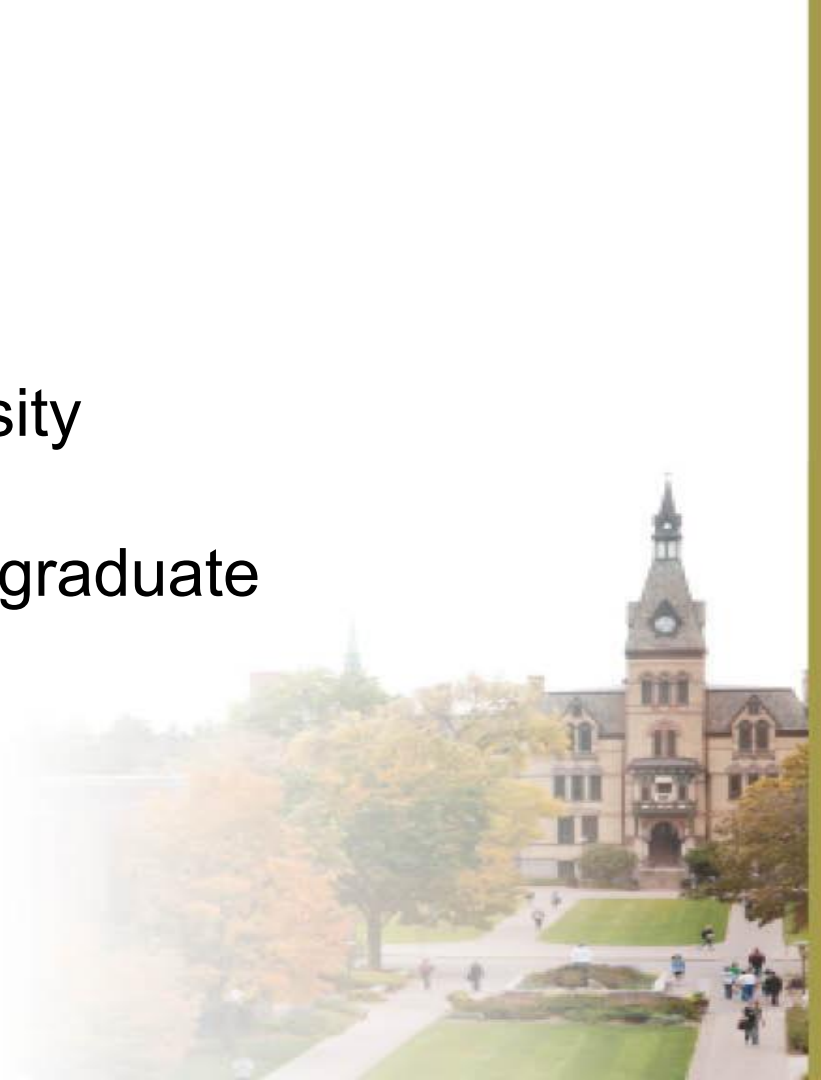# Low-Cost Dashboards for Visualizing Data and Supporting Decisions

Sally Gerlach
Tracy Williams

# Hamline University

- Private, liberal arts university
- St. Paul, MN
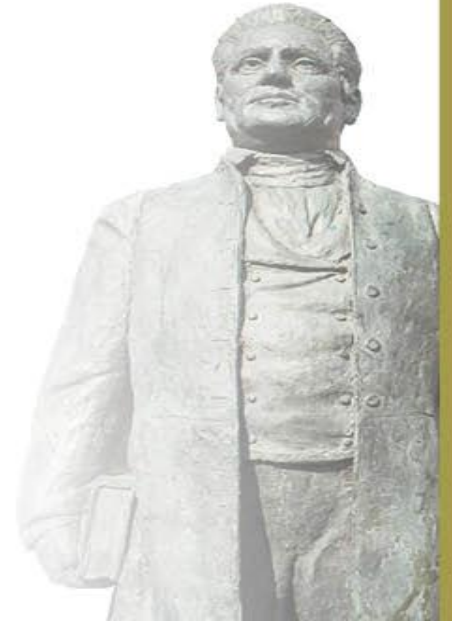- 1814 undergraduate, 759 graduate students (Fall 2024)

# Institutional Effectiveness

- 2 FTE
- Institutional Research
- Financial Aid reporting
- Learning Outcomes Assessment
- Student Success
- NCAA Reporting
- Compliance

# **Visualization Tool Needs:**

- Low-cost
- Little training required
- Secure data

# Google Looker Studio

1. Free
2. Resources and support available
3. Shareable
4. Secure, but be careful
5. Not as robust as more expensive tools

# Current projects using Google Looker Studio

1. Demographic data by program for enrolled students and graduates
2. Course DFW rates
3. NSSE results
4. Learning Outcomes Assessment
5. Graduate Programs Completion Data
6. Student Work Patterns
7. Permanent Residence of Students for State Authorization Compliance

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# New Report - Page 1

# New Report - Page 2

# Google Looker Studio

# How To...

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# Building a new Report

**Things to know before hand:**

- Can NOT get to it from your Google Apps



- Reports DO NOT show up in your Google Drive

https://lookerstudio.google.com/navigation/reporting

- Data Sources: Can Link to MS Excel (limit of 2GB for free) or Google Sheets

# Building a new Report - Create Report

# Building a new Report - Select Data File

# Building a new Report - Select Data File (Google Spreadsheet)



If you cannot find your data file, you can search for it. Click the magnifying glass to open the search box.

# Building a new Report - Select Data File (MS Excel)



Drag and drop your file from your current file location. Select the file and tab you want to use.

*NOTE: Files will appear here indefinitely

# Building a new Report - Change File Name

Same as changing a google doc file - Click on Untitled Report and type new file name

# Building a new Report - Report View Sections



**Menu Bar**
- Insert: Charts/Graphs, Controls/Filters, Text Boxes, Shapes, Images
- Page: Add, Duplicate, Delete Pages, Page Settings (change the page layout)
- Resource: Manage added data sources

*Can do a lot of the same things using this menu bar and the one below it.

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# Building a new Report - Report View Sections



## Elements

- Add pages and move to through pages
- Add data (can also do from Resources/Manage added data sources)
- Add a control: Filters that can be selected when looking at the report
- Add a chart (can also do from Insert above)
- Add Images, Text Boxes, Lines, or Shapes
- Theme and Layout

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# Building a new Report - Report View Sections



**Filter**
- Adds a hard coded filter to the page that is not selectable in the report

**Data**
- Files linked to report and the variables available

**Properties**
- The building properties of the charts, controls, page settings, themes, etc
  - Tab 1: the setup - how to build your element
  - Tab 2: the style - customize the look

**View/Edit**
- Toggle between editing and viewing the report

# Building a new Report - Theme



Click "Theme and Layout"
- This will open the Theme and Layout properties panel on the right side of your screen.
- Can use a default theme or create your own under Layout

# Building a new Report - Page Setup



**Properties panel**

# Building a new Report - Images



**Images need to be saved as files or as URL links**

# Building a new Report - Text Boxes



Can use the Text Properties to adjust the text.

# Building a new Report - Adding Selectable Filters



**New First Year and Transfer Students**

The following data consists of new students who enrolled at Hamline between Fall 2020 and Fall 2023.

**Filter:** Filter by any of the student groups below (Note: This will adjust all charts and tables below)

| Deceased ▾ | Cohort Term ▾ | Entry Type ▾ | First Term FT/PT ▾ |

- Filters will adjust the visualizations in the report.
- They will only change the visualizations on the page they are set up on.

# Building a new Report - Adding Selectable Filters

- Add a Control
  - Select the type of list you want your filter to be
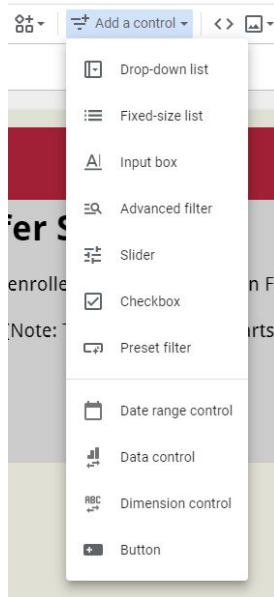


**Properties Panel**

**Setup**



**Style**



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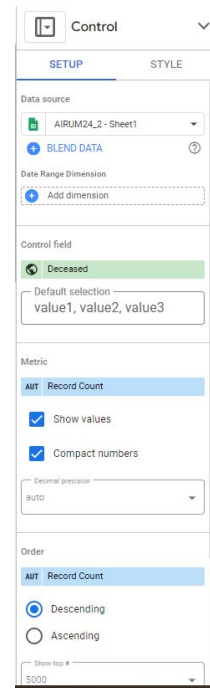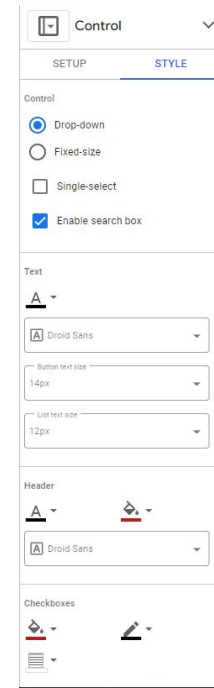
# Building a new Report - Adding a Chart

**Basic Bar Chart (but lots of options)**

**Number of Students Participating in Athletics in their First Year (by First Gen Status)**



- First Gen
- Not First Gen

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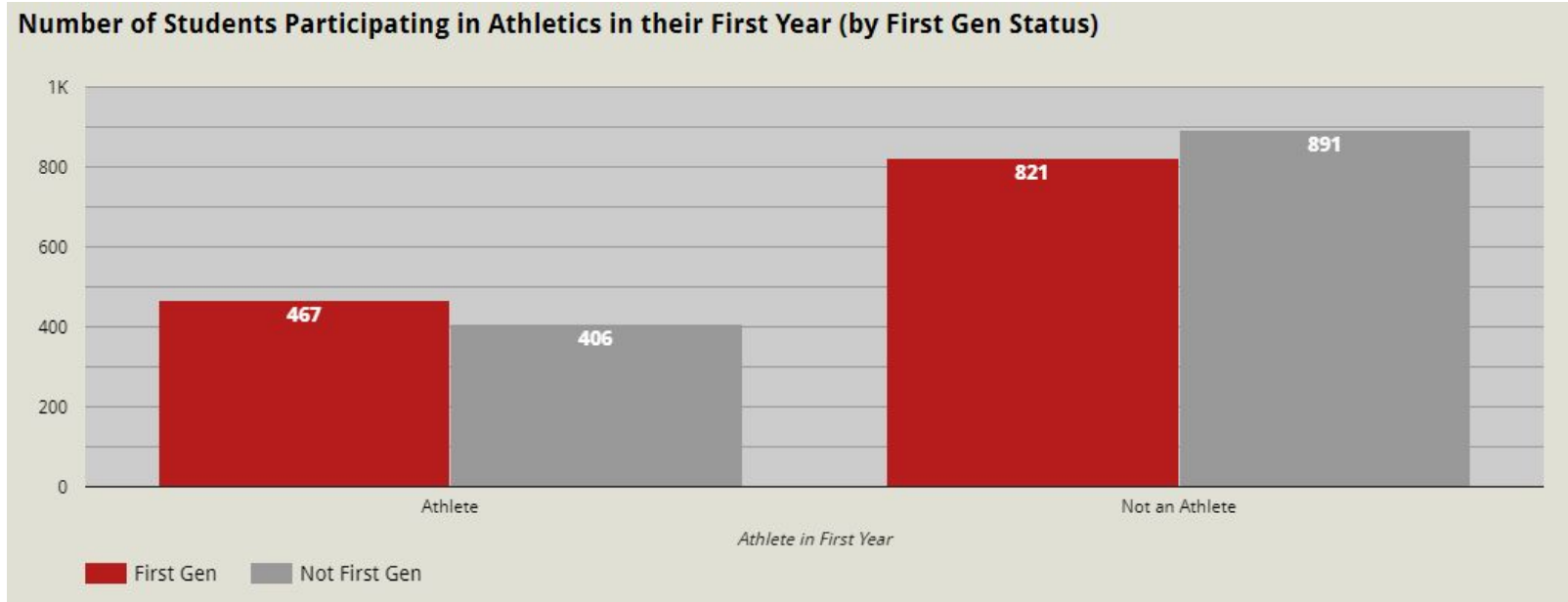
# Building a new Report - Adding a Chart

- Add a chart
  - Select one to start, can change as you build
  - Once selected, the properties panel will open
  - Can also do this through the Menu bar/Insert
- Replicate charts so formatting/style stays the same
  - Right click on or around the chart
  - Select "Duplicate" from menu that opens



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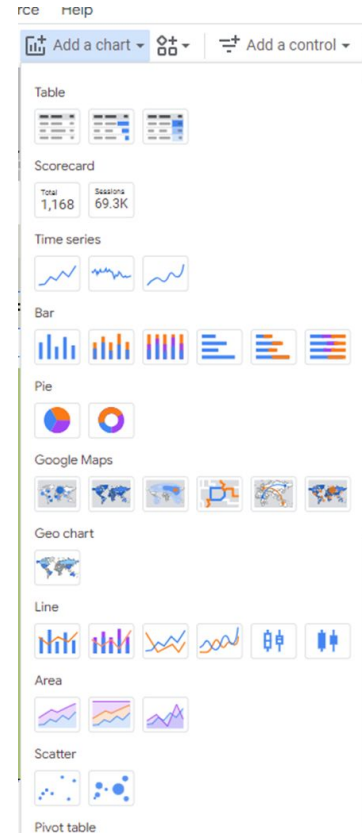
# Building a new Report - Adding a Chart

## Chart Setup

**Chart Type** - bar chart

**Dimension** (variable you want to show) - Athlete in First Year

**Breakdown Dimension** (secondary variable) - First Generation College Student

**Metric** (what is it showing) - count of IDs

**Sort** - sorting on Athlete in First Year

**Secondary sort** - sorting on First Generation



*Cross-filtering* - allows user to click on a chart bar to filter all the other charts on the page (acts like a page filter)

*Change sorting* - allows users to change the sort on charts

# Building a new Report - Adding a Chart

## Chart Style

Add a Title

Change the font

Change your bar colors

Change your axis/titles

Add labels

*Easy to miss things, just go slow as you go through the list of formatting properties

# Building a new Report - Custom Sorting



**Number of Students Participating in Athletic in their First Year**
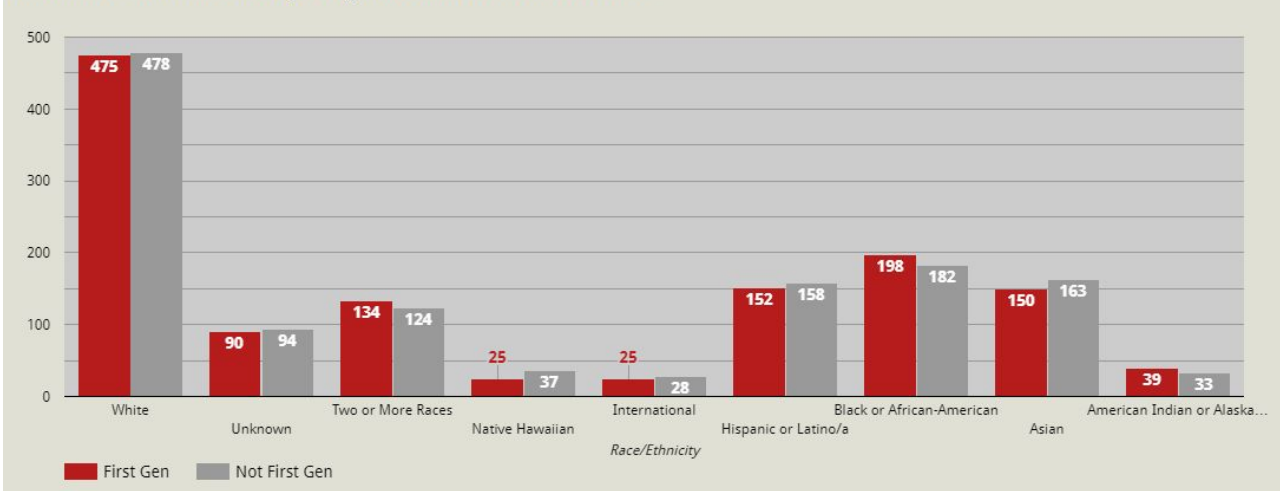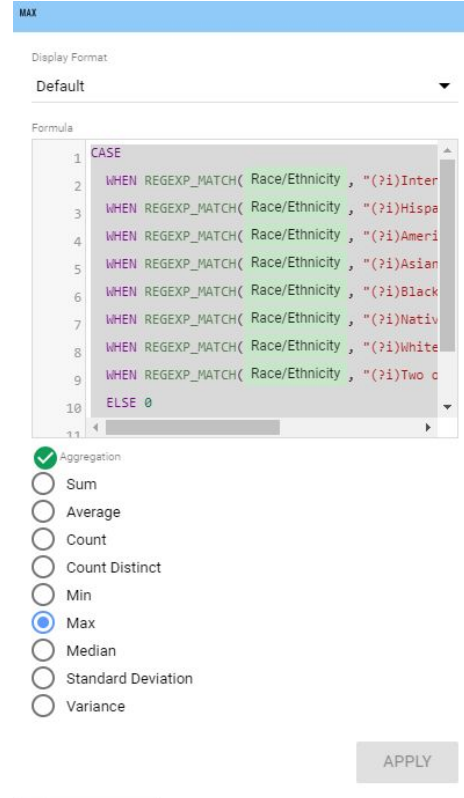
In the chart's properties, go to the Setup tab, and down to Sort. Click the field and a box will appear. Click on "ADD CALCULATED FIELD"
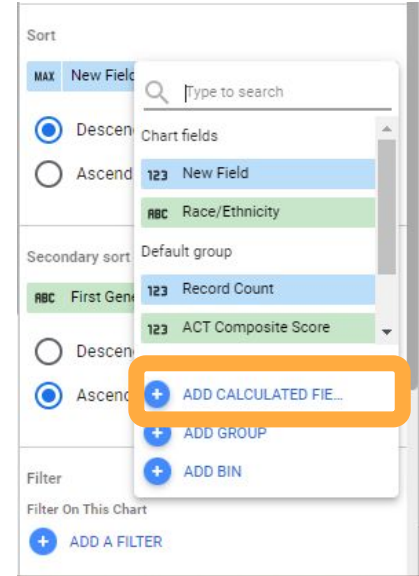
# Building a new Report - Custom Sorting

In the box that opens, enter code with your order of categories, click APPLY, and then select "Max":

CASE

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)International") THEN 8

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)Hispanic or Latino/a") THEN 7

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)American Indian or Alaska Native") THEN 6

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)Asian") THEN 5

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)Black or African-American") THEN 4

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)Native Hawaiian") THEN 3

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)White") THEN 2

WHEN REGEXP_MATCH(Race/Ethnicity, "(?i)Two or More Races") THEN 1

ELSE 0

END

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MAX

Display Format

Default

Formula

```
1  CASE
2    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Inter
3    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Hispa
4    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Ameri
5    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Asian
6    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Black
7    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Nativ
8    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)White
9    WHEN REGEXP_MATCH( Race/Ethnicity , "(?i)Two o
10   ELSE 0
11
```

✅ Aggregation
○ Sum
○ Average
○ Count
○ Count Distinct
○ Min
● Max
○ Median
○ Standard Deviation
○ Variance

APPLY

# Building a new Report - Custom Sorting

Choose the sort direction
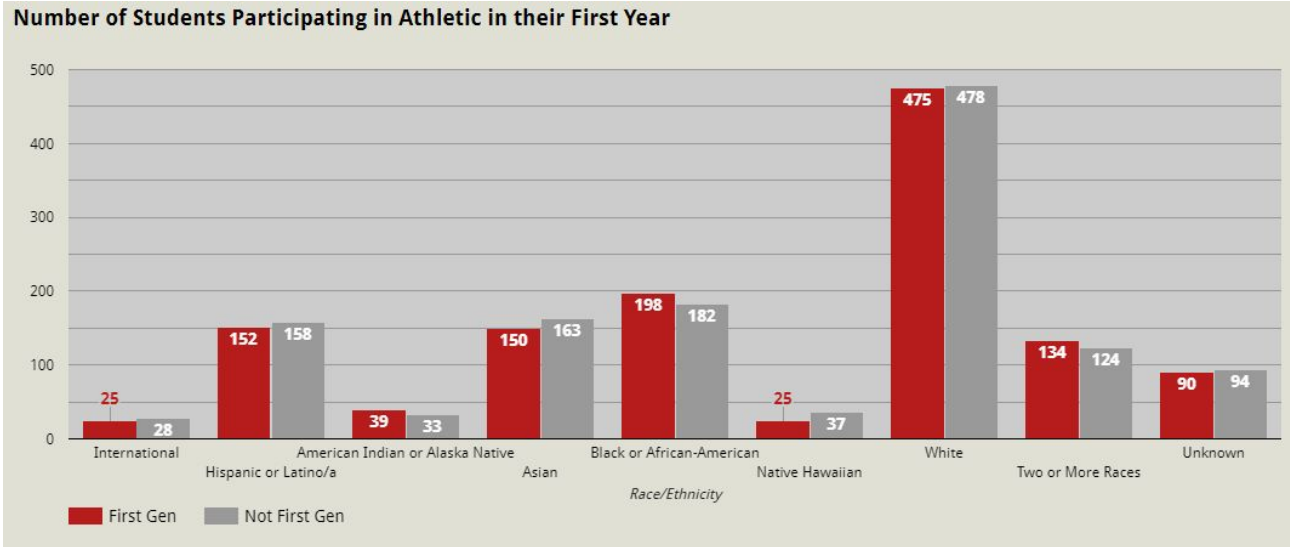


*This new calculated field is only on this chart. If you play around with the chart types, it might disappear. If you duplicate the chart, it should remain.*

# Building a new Report - Custom Sorting

- If using a stacked bar chart, can custom sort the axis (Sort) and the groups (Secondary sort) using the same method.
- Note - even though the fields are named the same, they are NOT the same.
- Don't Forget to change the variable types to MAX
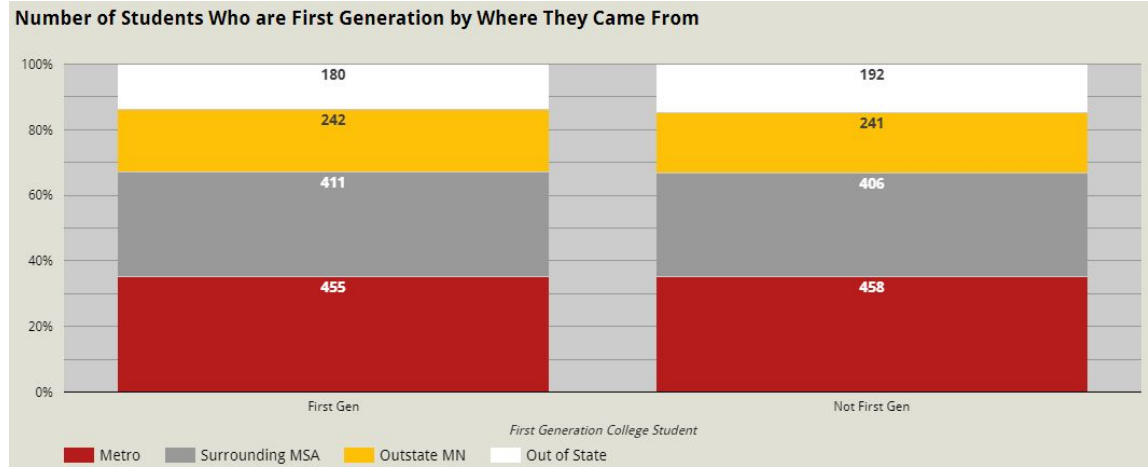
# Building a new Report - Clustered Stacked Bar Chart

- Looker Studio CANNOT currently create Clustered Stacked Bar Charts
- Work Around: Create separate graphs with Filters (under Setup) for comparison groups

Filter

Filter On This Chart

➕ ADD A FILTER
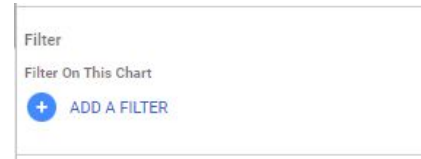
Edit Filter                                                                    ✕ CLOSE

Name
Athlete          📄 AIRUM24_2 - Sheet1

Can change name of Filter

| Include ▼ | RBC Athlete in First Year | Starts with ▼ | Ath |   OR |

AND

This filter has 1 clause                                                        SAVE

- Once created, filters can be used on other charts, just select in the Filter picker after select ADD A FILTER
  - Once a filter has been created, will need to select the CREATE A FILTER at the very bottom, or select already created one.

← Filter picker                    🔍

Athlete

✓ Not Athlete
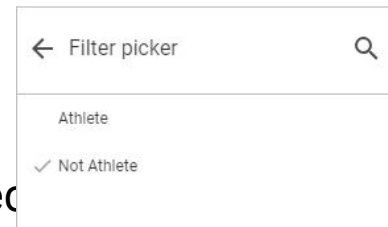
# Building a new Report - Clustered Stacked Bar Chart

- Make sure to change title so you know what you filtered
  - Google Looker Studio does not wrap title text, if long, will need to create text boxes instead
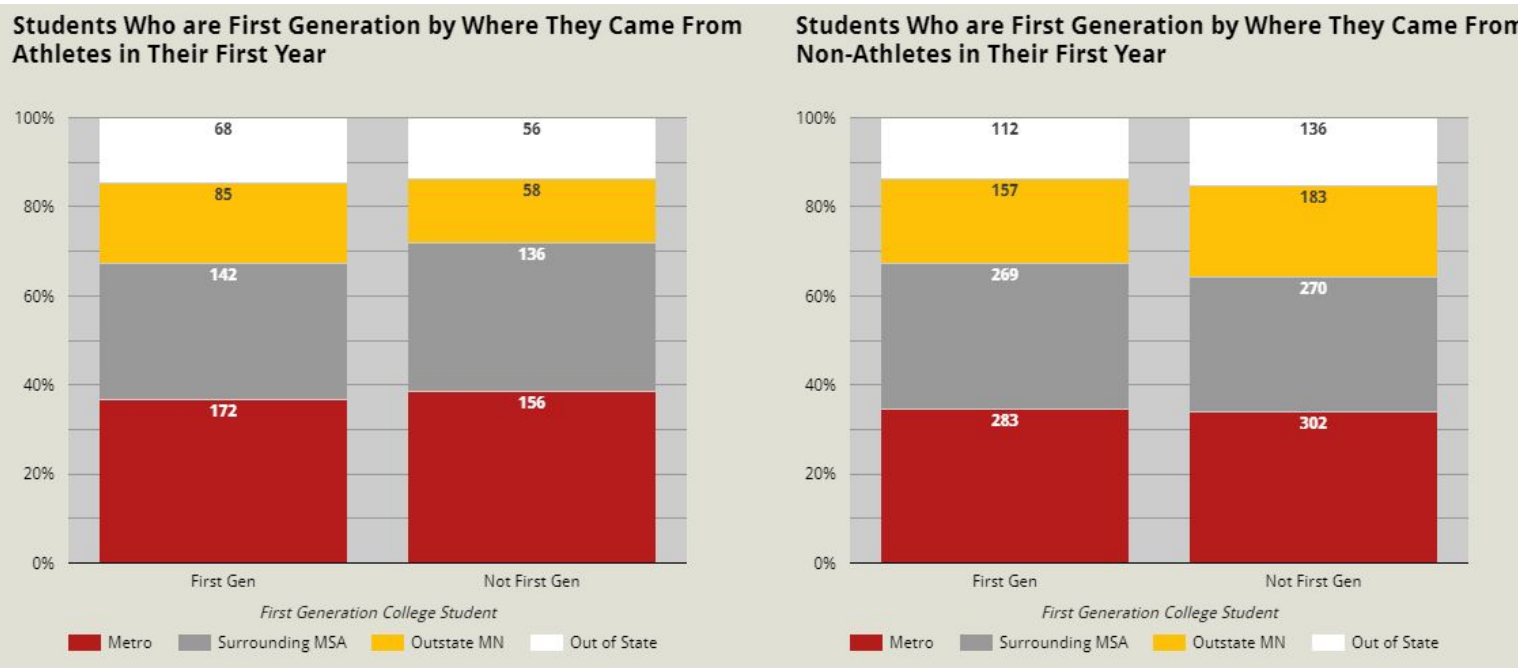
# Building a new Report - Add a Page

## Add a Second Page



AIRUM24 - First to Second Fall Enrollment
File   Edit   View   Insert   Page   Arrange   Resource   Help

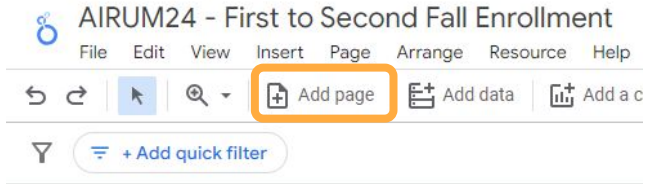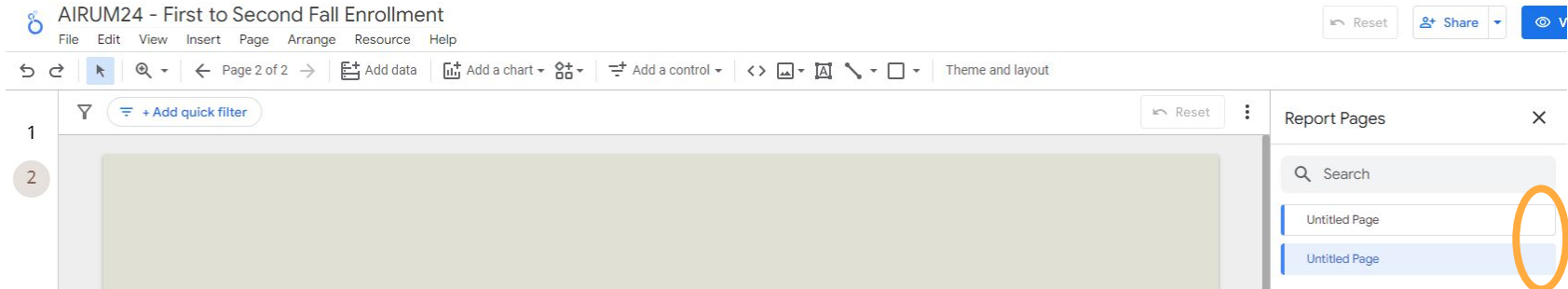Add page   Add data   Add a c

+ Add quick filter

## Rename Page



AIRUM24 - First to Second Fall Enrollment
File   Edit   View   Insert   Page   Arrange   Resource   Help

Page 2 of 2   Add data   Add a chart   Add a control   Theme and layout

Reset   Share   V

+ Add quick filter

1

2

Reset

Report Pages

Search

Untitled Page

Untitled Page

Three dots appear when hover over page (can also get from Page/Manage Pages from Menu bar), rename from here

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# Building a new Report - Add a Page Filter (Hard Code)

Page Filters filter the entire page, and is not adjustable by the user



Page 2 now has a filter that selects only students still living

# Viewing your Report

# Viewing your Report

# Other Tidbits

- Can be really slow - be patient
- When you change charts, things might get messed up - just keep playing with it
- It gets easier the more you work in it
- Try to build your google spreadsheet out the way you want to present your data
  - Can refresh your data using the three dots, but it sometimes doesn't take
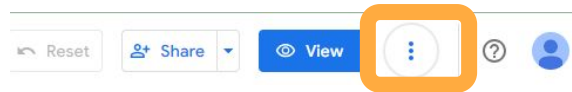


- When you come back to the report, click the Edit button in the top right to get back to building the report

# Other Tidbits (continued)

- To create a map by state, state needs to be set up as a geocode. If you don't see the globe next to state variable in Chart Setup, hover over it and a pencil icon will show - click, select the Data Type = "Country subdivision (1st level)"
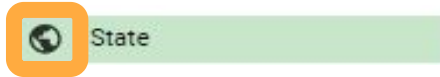


- Can cross-filter across charts: if select one group in a chart, the cross-filtered charts will change to show just the group selected. Or you can turn this off.
- Add multiple pages so you can tell your story
- Share your report with certain people or post online. Shares similarly to how other Google products get shared.

# Questions or Tips to Share

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**Tracy Williams: twilliams05@hamline.edu**



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