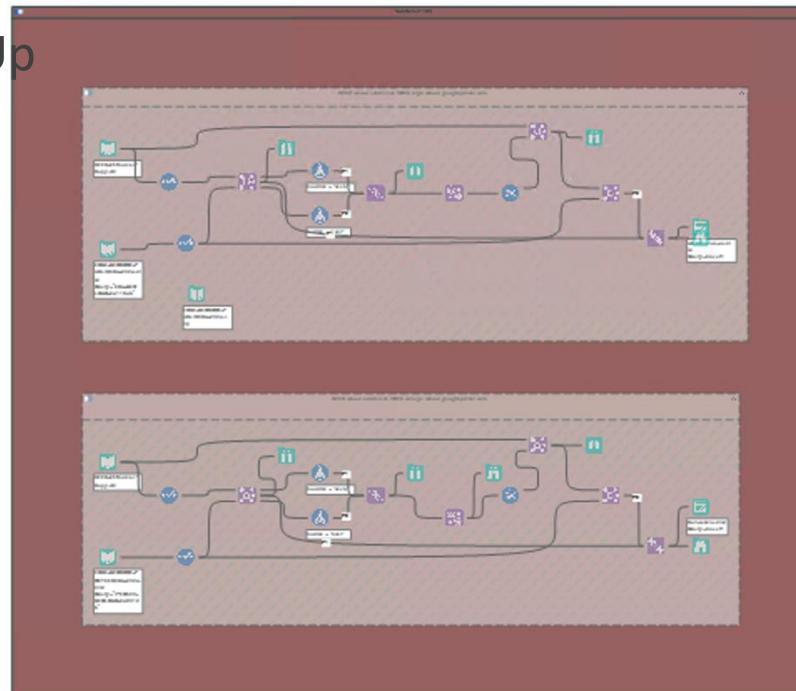
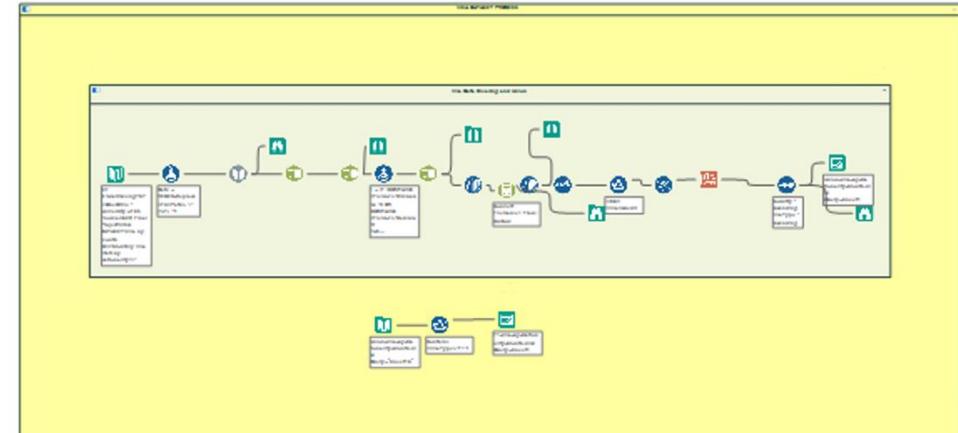
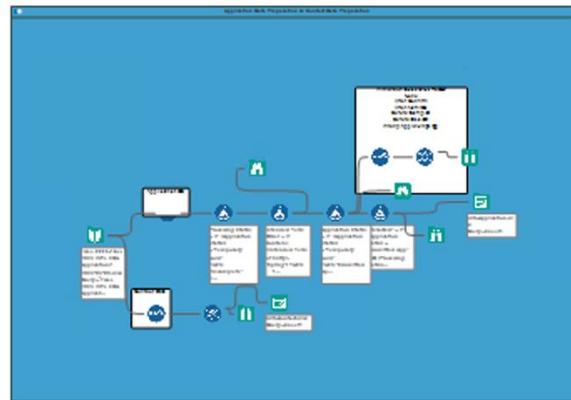
# Appendix I: Alteryx Workflow

Opus College of Business

UNIVERSITY OF  
**St.Thomas**

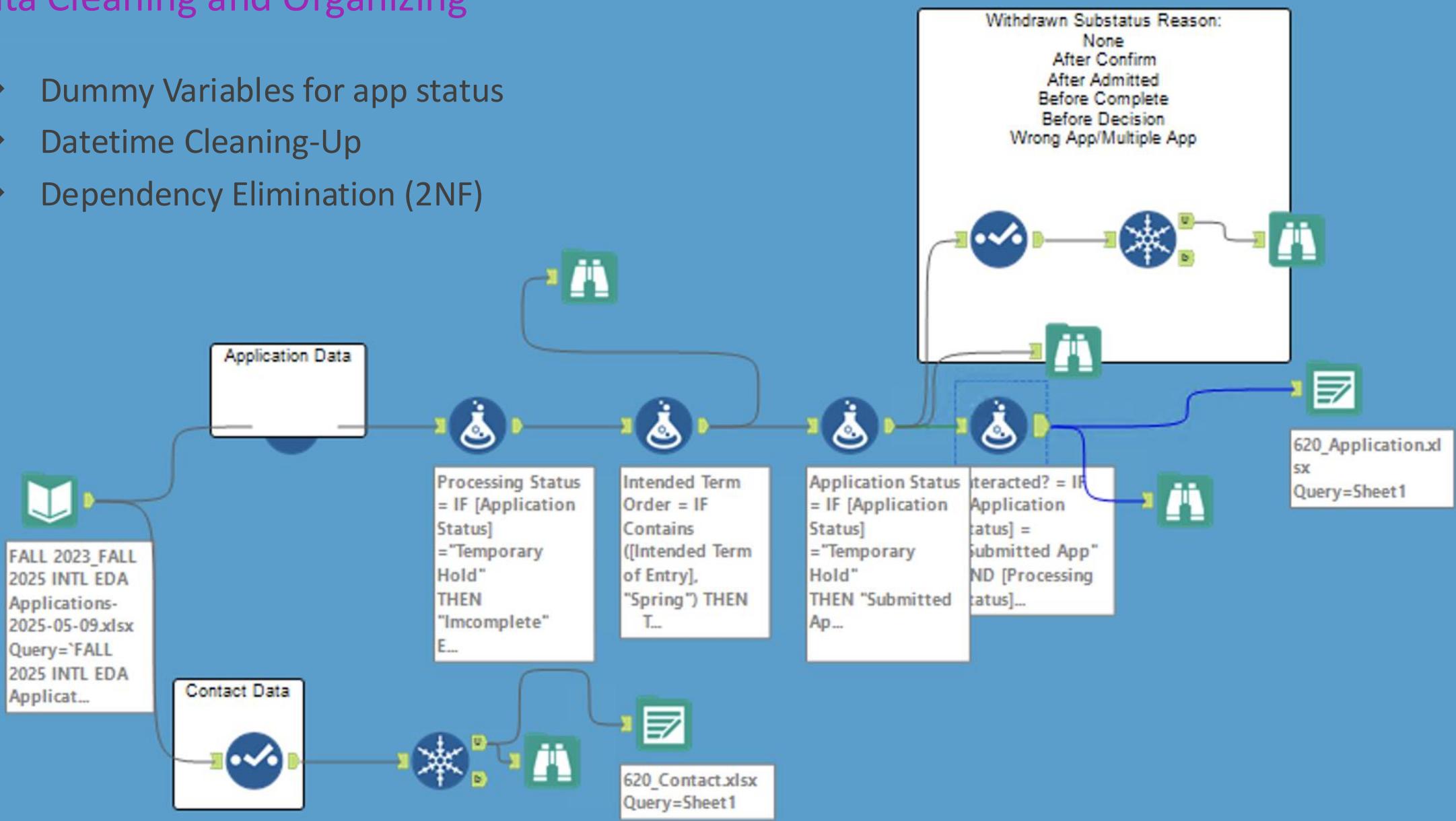
# Appendix I: Data Cleaning and Organizing- Alteryx

- ❖ Dummy Variables for app status
- ❖ Datetime Cleaning-Up
- ❖ Dependency Elimination (2NF)
- ❖ School CEEB Code & NCES Geographical Data Integration
- ❖ VISA dataset integration



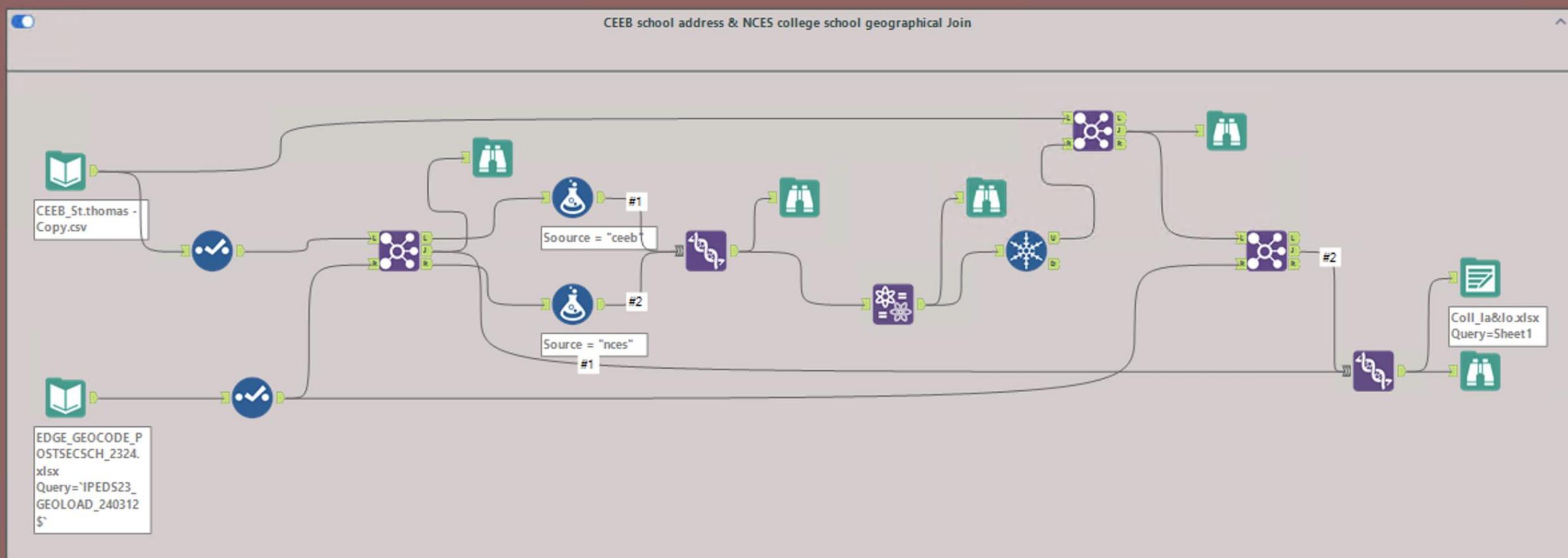
# Data Cleaning and Organizing

- ❖ Dummy Variables for app status
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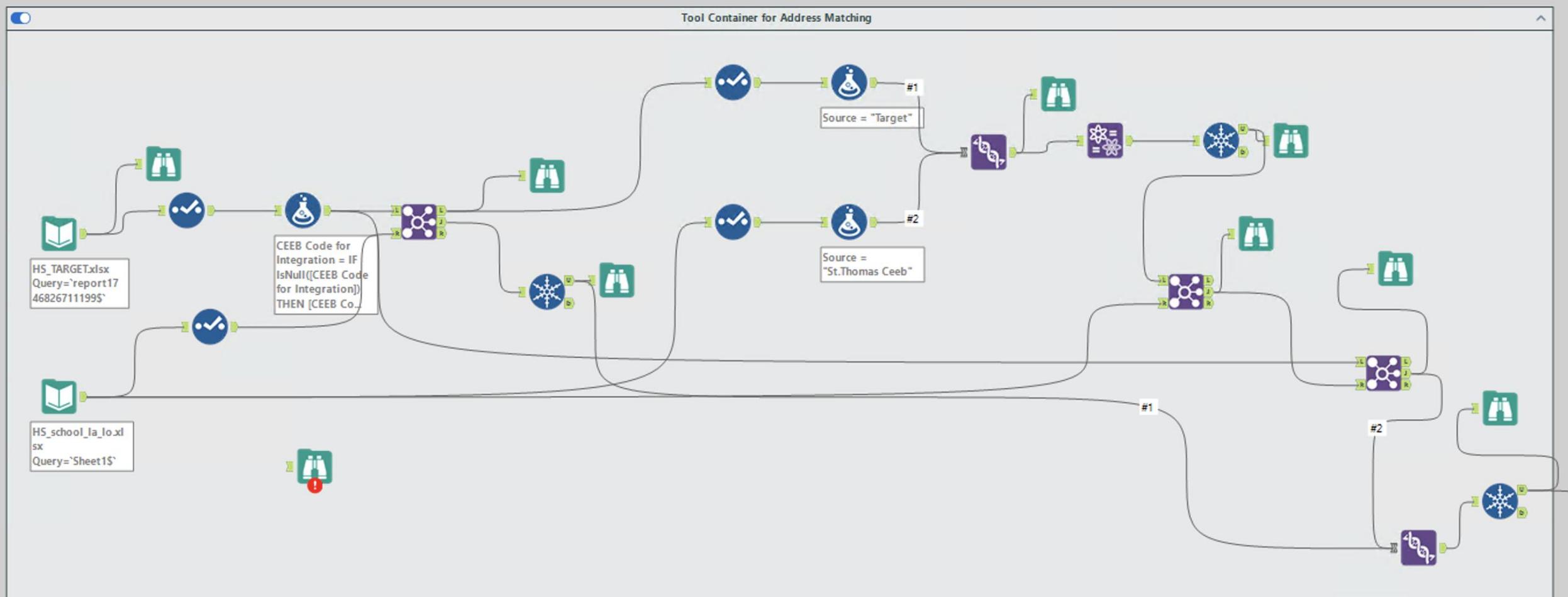
# Data Cleaning and Organizing

- ❖ School CEEB Code & NCES Geographical Data Integration



# Data Cleaning and Organizing

## ❖ School CEEB Code & NCES Geographical Data Integration

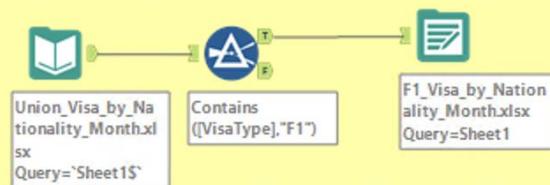
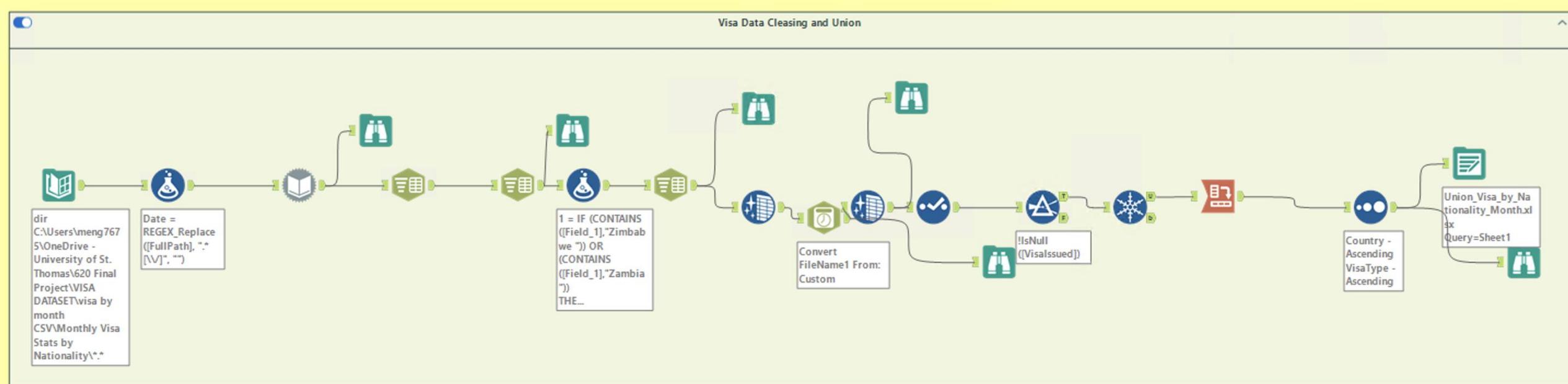


# Data Cleaning and Organizing

- ❖ VISA dataset integration
  - ❖ Format Cleaning
  - ❖ Filename appending

2 of 2 Fields   Cell Viewer  303,018 records displayed, 2.7 MB

Record	Field_1	FileName
1	Afghanistan,A1,5	APRIL 2017 - NIV Issuances by Nationality and Vi...
2	Afghanistan,A2,39	APRIL 2017 - NIV Issuances by Nationality and Vi...
3	Afghanistan,B1,1	APRIL 2017 - NIV Issuances by Nationality and Vi...
4	Afghanistan,B1/B2,74	APRIL 2017 - NIV Issuances by Nationality and Vi...
5	Afghanistan,F1,3	APRIL 2017 - NIV Issuances by Nationality and Vi...
6	Afghanistan,F2,2	APRIL 2017 - NIV Issuances by Nationality and Vi...
7	Afghanistan,G1,5	APRIL 2017 - NIV Issuances by Nationality and Vi...



# Appendix II: Tableau Dashboards

Opus College of Business



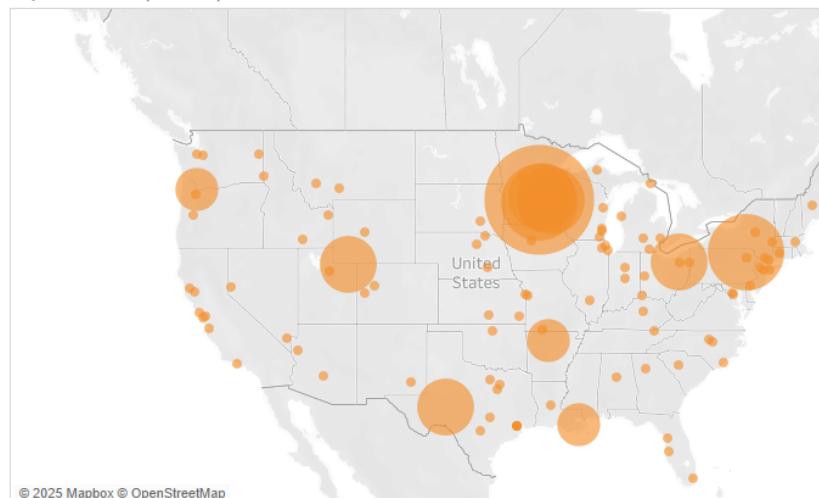
# Dashboard - Tableau

- ✓ Build Dashboard PART II prototype for Cognos Dashboard

Top 20 Schools (HS) that Students Came to St. Thomas

State	Account Name1	City	
MN	Wayzata High School	PLYMOUTH	11
	Eden Prairie High School	EDEN PRAIRIE	6
	Blaine High School	BLAINE	5
	East Ridge High School	WOODBURY	3
	Park High School	COTTAGE GROVE	1
	Stillwater Area Senior High Sc.	STILLWATER	3
	Two Rivers High School	MENDOTA HEIGHTS	3
	Cambridge Christian School	CAMBRIDGE	2
	Columbia Heights High School	COLUMBIA HEIGHTS	2
PA	Mountain View High School	Kingsley	6
WI	Saint Croix High School	Hammond	5
OH	Coventry High School	Akron	4
TX	Reagan County High School	BIG LAKE	4
UT	Manila High School	MANILA	4
AR	Marshall High School	MARSHALL	3
LA	John Ehret High School	Marrero	3
WA	Skyview High School	VANCOUVER	3
CA	Foothill Technology HS	Ventura	2
CO	Coal Ridge High School	NEW CASTLE	2

Top 20 Schools (Overall ) that Students Came to St. Thomas



FTFY: Complete Rate by Citizenship

Modified Citizenship Co..	100.00%
Argentina	100.00%
Barbados	100.00%
Belarus	100.00%
Bosnia and Herzegovina	100.00%
Bulgaria	100.00%
Chile	100.00%
Costa Rica	100.00%
Czech Republic	100.00%
Denmark	100.00%
Iceland	100.00%
Ireland	100.00%
Israel	100.00%
Kosovo	100.00%
Laos	100.00%
Luxembourg	100.00%
Macedonia, Republic of	100.00%
Malaysia	100.00%
Moldova	100.00%

Transfer: Admit Rate by Citizenship

Modified Citizenship Co..	100.00%
Argentina	100.00%
Barbados	100.00%
Belarus	100.00%
Bosnia and Herzegovina	100.00%
Bulgaria	100.00%
Chile	100.00%
Costa Rica	100.00%
Czech Republic	100.00%
Denmark	100.00%
Iceland	100.00%
Ireland	100.00%
Israel	100.00%
Laos	100.00%
Luxembourg	100.00%
Macedonia, Republic of	100.00%
Malaysia	100.00%
Moldova	100.00%

Transfer: Confirm Rate by Citizenship

Modified Citizenship Co..	100.00%
Iceland	100.00%
Luxembourg	100.00%
Sweden	75.00%
Bolivia	66.67%
Denmark	66.67%
Argentina	50.00%
Guyana	50.00%
Ireland	50.00%
Costa Rica	46.15%
Myanmar	45.00%
Norway	42.86%
Guatemala	33.33%
Malaysia	33.33%
Portugal	33.33%
Serbia	33.33%
Nicaragua	30.00%
Burkina Faso	25.00%
Germany	25.00%

FTFY: Complete Rate, Admit Rate & Confirm Rate by Citizenship

Modified Citizenship Co..	Count of..
Ethiopia	484
Kenya	405
Nepal	367
India	357
Pakistan	315
Cameroon	166
Viet Nam	140
Bangladesh	132
Uganda	119
Zimbabwe	111
United States of America	90
Rwanda	88
Gambia	83
Uzbekistan	78
Liberia	72
Brazil	75
Afghanistan	79

## FTFY STUDENTS DASHBOARD

### Legend



Citizenship Country  
Multiple values

Record Type1

High School

State

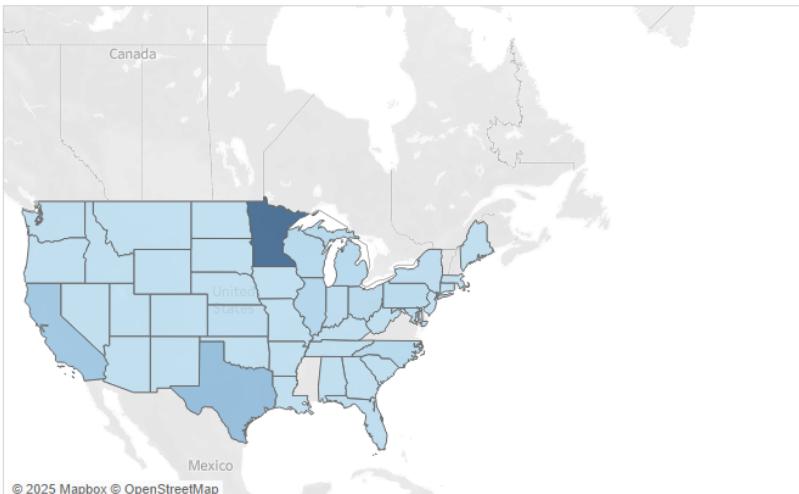
All

Intended Program Applicant Type

First-Year

Transfer

Overall Number of Students from U.S. schools



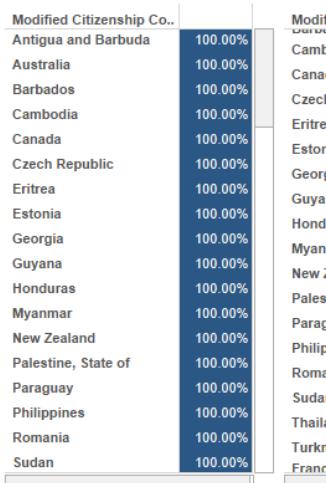
# Dashboard - Tableau

✓ Build Dashboard PART II prototype for Cognos Dashboard

Top 20 Schools (College) that Students Came to St. Thomas

State	Account Name1	City	
MN	Normandale Commun..	Bloomington	■ 18
	Minneapolis Commun..	Minneapolis	■ 9
	University of Minnesot..	Morris	■ 9
	North Hennepin Com..	Brooklyn Park	■ 7
TX	South Plains College	Levelland	■ 13
	Austin College	Sherman	■ 2
CA	Citrus College	Glendora	■ 10
MD	University of Baltimore	Baltimore	■ 7
NC	Johnston Community ..	Smithfield	■ 4
	Sandhills Community ..	Pinehurst	■ 3
IL	Illinois College	Jacksonville	■ 3
	Lake Forest College	Lake Forest	■ 2
GA	Columbus State Univ..	Columbus	■ 3
IN	Indiana University-Blo..	Bloomington	■ 3
CO	Red Rocks Communitt..	Lakewood	■ 2
KS	Emporia State Univer..	Emporia	■ 2
MI	Delta College	University Center	■ 2
WV	Bethany College	Bethany	■ 2

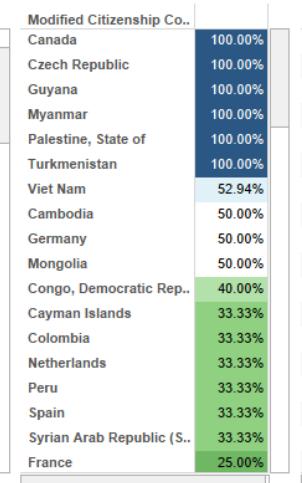
Transfer: Complete Rate by Citizenship



Transfer: Admit Rate by Citizenship



Transfer: Confirm Rate by Citizenship

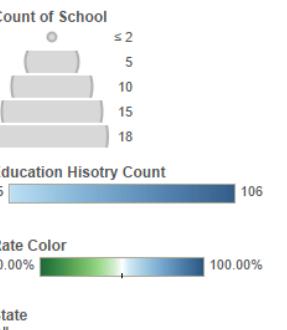


Transfer: Total Number of Students

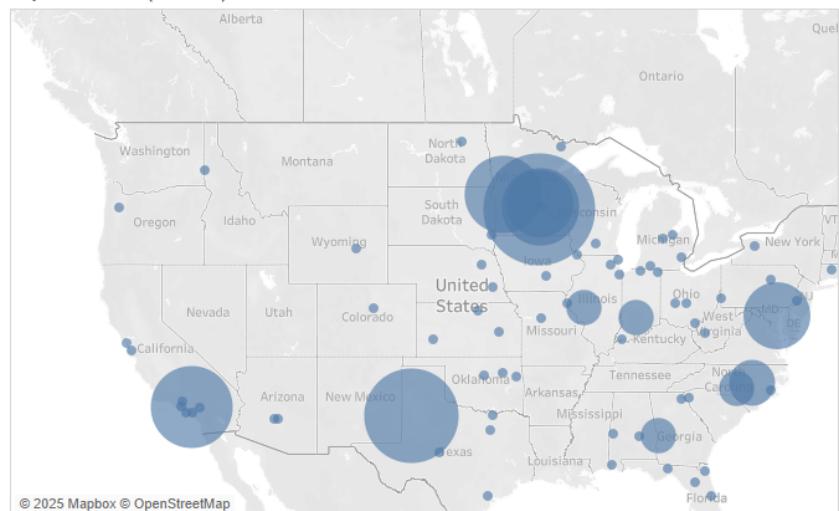


## TRANSFER STUDENTS DASHBOARD

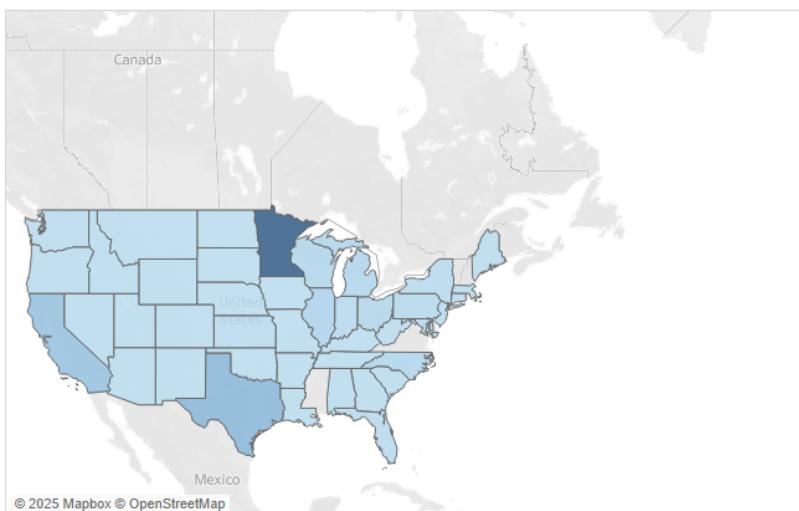
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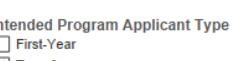
Top 20 Schools (Overall ) that Students Came to St. Thomas



Overall Number of Students from U.S. schools



Citizenship Country All



# Appendix III: Findings and Recommendations

# Data Analysis - Tableau

- ✓ Where did all the TRANSFER students come from?  
Especially students who transferred from U.S. colleges.  
And what are the trends?
- Mostly from MN community colleges
- Students mistaken "St.Thomas, MN " as "St.Thomas, TX "
- CA and MD could be the potential recruiting targets.

Top 20 Schools (College) that Students Came to St. Thomas

State	Account Name1	City	
MN	Normandale Commun..	Bloomington	18
	Minneapolis Communi..	Minneapolis	9
	University of Minnesot..	Morris	9
	North Hennepin Com..	Brooklyn Park	7
TX	South Plains College	Levelland	13
	Austin College	Sherman	2
CA	Citrus College	Glendora	10
MD	University of Baltimore	Baltimore	7
NC	Johnston Community ..	Smithfield	4
	Sandhills Community ..	Pinehurst	3
	Illinois College	Jacksonville	3
IL	Lake Forest College	Lake Forest	2
	Columbus State Univ..	Columbus	3
GA	Indiana University-Blo..	Bloomington	3
IN	Red Rocks Communite..	Lakewood	2
KS	Emporia State Univer..	Emporia	2
MI	Delta College	University Center	2
WV	Bethany College	Bethany	2

# Data Analysis - Tableau

- ✓ Where did all the TRANSFER students come from? Especially students who transferred from U.S. colleges. And what are the trends?
- Mostly from MN high schools
- "PA-Mountain View HS" & "OH-Coventry HS" are surprisingly higher applicants.
- Comparing to Transfer, more European applicants for FTFY

Top 20 Schools (HS) that Students Came to St. Thomas

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FTFY: Complete Rate, Admit Rate & Confirm Rate by Citizenship

