

St. Thomas International Admission Analysis II:

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

Morgan Meng
International Admission

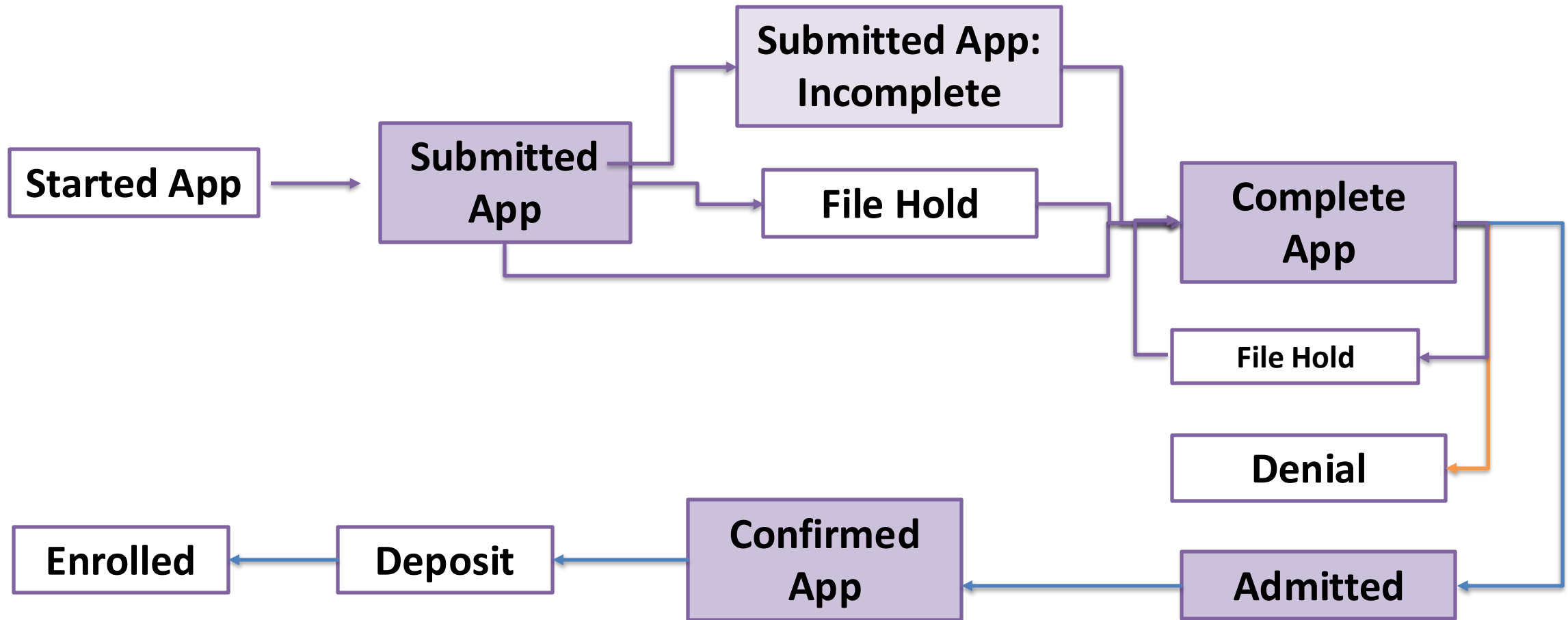
Navigator

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❖ <u>Datasets and Sources</u>	– <u>5</u>
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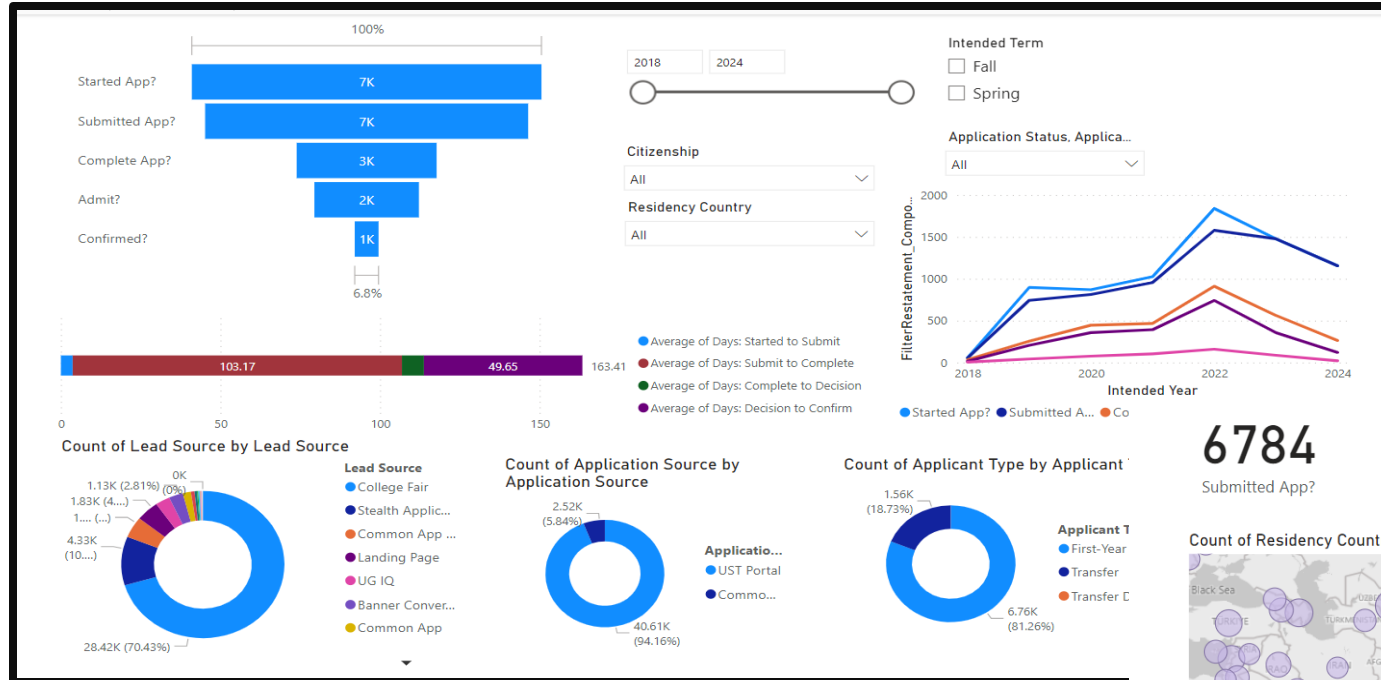
Objectives:

- 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.

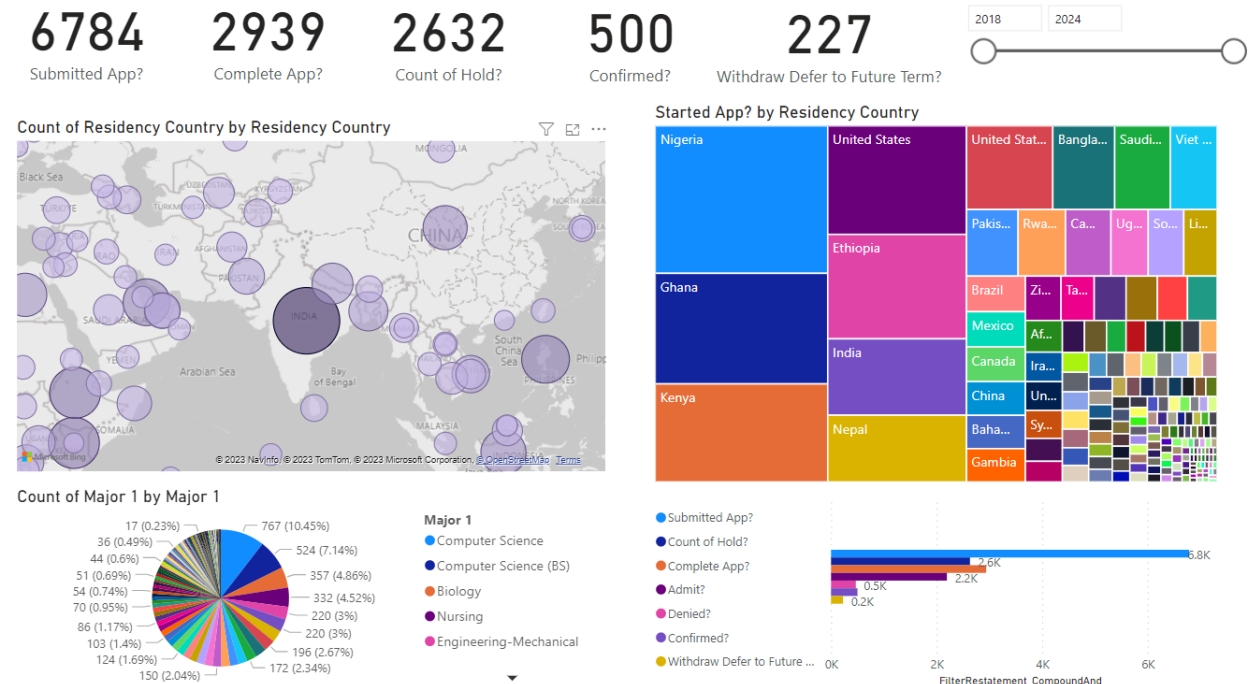
Background: Understanding Admission Process



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

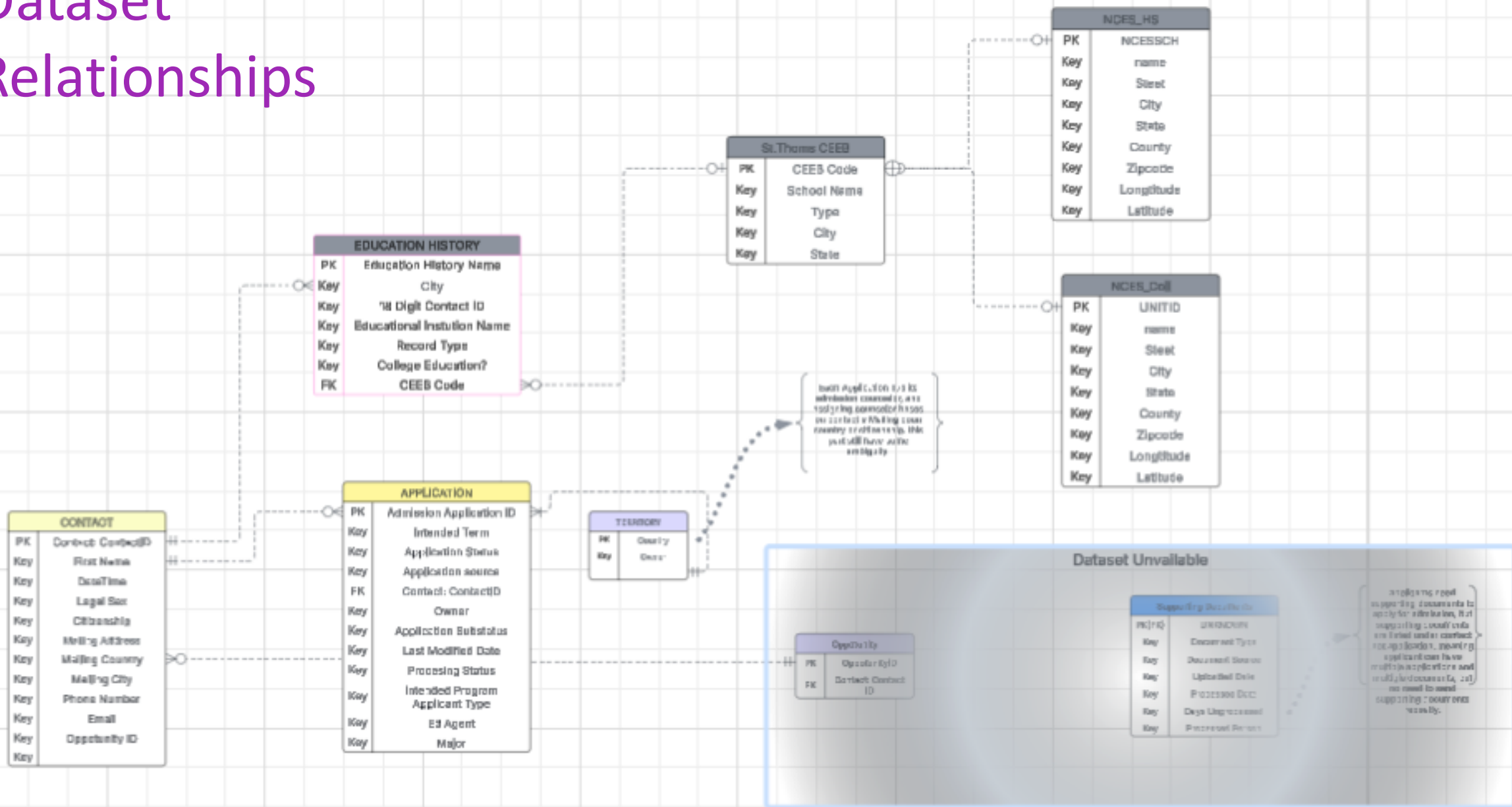
(Front-end ETL stage)

- **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*

Dataset Relationships

ER-Diagram



~~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:

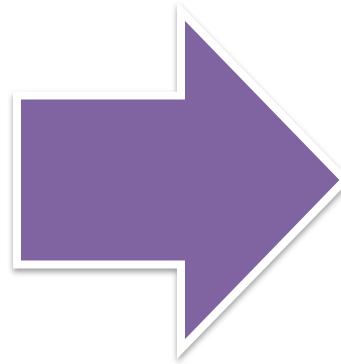
Deduplication

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

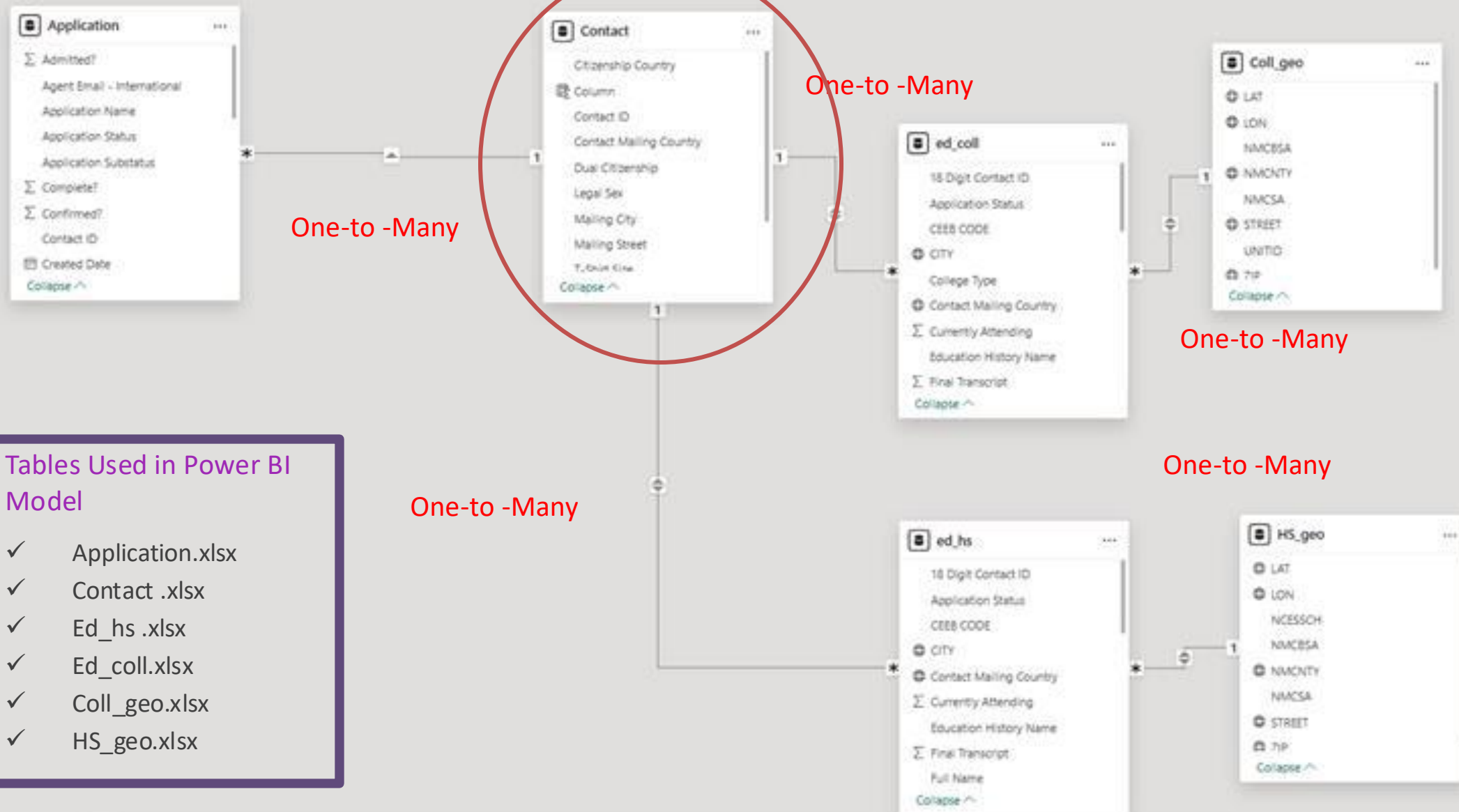
Power Query/Power BI



(Model structuring for Power BI dashboards)

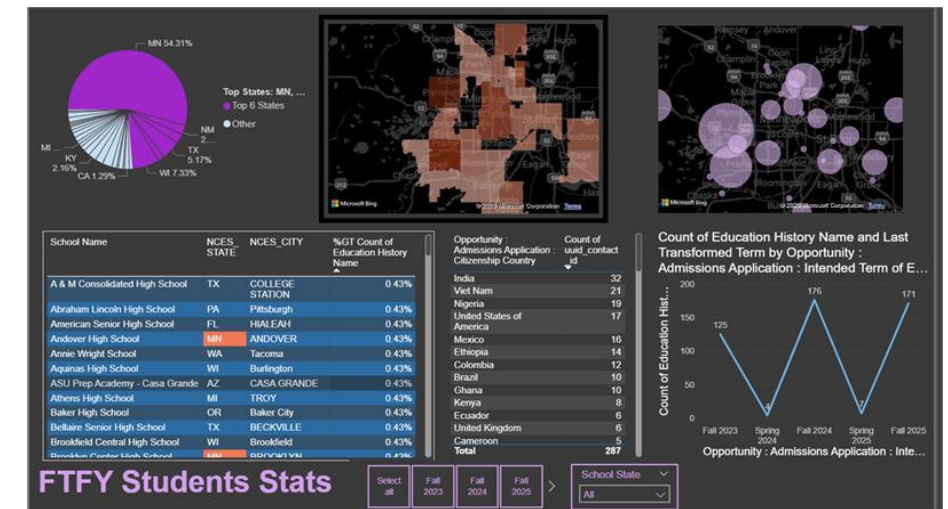
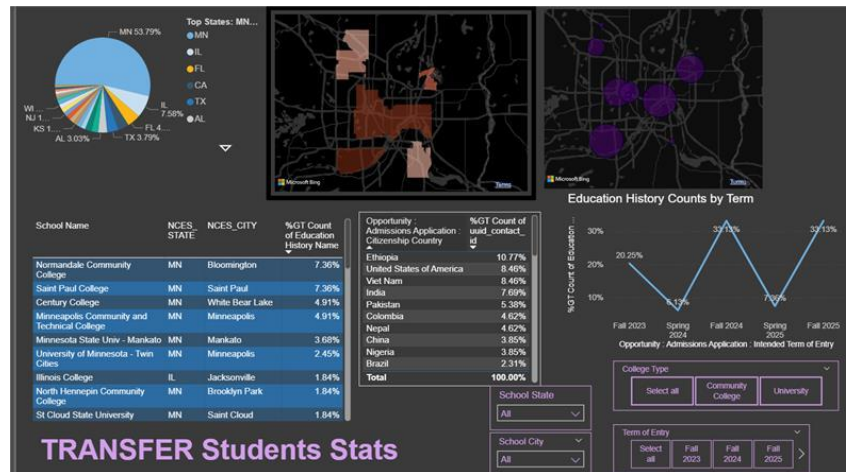
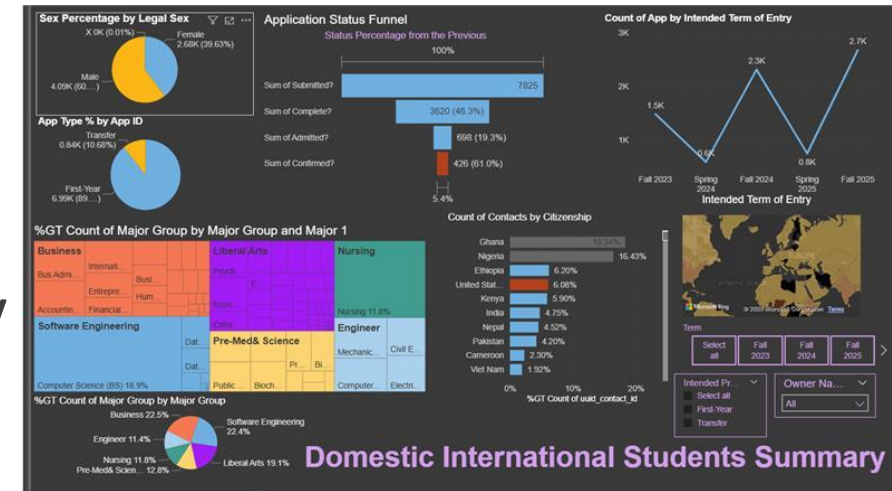
- **Relationship Optimization** → Resolved **many-to-many** issues by creating **bridge tables**
- **Field Formatting** → Standardized date fields, entry terms, and citizenship attributes
- **Integration of GEO Data** → Linked **HS_geo** and **Coll_geo** tables for map visuals
- **Application Status 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

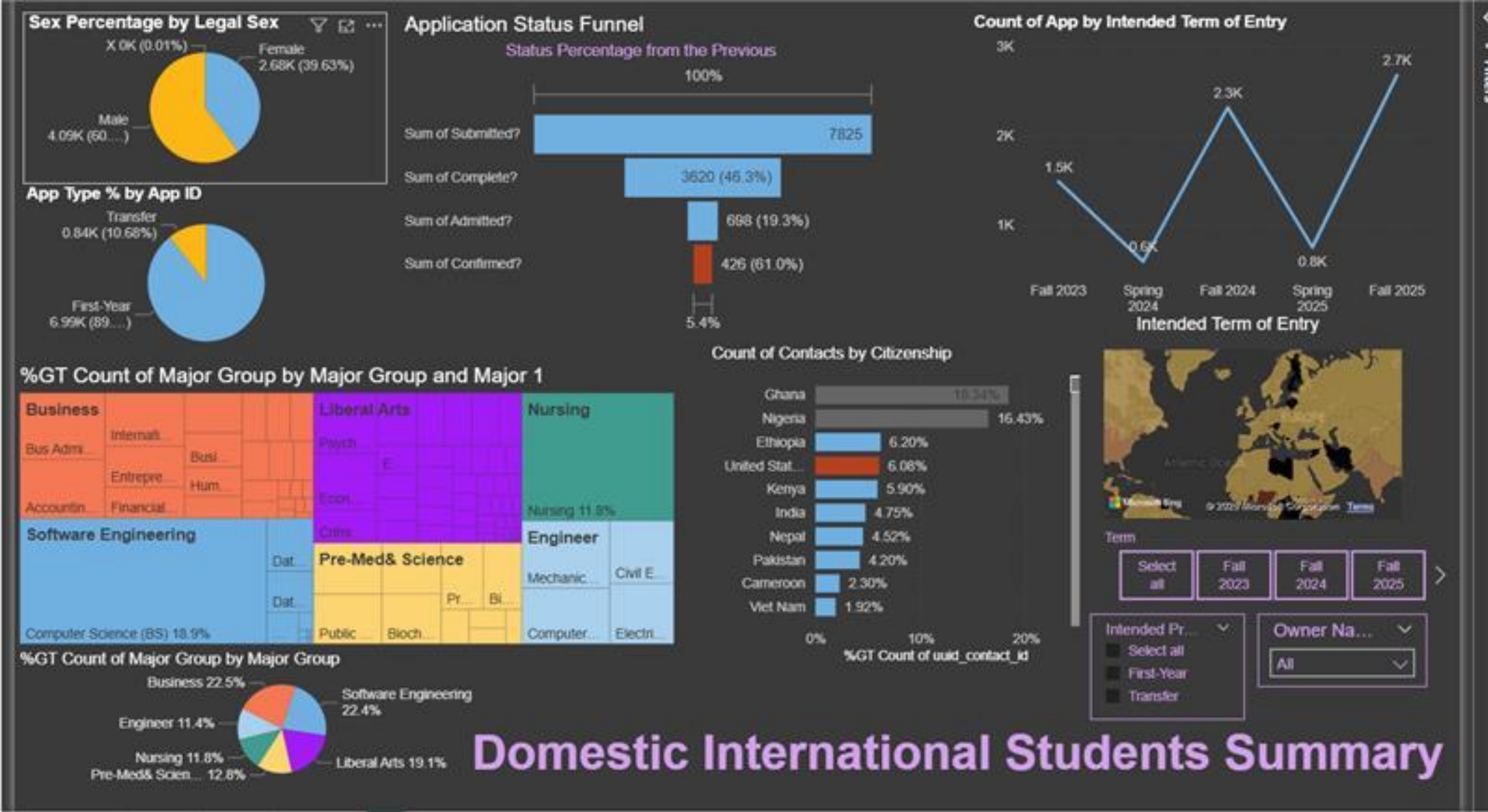


IA Dashboard II Overview

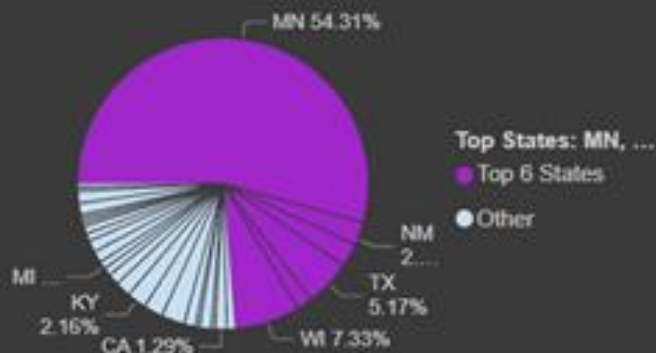
- ✓ “Domestic” International Students Summary
- ✓ FTFY Students Education History Stats
- ✓ Transfer Students Education History Stats



Domestic International Students Summary- Contact/Application

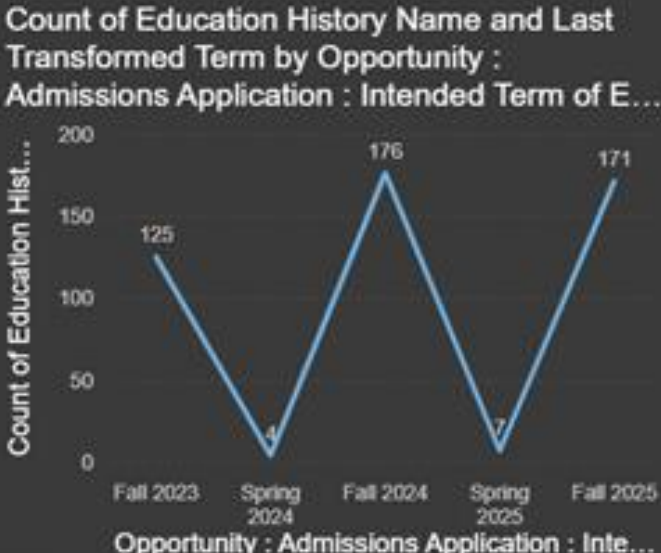


FTFY Student Education History Stats - ed_hs & hs_geo



School Name	NCES_STATE	NCES_CITY	%GT Count of Education History Name
A & M Consolidated High School	TX	COLLEGE STATION	0.43%
Abraham Lincoln High School	PA	Pittsburgh	0.43%
American Senior High School	FL	HIACLEAH	0.43%
Andover High School	MN	ANDOVER	0.43%
Annie Wright School	WA	Tacoma	0.43%
Aquinas High School	WI	Burlington	0.43%
ASU Prep Academy - Casa Grande	AZ	CASA GRANDE	0.43%
Athens High School	MI	TROY	0.43%
Baker High School	OR	Baker City	0.43%
Bellaire Senior High School	TX	BECKVILLE	0.43%
Brookfield Central High School	WI	Brookfield	0.43%
Brooklyn Center High School	MN	BROOKLYN MN	0.43%

Opportunity : Admissions Application : Citizenship Country	Count of uuid_contact id
India	32
Viet Nam	21
Nigeria	19
United States of America	17
Mexico	16
Ethiopia	14
Colombia	12
Brazil	10
Ghana	10
Kenya	8
Ecuador	6
United Kingdom	6
Cameroon	5
Total	287



FTFY Students Stats

Select all

Fall 2023

Fall 2024

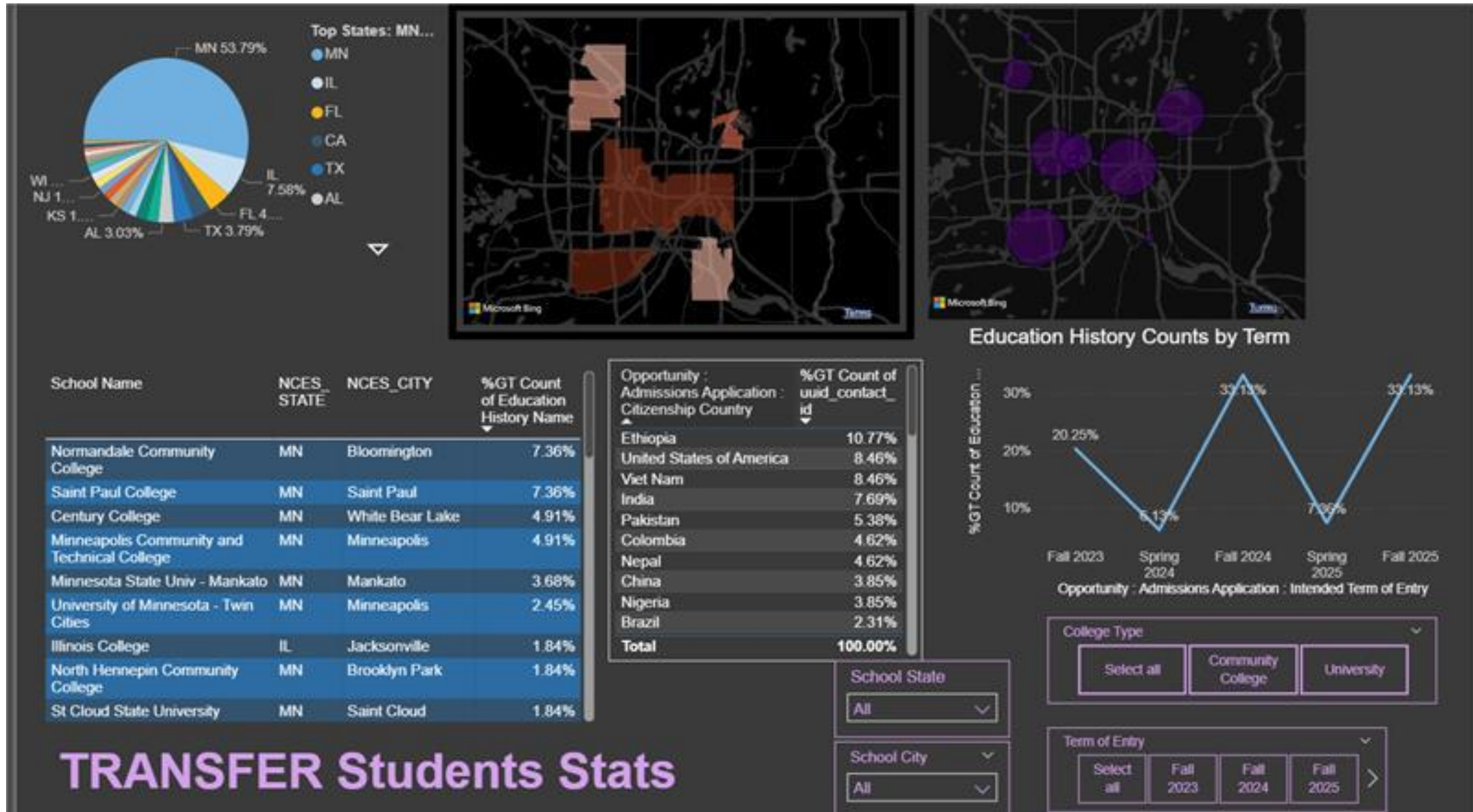
Fall 2025

School State

All

mas

Transfer Student Education History Stats - ed_coll & coll_geo



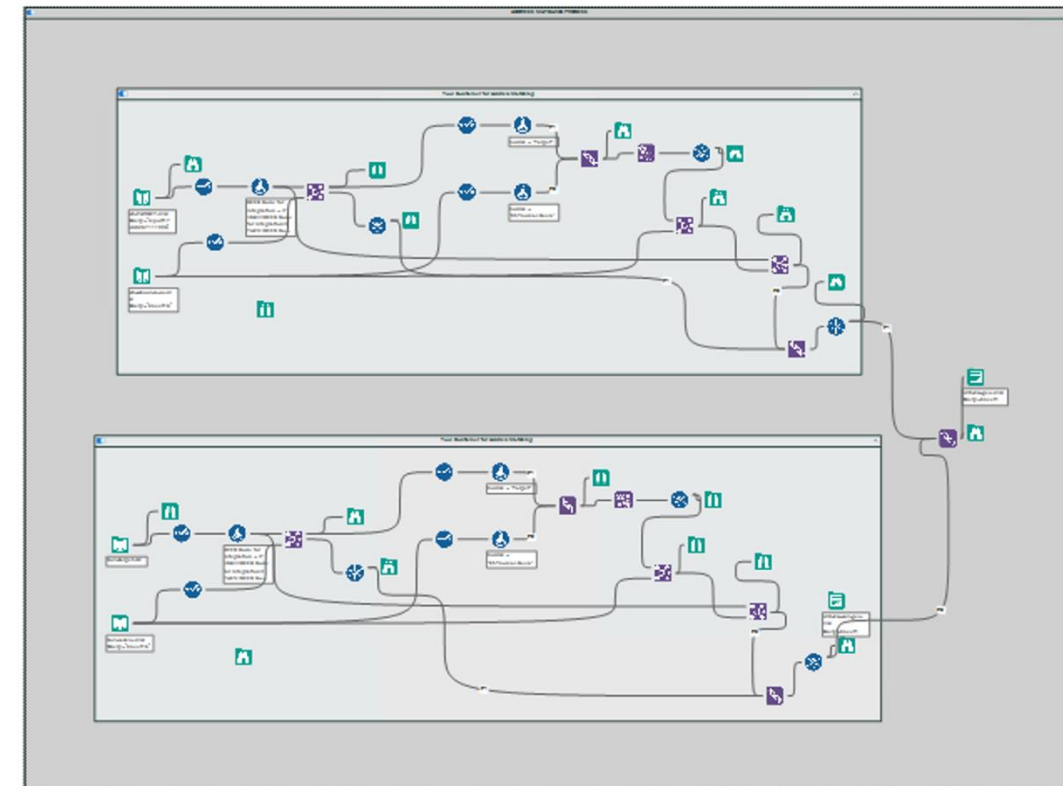
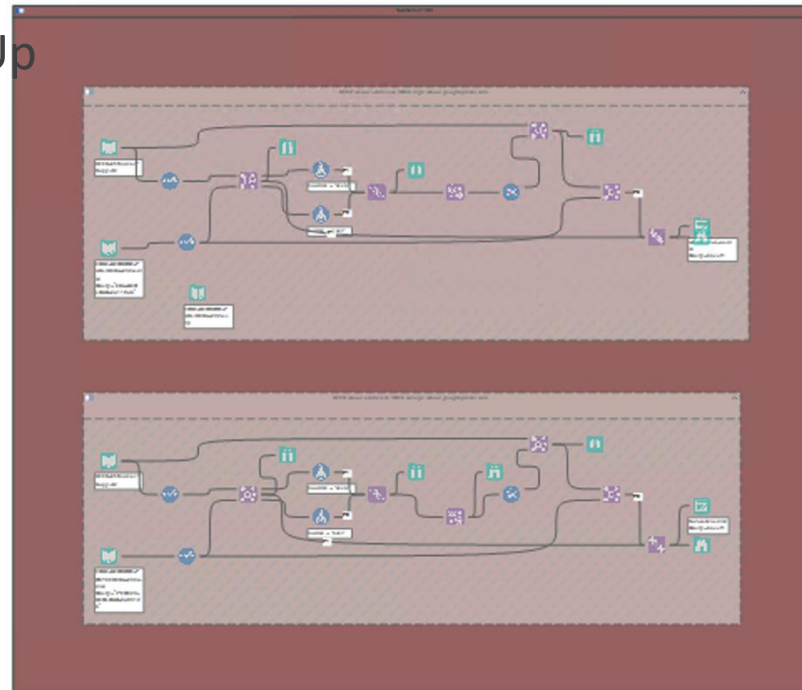
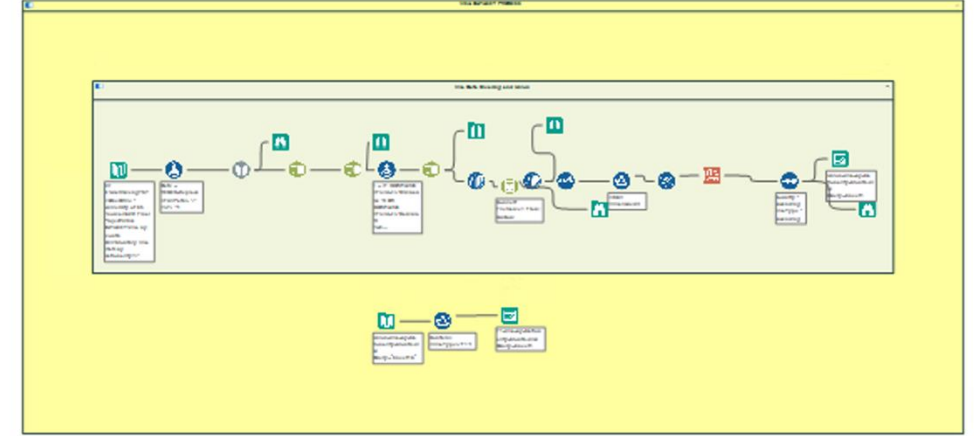
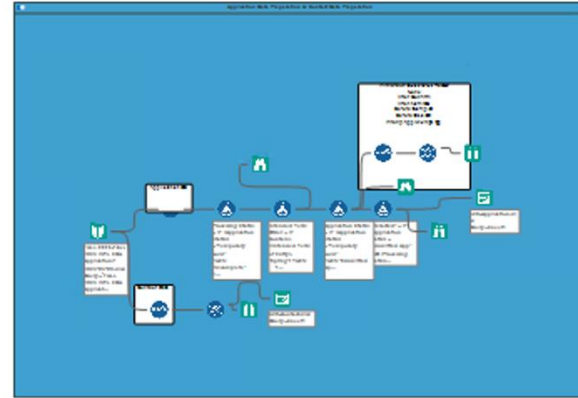
NEXT STEP

- 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

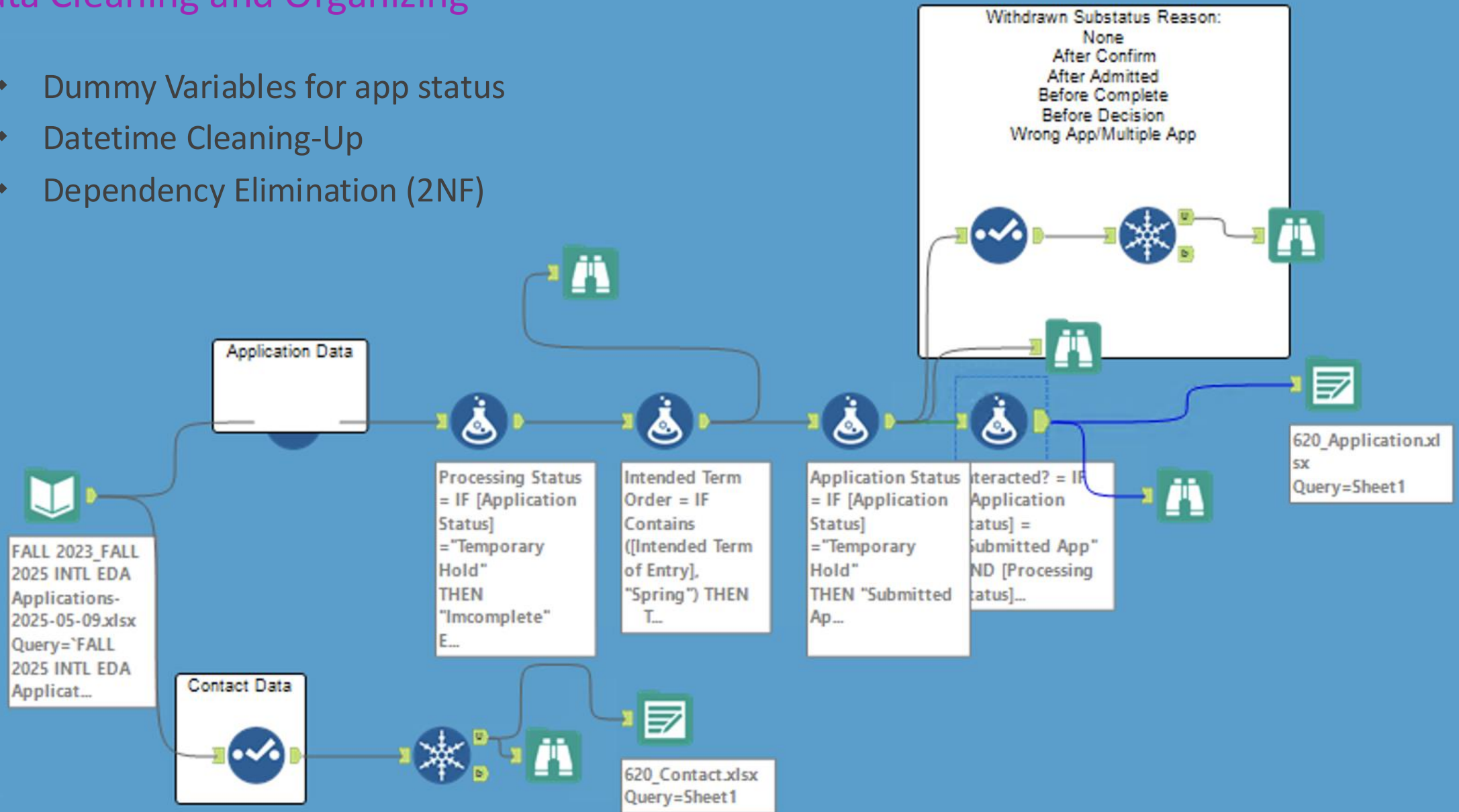
Appendix I: Data Cleaning and Organizing- Alteryx



- ❖ 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
- ❖ Datetime Cleaning-Up
- ❖ Dependency Elimination (2NF)

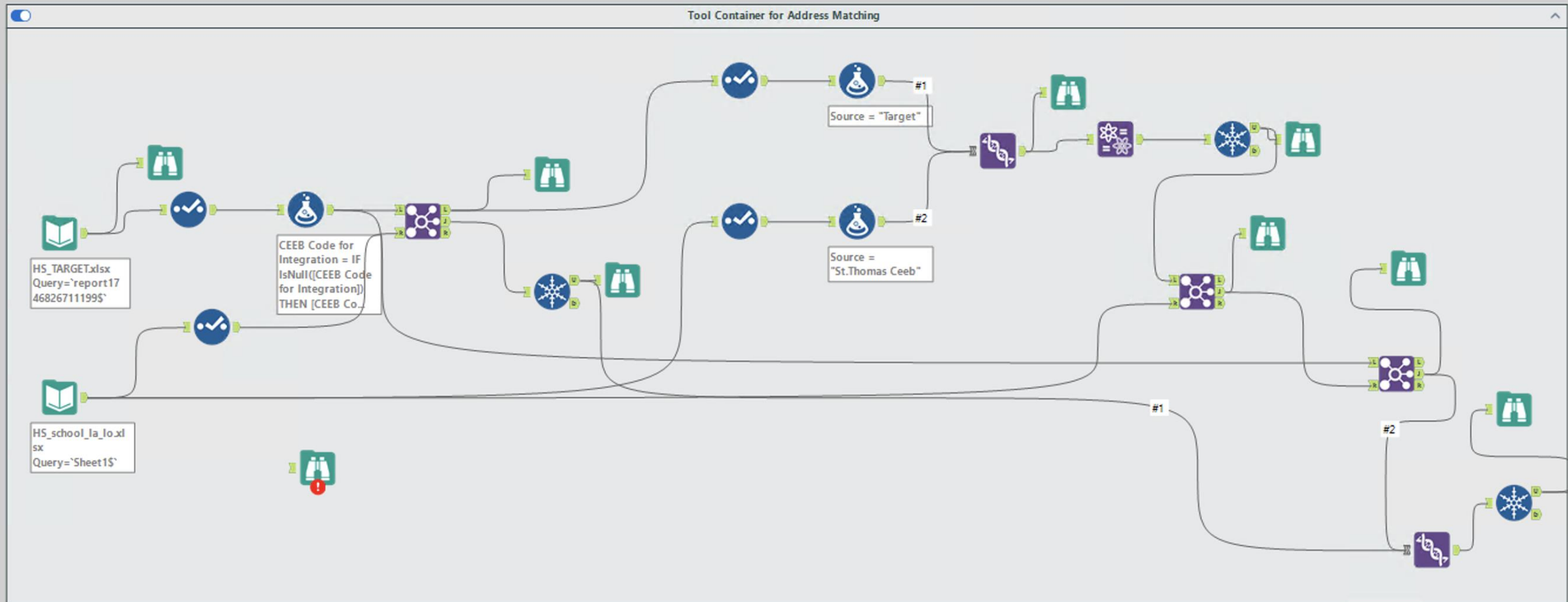


❖ School CEEB Code & NCES Geographical Data Integration



Data Cleaning and Organizing

❖ School CEEB Code & NCES Geographical Data Integration



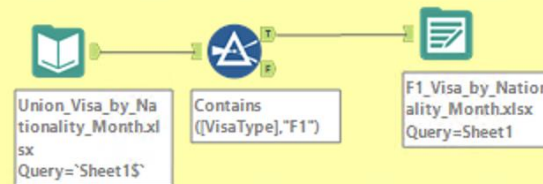
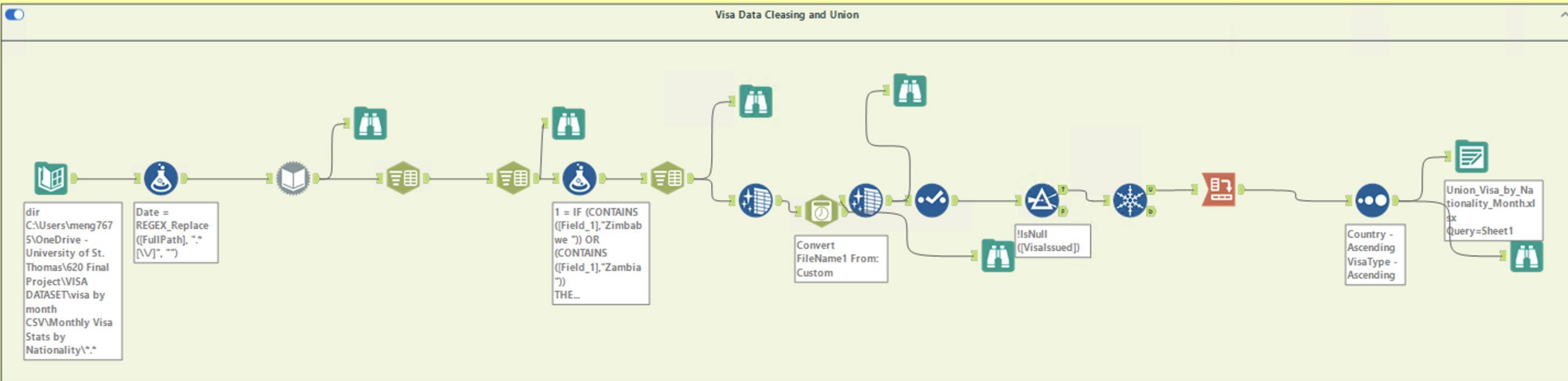
Data Cleaning and Organizing

❖ 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

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

FTFY: Complete Rate by Citizenship

Modified Citizenship Co..	
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..	
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%
Monaco	100.00%

Transfer: Confirm Rate by Citizenship

Modified Citizenship Co..	
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

Education Hisotry Count
5 106

Rate Color
0.00% 100.00%

Citizenship Country
Multiple values

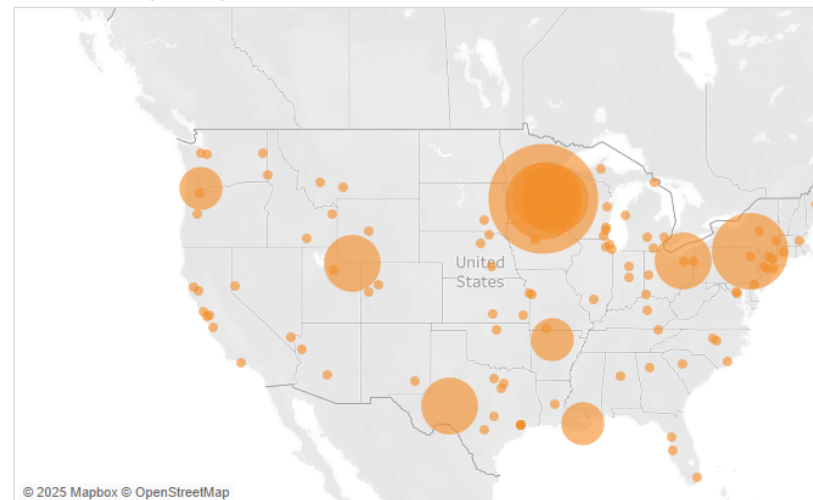
Record Type1
High School

State
All

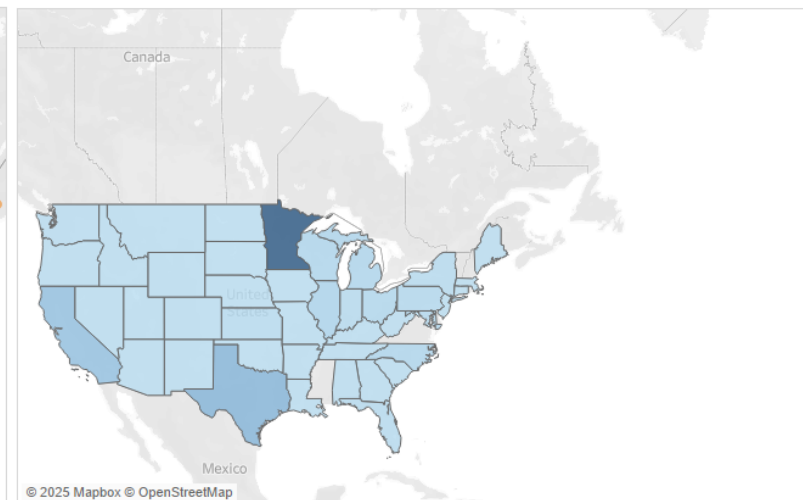
Intended Program Applicant Type

☒ First-Year
☐ Transfer

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



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 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
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 Communit..	Lakewood	2
KS	Emporia State Univer..	Emporia	2
MI	Delta College	University Center	2
WV	Bethany College	Bethany	2

Transfer: Complete Rate by Citizenship

Modified Citizenship Co..	
Antigua and Barbuda	100.00%
Australia	100.00%
Barbados	100.00%
Cambodia	100.00%
Canada	100.00%
Czech Republic	100.00%
Eritrea	100.00%
Estonia	100.00%
Georgia	100.00%
Guyana	100.00%
Honduras	100.00%
Myanmar	100.00%
New Zealand	100.00%
Palestine, State of	100.00%
Paraguay	100.00%
Philippines	100.00%
Romania	100.00%
Sudan	100.00%

Transfer: Admit Rate by Citizenship

Modified Citizenship Co..	
Cambodia	100.00%
Canada	100.00%
Czech Republic	100.00%
Eritrea	100.00%
Estonia	100.00%
Georgia	100.00%
Guyana	100.00%
Honduras	100.00%
Myanmar	100.00%
New Zealand	100.00%
Palestine, State of	100.00%
Paraguay	100.00%
Philippines	100.00%
Romania	100.00%
Sudan	100.00%
Turkmenistan	100.00%
France	75.00%

Transfer: Confirm Rate by Citizenship

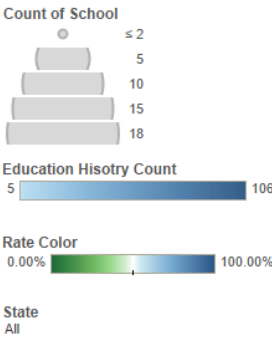
Modified Citizenship Co..	
Canada	100.00%
Czech Republic	100.00%
Guyana	100.00%
Myanmar	100.00%
Palestine, State of	100.00%
Turkmenistan	100.00%
Viet Nam	52.94%
Cambodia	50.00%
Germany	50.00%
Mongolia	50.00%
Congo, Democratic Rep..	40.00%
Cayman Islands	33.33%
Colombia	33.33%
Netherlands	33.33%
Peru	33.33%
Spain	33.33%
Syrian Arab Republic (S..	33.33%
France	25.00%

Transfer: Total Number of Students

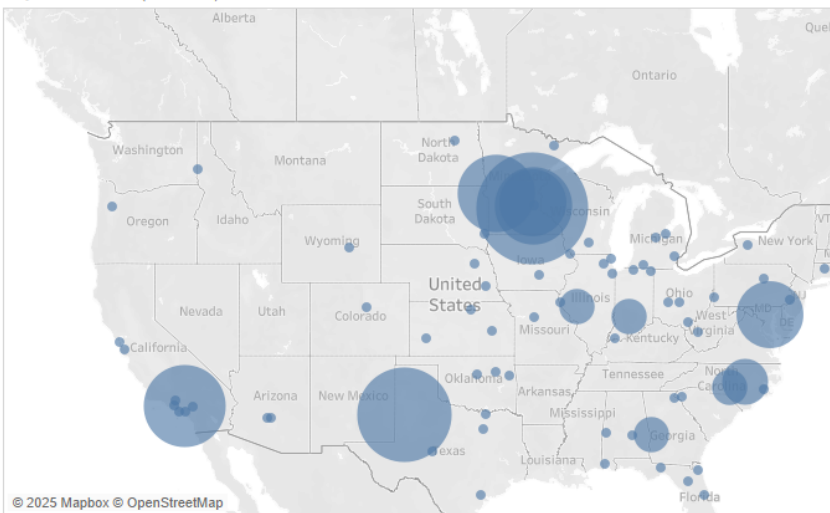
Modified Citizenship Co..	Count of..
Kenya	77
United States of America	43
Ethiopia	35
India	26
Cameroon	25
Pakistan	22
Uganda	20
Bangladesh	17
Viet Nam	17
Zimbabwe	16
China	13
Brazil	11
Gambia	10
Nepal	10
South Africa	10
Liberia	7
Tanzania, United Republ..	7
Colombia	6

TRANSFER STUDENTS DASHBOARD

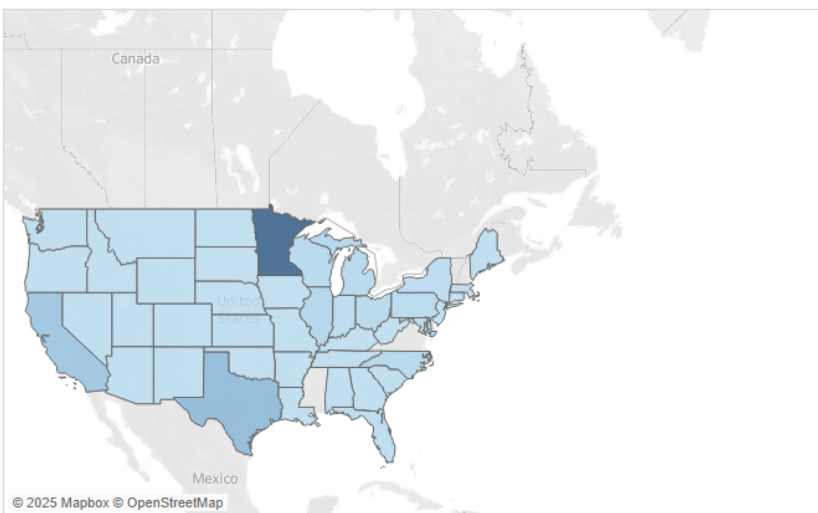
Legend



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



Overall Number of Students from U.S. schools



Citizenship Country

All

Intended Program Applicant Type

☐ First-Year

☒ Transfer

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
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	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 Communit..	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

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Cameroon	166	5
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Bangladesh	132	Ri
Uganda	119	0.
Zimbabwe	111	
United States of America	90	Cit
		Mi