esri | THE SCIENCE OF WHERE

Modern GIS is Web GIS

Teaching GIS Using ArcGIS Online

Brian Baldwin

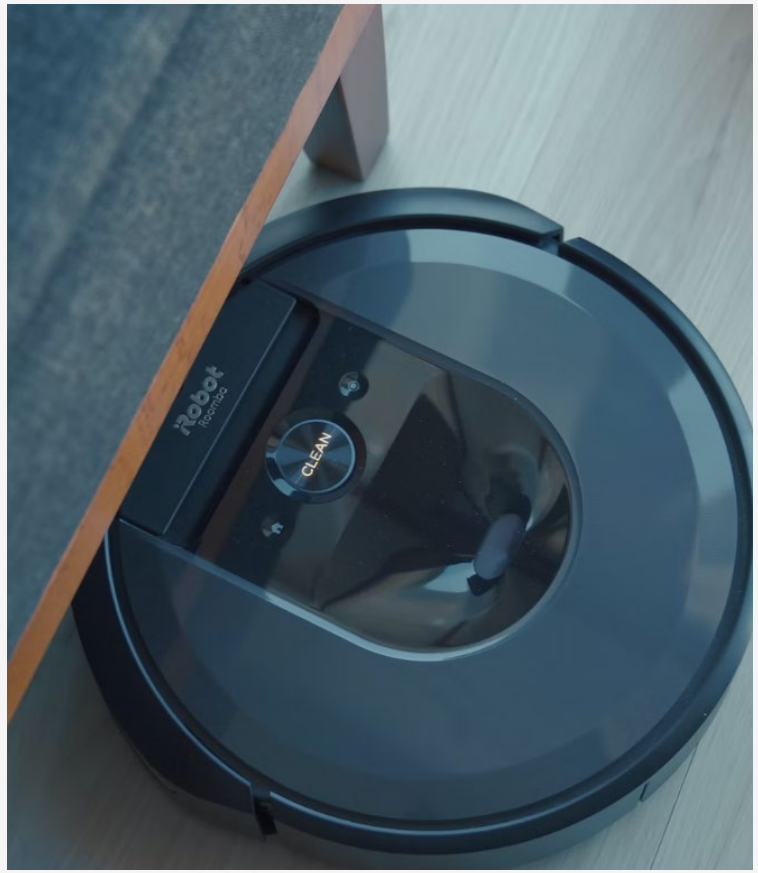
Charlotte Smith

Shawn Morgan

Rodolfo Franco

Housekeeping

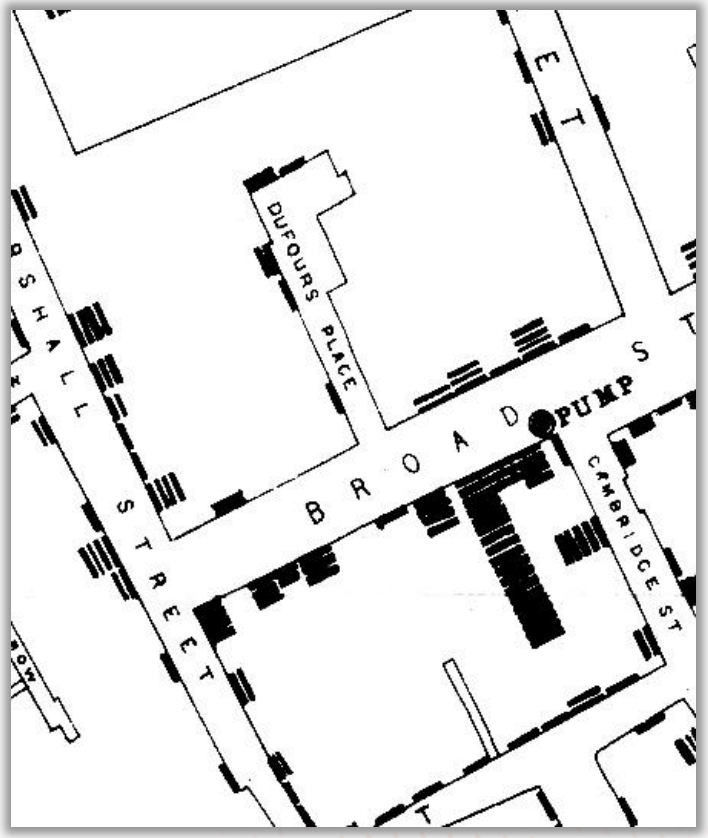
- Please enter your questions in the chat box
- Q&A session at the conclusion of the webinar
- Webinar & slides will be available
- Survey following the webinar



Onur Binay @unsplash

Agenda

- Introductions
- Modern GIS?
- Faculty Presenters
  - Charlotte Smith
  - Shawn Morgan
  - Rodolfo Franco
- Resources
- Q&A



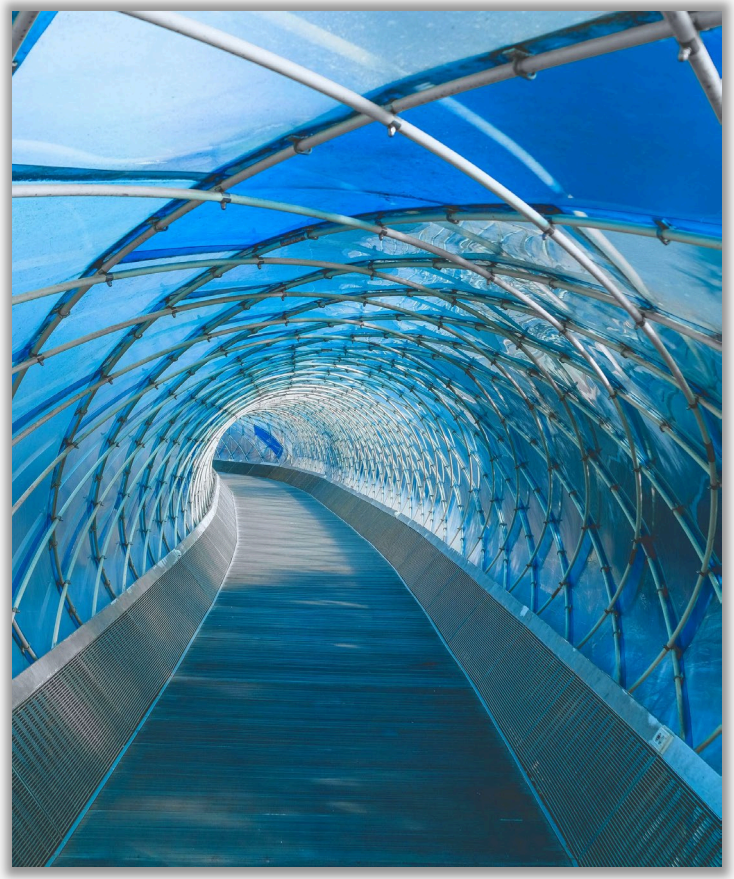
Esri's Education Program

Enabling, Encouraging, and Equipping

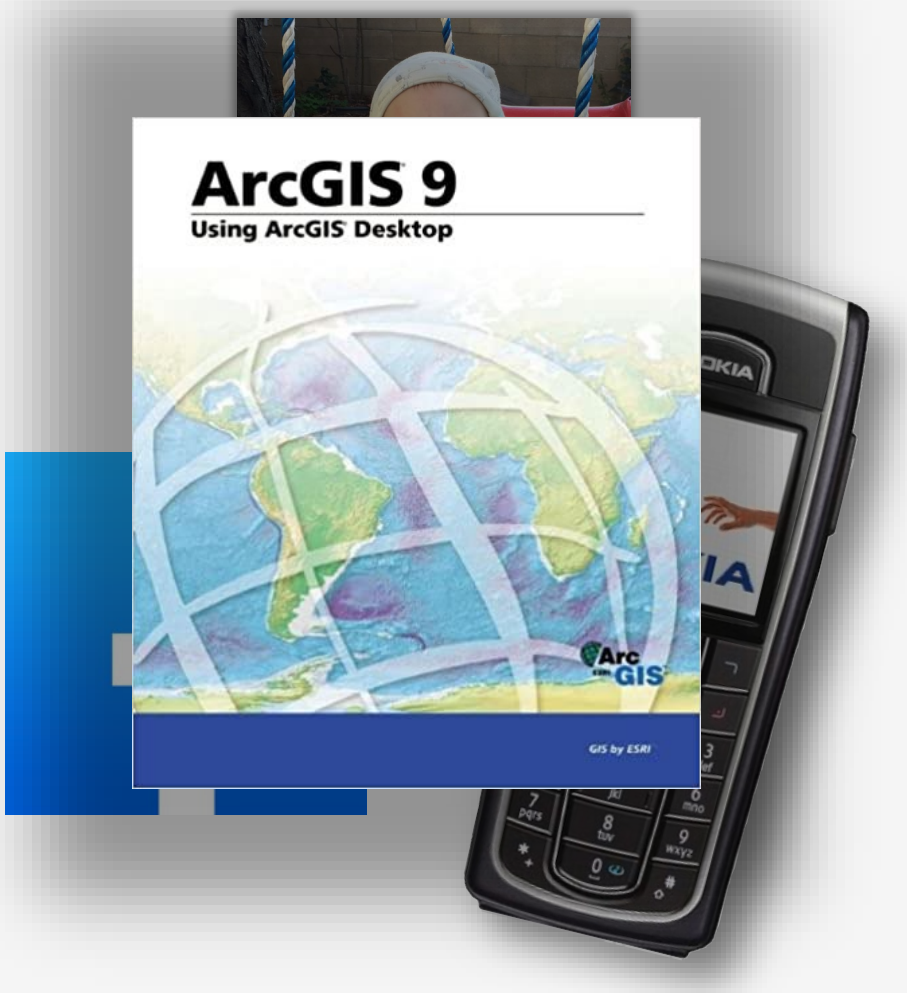
… future decision makers to think spatially, solve problems, and use GIS to become the change agents of tomorrow.

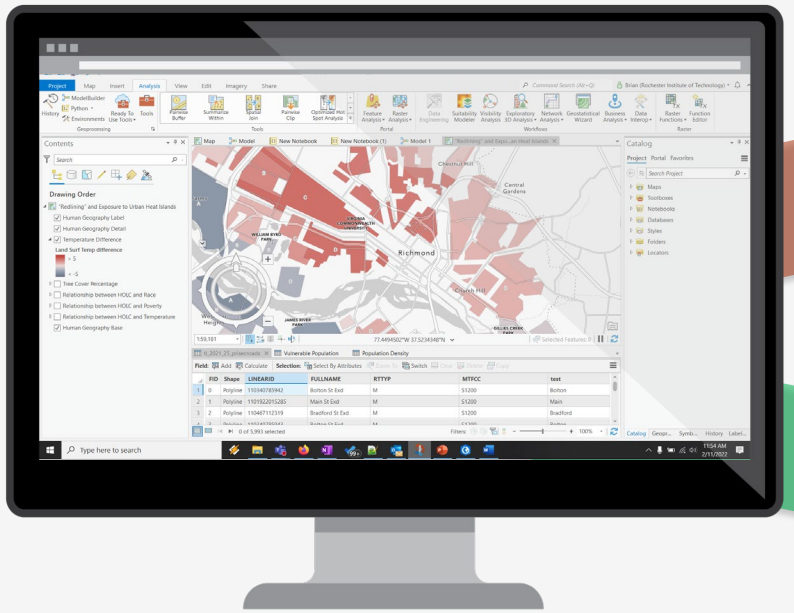
- **7,000+ universities globally**
- **Free licenses for all K-12 (Esri Schools)**
- **Education, research, and operations**

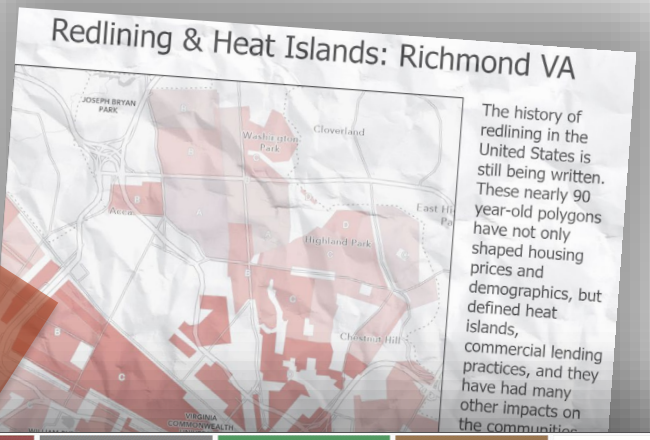
Time travel to 2004… **19 years ago.**

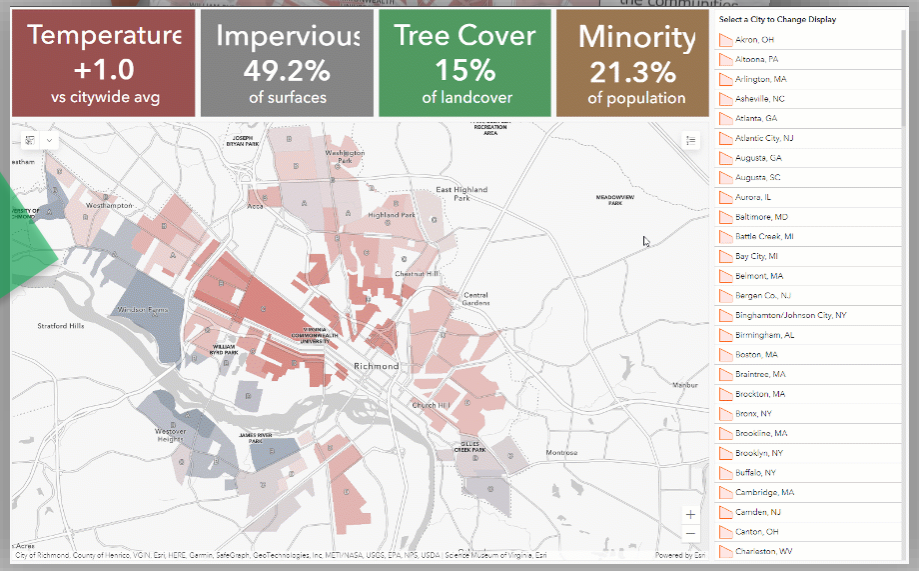


Harry Cunningham @unsplash



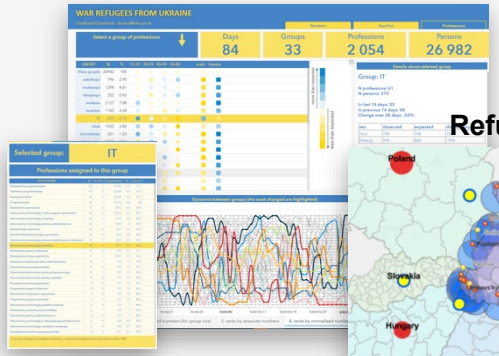



Redlining & Heat Islands: Richmond VA
The history of redlining in the United States is still being written. These nearly 90 year-old polygons have not only shaped housing prices and demographics, but defined heat islands, commercial lending practices, and they have had many other impacts on the

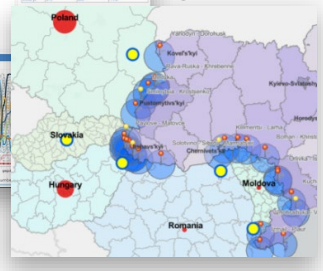

Temperature
+1.0
vs citywide avg
Impervious
49.2%
of surfaces
Tree Cover
15%
of landcover
Minority
21.3%
of population
Select a City to Change Display
Akron, OH
Altoona, PA
Arlington, MA
Asheville, NC
Atlanta, GA
Atlantic City, NJ
Augusta, GA
Augusta, SC
Aurora, IL
Baltimore, MD
Battle Creek, MI
Bay City, MI
Belmont, MA
Bergen Co., NJ
Binghamton/Johnson City, NY
Birmingham, AL
Boston, MA
Braintree, MA
Brockton, MA
Bronx, NY
Brookline, MA
Brooklyn, NY
Buffalo, NY
Cambridge, MA
Camden, NJ
Canton, OH
Charleston, WV

Who is using ArcMap?

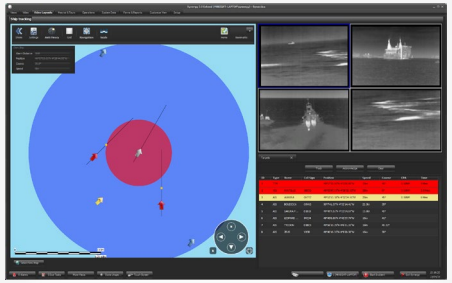
Tracking Ukrainian Refugees



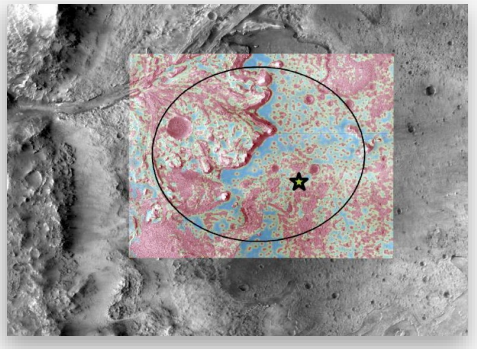
Refugees Needs



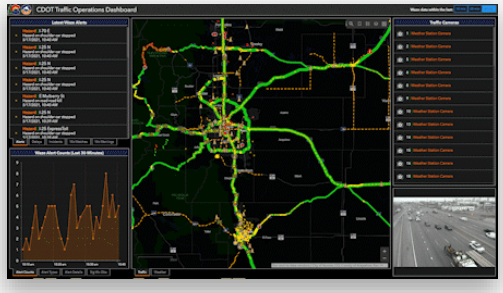
Ship Tracking - Security



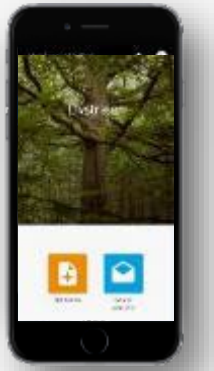
Mars Lander Suitability



Real-Time Traffic Monitoring

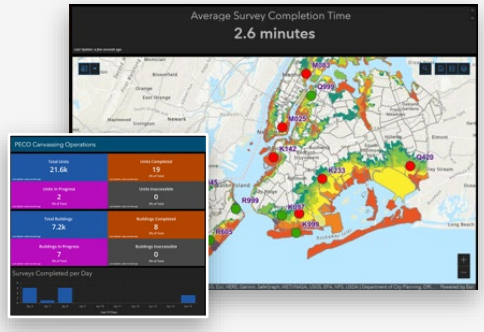


Tree Inventory

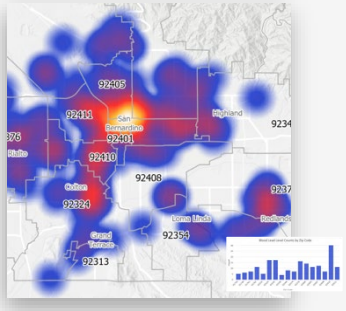


Sidewalk Ramp Status

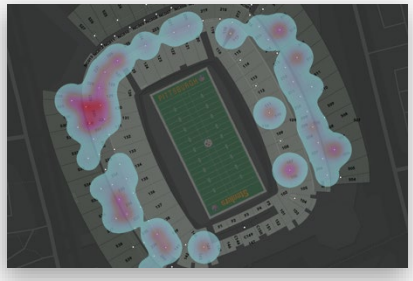
Vulnerable Populations & Health



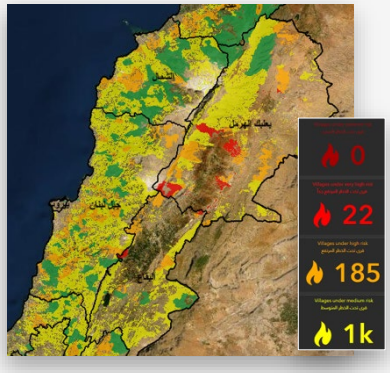
High Lead Levels in Children



Visualizing Stadium Beer Sales

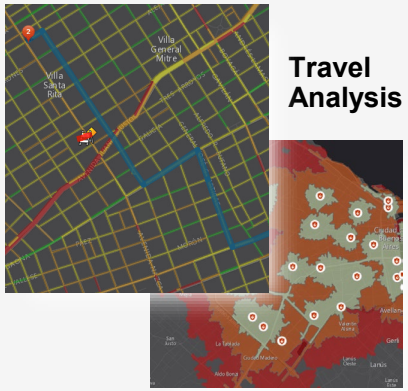


Fire Forecast



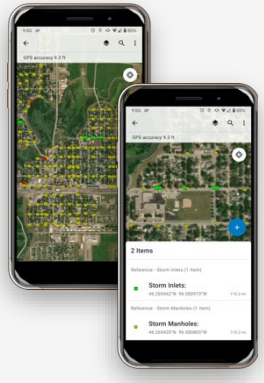
Emergency Routing

Travel Analysis

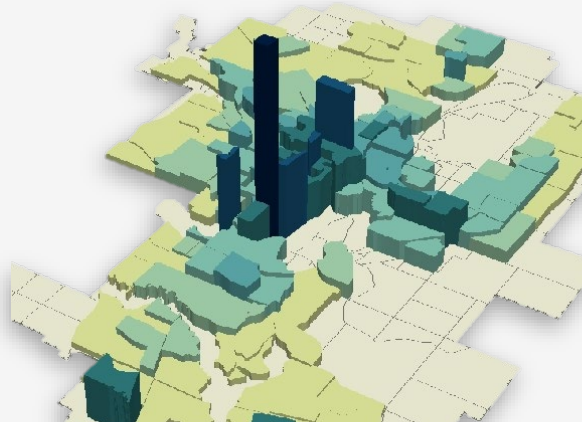


Building Feature Extraction (AI)

Field Assessments



Mapping Historic Crime Rates

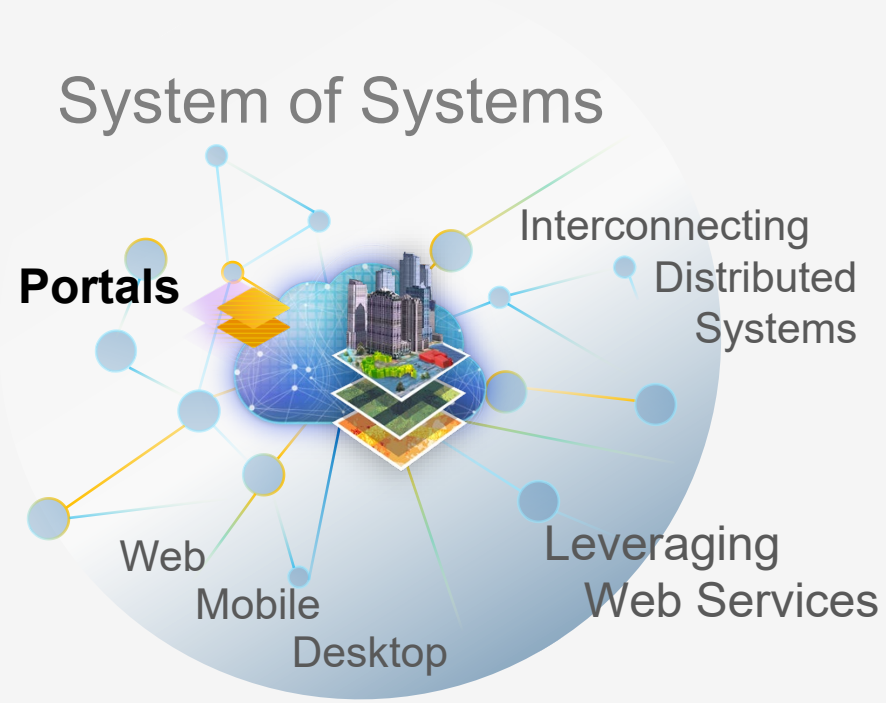


Evolution of GIS – Becoming Interconnected

Projects

Systems

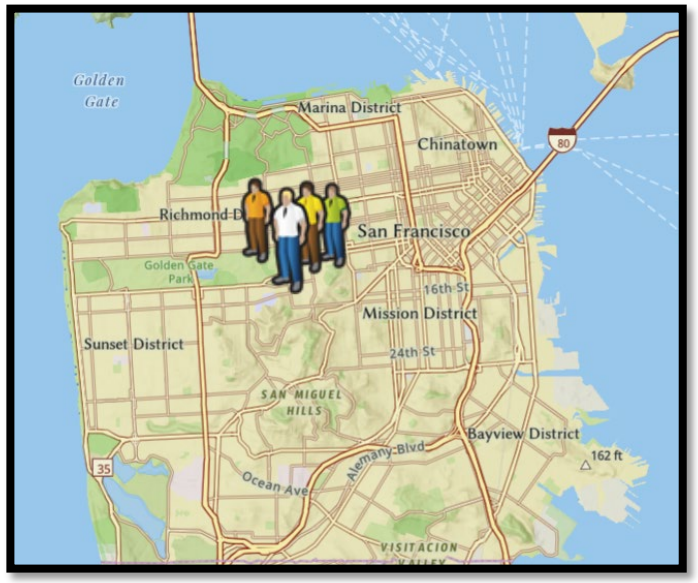
System of Systems



Charlotte Smith

UC Berkeley - School of Public Health

BAYGEO



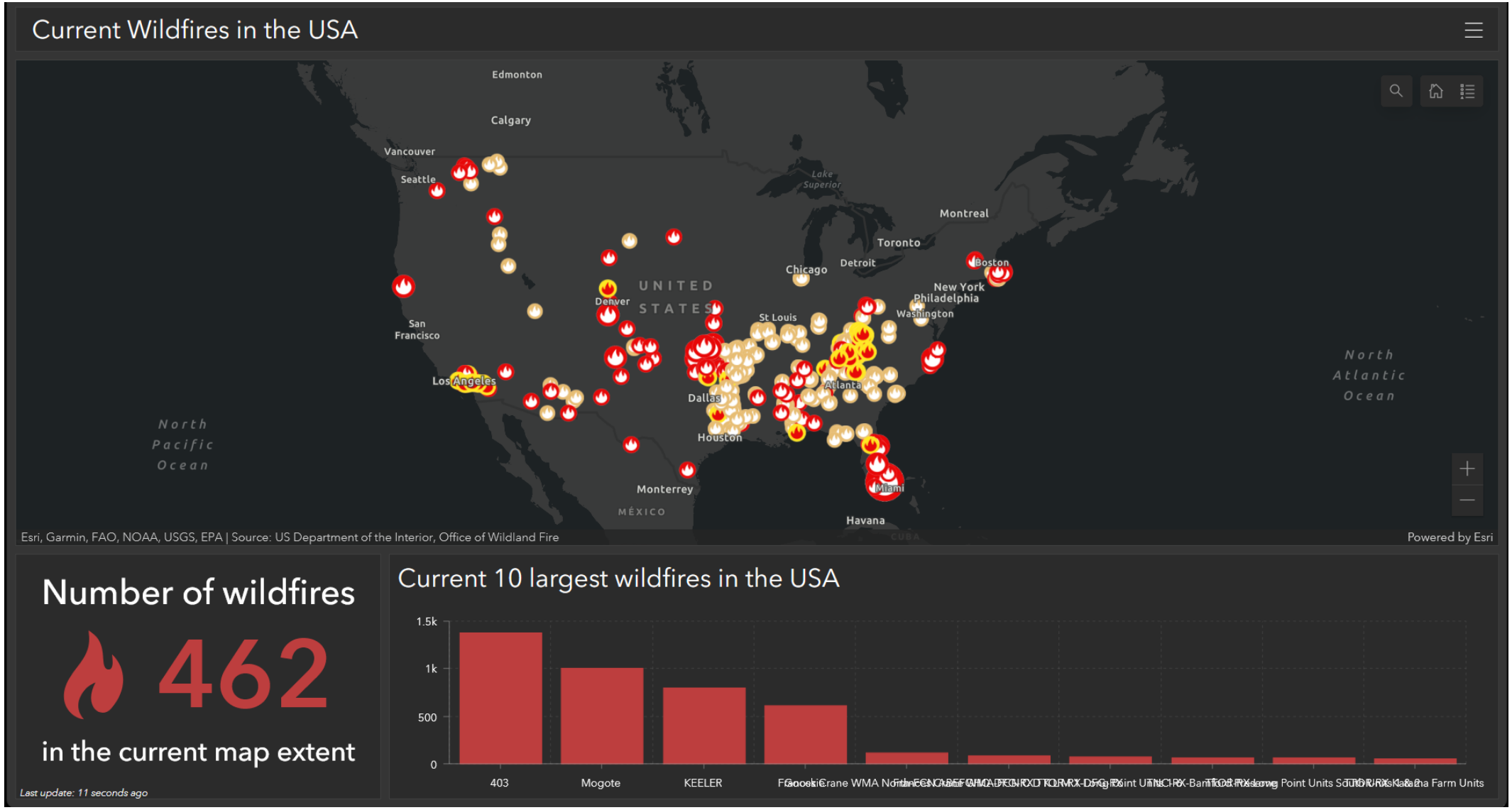
Berkeley Online MPH

BayGeo GIS Training for San Francisco Employees

Survey123, ArcGIS Online and Dashboards

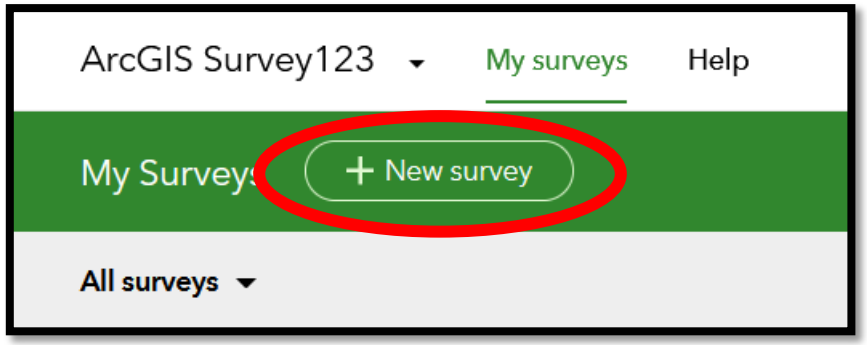
Charlotte Smith PhD, MA, MAS
UC Berkeley, School of Public Health
charlottesmith@berkeley.edu

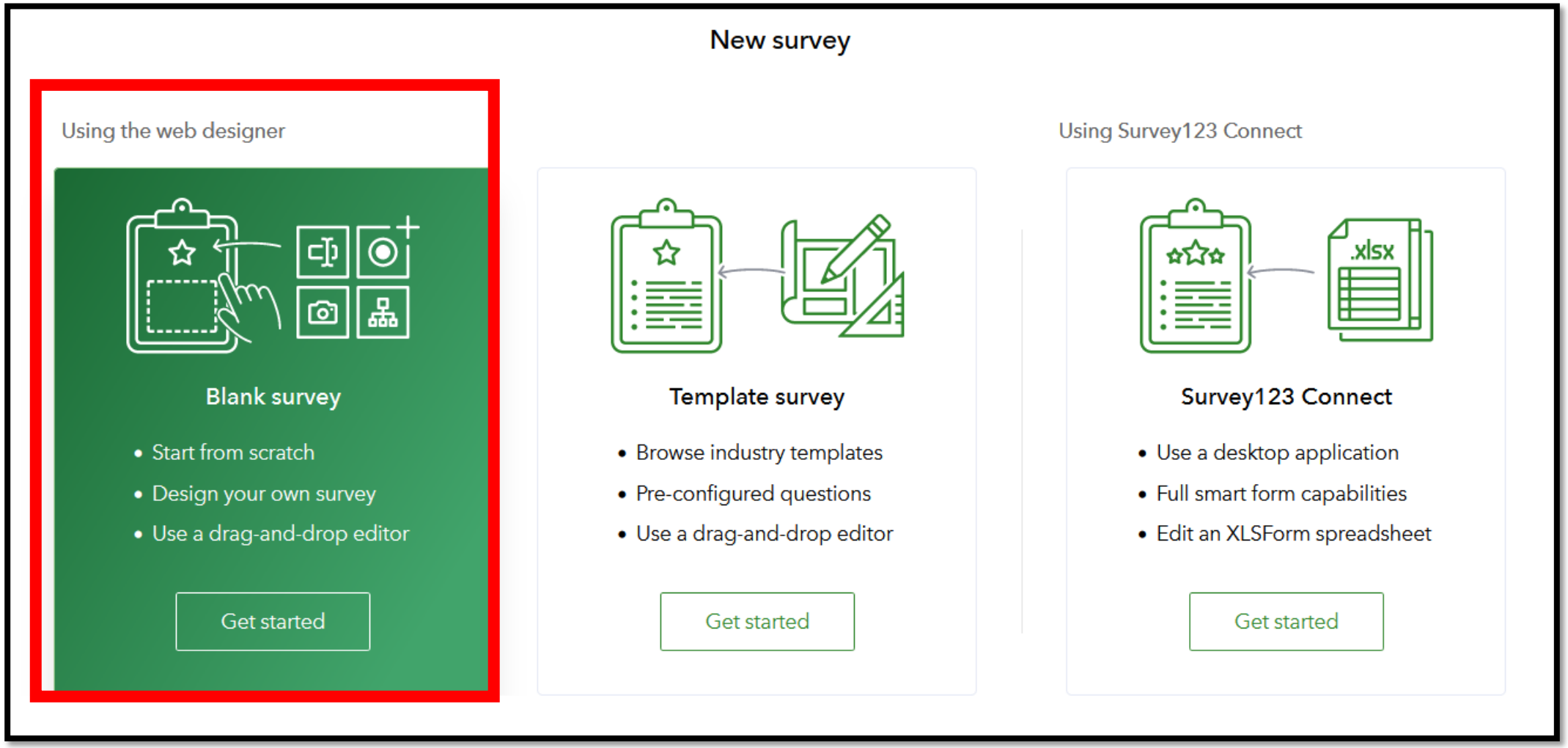
Workshop Goal: Make a Dashboard like this with our data!!!

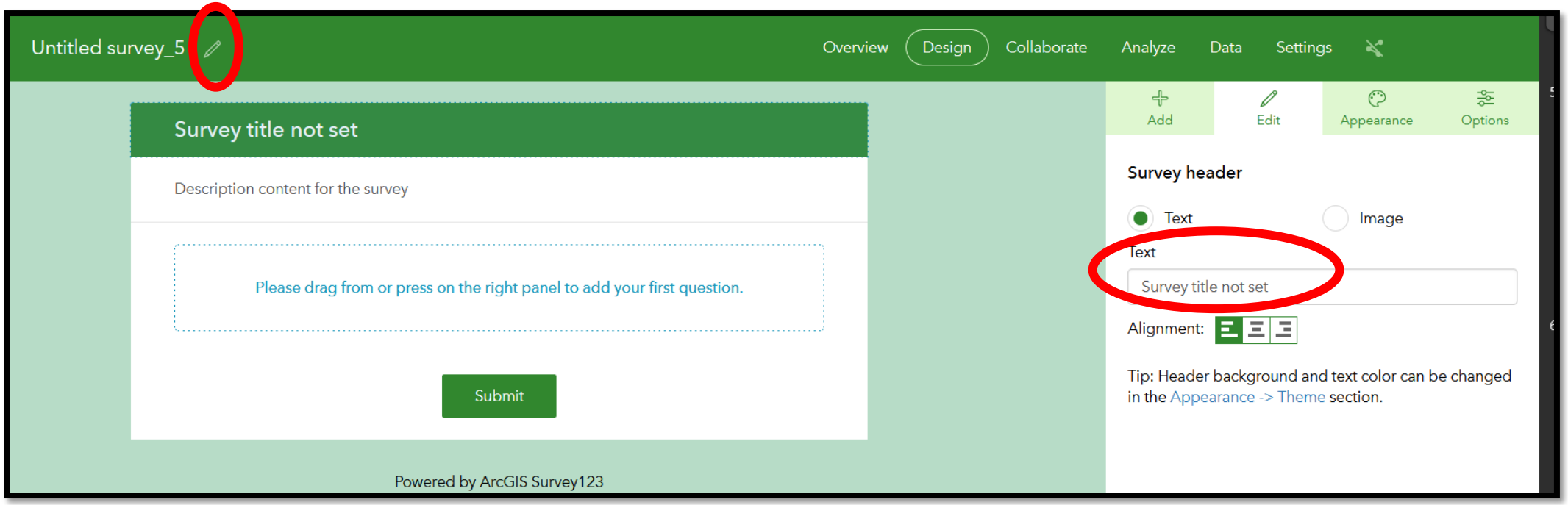


https://learn.arcgis.com/en/projects/make-a-dashboard-to-monitor-wildfires/

www.survey123.arcgis.com


ArcGIS Survey123
My surveys
Help
My Surveys
+ New survey
All surveys


New survey
Using the web designer
Blank survey
• Start from scratch
• Design your own survey
• Use a drag-and-drop editor
Get started
Using Survey123 Connect
Template survey
• Browse industry templates
• Pre-configured questions
• Use a drag-and-drop editor
Get started
.xlsx
Survey123 Connect
• Use a desktop application
• Full smart form capabilities
• Edit an XLSForm spreadsheet
Get started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Overview
Design
Collaborate
Analyze
Data
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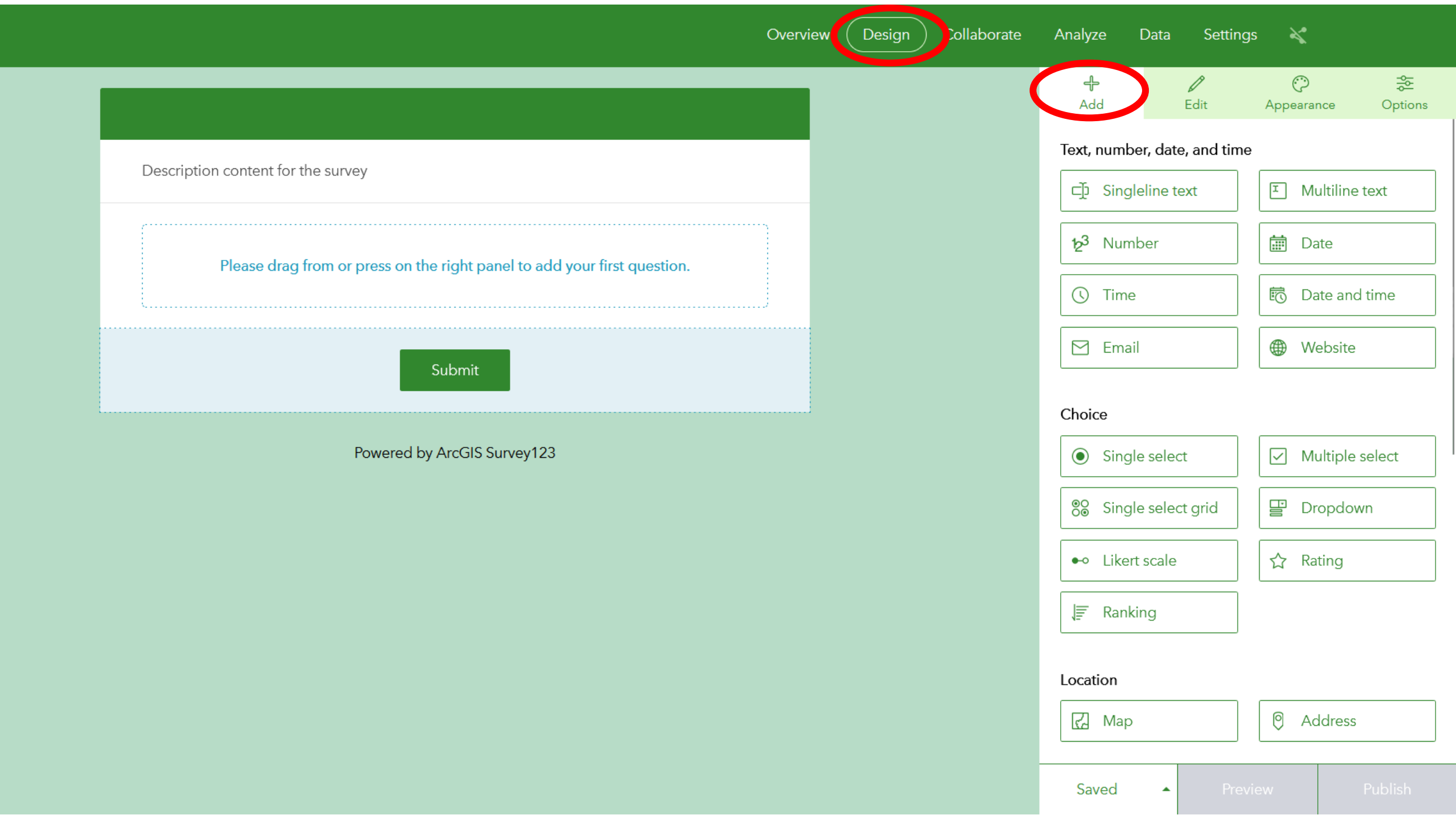
Description content for the survey
Please drag from or press on the right panel to add your first question.
Submit
Powered by ArcGIS Survey123
Add
Edit
Appearance
Options
Survey header
Text
Image
Text
Survey title not set
Alignment:
Tip: Header background and text color can be changed in the Appearance -> Theme section.


Overview
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Analyze
Data
Settings
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Appearance
Options
Description content for the survey
Please drag from or press on the right panel to add your first question.
Submit
Powered by ArcGIS Survey123
Text, number, date, and time
Singleline text
Multiline text
Number
Date
Time
Date and time
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Choice
Single select
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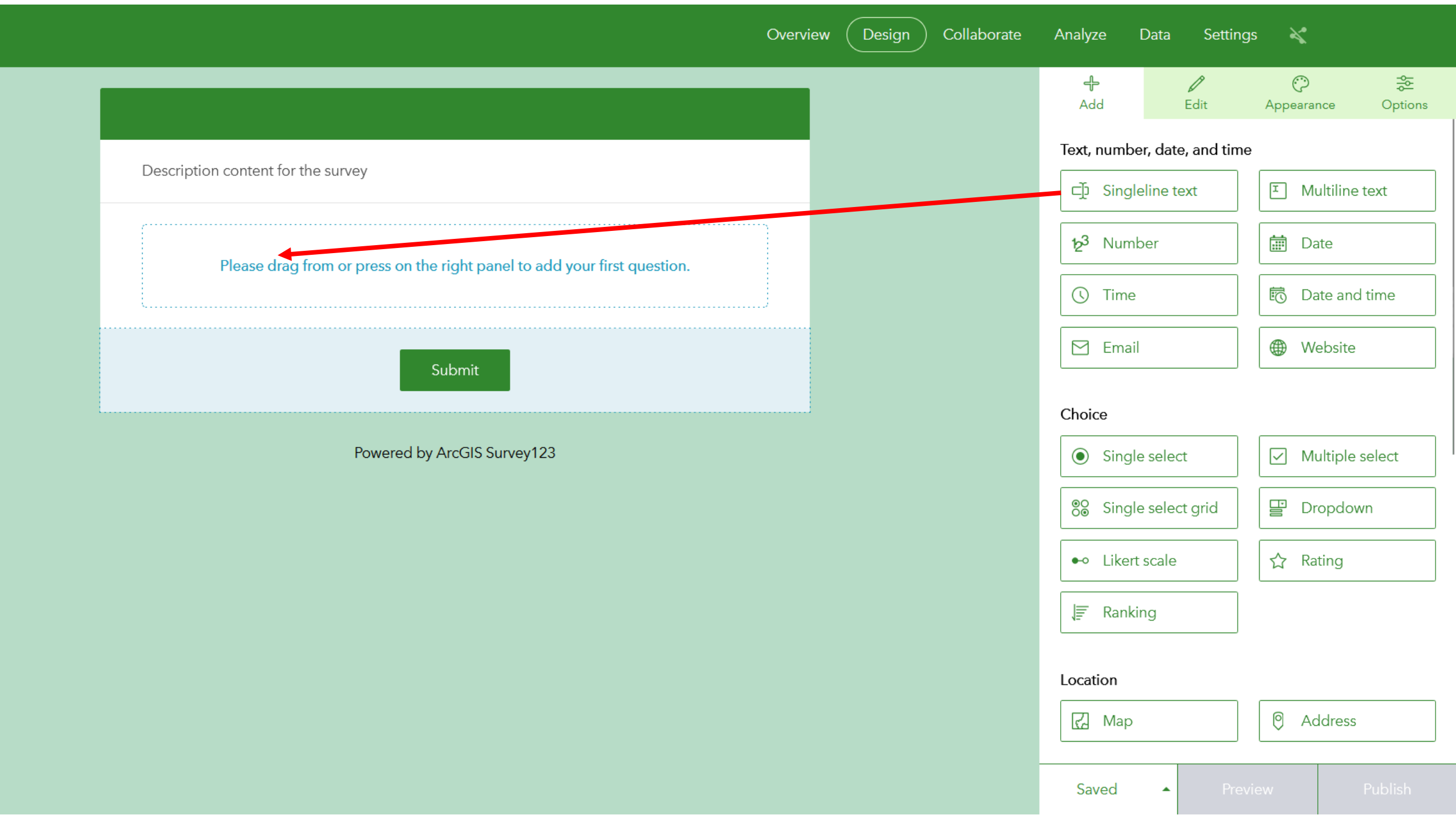
Saved
Preview
Publish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Data
Settings
Description content for the survey
Please drag from or press on the right panel to add your first question.
Submit
Powered by ArcGIS Survey123
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Options
Text, number, date, and time
Singleline text
Multiline text
Number
Date
Time
Date and time
Email
Website
Choice
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Multiple select
Single select grid
Dropdown
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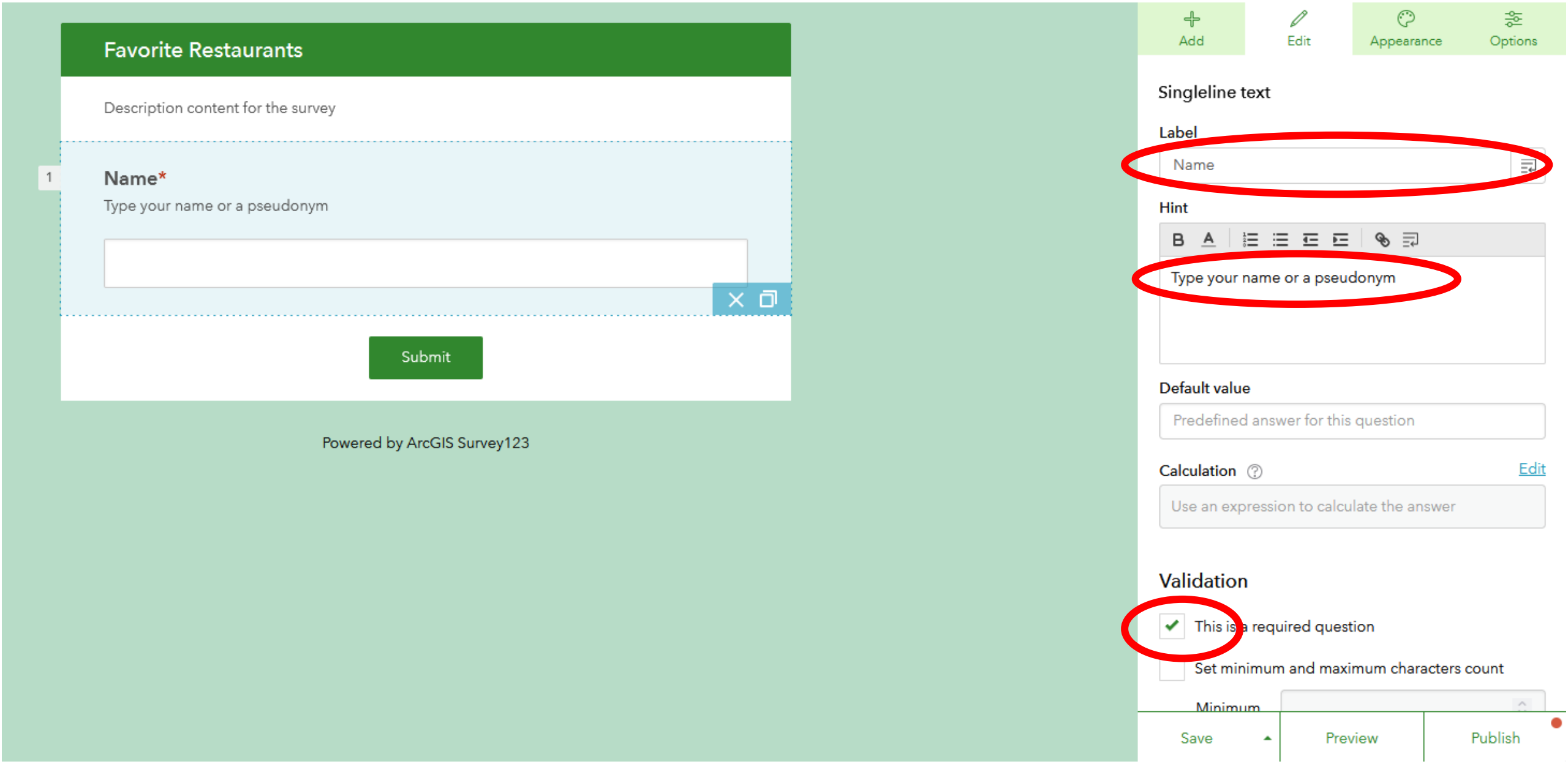
Preview
Publish


Favorite Restaurants
Description content for the survey
1
Name*
Type your name or a pseudonym
Submit
Powered by ArcGIS Survey123
Add
Edit
Appearance
Options
Singleline text
Label
Name
Hint
Type your name or a pseudonym
Default value
Predefined answer for this question
Calculation
Edit
Use an expression to calculate the answer
Validation
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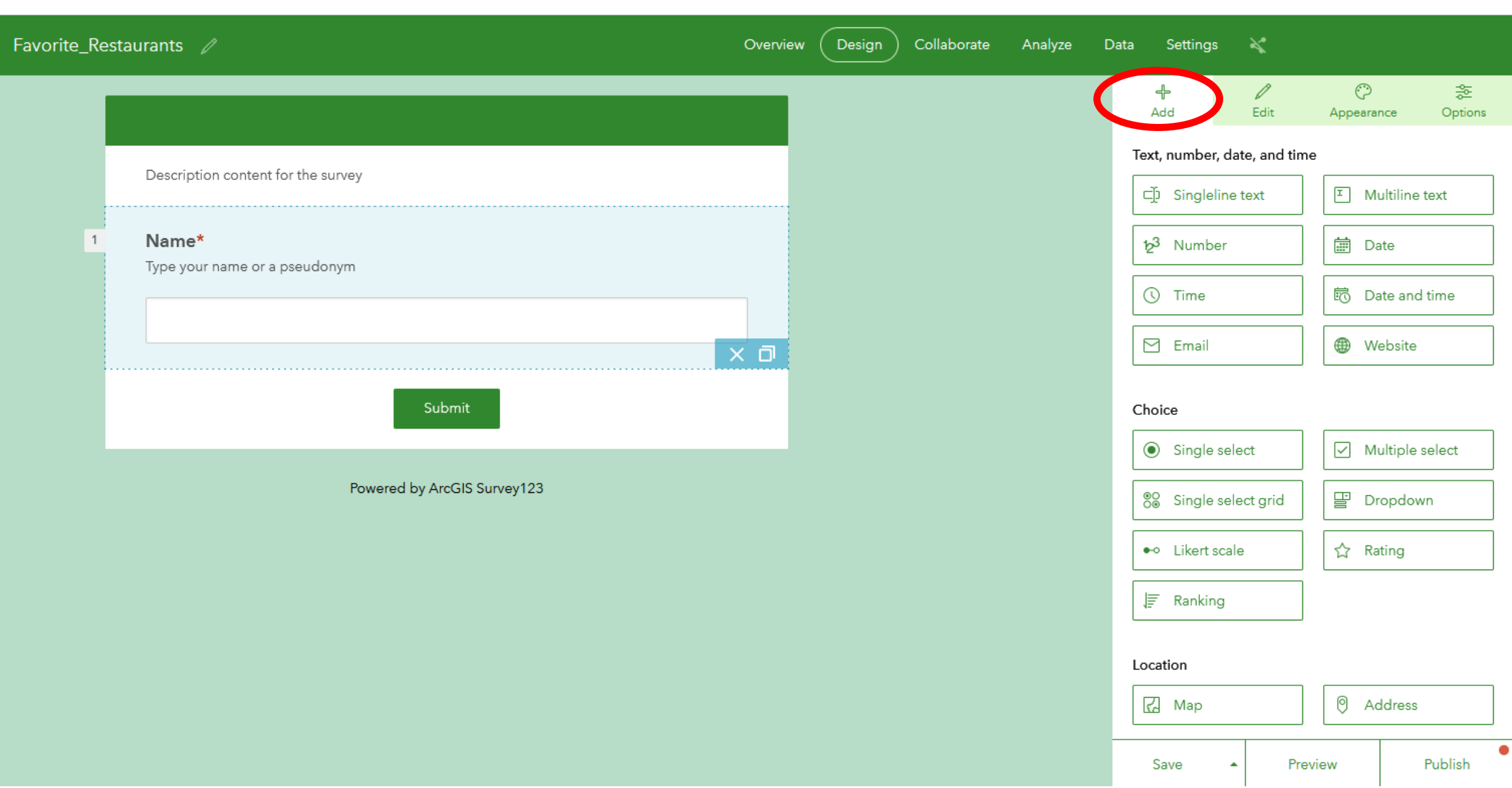
Set minimum and maximum characters count
Minimum
Save
Preview
Publish


Favorite_Restaurants
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Data
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Description content for the survey
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Type your name or a pseudonym
Submit
Powered by ArcGIS Survey123
Add
Edit
Appearance
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Text, number, date, and time
Singleline text
Multiline text
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Date
Time
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Multiple select
Single select grid
Dropdown
Likert scale
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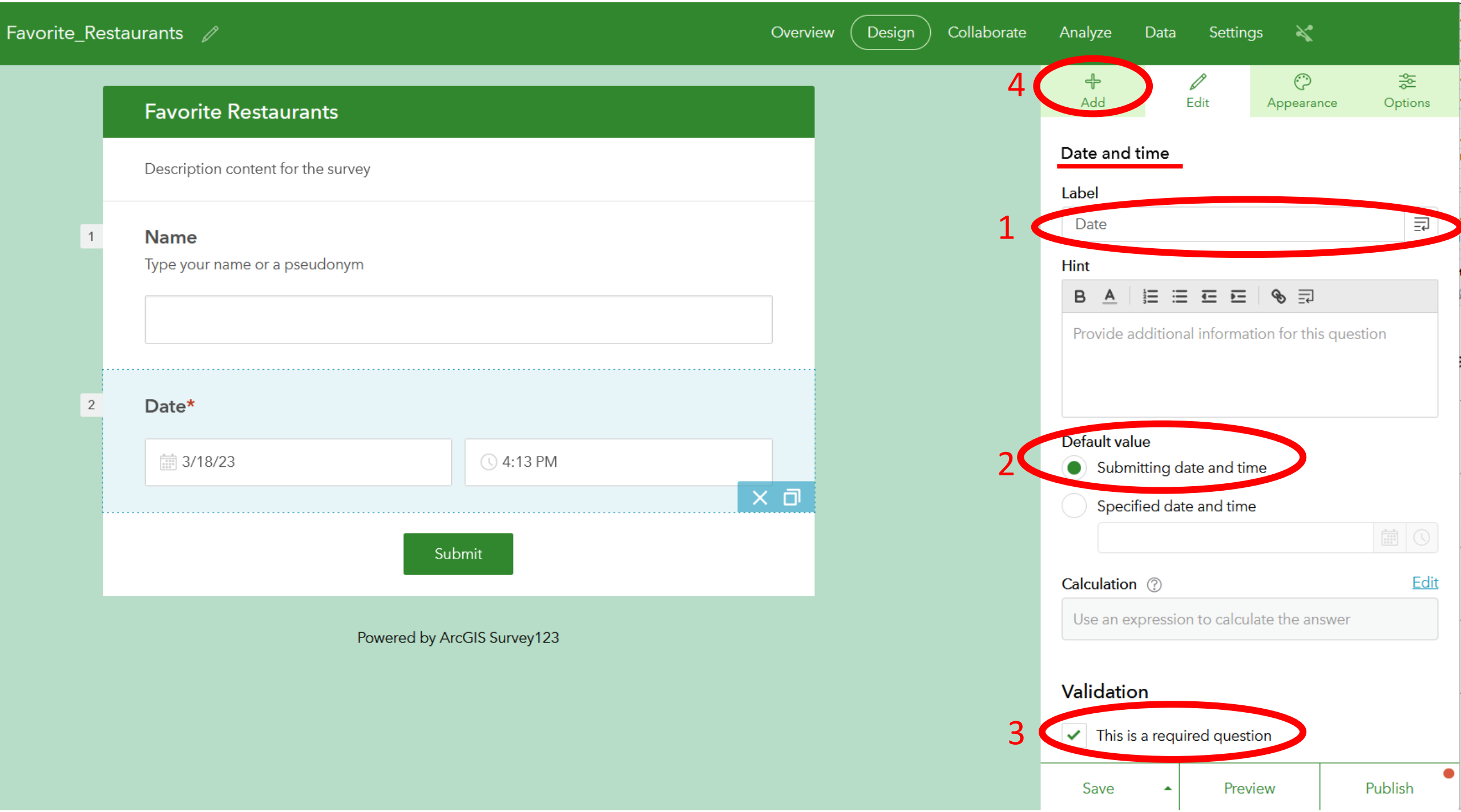
Preview
Publish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Description content for the survey
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Type your name or a pseudonym
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Powered by ArcGIS Survey123
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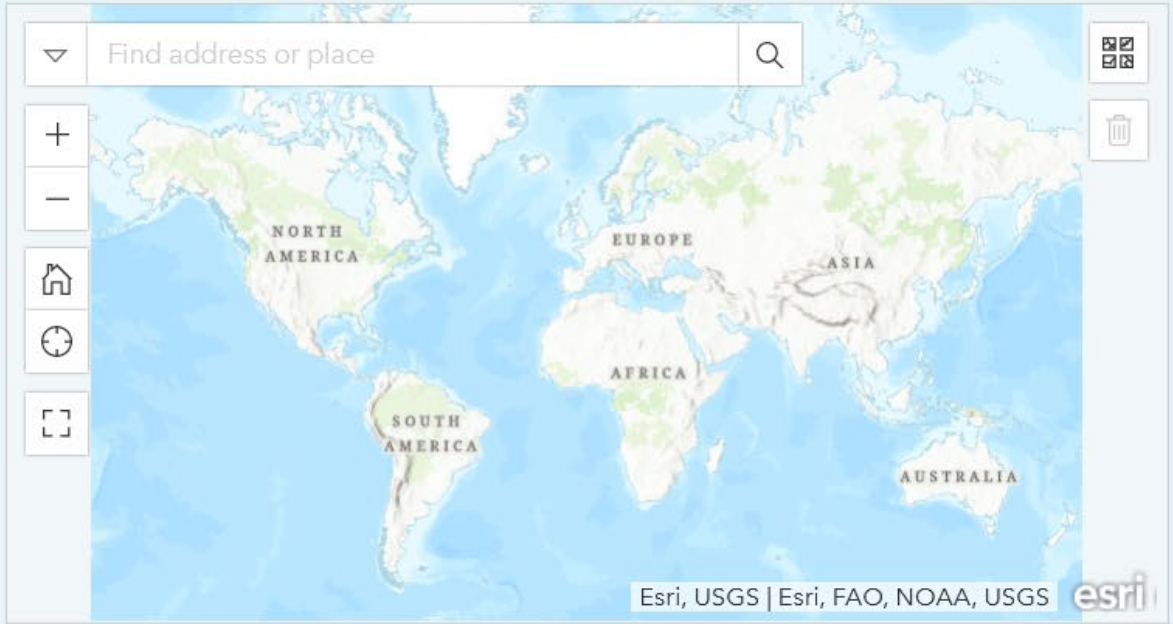
Date
Hint
Provide additional information for this question
Default value
2
Submitting date and time
Specified date and time
Calculation
Edit
Use an expression to calculate the answer
Validation
3
This is a required question
Save
Preview
Publish

4

Map

Tap on the location of the restaurant.



No geometry captured yet.

Submit

Powered by ArcGIS Survey123

Drawing tools

Point

Line

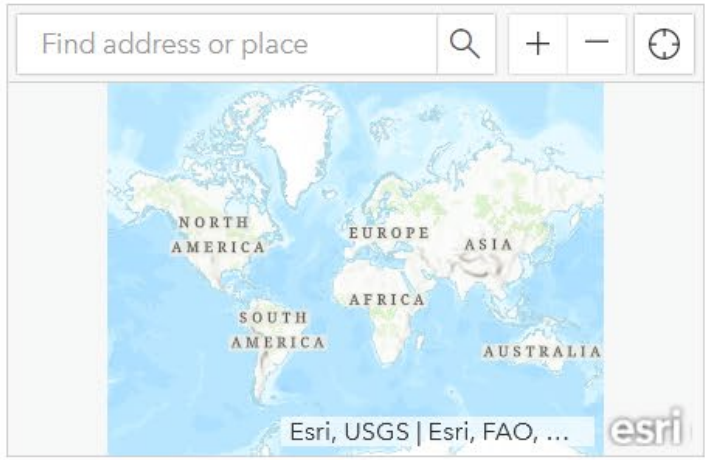
Area

Enable snapping

Map and extent Expand (30) Edit

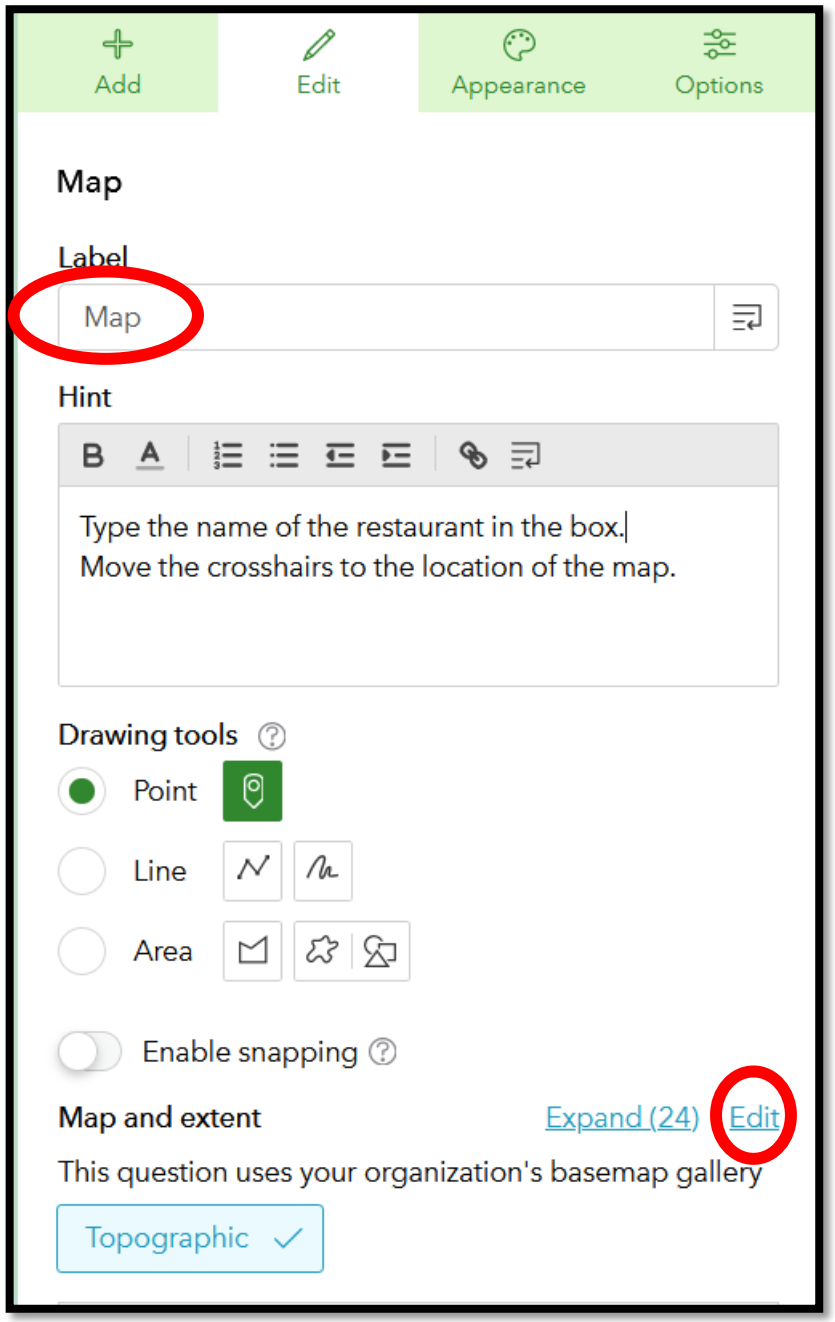
This question uses your organization's basemap gallery

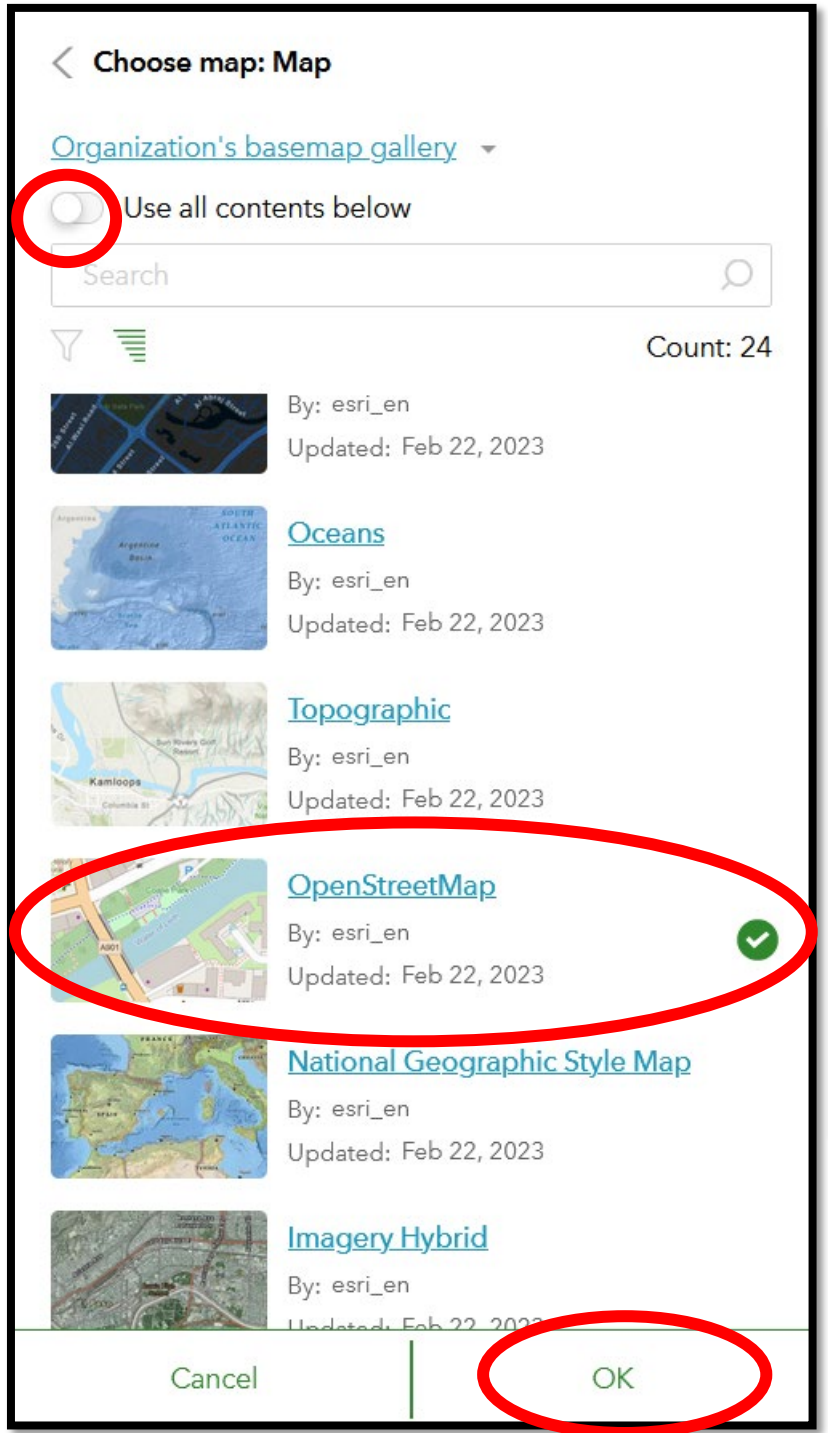
Topographic

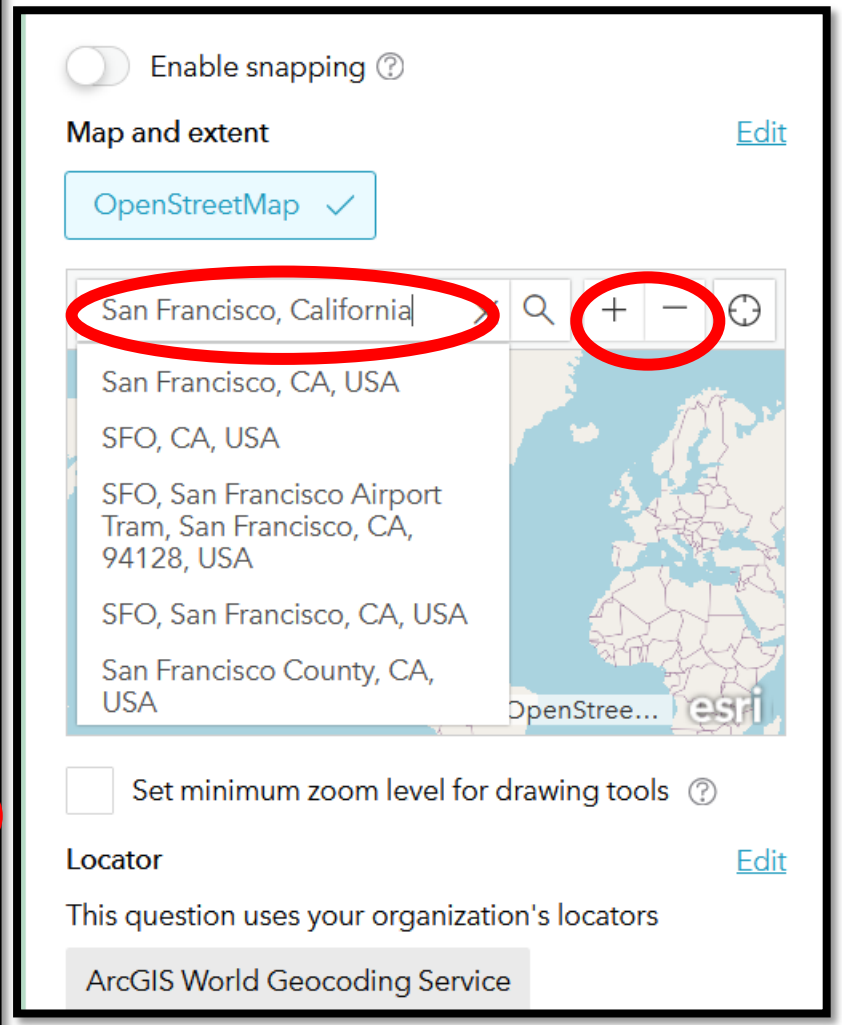


Set minimum zoom level for drawing tools

Locator Edit

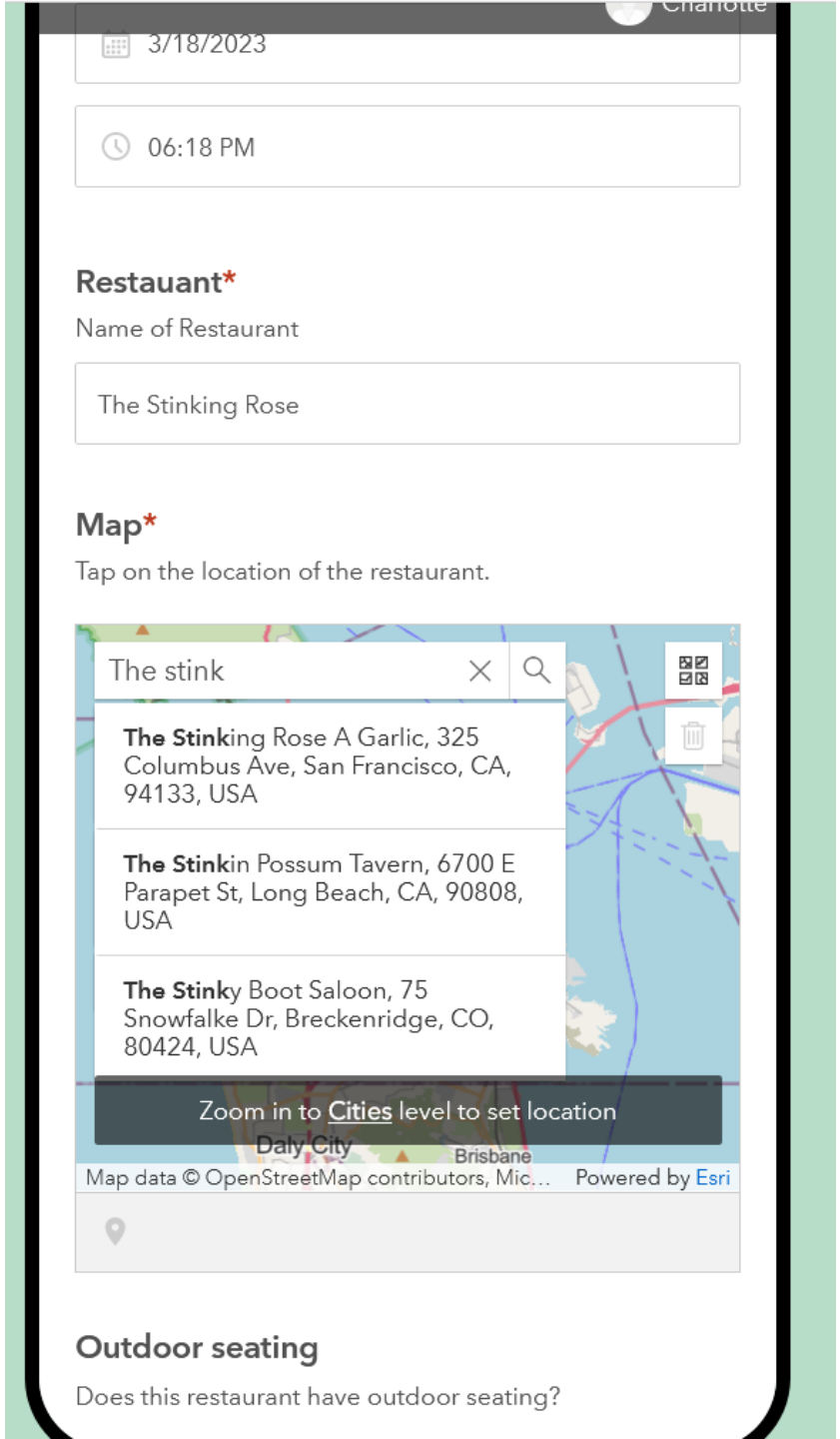

Add
Edit
Appearance
Options
Map
Label
Map
Hint
Type the name of the restaurant in the box.
Move the crosshairs to the location of the map.
Drawing tools
Point
Line
Area
Enable snapping
Map and extent
Expand (24)
Edit
This question uses your organization's basemap gallery
Topographic

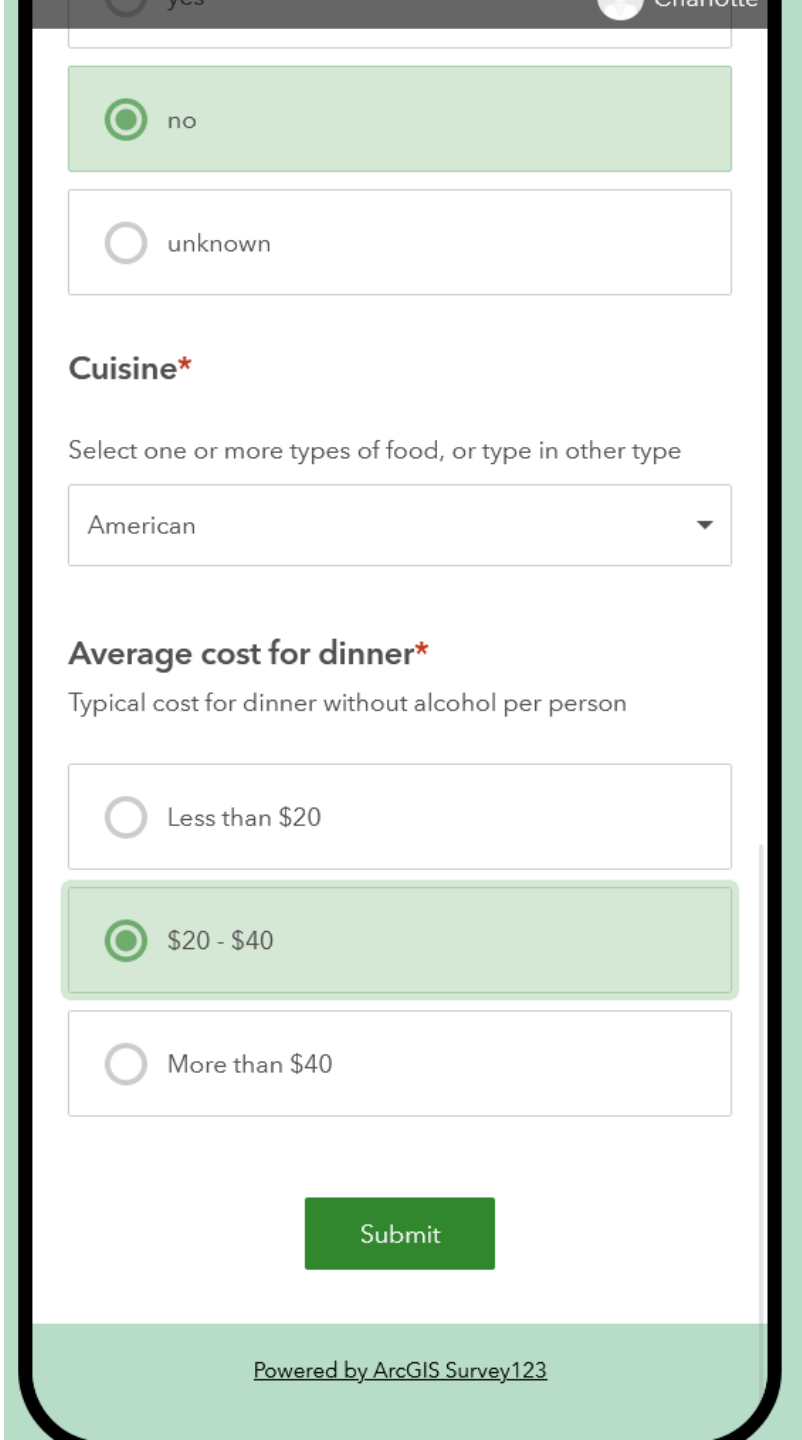

Choose map: Map
Organization's basemap gallery
Use all contents below
Search
Count: 24
By: esri_en
Updated: Feb 22, 2023
Oceans
By: esri_en
Updated: Feb 22, 2023
Topographic
By: esri_en
Updated: Feb 22, 2023
OpenStreetMap
By: esri_en
Updated: Feb 22, 2023
National Geographic Style Map
By: esri_en
Updated: Feb 22, 2023
Imagery Hybrid
By: esri_en
Cancel
OK


Enable snapping
Map and extent
Edit
OpenStreetMap
San Francisco, California
San Francisco, CA, USA
SFO, CA, USA
SFO, San Francisco Airport Tram, San Francisco, CA, 94128, USA
SFO, San Francisco, CA, USA
San Francisco County, CA, USA
Set minimum zoom level for drawing tools
Locator
Edit
This question uses your organization's locators
ArcGIS World Geocoding Service

https://arcg.is/18SWr40

Take the survey





owned by CharlotteS_BayGeo

Description

Edit

Add an in-depth description of the group.

Recently added content

Curate featured content

SF Restaurants
Web Map
Created: Apr 2, 2023
Updated: Apr 2, 2023
View count: 0

CharlotteS...

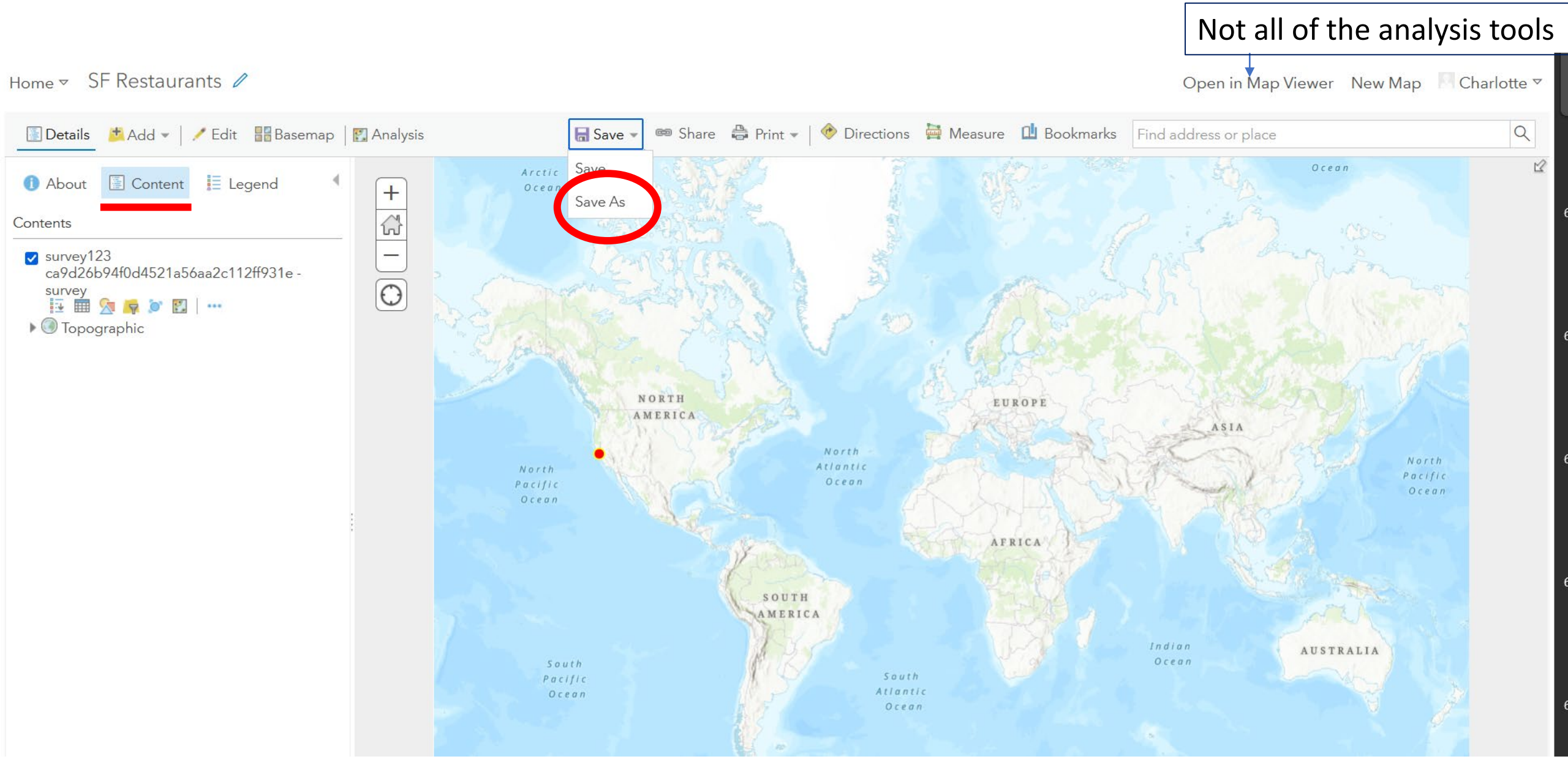
Favorite_Restaurants_form
Feature Layer
Created: Apr 2, 2023
Updated: Apr 2, 2023
View count: 0

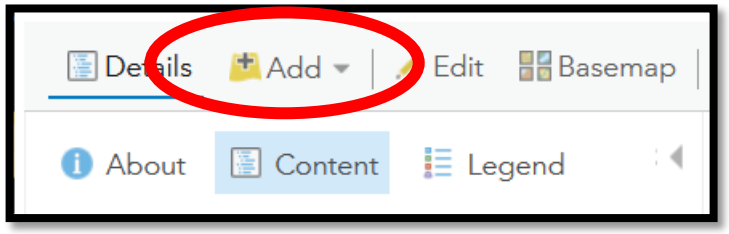
CharlotteS...

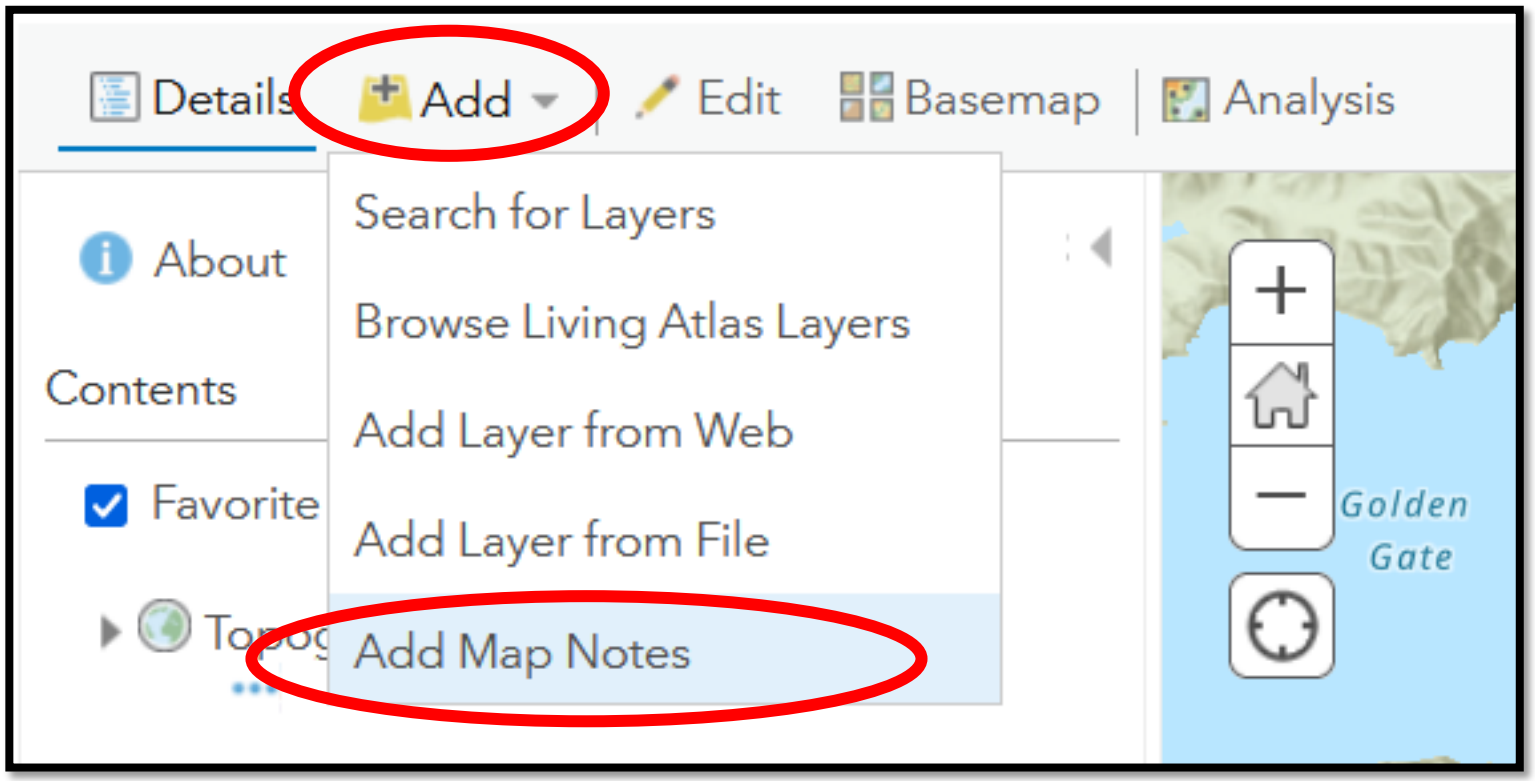
Favorite_Restaurants
Form
Created: Apr 2, 2023
Updated: Apr 2, 2023
View count: 2

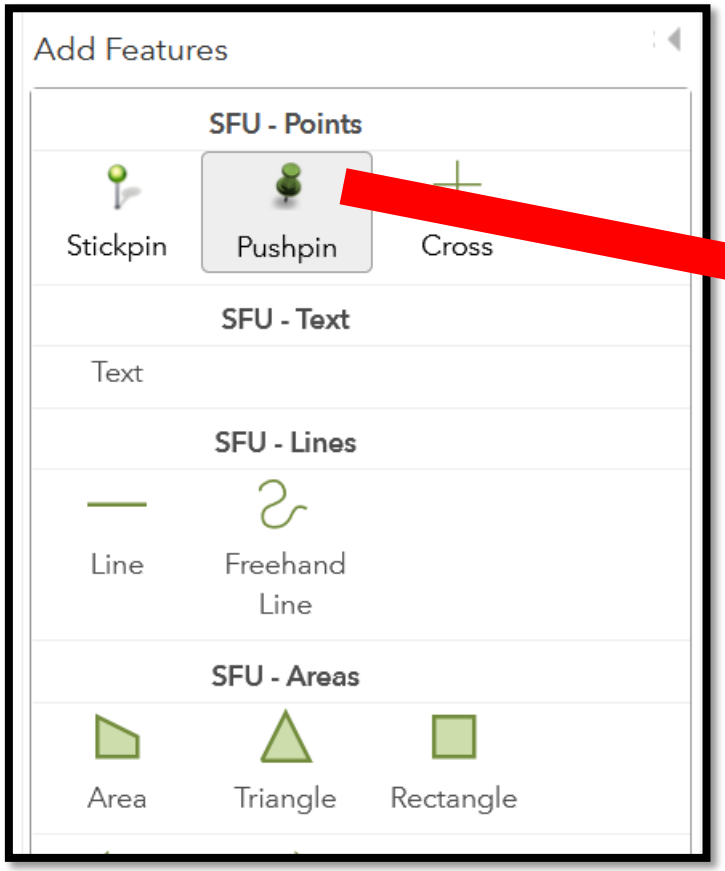
CharlotteS...

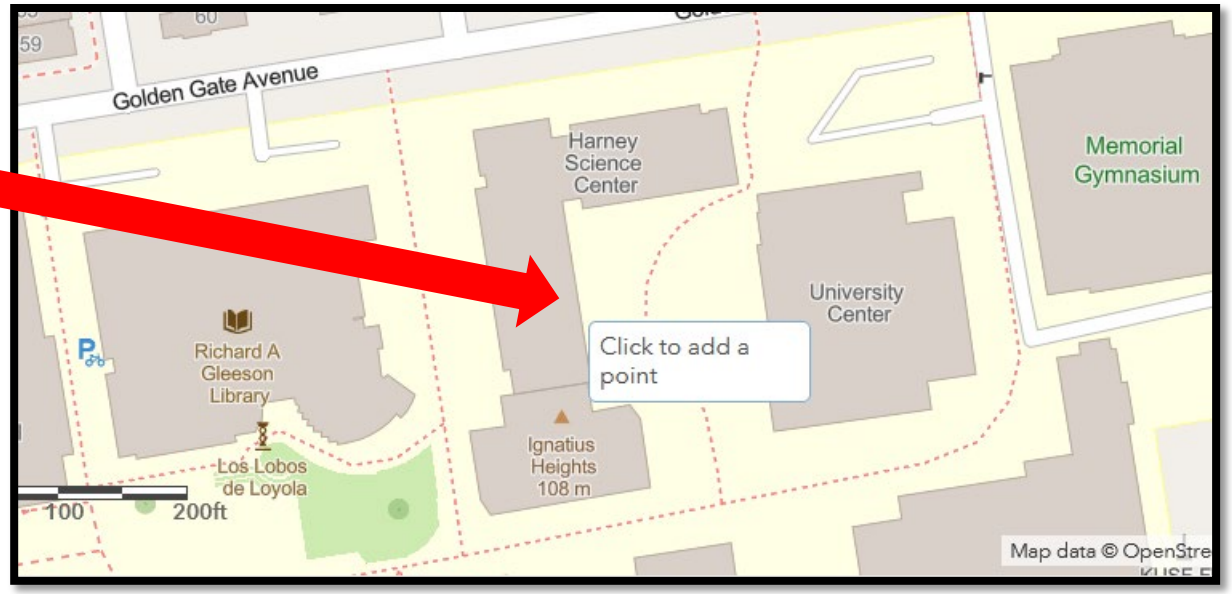
Today we will use ArcGIS Map Viewer Classic




Details
Add
Edit
Basemap
About
Content
Legend

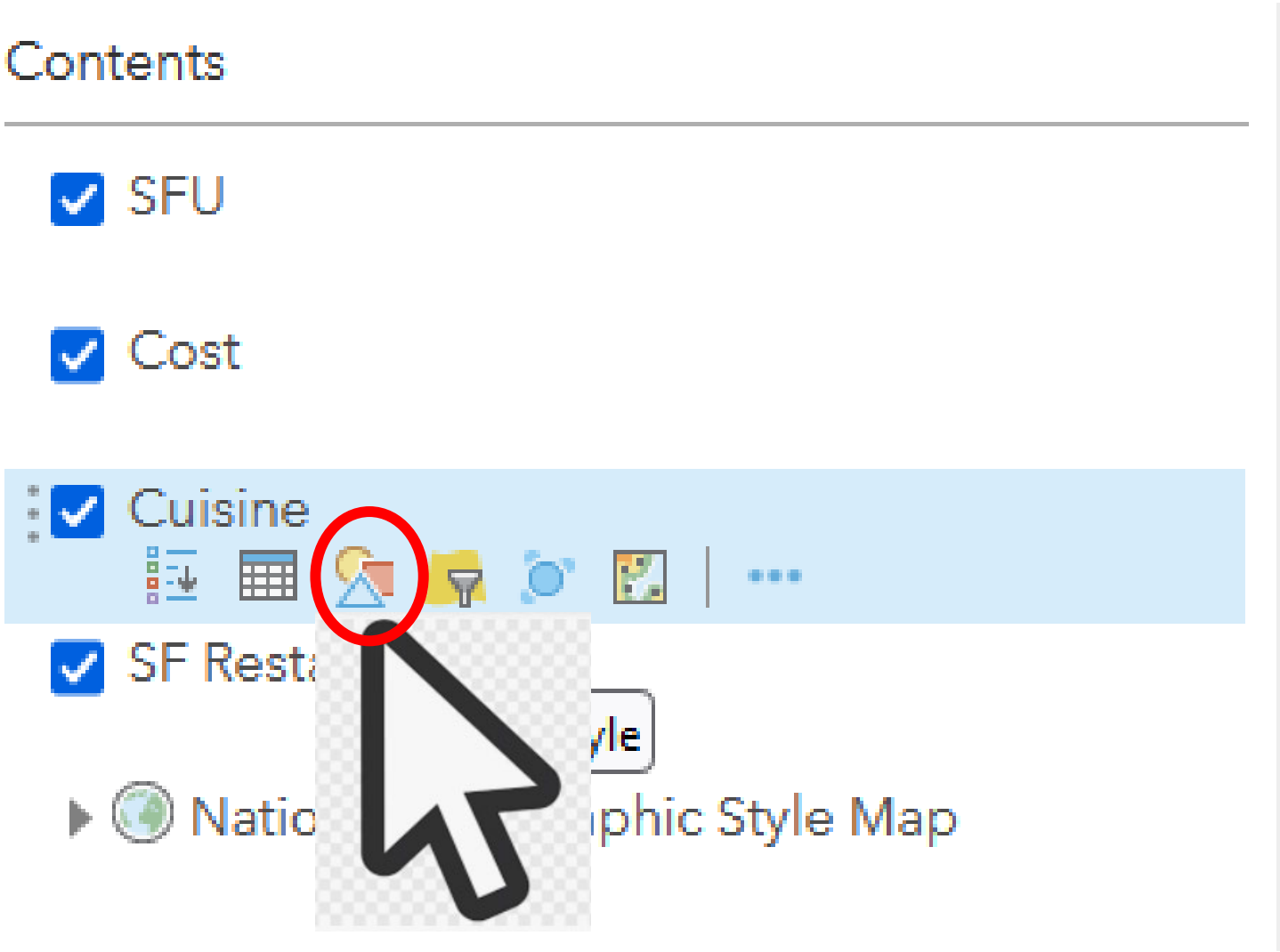

Details
Add
Edit
Basemap
Analysis
About
Contents
Favorite
Search for Layers
Browse Living Atlas Layers
Add Layer from Web
Add Layer from File
Add Map Notes
Golden
Gate

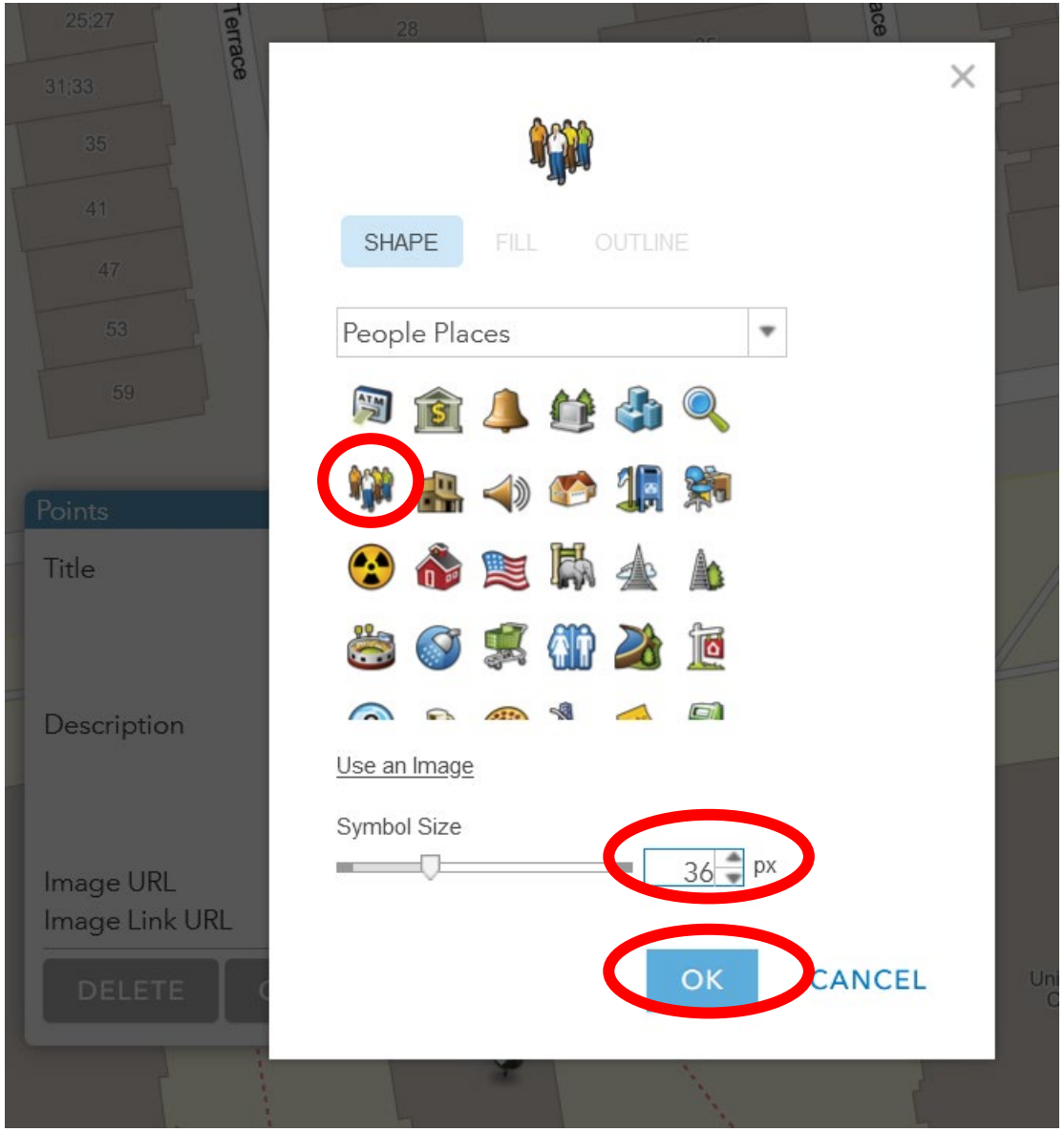




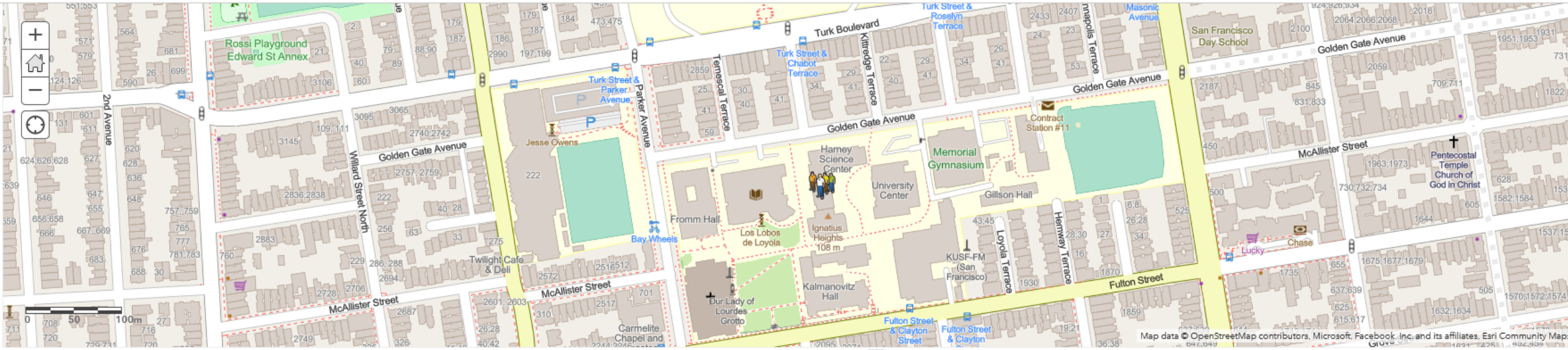
Click and drag the Pushpin

Double click to place it


Contents
SFU
Cost
Cuisine
SF Resta
yle
Natio
phic Style Map

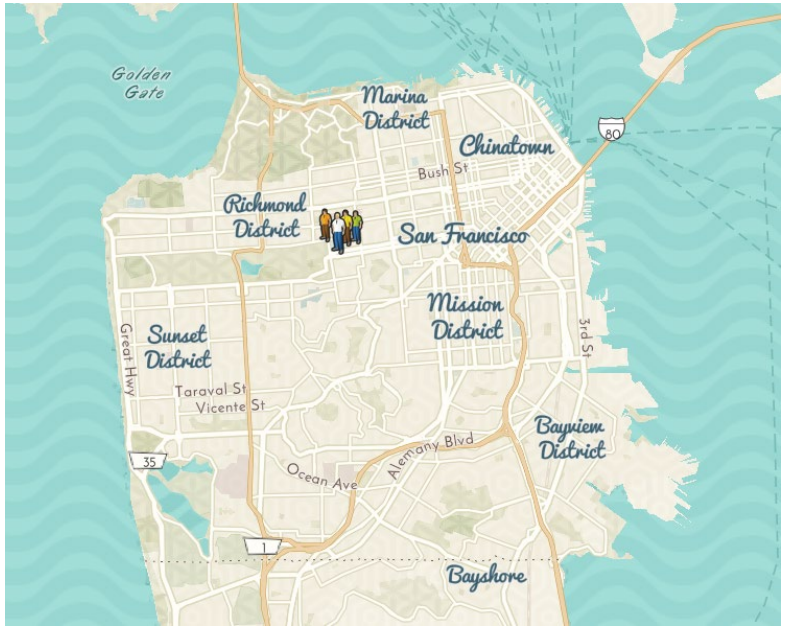

SHAPE
FILL
OUTLINE
People Places
Use an Image
Symbol Size
36
px
OK
CANCEL
Points
Title
Description
Image URL
Image Link URL
DELETE

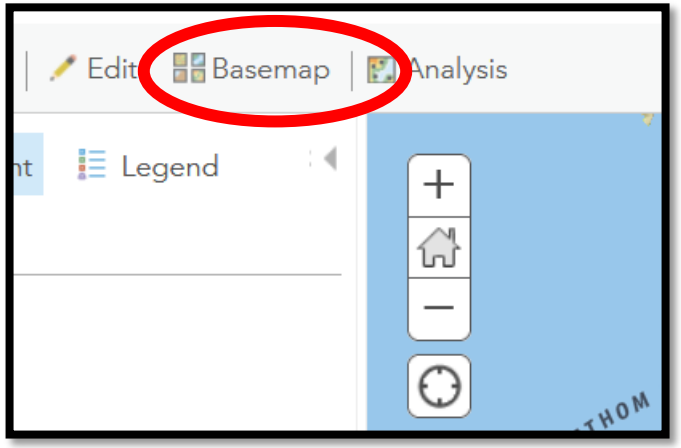
Maps – Display Data Attribute tables -Store Data

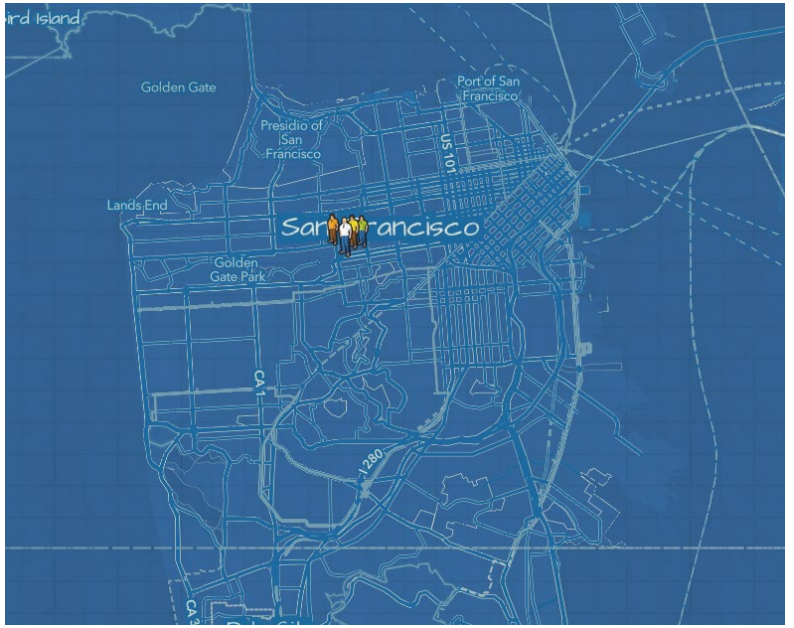


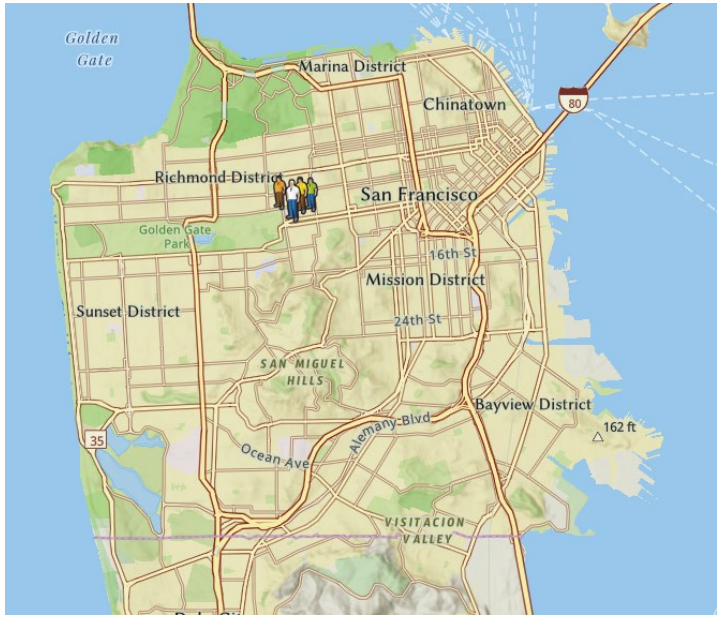
SF Employees' Favorite Restaurants (Features: 25, Selected: 0)

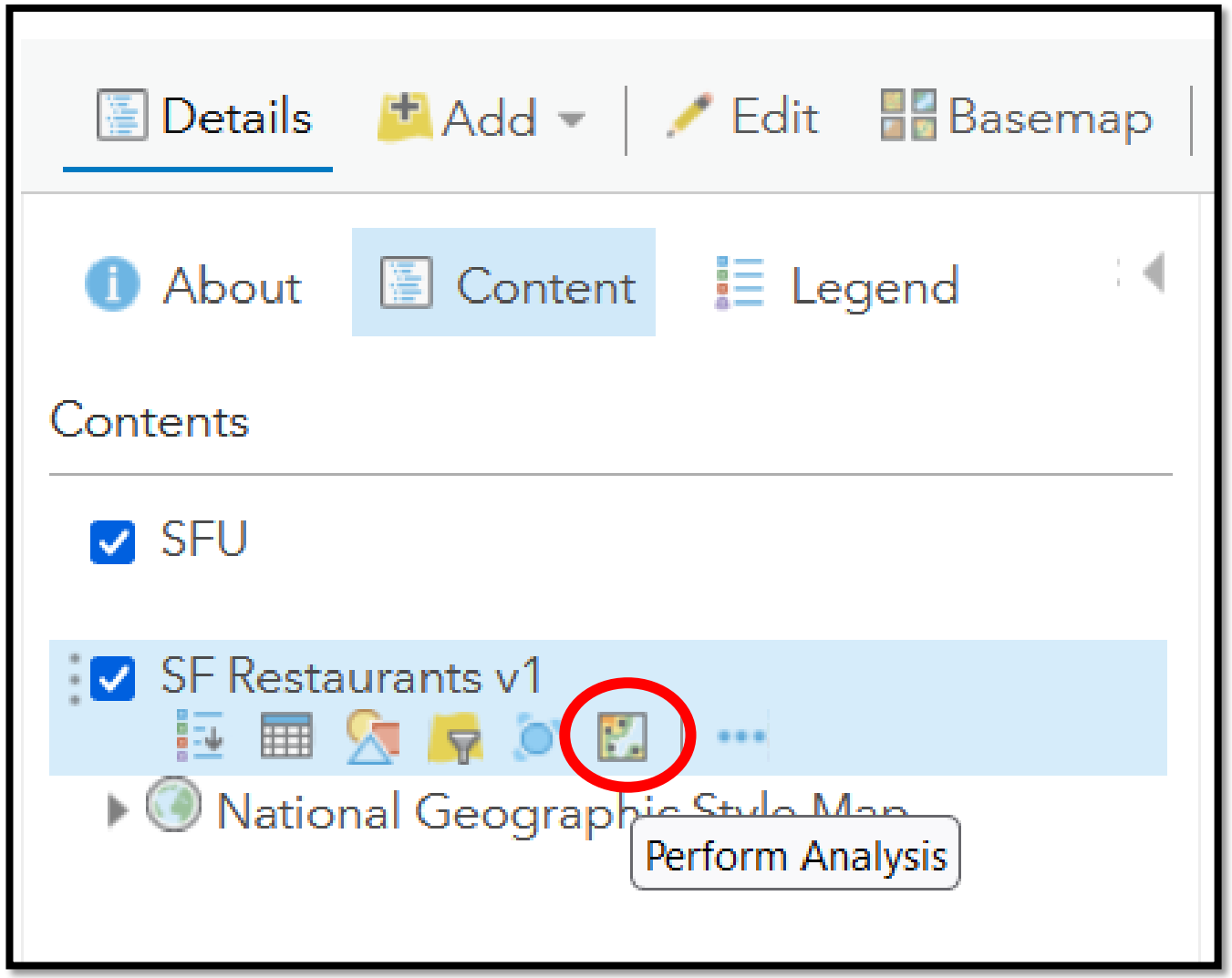
Name	Date	Restaurant	Outdoor Seating	Cuisine	Other - Cuisine	Cost	Comments
Charlotte Smith	4/2/2023, 12:00 PM	Stinking Rose	no	American		$20 - $40	
Bryn Miller	4/3/2023, 12:00 PM	Arizmendi Bakery	yes	Other		Less than $20	Tasty cheap pizza and delicious baked goods!
Theary	4/3/2023, 12:00 PM	um.ma	yes	Other	Korean	$20 - $40	
Alan	4/3/2023, 12:00 PM	Diya	no	Other	Indian	$20 - $40	Delicious!
Maks Zherebin	4/3/2023, 12:00 PM	Sizzling Pot King	no	Chinese		$20 - $40	Love spicy!
Juell	4/3/2023, 12:00 PM	Pagan Restaurant	no	Other	Burmese	$20 - $40	
ana	4/3/2023, 12:00 PM	Boho Restaurant	yes	French		More than $40	
Kai	4/3/2023, 12:00 PM	Yellow Submarine	no	American		Less than $20	Sandwiches
Allison	4/3/2023, 12:00 PM	Foreign Cinema	yes	Mediterranean (Lebanese, Israeli, etc.)		$20 - $40	
Tara	4/3/2023, 12:00 PM	El Toro Taqueria	no	Other	Mexican	Less than $20	
Chris	4/3/2023, 12:00 PM	PPQ Beef Noodle House	no	Other	Vietnamese	Less than $20	Fresh ingredients, good neighborhood spot for pho
Styger	4/3/2023, 12:00 PM	Bissap Baobab	no	African		$20 - $40	Senegalese restaurant with

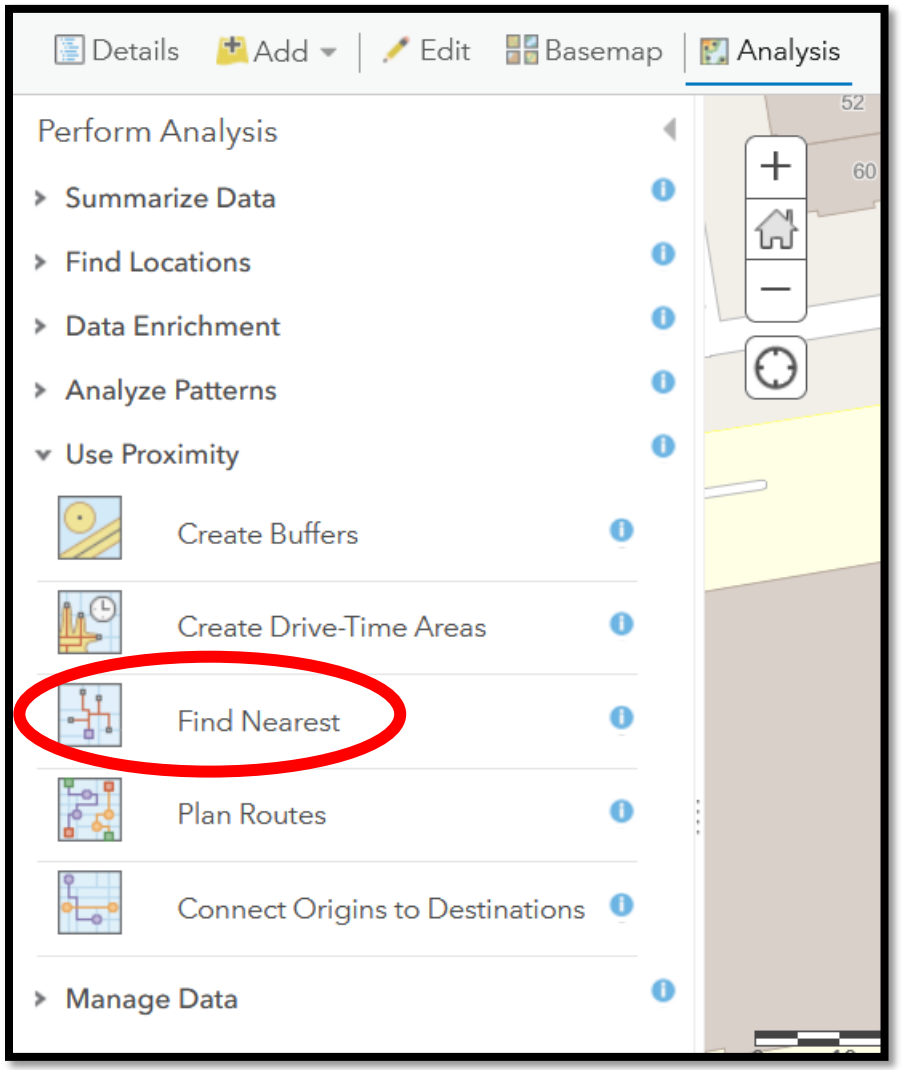

Golden Gate
Marina District
Chinatown
Bush St
Richmond District
San Francisco
Mission District
Sunset District
Great Hwy
Taraval St
Vicente St
3rd St
Bayview District
Alemany Blvd
Ocean Ave
35
1
80
Bayshore

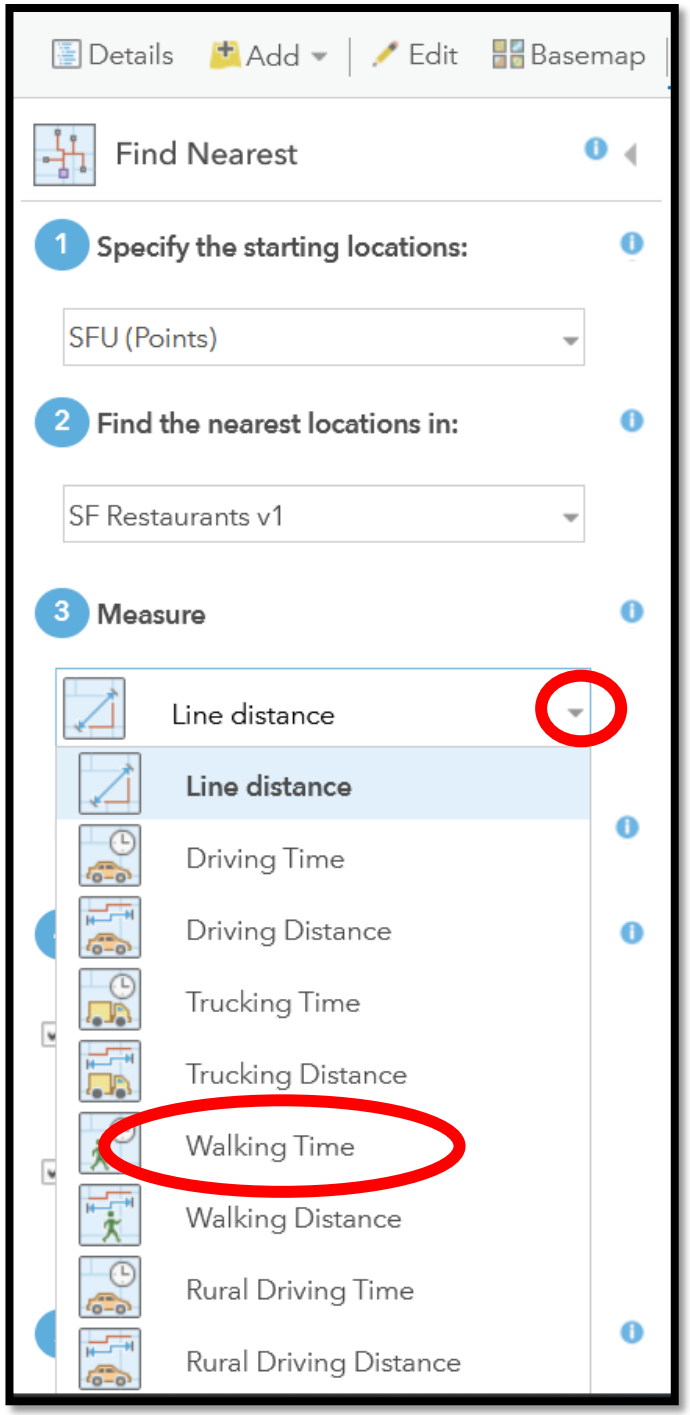

Edit
Basemap
Analysis
Legend

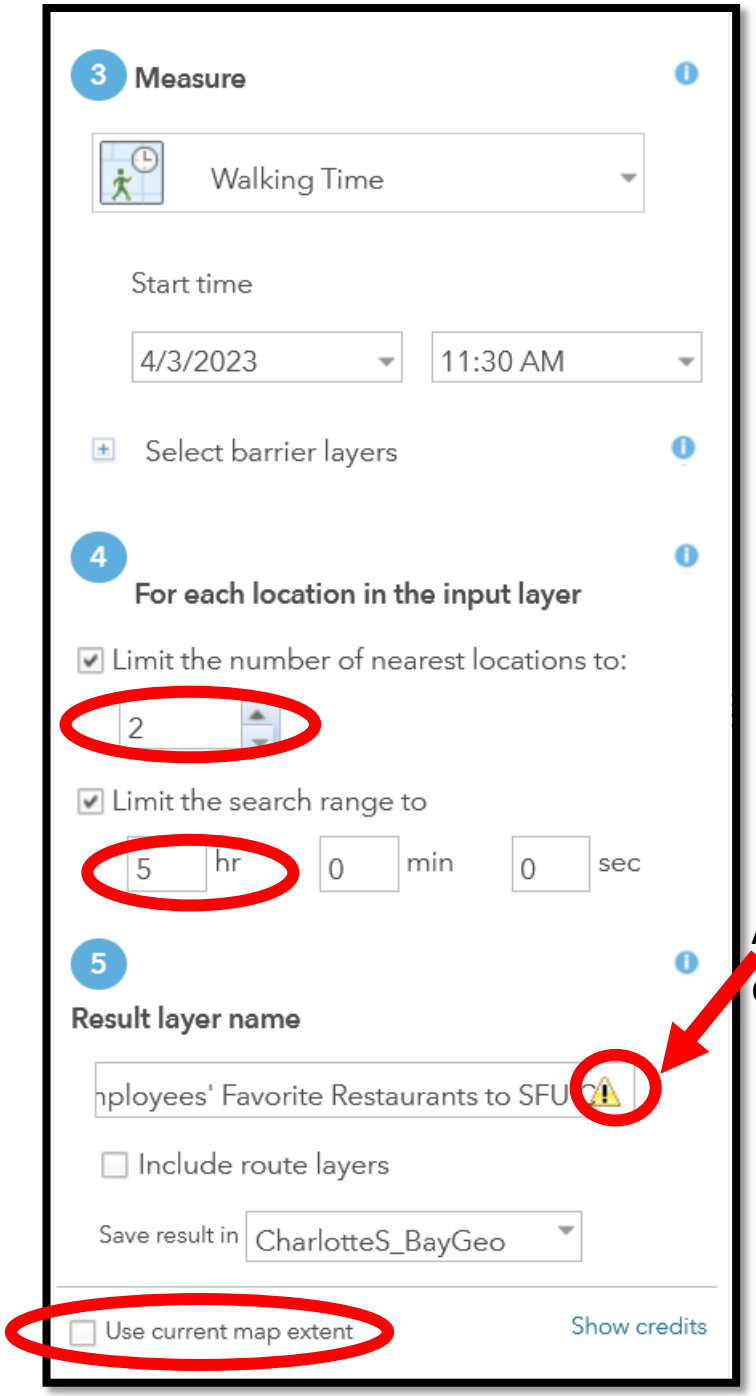

Golden Gate
Port of San Francisco
Presidio of San Francisco
US 101
Lands End
San Francisco
Golden Gate Park
CA 1
1280


Golden Gate
Marina District
Chinatown
80
Richmond District
San Francisco
Golden Gate Park
16th St
Mission District
Sunset District
24th St
SAN MIGUEL HILLS
Bayview District
162 ft
Alemany Blvd
35
Ocean Ave
VISITACION VALLEY

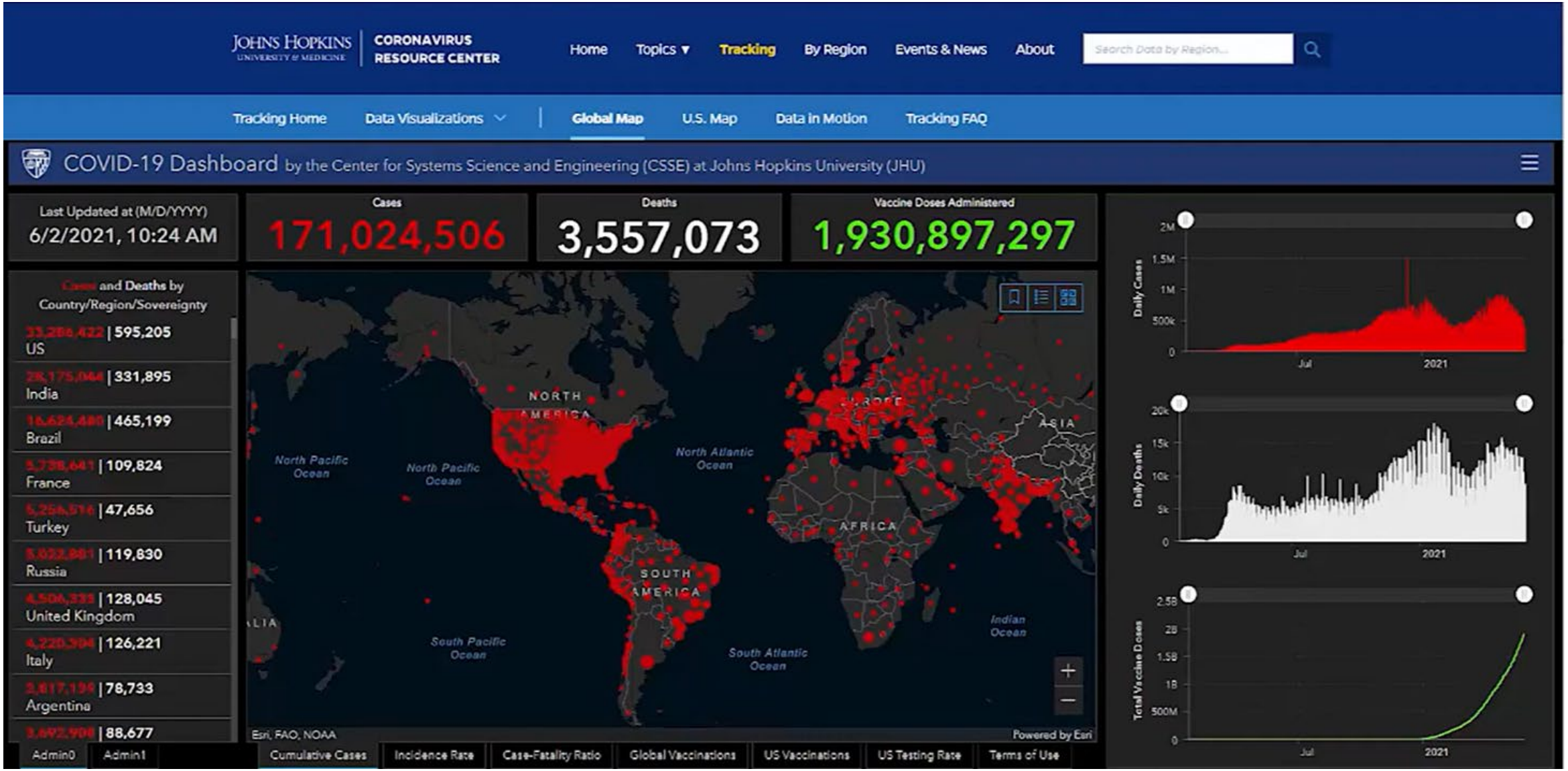

Details
Add
Edit
Basemap
About
Content
Legend
Contents
SFU
SF Restaurants v1
National Geographic Style Map
Perform Analysis


Details
Add
Edit
Basemap
Analysis
Perform Analysis
Summarize Data
Find Locations
Data Enrichment
Analyze Patterns
Use Proximity
Create Buffers
Create Drive-Time Areas
Find Nearest
Plan Routes
Connect Origins to Destinations
Manage Data





Add name or initials

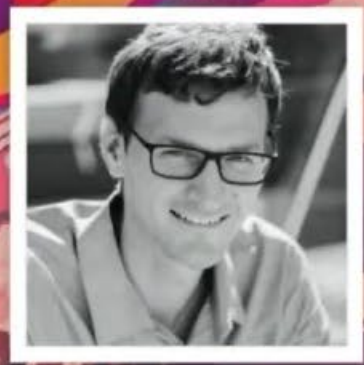

JOHNS HOPKINS UNIVERSITY & MEDICINE
CORONAVIRUS RESOURCE CENTER
Home
Topics
Tracking
By Region
Events & News
About
Search Data by Region...
Tracking Home
Data Visualizations
Global Map
U.S. Map
Data in Motion
Tracking FAQ
COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)
Last Updated at (M/D/YYYY)
6/2/2021, 10:24 AM
Cases
171,024,506
Deaths
3,557,073
Vaccine Doses Administered
1,930,897,297
and Deaths by Country/Region/Sovereignty
| 595,205 US
| 331,895 India
| 465,199 Brazil
| 109,824 France
| 47,656 Turkey
| 119,830 Russia
| 128,045 United Kingdom
| 126,221 Italy
| 78,733 Argentina
| 88,677
NORTH AMERICA
SOUTH AMERICA
EUROPE
ASIA
AFRICA
North Pacific Ocean
North Pacific Ocean
North Atlantic Ocean
South Pacific Ocean
South Atlantic Ocean
Indian Ocean
Esri, FAO, NOAA
Powered by Esri
Daily Cases
2M
1.5M
1M
500k
0
Jul
2021
Daily Deaths
20k
15k
10k
5k
0
Jul
2021
Total Vaccine Doses
2.5B
2B
1.5B
1B
500M
0
Jul
2021
Admin0
Admin1
Cumulative Cases
Incidence Rate
Case-Fatality Ratio
Global Vaccinations
US Vaccinations
US Testing Rate
Terms of Use

https://youtu.be/gz4DdFWlfWE

ArcGIS Dashboards: Designing Effective Dashboards

David Nyenhuis

Soobin Choi



David Nyenhuis Soobin Choi

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2021 ESRI USER CONFERENCE

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Groups of Dashboards

	Snapshot Dashboards	Monitoring Dashboards
Data	A snapshot of time. Data behind dashboard doesn't update. (e.g., findings from census 2020)	Updated intermittently or regularly (every second, hour, day, or month). (e.g., field data collection, COVID case counts)
Viewing Frequency	Once	Reoccurring (e.g., always open, daily, monthly)
Purpose	Inform, explain, persuade, analyze. (They can tell a story)	Inform, flag concerns, evaluate performance measures, provide progress update, analyze.
Style	Color can be used for branding and/or to emphasize important dimensions of the data.	Muted colored maps and visualizations with areas of interest or concern highlighted.

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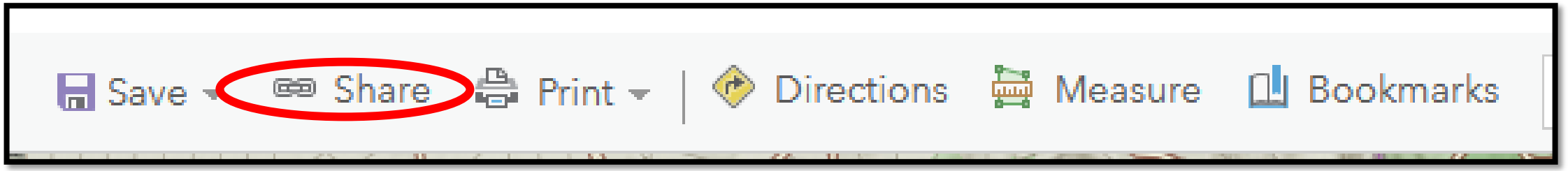


Share

Choose who can view this map.

Your map is currently shared with these people.

- [ ] Everyone (public)
- [x] University of California Berkeley
- [x] Members of these groups:
  - [ ] 150B_Fall2020
  - [ ] 150B_Summer18
  - [ ] 170_2017
  - [ ] Adopt-A-Catch Basin
  - [ ] Adopt-A-Catch Basin Manager
  - [ ] Ally_2021
  - [x] BayGeoUSF_training

Link to this map

https://arcg.is/11ybn91 Facebook Twitter

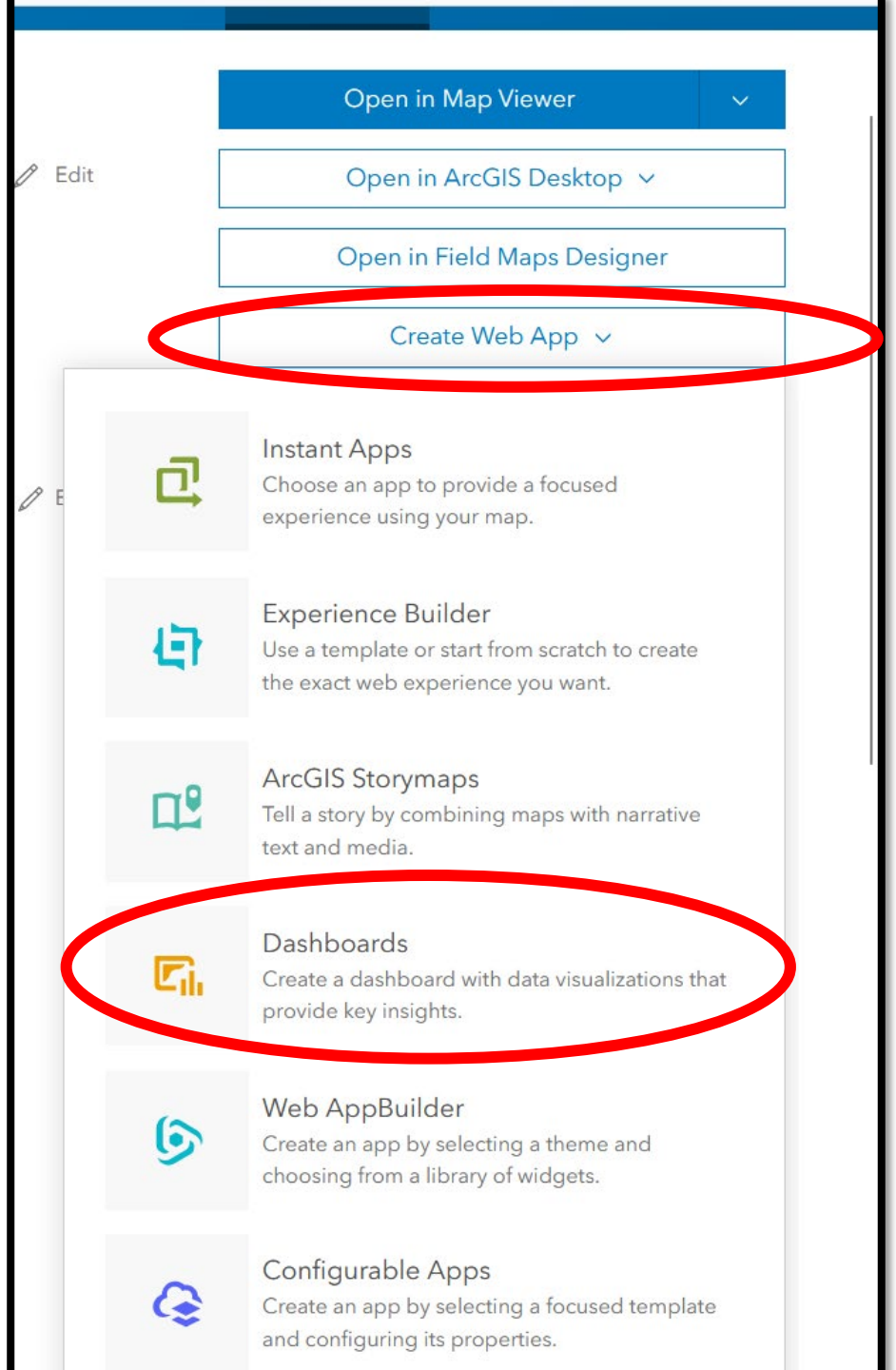
- [x] Share current map extent

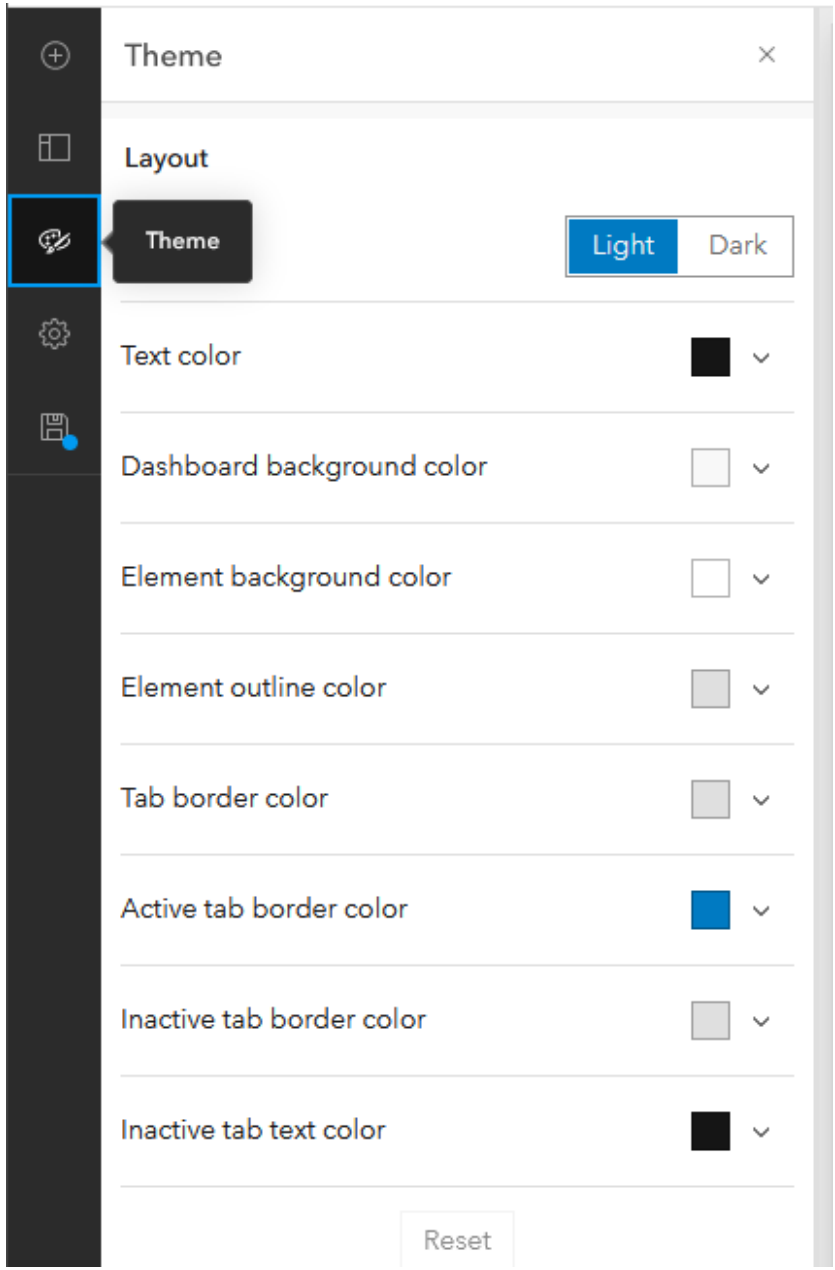
Embed this map

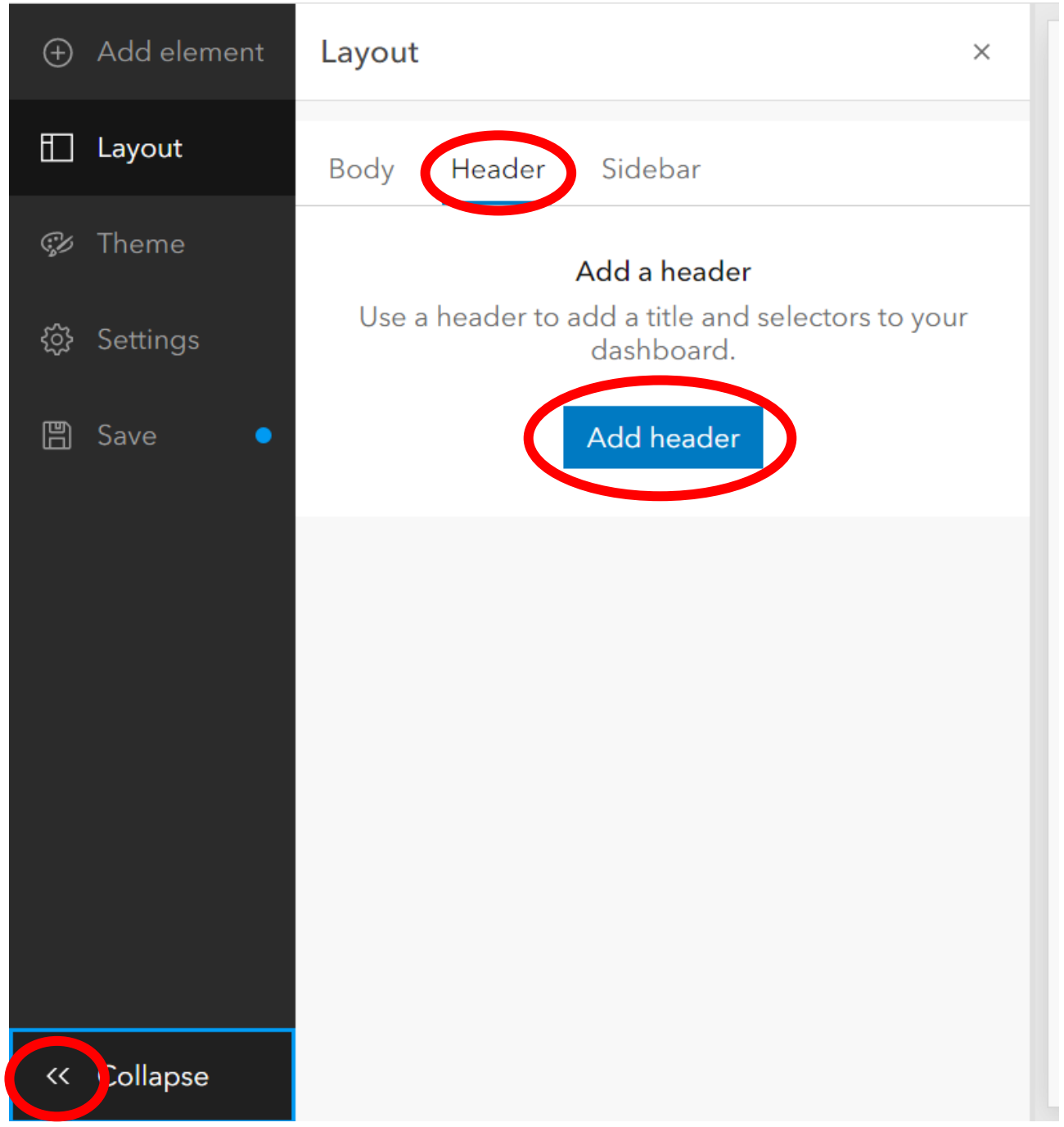
EMBED IN WEBSITE | CREATE A WEB APP

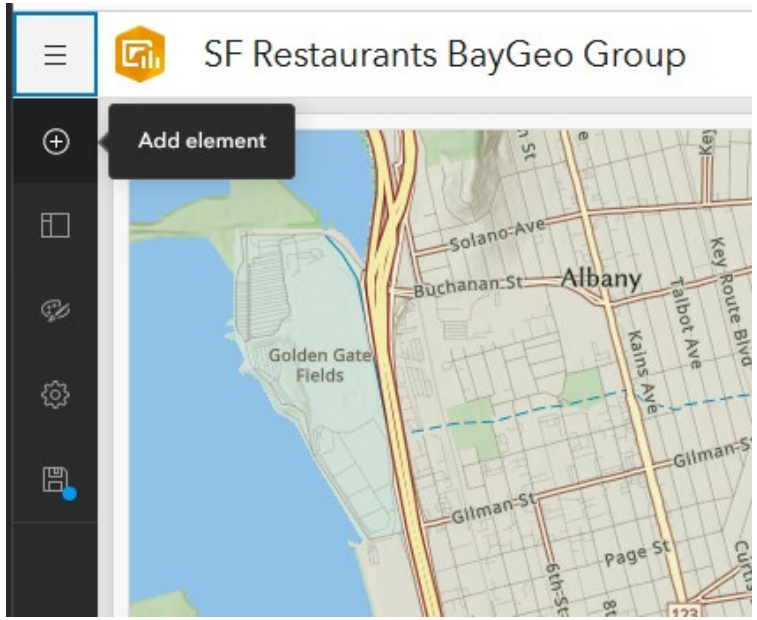
Note: To embed your map, you must share it with Everyone.

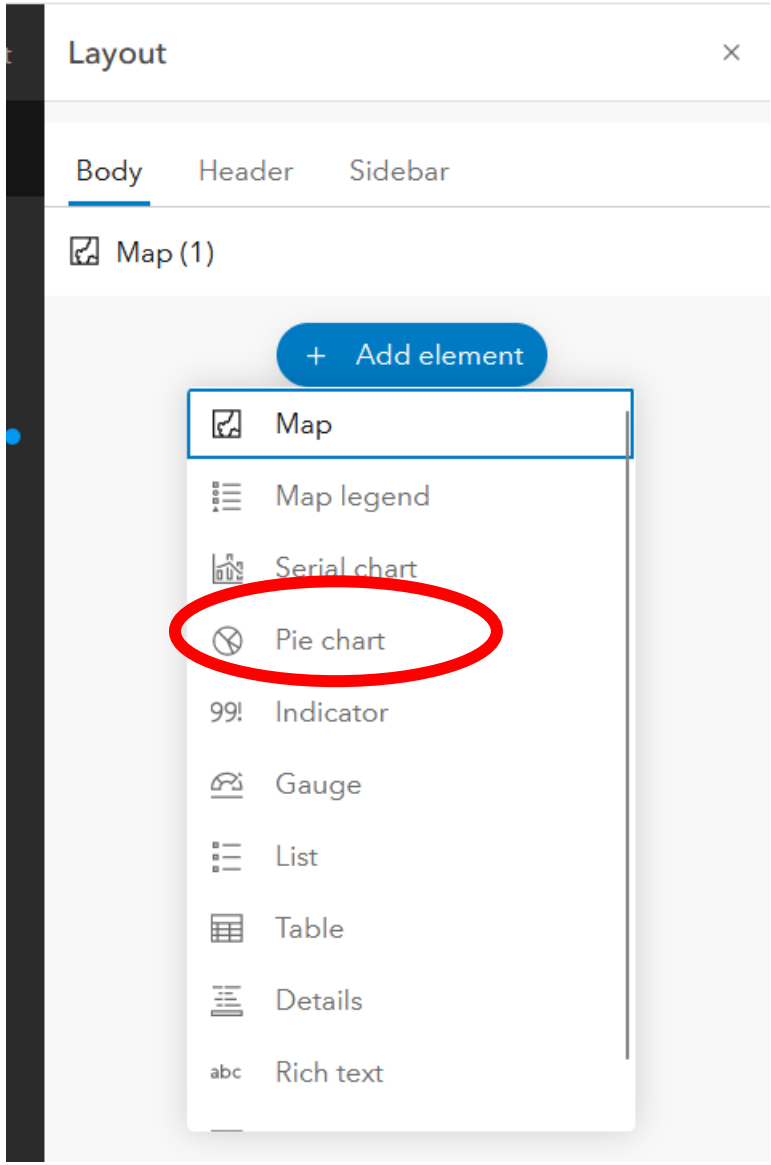
DONE

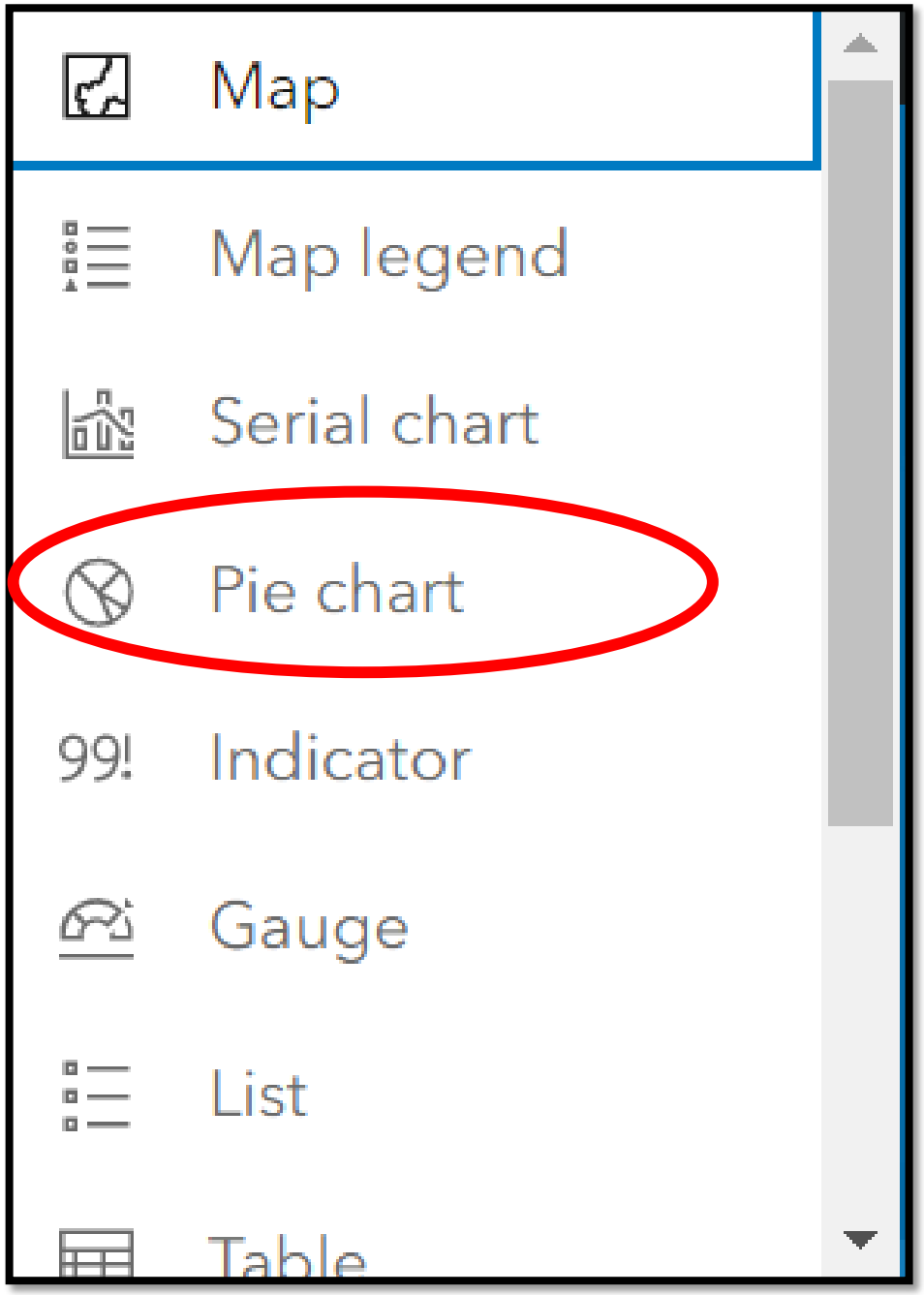

Open in Map Viewer
Edit
Open in ArcGIS Desktop
Open in Field Maps Designer
Create Web App
Instant Apps
Choose an app to provide a focused experience using your map.
Experience Builder
Use a template or start from scratch to create the exact web experience you want.
ArcGIS Storymaps
Tell a story by combining maps with narrative text and media.
Dashboards
Create a dashboard with data visualizations that provide key insights.
Web AppBuilder
Create an app by selecting a theme and choosing from a library of widgets.
Configurable Apps
Create an app by selecting a focused template and configuring its properties.

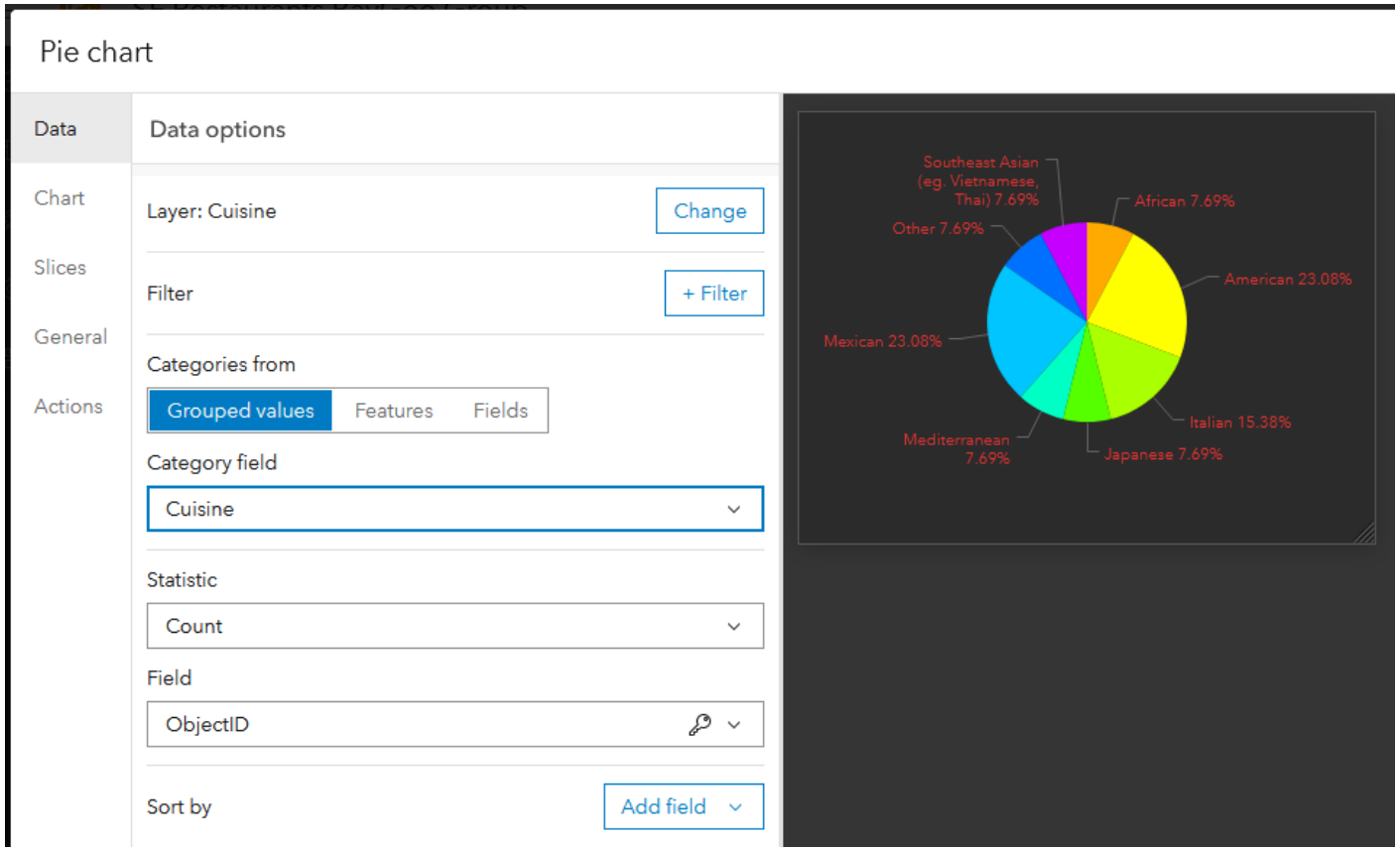

Theme
Layout
Theme
Light
Dark
Text color
Dashboard background color
Element background color
Element outline color
Tab border color
Active tab border color
Inactive tab border color
Inactive tab text color
Reset

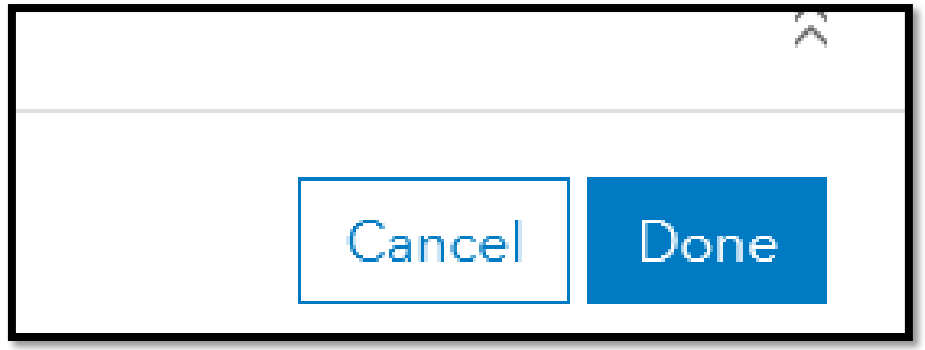

Add element
Layout
Theme
Settings
Save
Collapse
Layout
Body
Header
Sidebar
Add a header
Use a header to add a title and selectors to your dashboard.
Add header


SF Restaurants BayGeo Group
Add element
Solano Ave
Buchanan St
Albany
Talbot Ave
Kains Ave
Key Route Blvd
Golden Gate Fields
Gilman St
Page St


Layout
Body
Header
Sidebar
Map (1)
+ Add element
Map
Map legend
Serial chart
Pie chart
Indicator
Gauge
List
Table
Details
Rich text


Map
Map legend
Serial chart
Pie chart
Indicator
Gauge
List
Table


Pie chart
Data
Chart
Slices
General
Actions
Data options
Layer: Cuisine
Change
Filter
+ Filter
Categories from
Grouped values
Features
Fields
Category field
Cuisine
Statistic
Count
Field
ObjectID
Sort by
Add field
Southeast Asian (eg. Vietnamese, Thai) 7.69%
African 7.69%
Other 7.69%
American 23.08%
Mexican 23.08%
Italian 15.38%
Mediterranean 7.69%
Japanese 7.69%


Cancel
Done

Pie chart

Data
Chart
Slices
General
Actions

Actions

When selection changes

Filter
1 active target

Map (1)

Cost

Cuisine

Render only when filtered

SF Restaurants v1

Serial chart (1)

Flash
1 active target

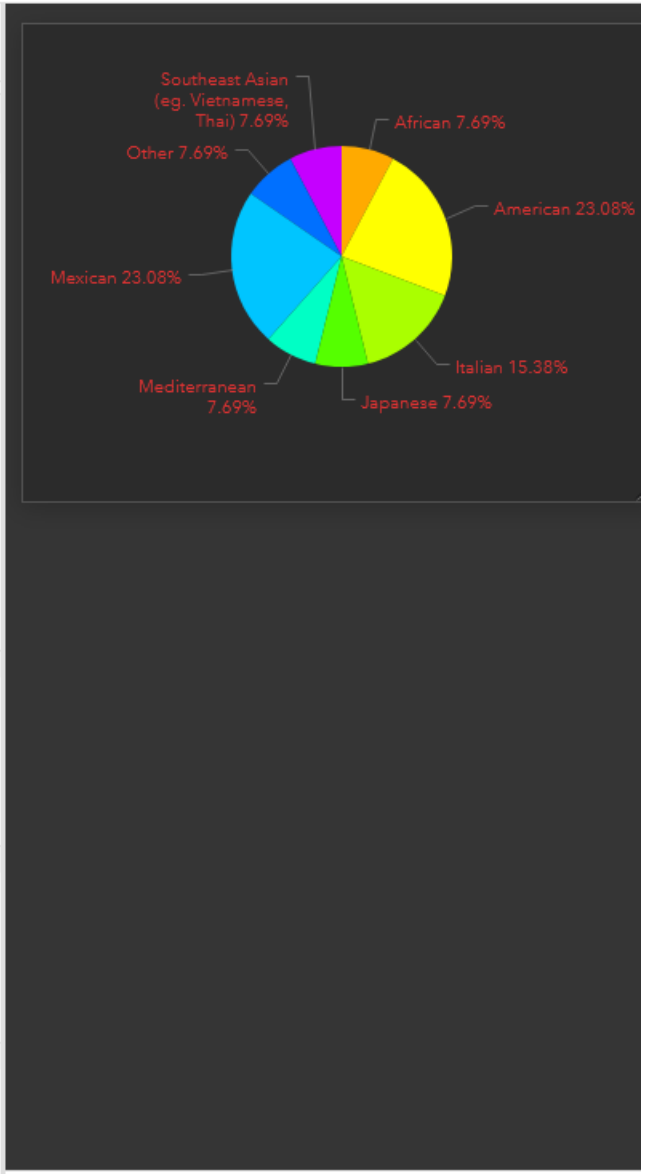
Map (1)

Pan
1 active target

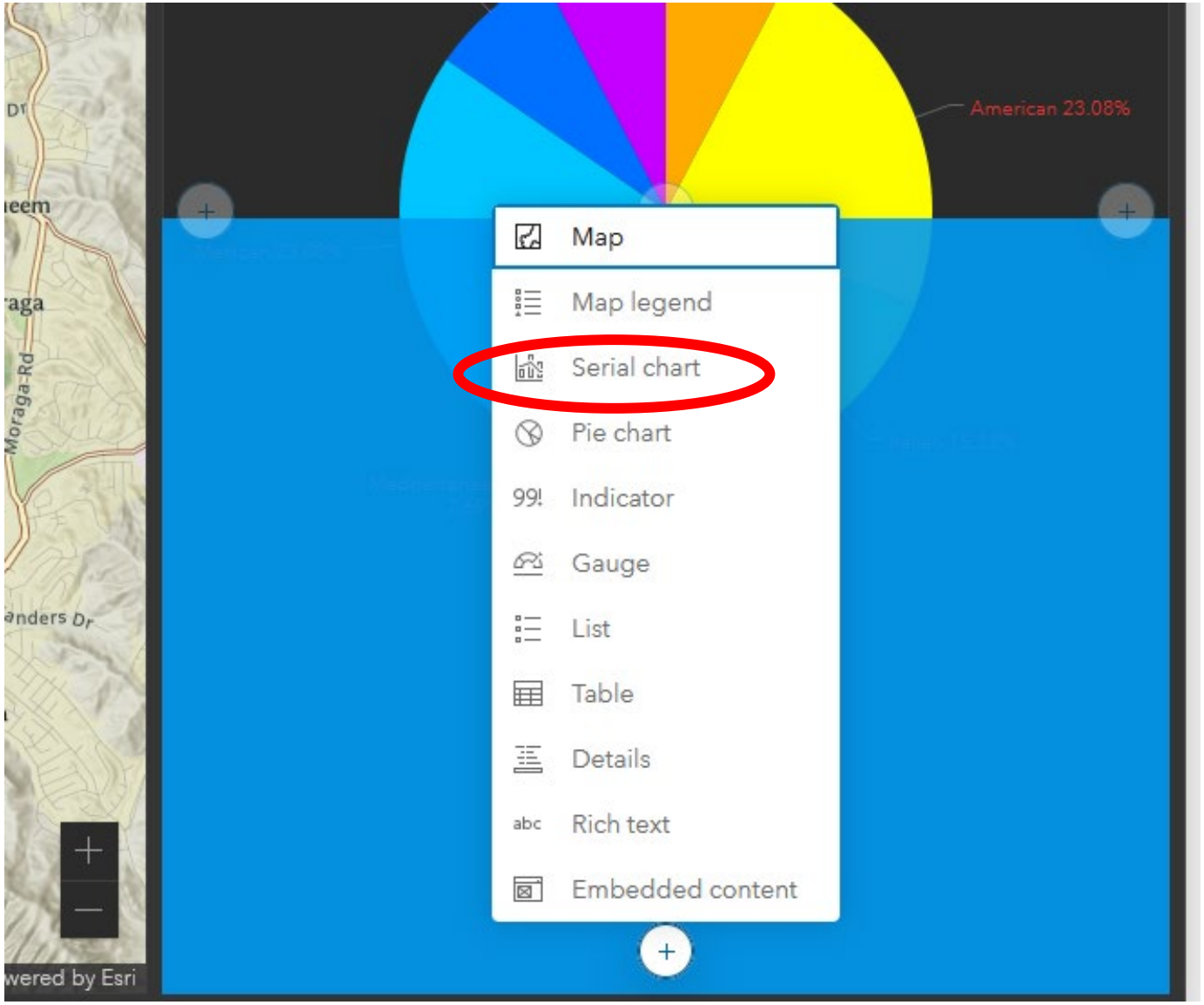
Map (1)

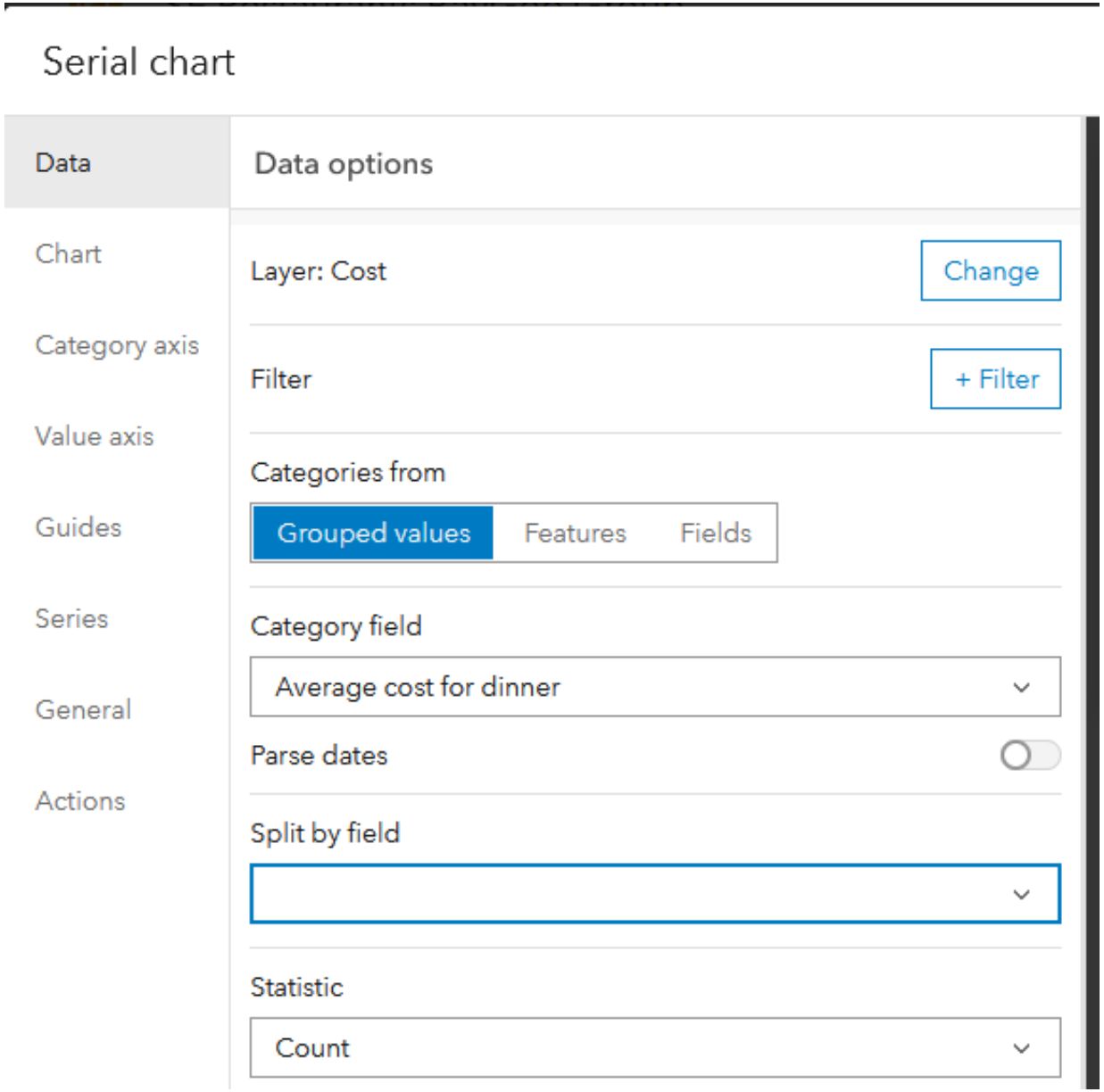
Zoom
1 active target

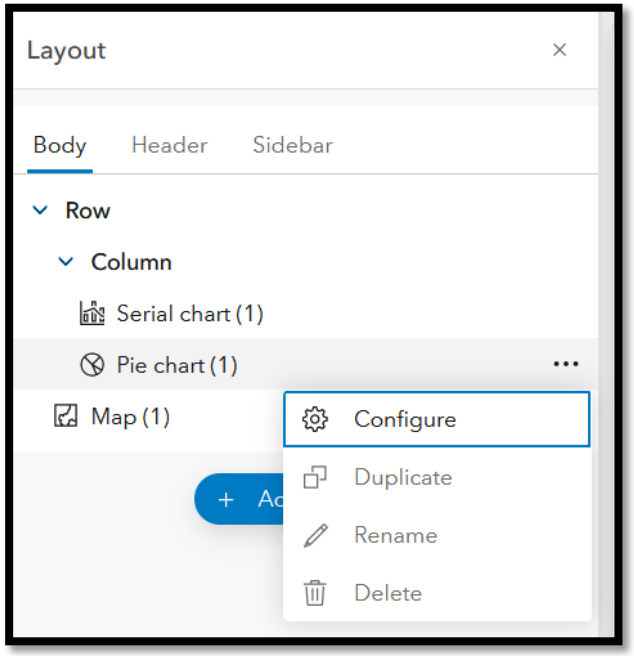
Map (1)

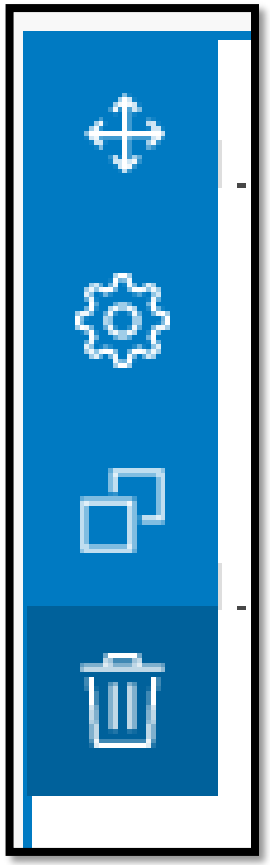


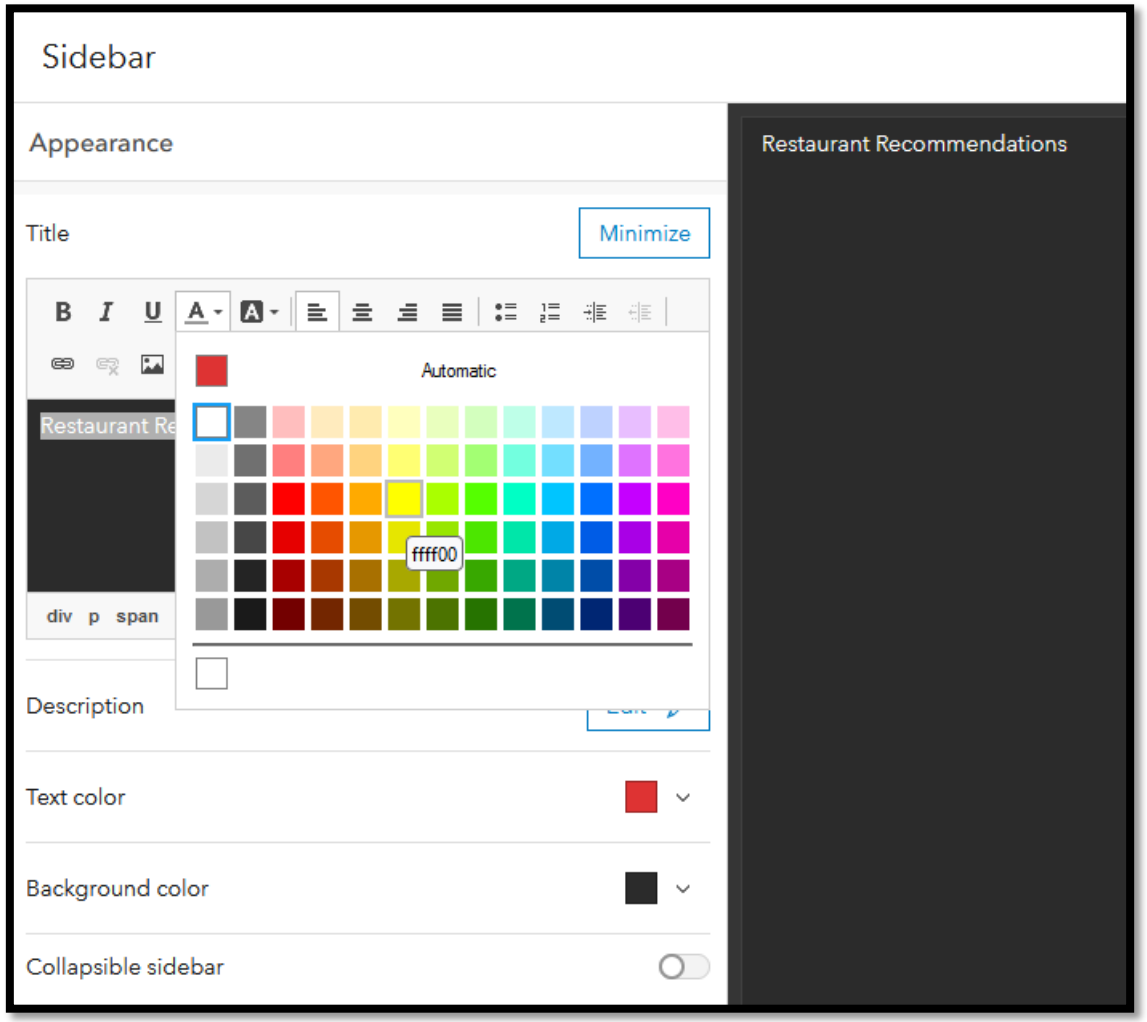
Data table


American 23.08%
Map
Map legend
Serial chart
Pie chart
Indicator
Gauge
List
Table
Details
Rich text
Embedded content
Moraga-Rd
wered by Esri

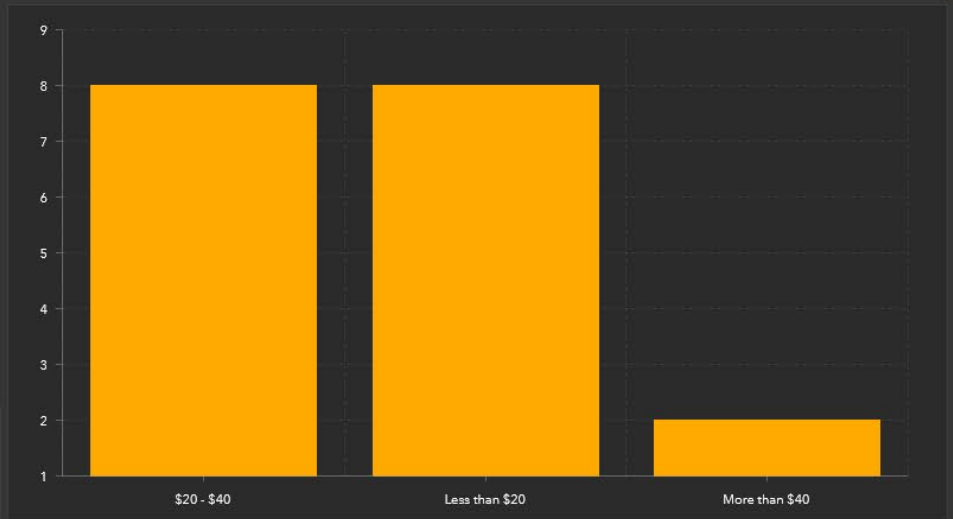

Serial chart
Data
Chart
Category axis
Value axis
Guides
Series
General
Actions
Data options
Layer: Cost
Change
Filter
+ Filter
Categories from
Grouped values
Features
Fields
Category field
Average cost for dinner
Parse dates
Split by field
Statistic
Count

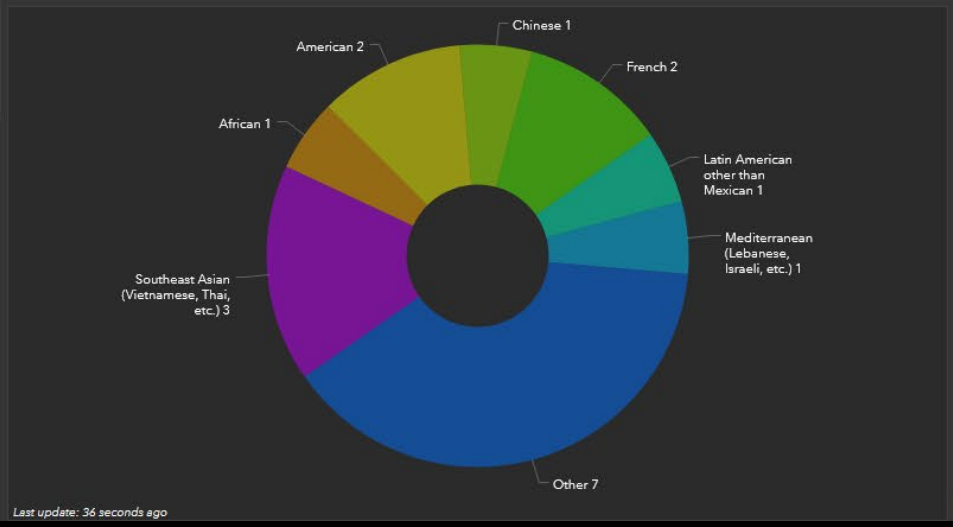

Layout
Body
Header
Sidebar
Row
Column
Serial chart (1)
Pie chart (1)
Map (1)
Configure
Duplicate
Rename
Delete




Sidebar
Appearance
Title
Minimize
Automatic
ffff00
div p span
Description
Text color
Background color
Collapsible sidebar
Restaurant Recommendations

Our Favorite Restaurants





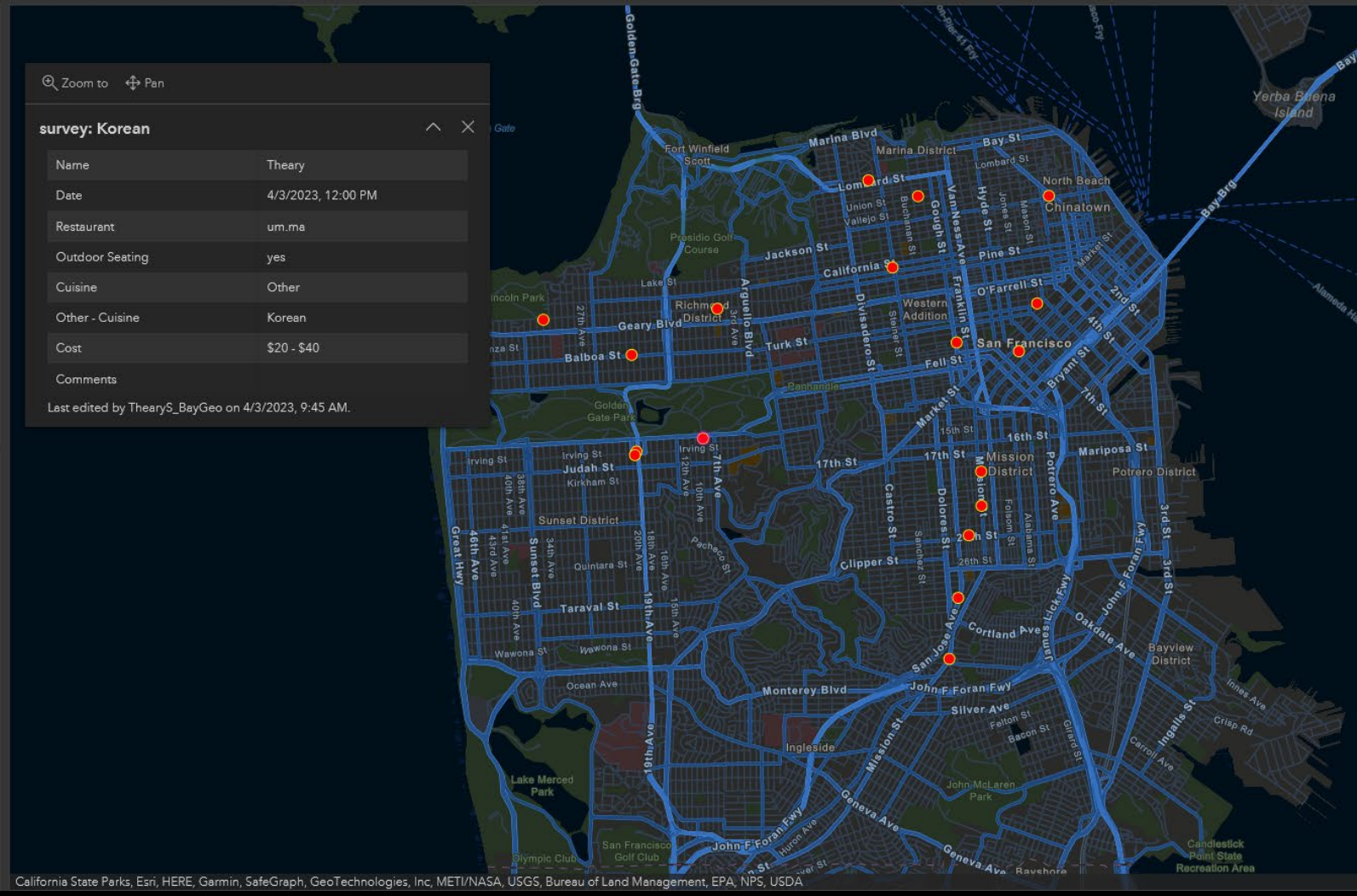
Last update: 36 seconds ago

Zoom to Pan

survey: Korean

Name	Theary
Date	4/3/2023, 12:00 PM
Restaurant	um.ma
Outdoor Seating	yes
Cuisine	Other
Other - Cuisine	Korean
Cost	$20 - $40
Comments	

Last edited by ThearyS_BayGeo on 4/3/2023, 9:45 AM.



California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

Shawn Morgan

Fleming College

Student Experience with Web-GIS Architecture and Services

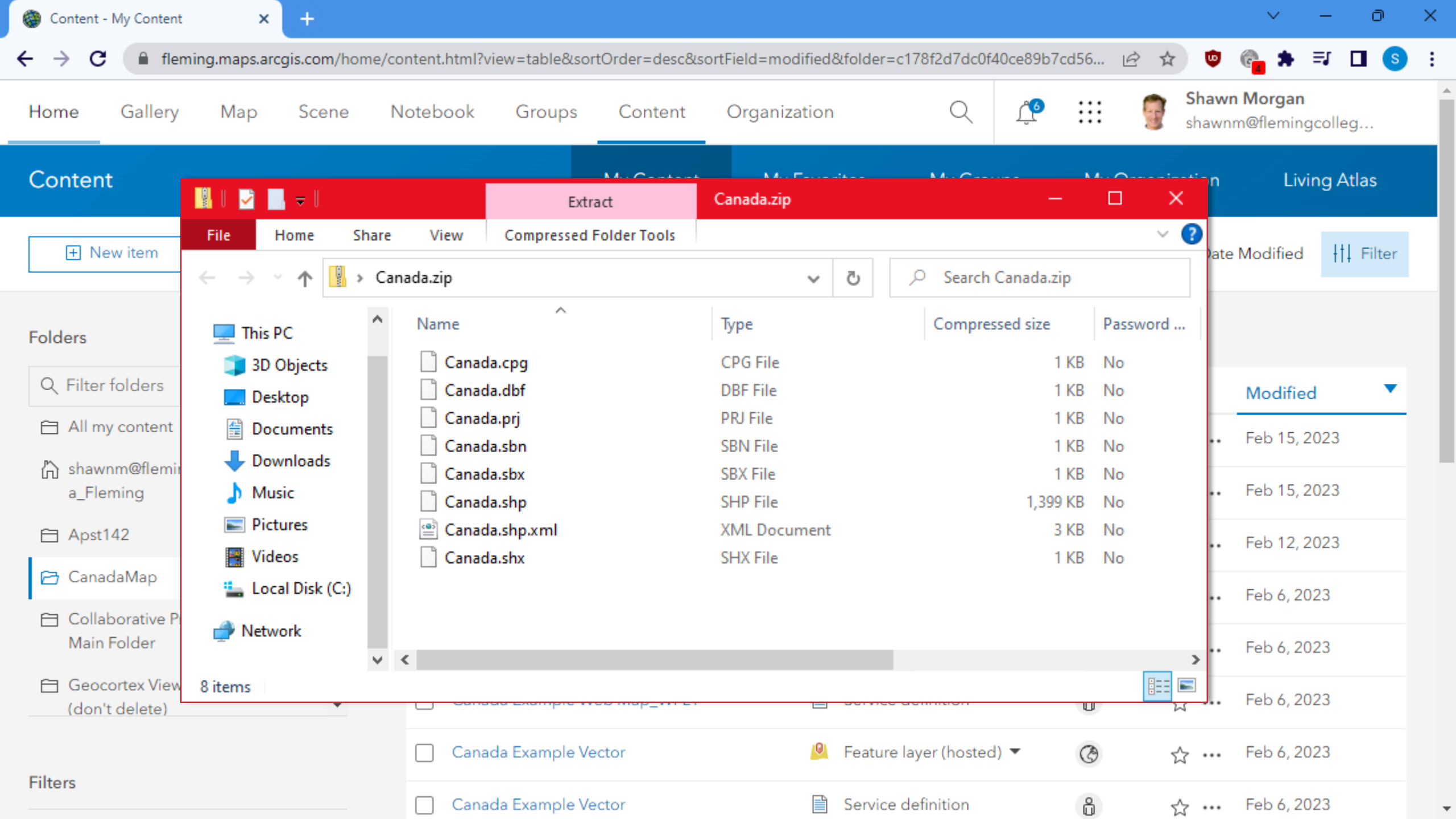
By Shawn Morgan, Professor and Program Coordinator
Post-graduate GIS Programs
Email: shawn.morgan@flemingcollege.ca
LinkedIn: https://www.linkedin.com/in/smmorgan/
Links in presentation: **https://arcg.is/41jg6rj**

Different Types of Web GIS Users:

Users of GIS solutions

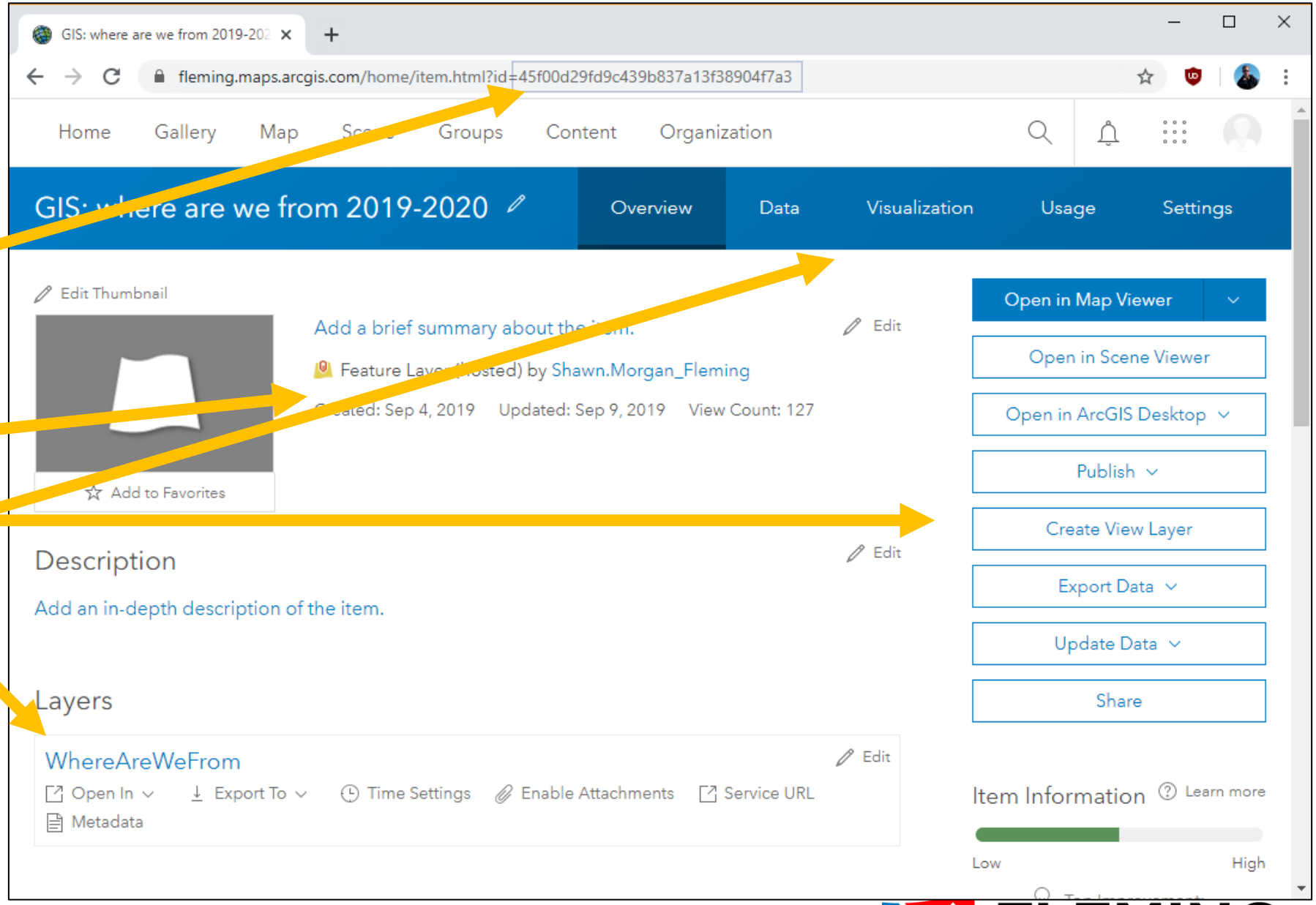
Introduction to GIS concepts

Managing and Creating GIS solutions

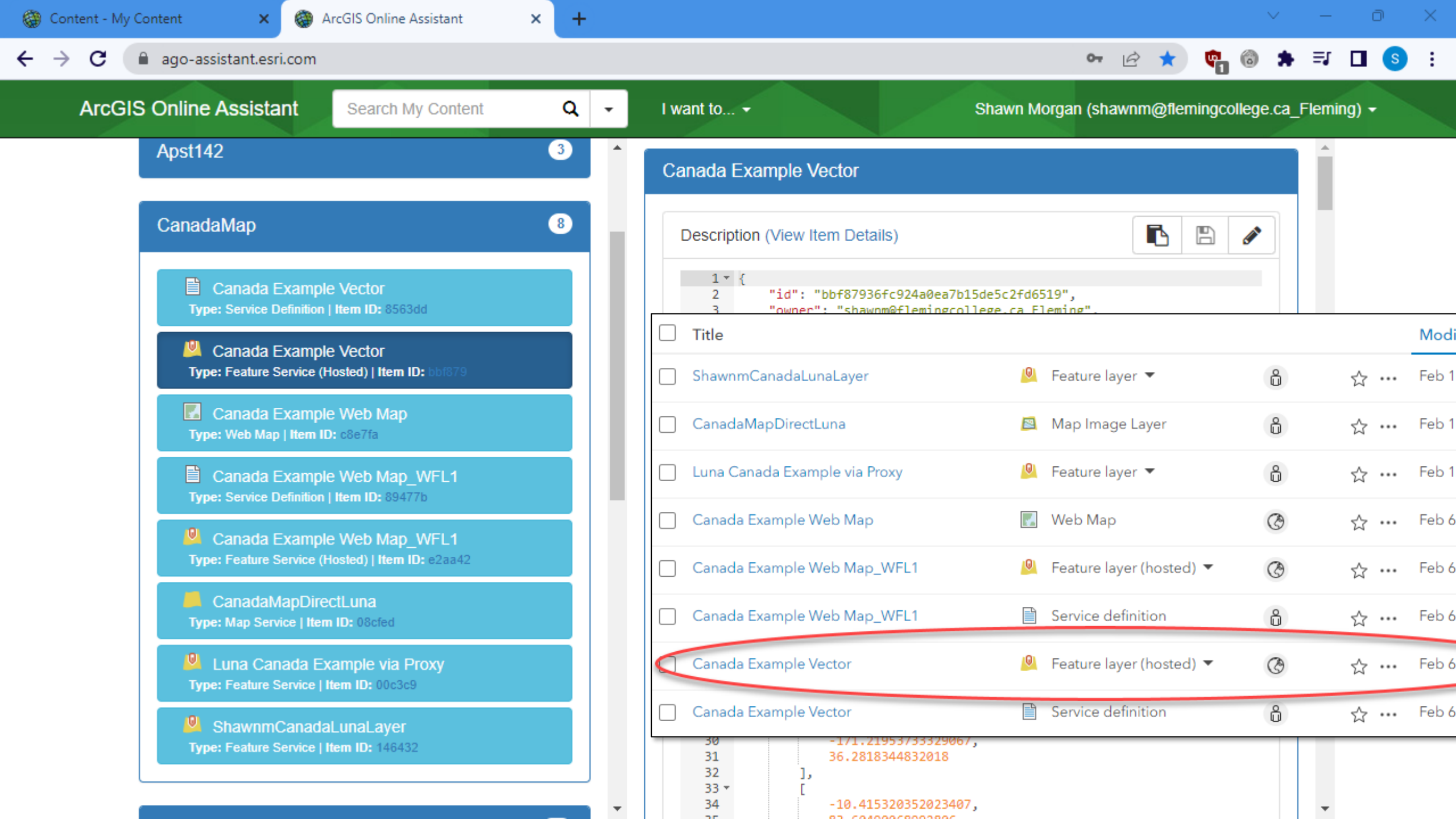

Content - My Content
fleming.maps.arcgis.com/home/content.html?view=table&sortOrder=desc&sortField=modified&folder=c178f2d7dc0f40ce89b7cd56...
Home
Gallery
Map
Scene
Notebook
Groups
Content
Organization
Shawn Morgan
shawnm@flemingcolleg...
Content
Living Atlas
New item
Filter
Folders
Filter folders
All my content
CanadaMap
Apst142
Filters
Extract
Canada.zip
File
Home
Share
View
Compressed Folder Tools
Search Canada.zip
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Network
Name
Type
Compressed size
Password ...
Canada.cpg CPG File 1 KB No
Canada.dbf DBF File 1 KB No
Canada.prj PRJ File 1 KB No
Canada.sbn SBN File 1 KB No
Canada.sbx SBX File 1 KB No
Canada.shp SHP File 1,399 KB No
Canada.shp.xml XML Document 3 KB No
Canada.shx SHX File 1 KB No
8 items
Modified
Feb 15, 2023
Feb 15, 2023
Feb 12, 2023
Feb 6, 2023
Feb 6, 2023
Feb 6, 2023
Canada Example Vector
Feature layer (hosted)
Feb 6, 2023
Canada Example Vector
Service definition
Feb 6, 2023

JSON Items
"File" of AGOL

- Item ID
- Standard Metadata
- Tools and Commands
- Asset Links



FLEMING


Content - My Content
ArcGIS Online Assistant
ago-assistant.esri.com
ArcGIS Online Assistant
Search My Content
I want to...
Shawn Morgan (shawnm@flemingcollege.ca_Fleming)
Apst142 3
CanadaMap 8
Canada Example Vector
Type: Service Definition | Item ID: 8563dd
Canada Example Vector
Type: Feature Service (Hosted) | Item ID: bbf879
Canada Example Web Map
Type: Web Map | Item ID: c8e7fa
Canada Example Web Map_WFL1
Type: Service Definition | Item ID: 89477b
Canada Example Web Map_WFL1
Type: Feature Service (Hosted) | Item ID: e2aa42
CanadaMapDirectLuna
Type: Map Service | Item ID: 08cfed
Luna Canada Example via Proxy
Type: Feature Service | Item ID: 00c3c9
ShawnmCanadaLunaLayer
Type: Feature Service | Item ID: 146432
Canada Example Vector
Description (View Item Details)
1 {
2 "id": "bbf87936fc924a0ea7b15de5c2fd6519",
Title
Modi
ShawnmCanadaLunaLayer Feature layer Feb 1
CanadaMapDirectLuna Map Image Layer Feb 1
Luna Canada Example via Proxy Feature layer Feb 1
Canada Example Web Map Web Map Feb 6
Canada Example Web Map_WFL1 Feature layer (hosted) Feb 6
Canada Example Web Map_WFL1 Service definition Feb 6
Canada Example Vector Feature layer (hosted) Feb 6
Canada Example Vector Service definition Feb 6
-171.21953733329067,
36.2818344832018
],
[
-10.415320352023407,

```
{
  "operationalLayers": [
    {
      "id": "WhereAreWeFrom_6736",
      "layerType": "ArcGISFeatureLayer",
      "url": "https://services1.arcgis.com/pMeXRvgWClLJZr3s/arcgis/rest/services/WhereAreWeFrom/FeatureServer/0",
      "visibility": true,
      "opacity": 1,
      "title": "where are we from",
      "itemId": "45f00d29fd9c439b837a13f38904f7a3",
      "popupInfo": {
        "title": "WhereAreWeFrom: {studentname}",
        "fieldInfos": [
          {
            "fieldName": "OBJECTID",
            "label": "OBJECTID",
            "isEditable": false,
            "tooltip": "",
            "visible": false,
            "stringFieldOption": "textbox"
          },
          {
            "fieldName": "studentname",
            "label": "Student Name",
            "isEditable": true,
            "tooltip": "",
            "visible": true,
            "stringFieldOption": "textbox"
          },
          {
            "fieldName": "fsa",
            "label": "Forward Sortation Area",
            "isEditable": true,
            "tooltip": "",
            "visible": true,
            "stringFieldOption": "textbox"
          },
```


The ITEM JSON for a Feature Layer points to the Services Directory URL where the data can be accessed

https://developers.arcgis.com/documentation/core-concepts/web-maps/#the-web-map-specification

Canada Example Web Map_WFL1 | ArcGIS Online Assistant | Canada_Example_Web_Map_WFL

services1.arcgis.com/pMeXRvgWCILJZr3s/arcgis/rest/services/Canada_Example_Web_Map_WFL1/FeatureServer

ArcGIS REST Services Directory

Home > services > Canada_Example_Web_Map_WFL1 (FeatureServer) | API Reference

JSON

Canada_Example_Web_Map_WFL1 (FeatureServer)

View In: Map Viewer

Service Description: Shared to ArcGIS Online as a Web Map

Service ItemId: e2aa4255adf34e9bb5859a77d95ffee3

Has Versioned Data: false

Max Record Count: 2000

Supported query Formats: JSON

Supports applyEdits with GlobalIds: False

All Layers and Tables

Layers:

- Canada Detailed (0)
- Canada (1)

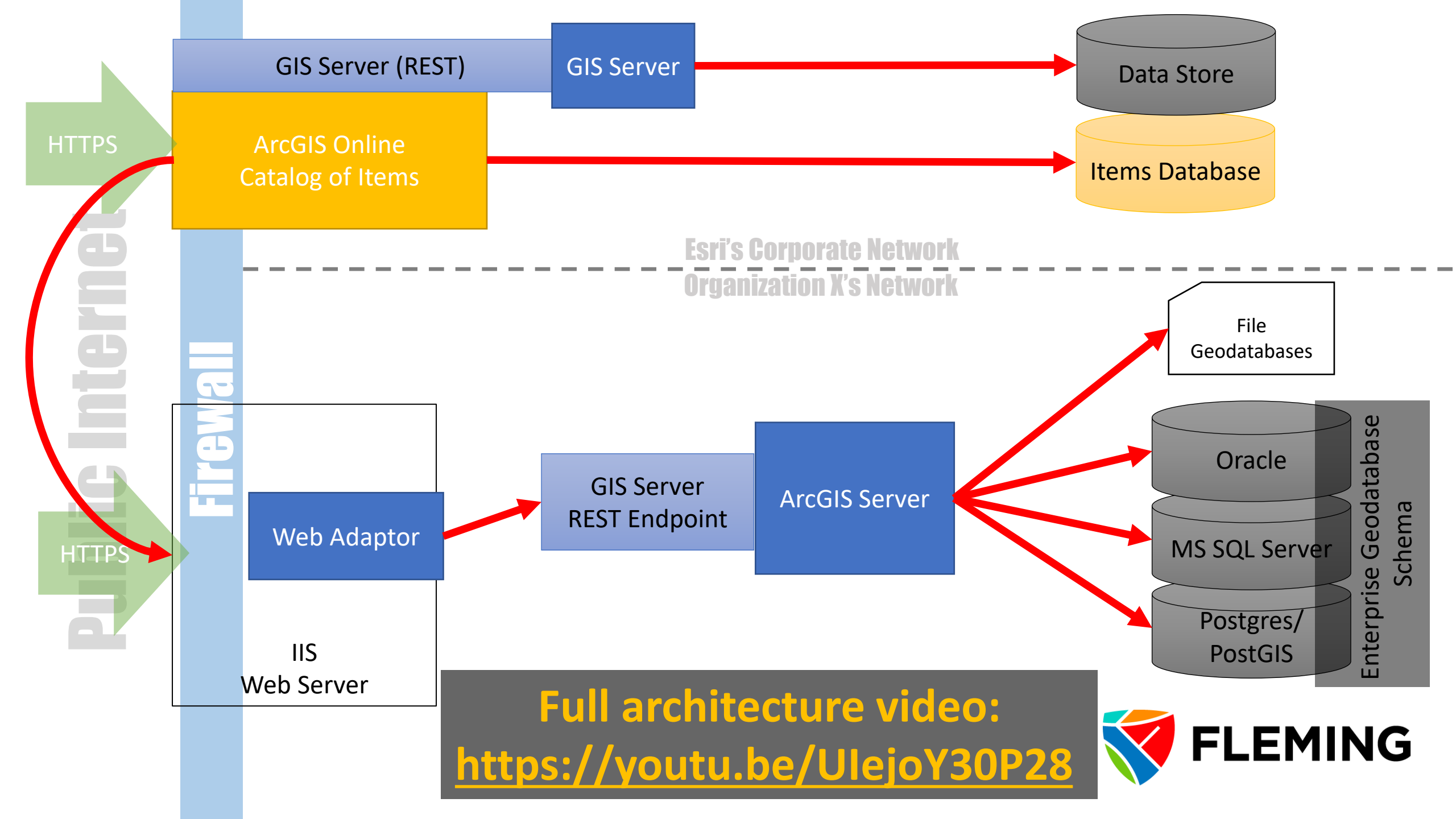
Description:

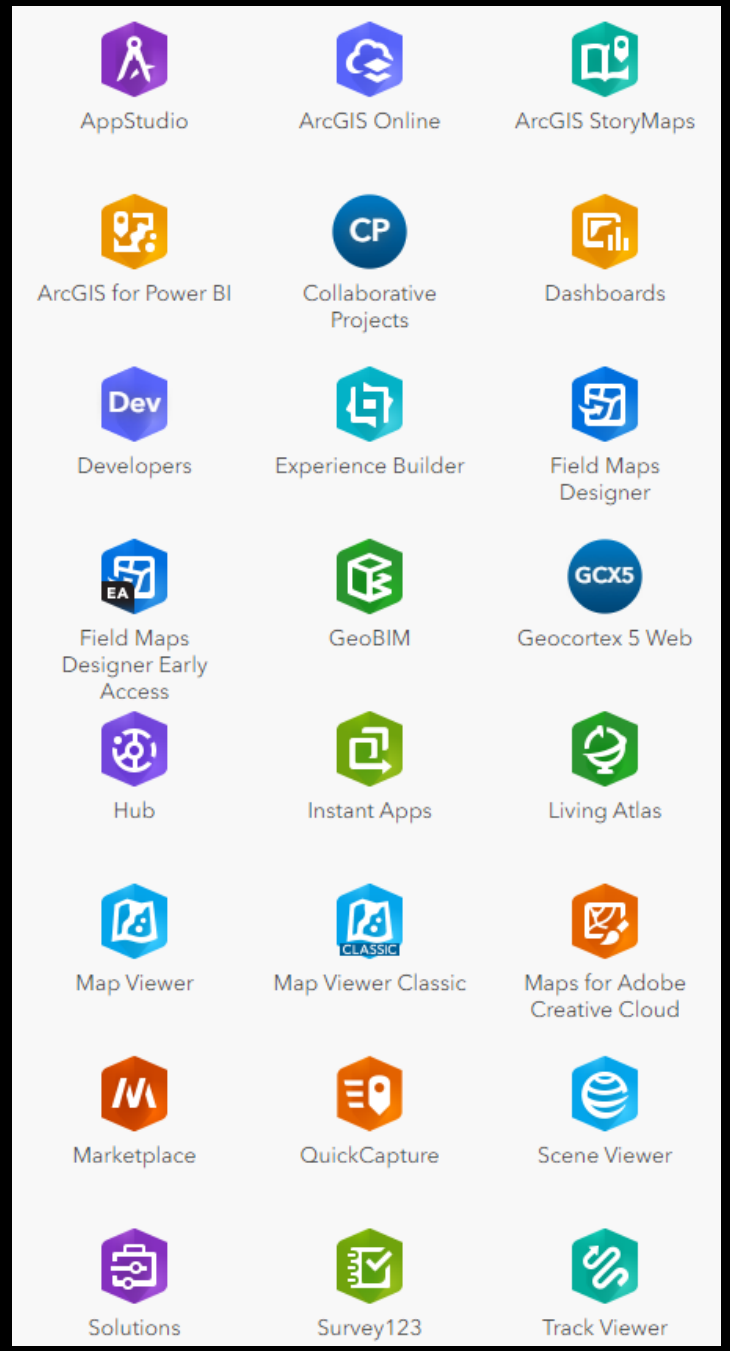
Copyright Text:

Spatial Reference: 102100 (3857)

Initial Extent:

This "REST" endpoint is Where the data are accessed Using a special URL called a "REST Request"


GIS Server (REST)
GIS Server
Data Store
HTTPS
ArcGIS Online
Catalog of Items
Items Database
Public Internet
Esri's Corporate Network
Organization X's Network
Firewall
File
Geodatabases
Oracle
MS SQL Server
Postgres/
PostGIS
Enterprise Geodatabase
Schema
HTTPS
Web Adaptor
GIS Server
REST Endpoint
ArcGIS Server
IIS
Web Server
Full architecture video:
https://youtu.be/UIejoY30P28
FLEMING



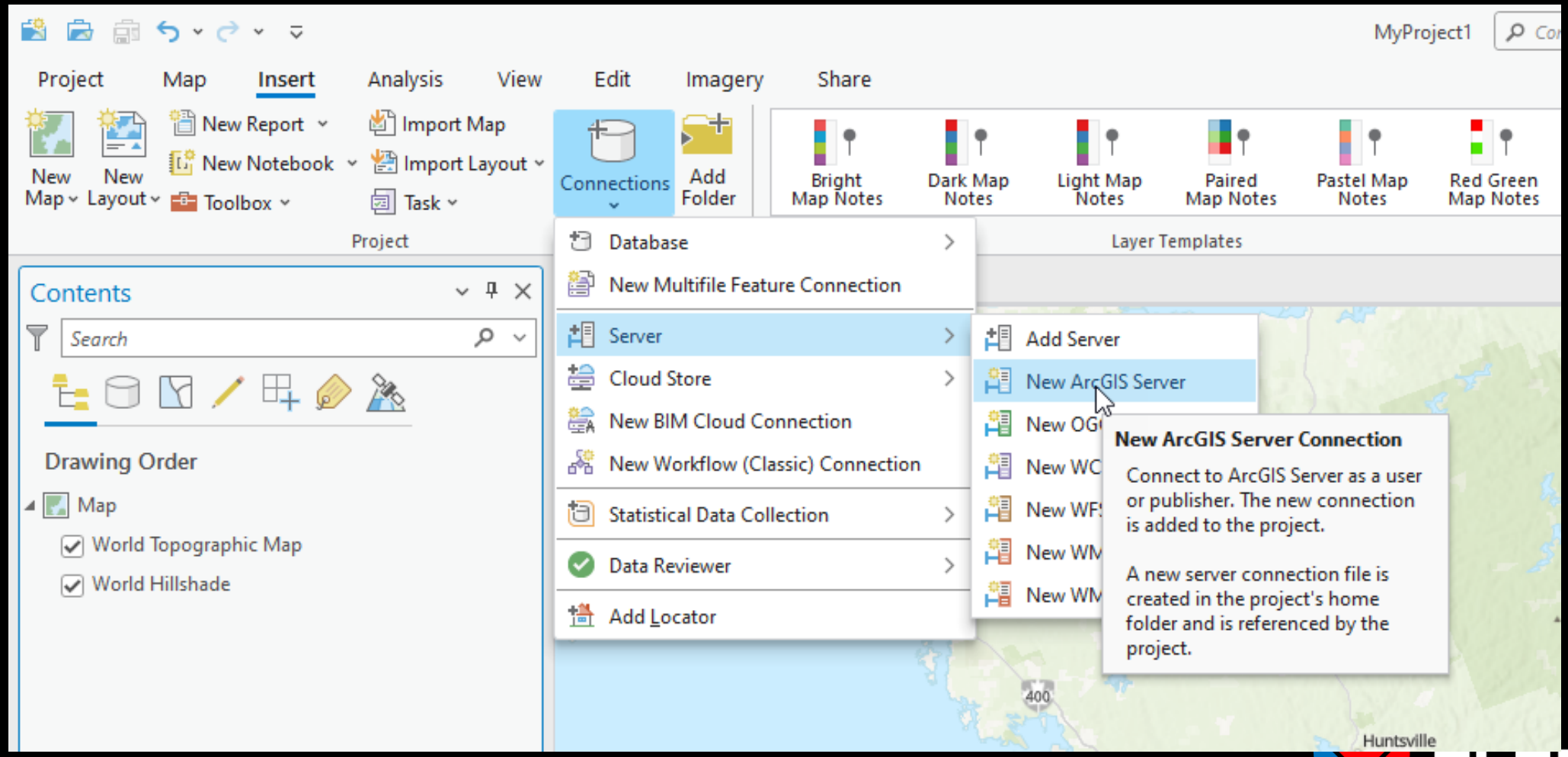
All the "configurable" apps use the ITEM reference to access the Services Directory REST Endpoint and underlying Data

You can even configure apps to point directly to the REST endpoint

Fleming GIS

FLEMING

Learn How Map Services Work



How-to video: https://youtu.be/nIRlZN9ECwY

FLEMING

Web GIS: Level Up Student Experiences

01

ArcGIS Online: Use Hosted Feature Layers and Maps

02

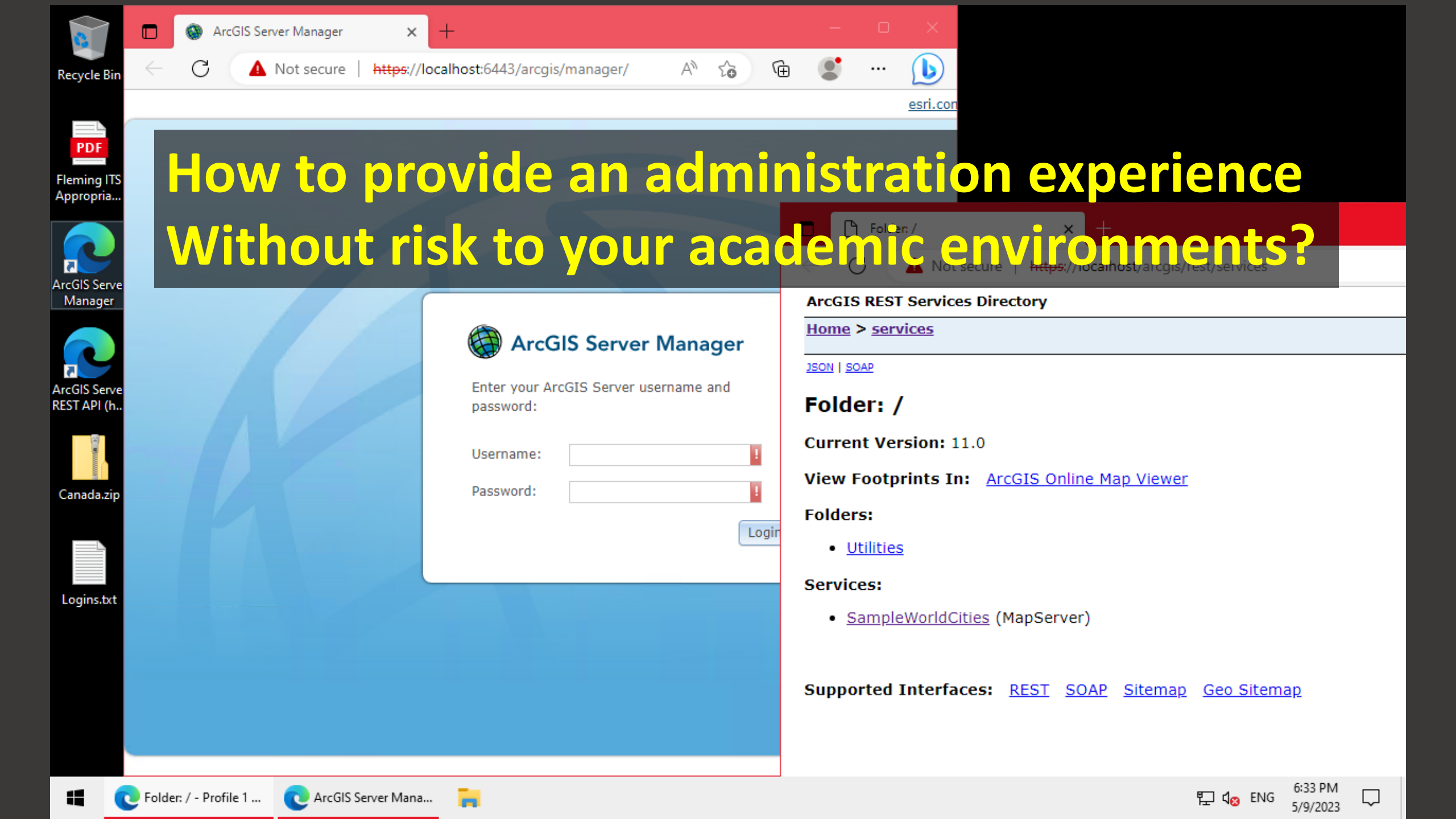
ArcGIS Server: Publish Map Services, Use these in ArcGIS Online

03

ArcGIS Server: Administer and Manage the environment

04

ArcGIS Enterprise: Publish, administer, manage and configure


Recycle Bin
Fleming ITS Appropria...
ArcGIS Serve Manager
ArcGIS Serve REST API (h..
Canada.zip
Logins.txt
ArcGIS Server Manager
Not secure | https://localhost:6443/arcgis/manager/
esri.com
How to provide an administration experience
Without risk to your academic environments?
ArcGIS Server Manager
Enter your ArcGIS Server username and password:
Username:
Password:
Login
Folder: /
Not secure | https://localhost/arcgis/rest/services
ArcGIS REST Services Directory
Home > services
JSON | SOAP
Folder: /
Current Version: 11.0
View Footprints In: ArcGIS Online Map Viewer
Folders:
Utilities
Services:
SampleWorldCities (MapServer)
Supported Interfaces: REST SOAP Sitemap Geo Sitemap
Folder: / - Profile 1 ...
ArcGIS Server Mana...
ENG
6:33 PM
5/9/2023

Hands-on Administrative Experience

- Use cloud-based environment virtual-machines (AWS or GCP)
- Configure a Windows VM with ArcGIS Server as a base
- Create Image for students to start with your configured VM
- Students copy and start their own VM using your base
- Students configure their own network, provide a domain and SSL certificate
- Students then can explore the software as a full “administrator”

IAM – IAM & Admin – Shawn's A

Google Cloud for Education - Fac

cloud.google.com/edu/faculty

Google Cloud | Overview | Solutions | Products | Pricing | Resources | Docs | Support | English | Console

Contact Us

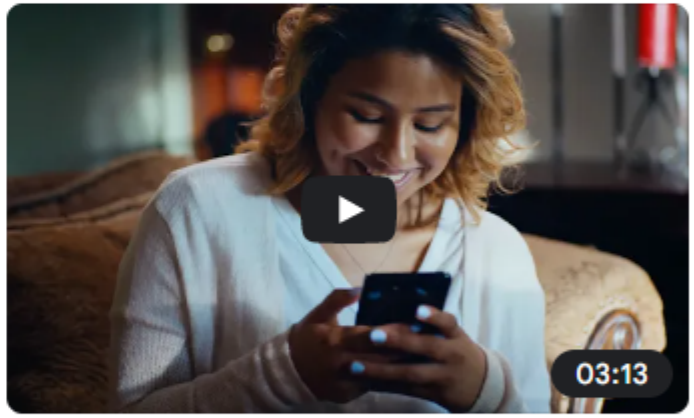
Help your students grow cloud skills at no cost and earn prizes on The Arcade. Play today!

Google Cloud for Faculty

Teach your students with Google Cloud and prepare them for the cloud-first world. Access Google Cloud credits, training, curriculum, and communities at no cost.

Apply for teaching credits

Apply for training credits

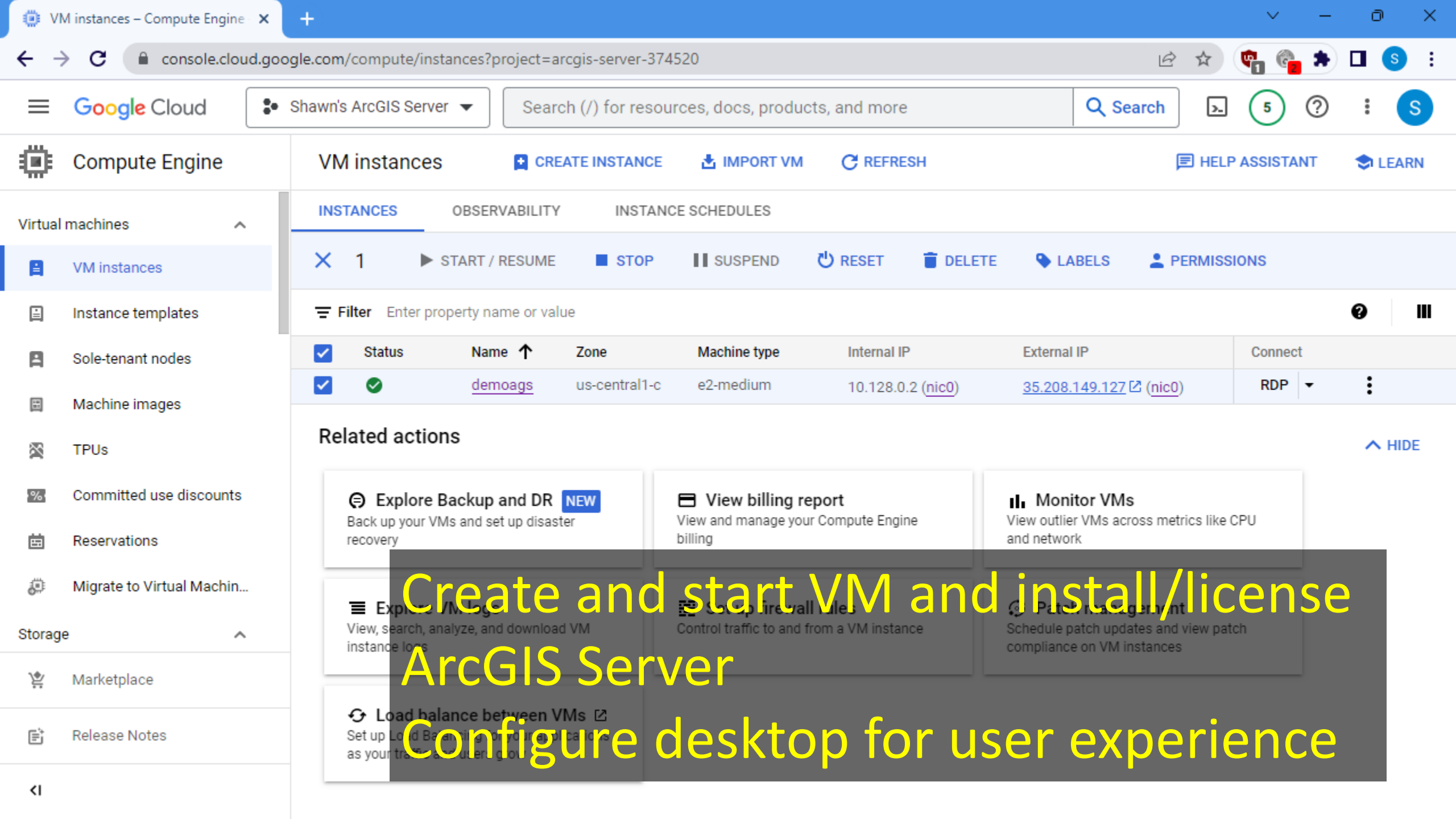


Inspire students like these who created an app to help the hearing impaired

Optional: Apply for student credits

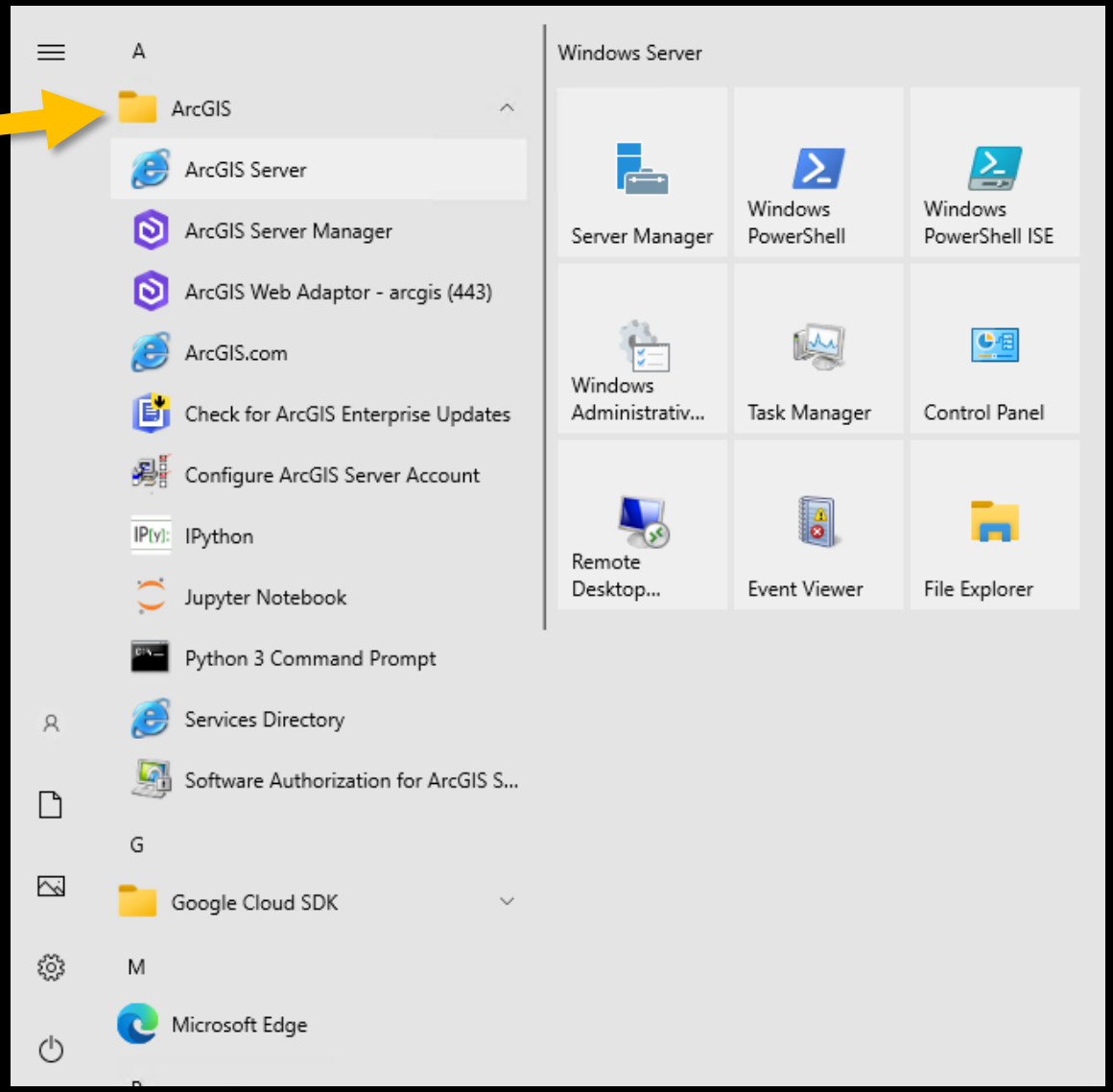
https://cloud.google.com/edu/faculty

Access resources


VM instances – Compute Engine
console.cloud.google.com/compute/instances?project=arcgis-server-374520
Google Cloud
Shawn's ArcGIS Server
Search (/) for resources, docs, products, and more
Search
Compute Engine
VM instances
CREATE INSTANCE
IMPORT VM
REFRESH
HELP ASSISTANT
LEARN
Virtual machines
VM instances
Instance templates
Sole-tenant nodes
Machine images
TPUs
Committed use discounts
Reservations
Migrate to Virtual Machin...
Storage
Marketplace
Release Notes
INSTANCES
OBSERVABILITY
INSTANCE SCHEDULES
1
START / RESUME
STOP
SUSPEND
RESET
DELETE
LABELS
PERMISSIONS
Filter
Enter property name or value
Status
Name
Zone
Machine type
Internal IP
External IP
Connect
demoags
us-central1-c
e2-medium
10.128.0.2 (nic0)
35.208.149.127 (nic0)
RDP
Related actions
HIDE
Explore Backup and DR
NEW
Back up your VMs and set up disaster recovery
View billing report
View and manage your Compute Engine billing
Monitor VMs
View outlier VMs across metrics like CPU and network
View, search, analyze, and download VM instance logs
Control traffic to and from a VM instance
Schedule patch updates and view patch compliance on VM instances
Load balance between VMs
Create and start VM and install/license ArcGIS Server
Configure desktop for user experience

Install and license ArcGIS Server (non-federated)

Students will get a copy of this Virtual Machine as an IMAGE



Installing ArcGIS Server Walkthrough: https://youtu.be/7EpK-c6dJCg
Installing Web Adaptor Walkthrough: https://youtu.be/vUJF-MjlccY

FLEMING

Prepare the VM for your students

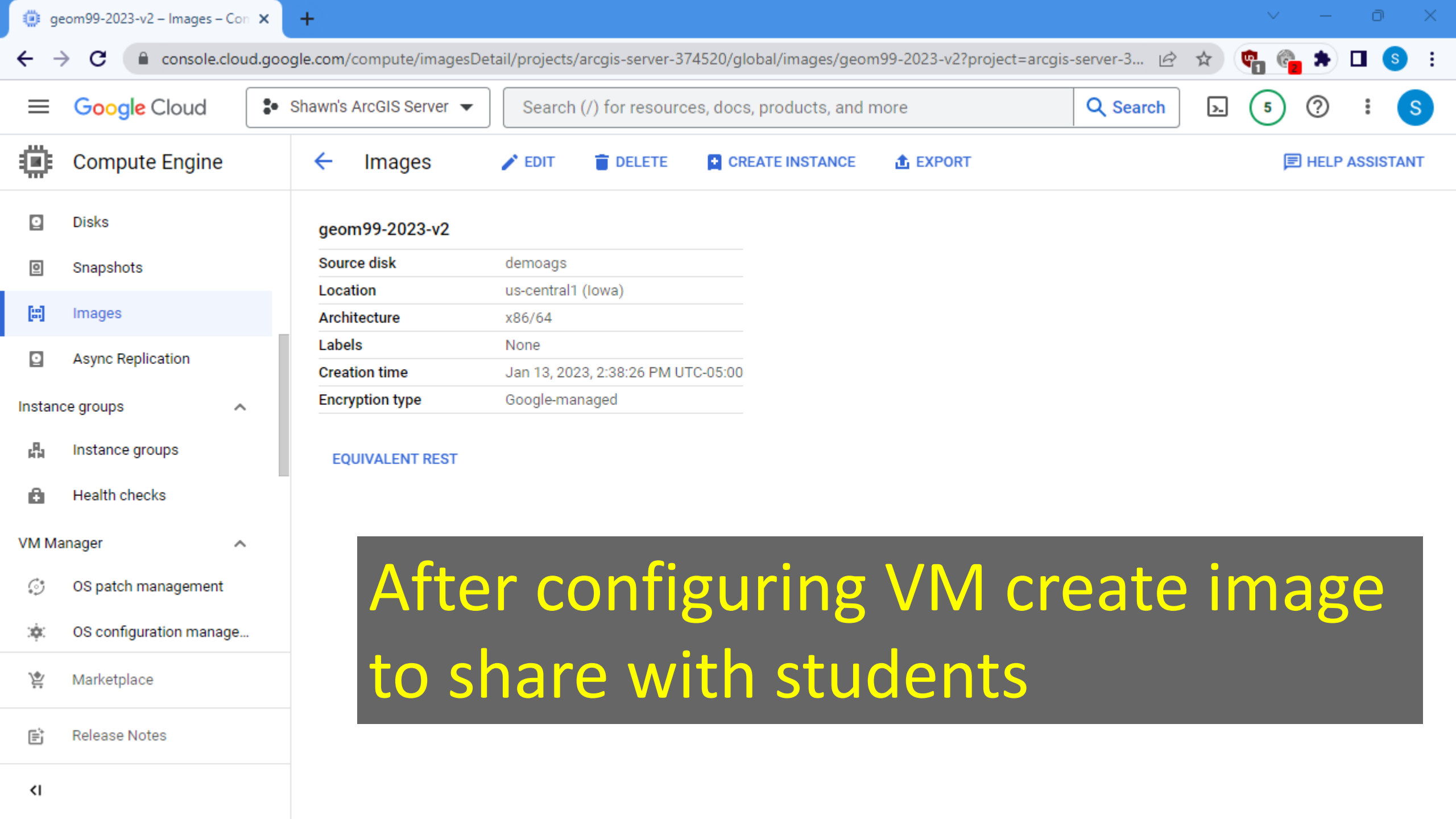
College Computing Policy PDF

ArcGIS Server Manager link

ArcGIS Services Directory (REST) link

Lab Exercise Shapefile

Highly configured windows environment


geom99-2023-v2 – Images – Con
console.cloud.google.com/compute/imagesDetail/projects/arcgis-server-374520/global/images/geom99-2023-v2?project=arcgis-server-3...
Google Cloud
Shawn's ArcGIS Server
Search (/) for resources, docs, products, and more
Search
Compute Engine
Images
EDIT
DELETE
CREATE INSTANCE
EXPORT
HELP ASSISTANT
Disks
Snapshots
Images
Async Replication
Instance groups
Instance groups
Health checks
VM Manager
OS patch management
OS configuration manage...
Marketplace
Release Notes
geom99-2023-v2
Source disk demoags
Location us-central1 (Iowa)
Architecture x86/64
Labels None
Creation time Jan 13, 2023, 2:38:26 PM UTC-05:00
Encryption type Google-managed
EQUIVALENT REST
After configuring VM create image to share with students

Fleming - Use Compute Images

console.cloud.google.com/iam-admin/roles/details/projects<arcgis-server-374520<roles<fleminglistvms?project=arcgis-server-374520

Google Cloud | Shawn's ArcGIS Server | Search (/) for resources, docs, products, and more | Search

IAM & Admin

- Service Accounts
- Workload Identity Federat...
- Labels
- Tags
- Settings
- Privacy & Security
- Identity-Aware Proxy
- Roles
- Audit Logs
- Essential Contacts
- Manage Resources
- Release Notes

Fleming - Use Compute Images | + EDIT ROLE | CREATE FROM ROLE | HELP ASSISTANT

ID	projects/arcgis-server-374520/roles/fleminglistvms
Role launch stage	General Availability

Description

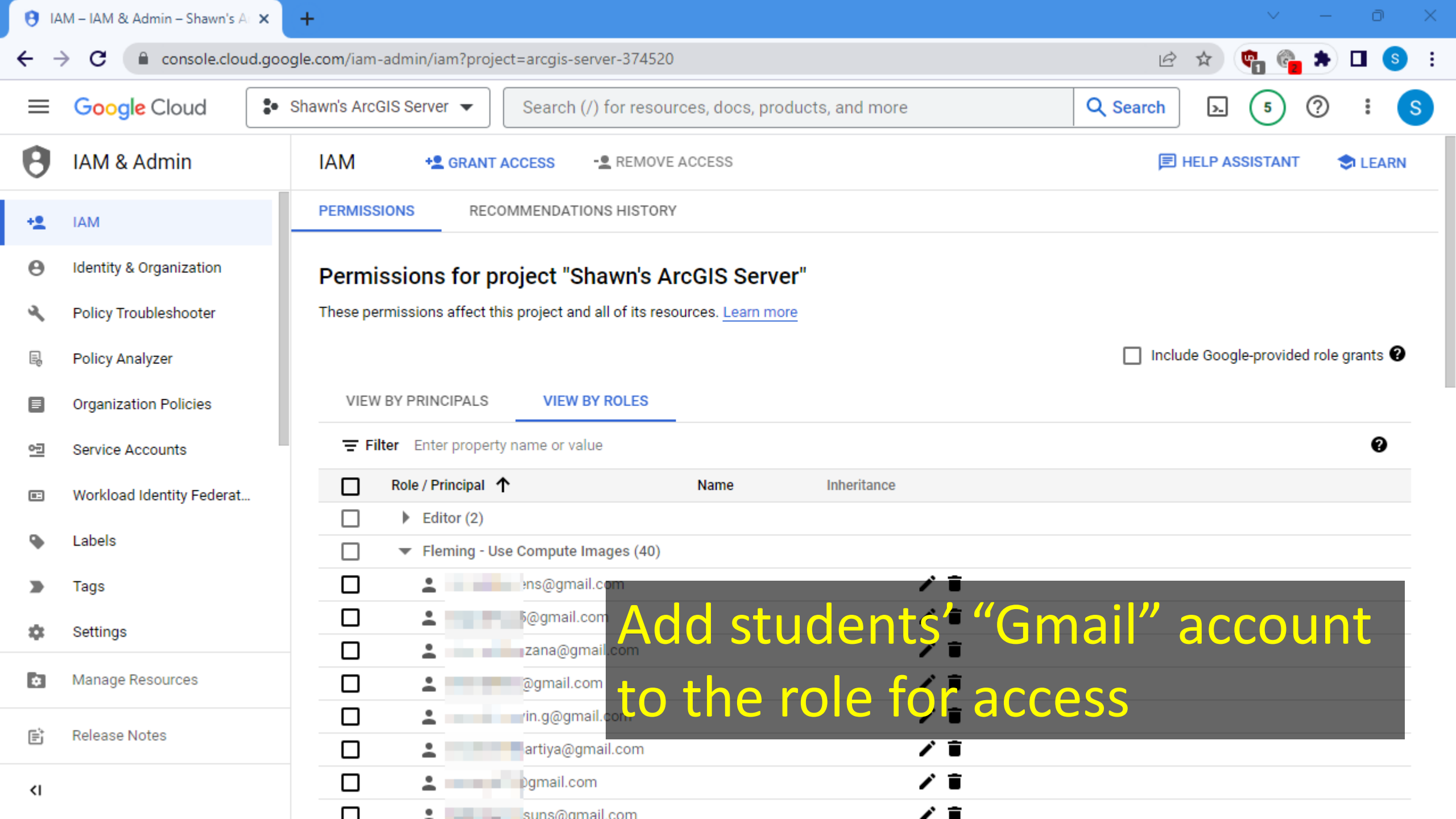
Allows access to compute engine images to deploy into their own account

10 assigned permissions

compute.images.get
compute.images.getFromFamily
compute.images.list
compute.images.useReadOnly
resourcemanager.projects.get
serviceusage.services.get
serviceusage.services.list
storage.buckets.get
storage.objects.get
storage.objects.list

Some permissions might be associated with and checked by third parties. These permissions contain the third party's service and domain name in the permission prefix.

Create a Security Role to allow only Students to “see” configured Image


IAM – IAM & Admin – Shawn's A
console.cloud.google.com/iam-admin/iam?project=arcgis-server-374520
Google Cloud
Shawn's ArcGIS Server
Search (/) for resources, docs, products, and more
Search
IAM & Admin
IAM
GRANT ACCESS
REMOVE ACCESS
HELP ASSISTANT
LEARN
IAM
Identity & Organization
Policy Troubleshooter
Policy Analyzer
Organization Policies
Service Accounts
Workload Identity Federat...
Labels
Tags
Settings
Manage Resources
Release Notes
PERMISSIONS
RECOMMENDATIONS HISTORY
Permissions for project "Shawn's ArcGIS Server"
These permissions affect this project and all of its resources. Learn more
Include Google-provided role grants
VIEW BY PRINCIPALS
VIEW BY ROLES
Filter
Enter property name or value
Role / Principal
Name
Inheritance
Editor (2)
Fleming - Use Compute Images (40)
Add students' "Gmail" account to the role for access

Instructions PDF

Geom99-ArcGIS Server on GCP
Creating an image and logging in on Google Cloud Platform

Fleming GIS

Contents

Getting GCP Credit and Creating your First Project 2
Create a GCP Project (if needed) 2
Run a GCP Virtual Machine to test ArcGIS Server 3
Part 1: Setting a GCP Firewall Rule to allow ArcGIS Server Management Ports 13
Part 2: Setting a Windows Firewall Rule to allow ArcGIS Server Management Ports 14
Starting an existing/shut down Virtual Machine on GCP 17
Remote Desktop to a Virtual Machine Desktop 18
Turning off the VM when not in use 23
Turn off using a Windows Desktop Console 23
Turning off using the GCP Compute Engine Console (recommended method) 25
Open ArcGIS Server REST Service directory with self-signed certificate 26

Students are provided with step-by-step instructions

Week 7 and 8: ArcGIS Server on Google Cloud Platform - Google Chrome

fleming.desire2learn.com/d2l/common/popup/popup.d2l?ou=187556&queryString=&footerMsg=&buttonOffset=0&popBodySrc=/d2l/lms/checklist/previewchecklist.d2l%3Fou%3D187556%26chec...

Week 7 and 8: ArcGIS Server on Google Cloud Platform

Start your own ArcGIS Server on GCP

Start Start using your own ArcGIS Server hosted on the Google Cloud Platform (GCP). You first will request a $50 academic credit from google using the instructions which should cover all your use here.

- Video 1: Requesting credits (should have been completed last week): https://youtu.be/[illegible]
- Video 2: Creating and using the provided image: https://youtu.be/[illegible]
- Video 3: Using DuckDNS to create free DNS entry pointing to temporary IP address: https://youtu.be/[illegible]
- Video 4: Optional step to obtain SSL certificate, see recommended section of checklist!

Key Details

VM Image Username and Password Defaults:

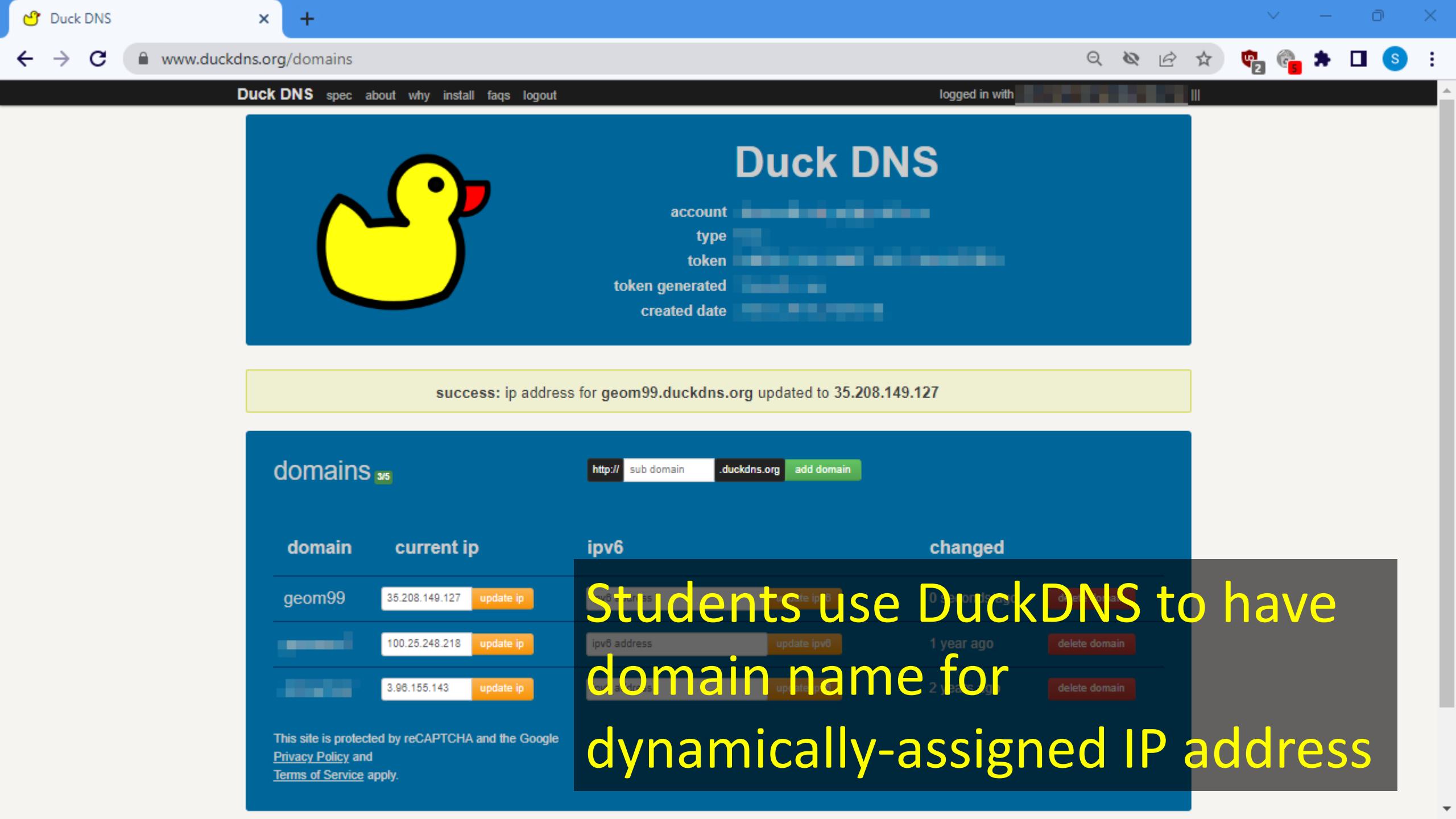
Windows Username: `student`
Windows Password: *reset using instructions provided*
ArcGIS Server Username: `siteadmin`
ArcGIS Server Password: [illegible]

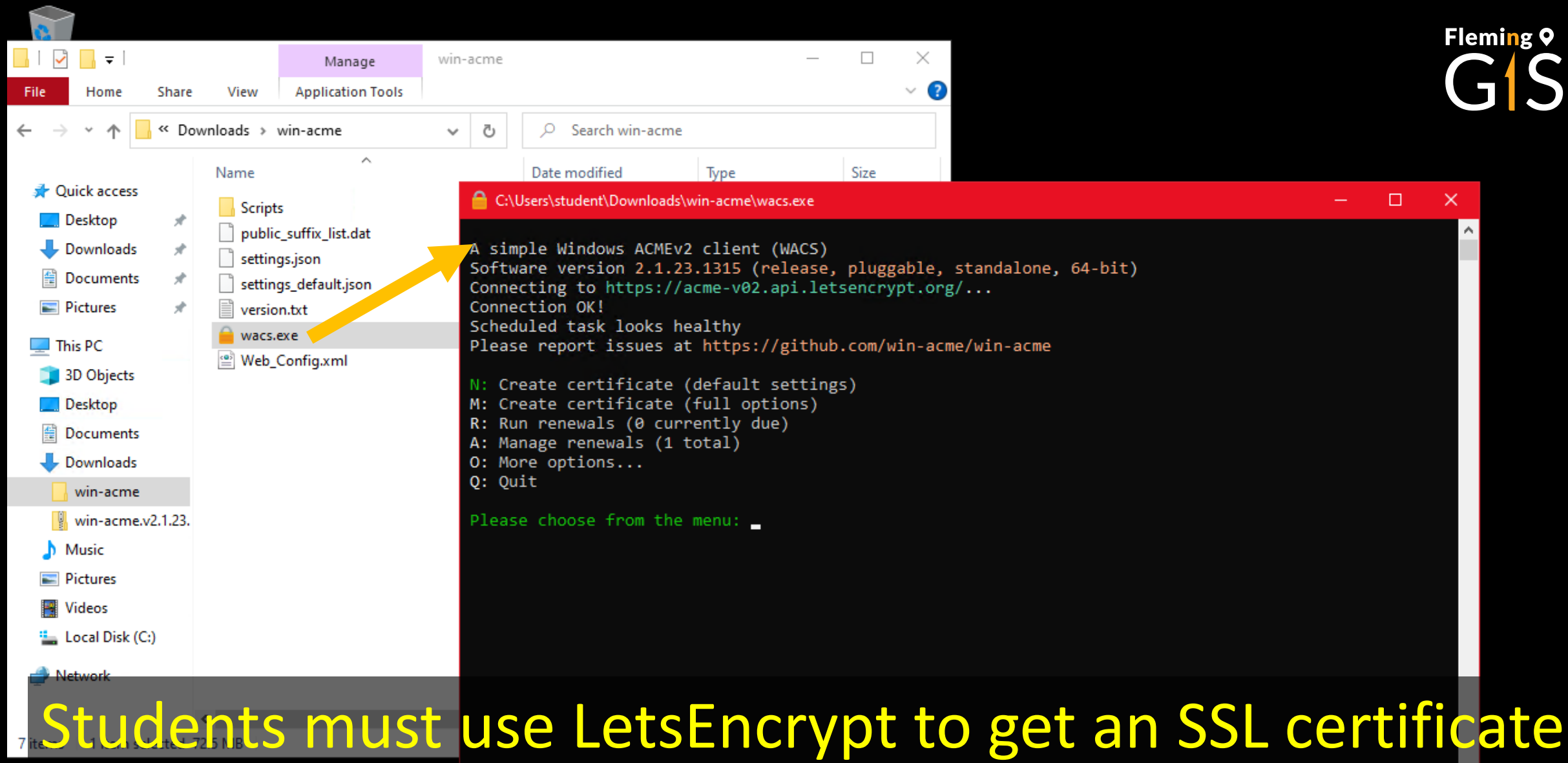
It's running, now what?

Now that it is running "play" with your VM, testing out different items. Just remember, once your VM is shut down it will no longer respond to requests (since it isn't listening when off!). Continue with the checklists here, as they require this service to be running to complete.

Close

Students are also provided an overview In a LMS checklist, walk-through videos and support during scheduled labs


Duck DNS
www.duckdns.org/domains
Duck DNS spec about why install faqs logout
logged in with
Duck DNS
account
type
token
token generated
created date
success: ip address for geom99.duckdns.org updated to 35.208.149.127
domains 3/5
http:// sub domain .duckdns.org add domain
domain current ip ipv6 changed
geom99 35.208.149.127 update ip
100.25.248.218 update ip
3.96.155.143 update ip
ipv6 address update ipv6
1 year ago delete domain
delete domain
This site is protected by reCAPTCHA and the Google Privacy Policy and Terms of Service apply.
Students use DuckDNS to have domain name for dynamically-assigned IP address



Students must use LetsEncrypt to get an SSL certificate

How to video: https://youtu.be/V2o07DMyNkc

What Now?

- Students have their own fully-functioning live ArcGIS Server to explore
- They can publish various types of data to the server
- Use these published services in ArcGIS Online, explore all functionality and options in the publishing and maintenance
- They also experience the versatility of cloud enterprise architecture

Publishing to ArcGIS Server Walkthrough:
https://youtu.be/nIRlZN9ECwY

Fleming GIS

Thank You

Resources and Links in presentation: https://github.com/shawnmflemingc/faq/esriwebgis.md
Shortened URL: https://arcg.is/41jg6rj

Email: shawn.morgan@flemingcollege.ca

LinkedIn: https://www.linkedin.com/in/smmorgan/

FLEMING

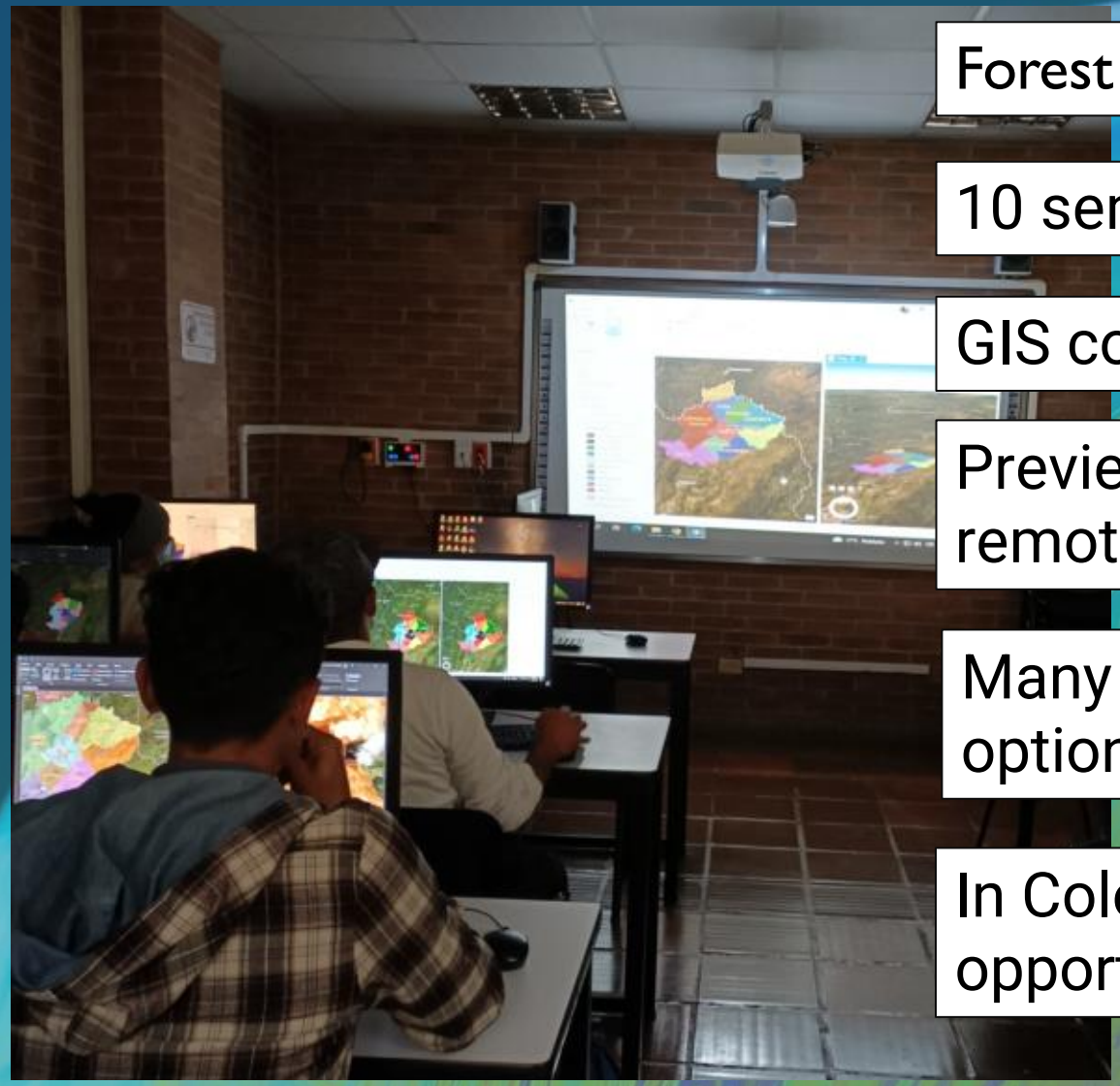
Rodolfo Franco

District University in Bogotá, Colombia

SOME OF MY GIS CLASS ONLINE RESOURCES

Rodolfo Franco
GIS Professor
District University
Bogotá, Colombia

MY GIS CLASS CONTEXT



Forest engineering career

10 semesters career (5 years)

GIS course is in the fourth semester

Preview: cartography and remote sensing

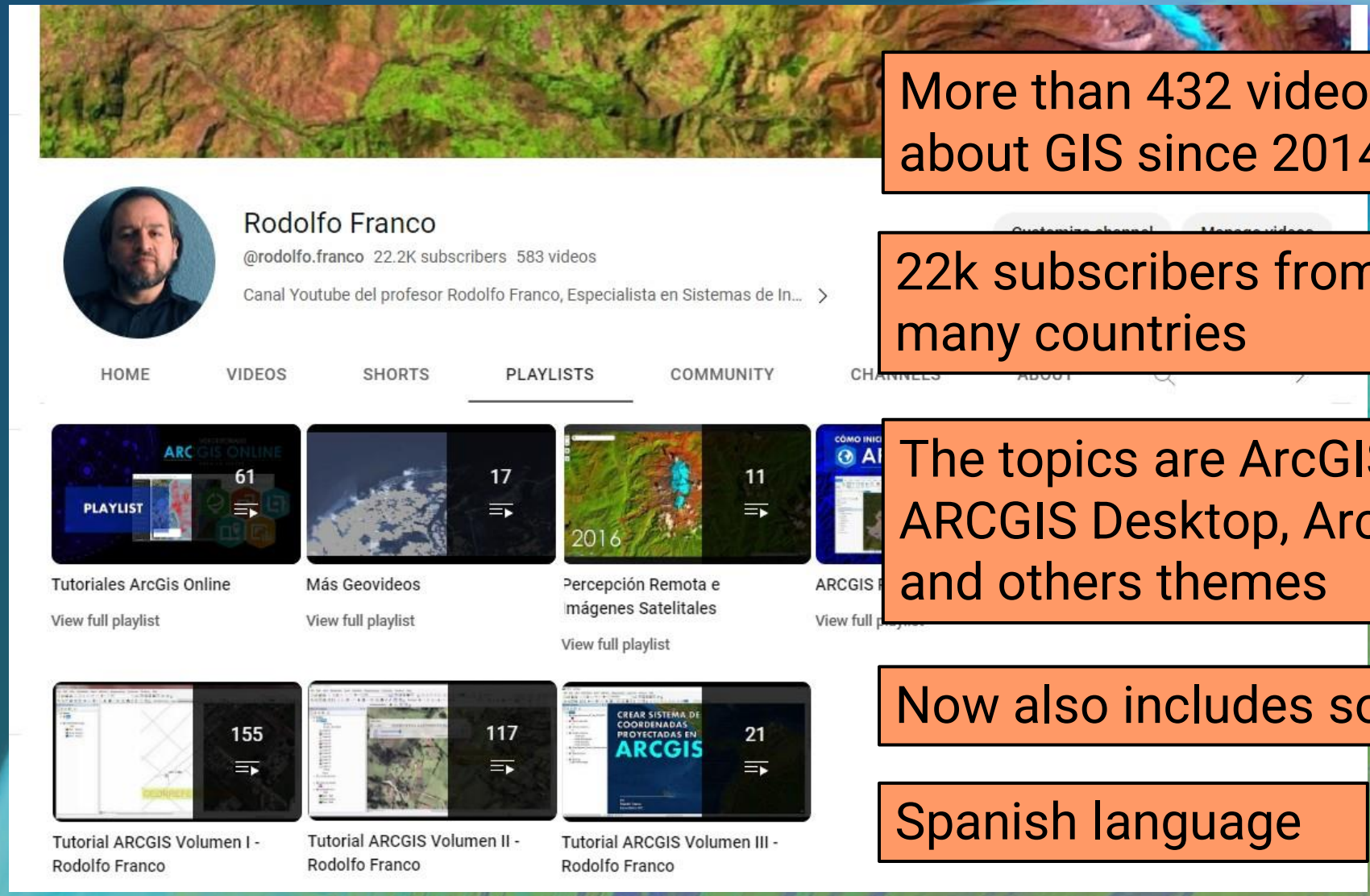
Many years ago this class was optional, now it’s required

In Colombia there are good job opportunities in GIS

MY MAIN ONLINE RESOURCES TO SUPPORT MY CLASS ARE:

- A YOU TUBE CHANNEL
- A WEB PAGE
- A STUDENT'S GALLERY
- WEBMAPS AND INSTANT APPS
- OTHER ESRI SERVICES

A YOUTUBE CHANNEL



More than 432 videos about GIS since 2014

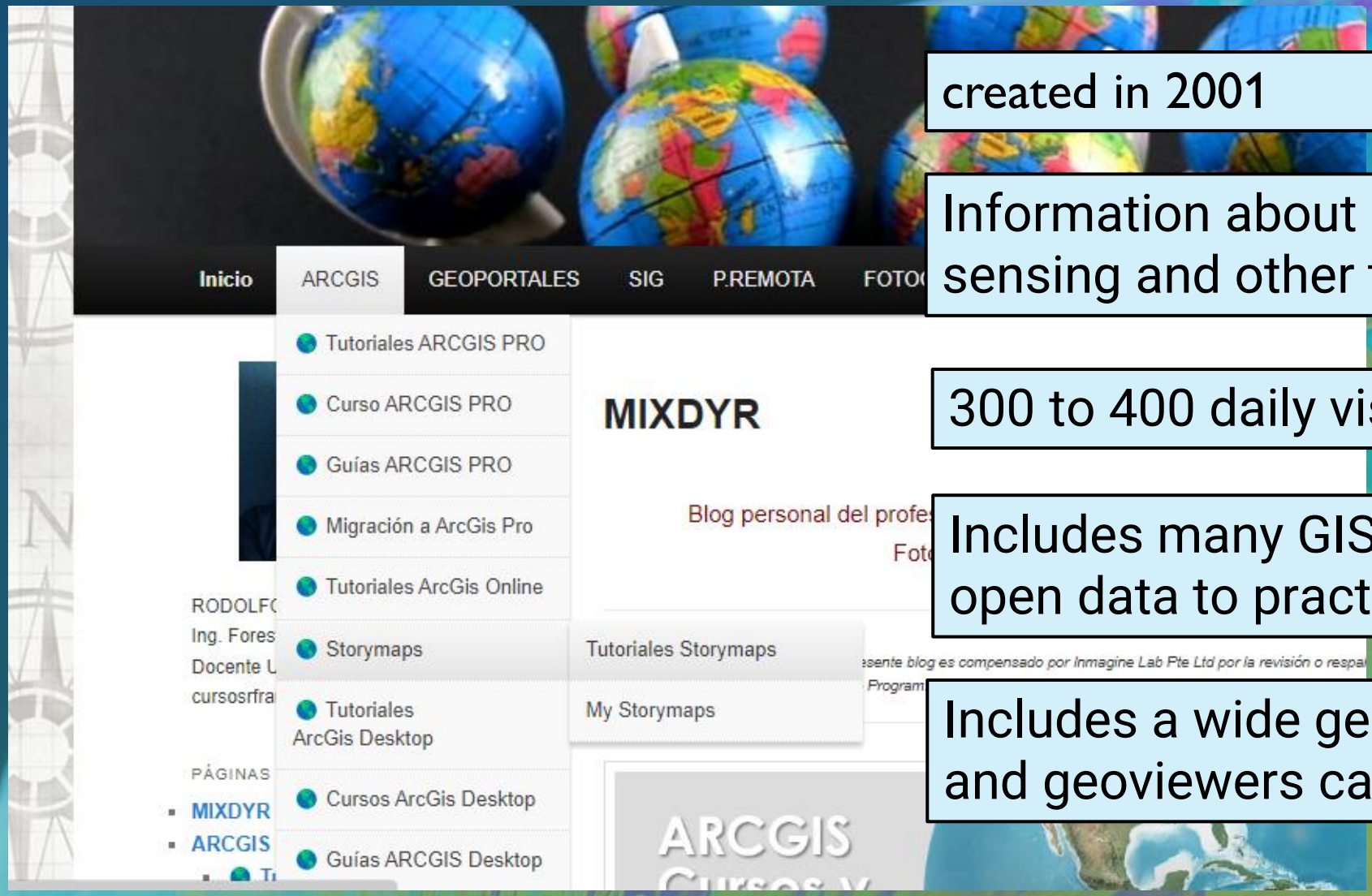
22k subscribers from many countries

The topics are ArcGIS Pro, ARCGIS Desktop, Arcgis Online and others themes

Now also includes some shorts

Spanish language

A WEBPAGE



created in 2001

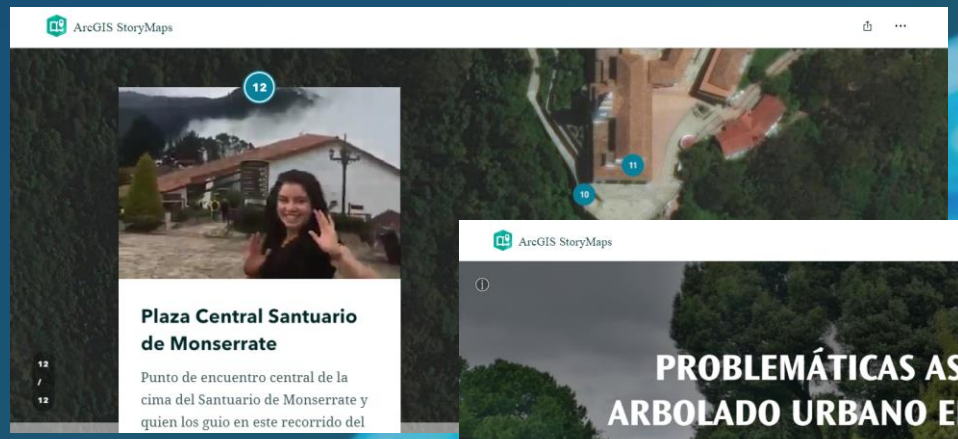
Information about GIS, Remote sensing and other topics

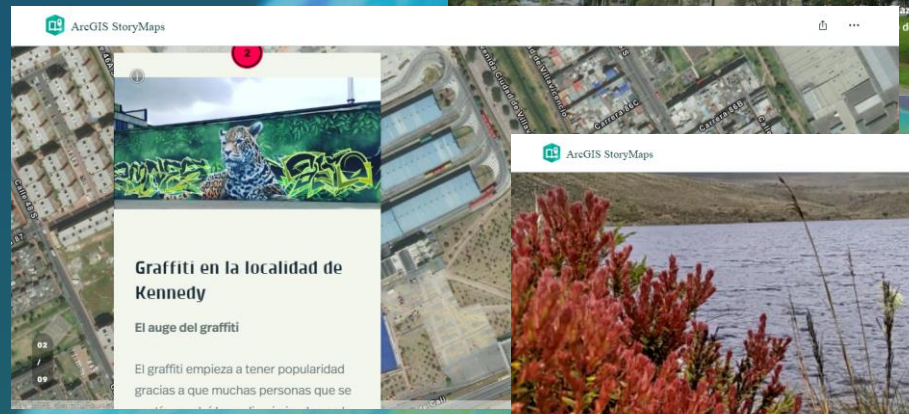
300 to 400 daily visits

Includes many GIS open data to practice

Includes a wide geoportal and geoviewers catalog

A STUDENT'S STORYMAPS GALLERY





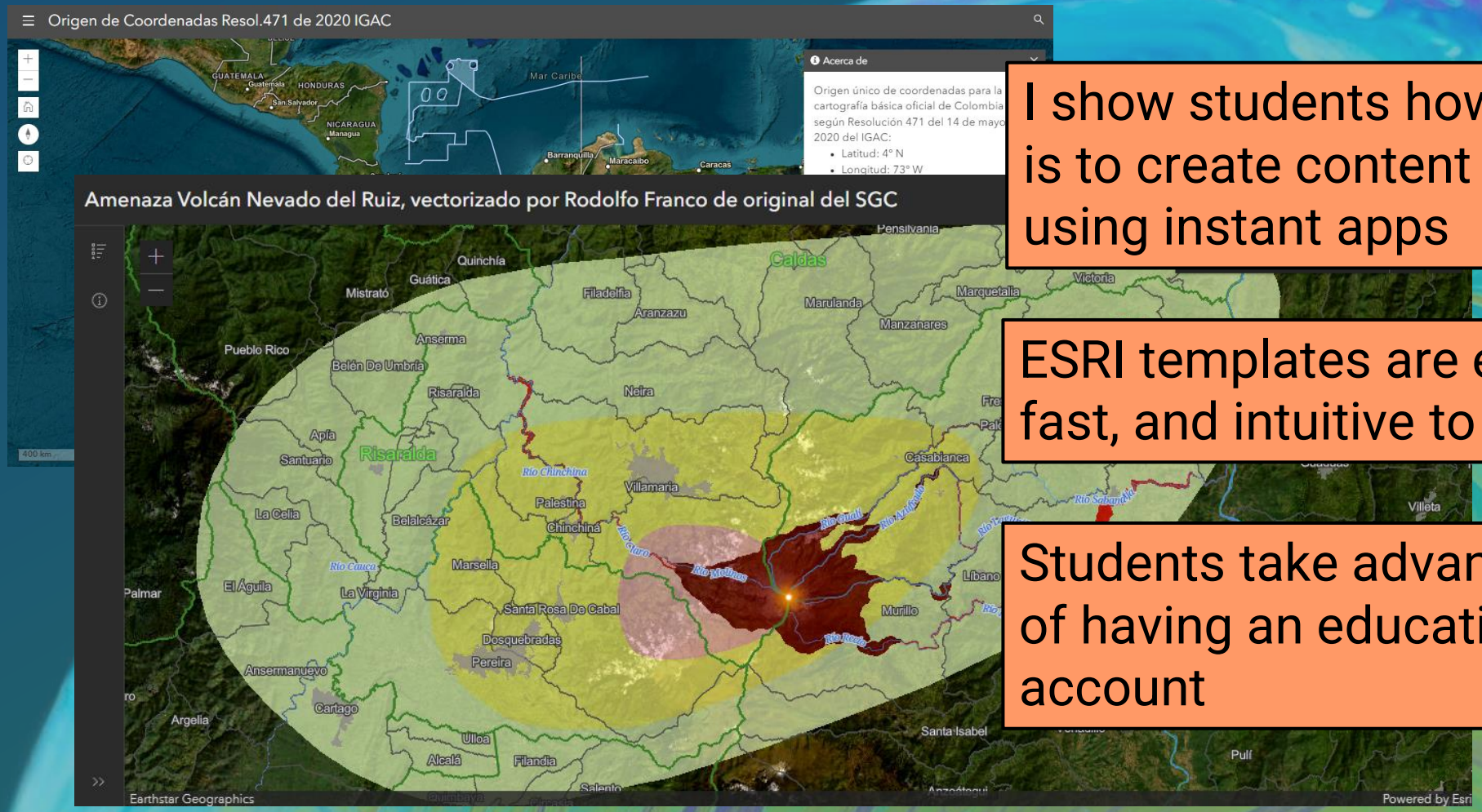
It's a gallery is for selected works

The purpose is to motivate the use of storymaps

Students choose free topics as their hobbies and skills

it's also a media to share works in another courses

WEBMAPS AND INSTANT APPS

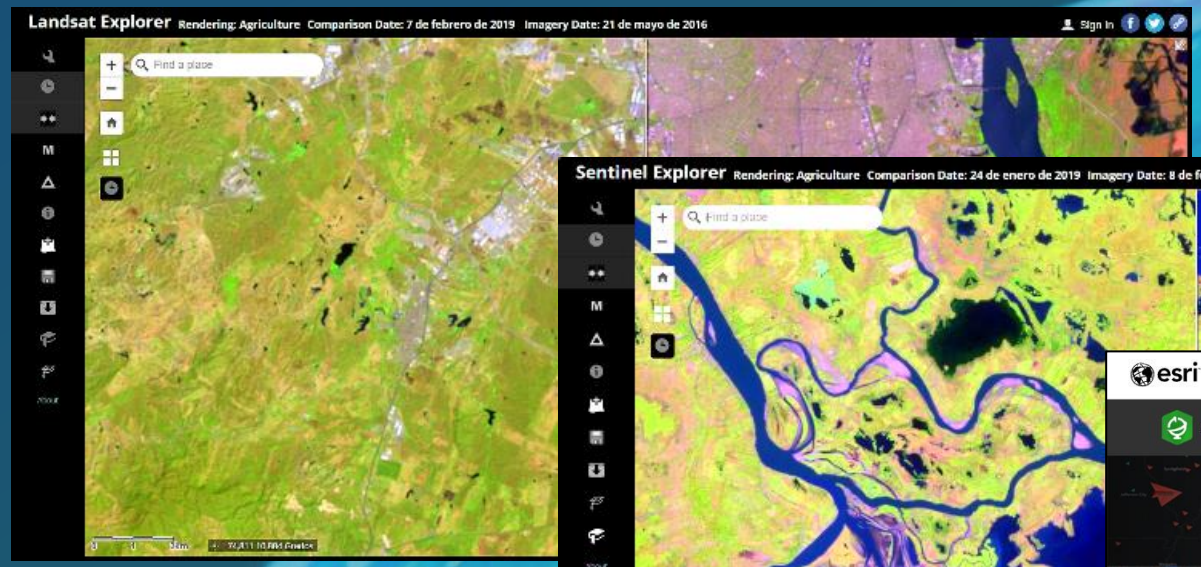


I show students how easy it is to create content online using instant apps

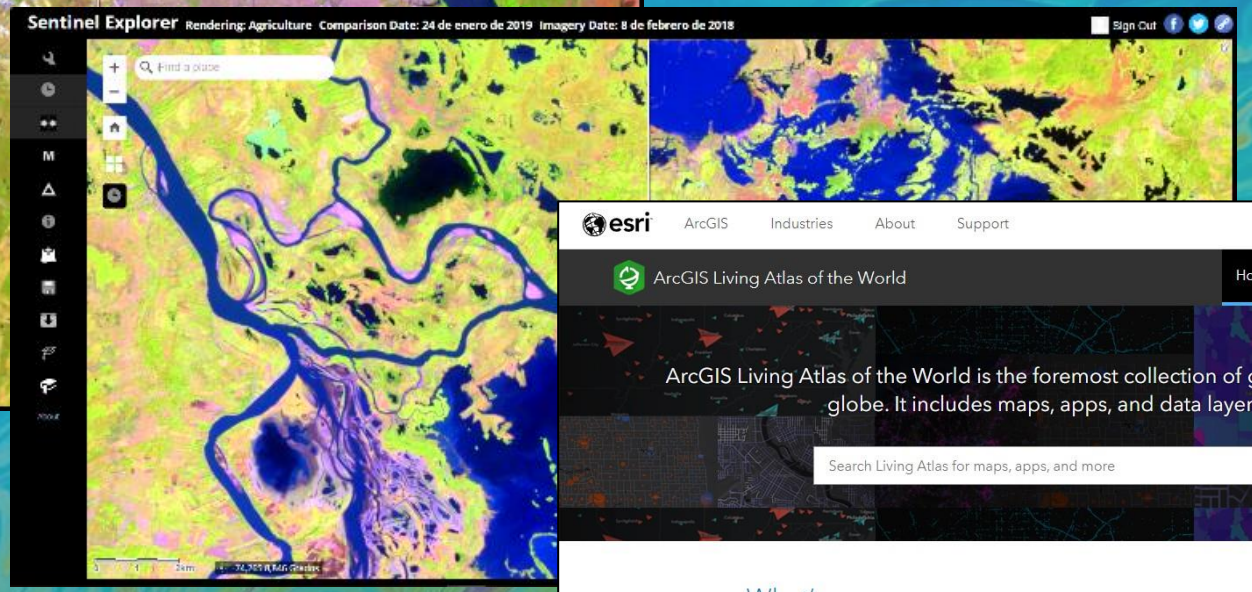
ESRI templates are easy, fast, and intuitive to use

Students take advantage of having an educational account

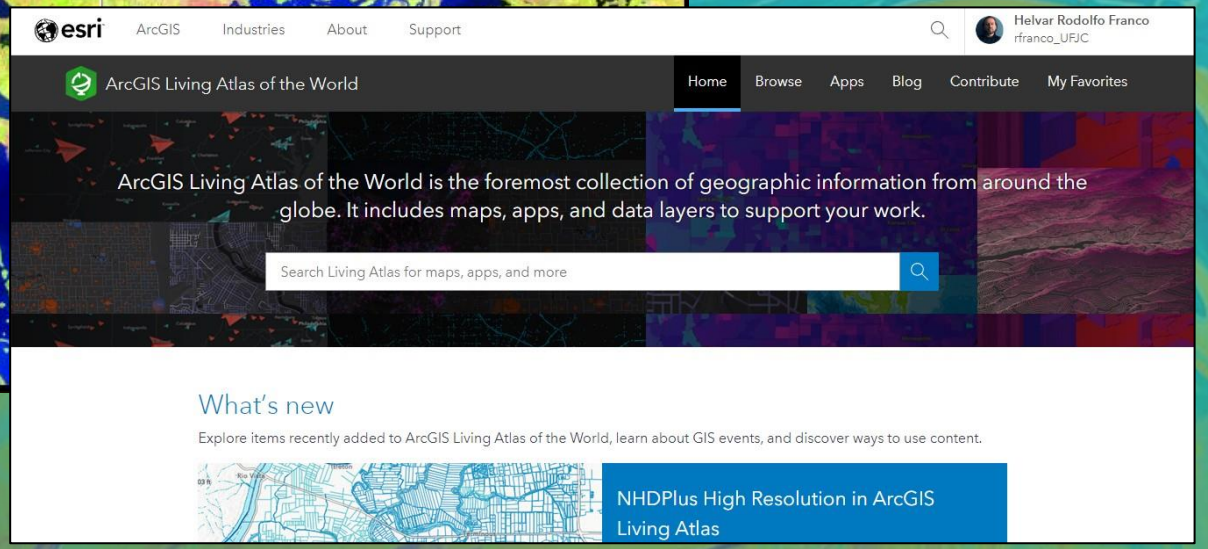
ANOTHER ESRI ONLINE RESOURCES



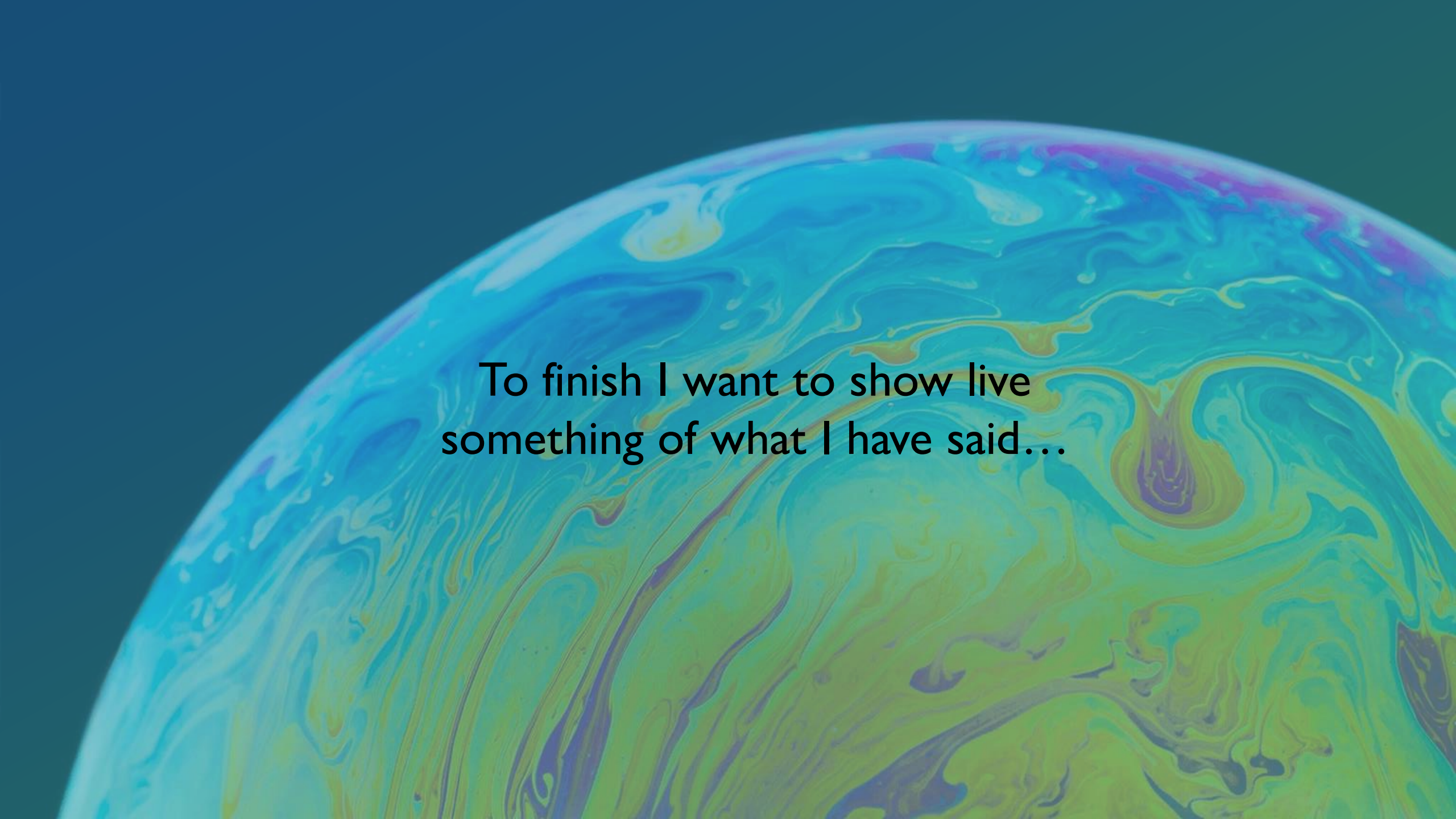
LANDSAT EXPLORER



SENTINEL EXPLORER



LIVING ATLAS OF THE WORLD


To finish I want to show live
something of what I have said…

CONTACT

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rfranco@udistrital.edu.co

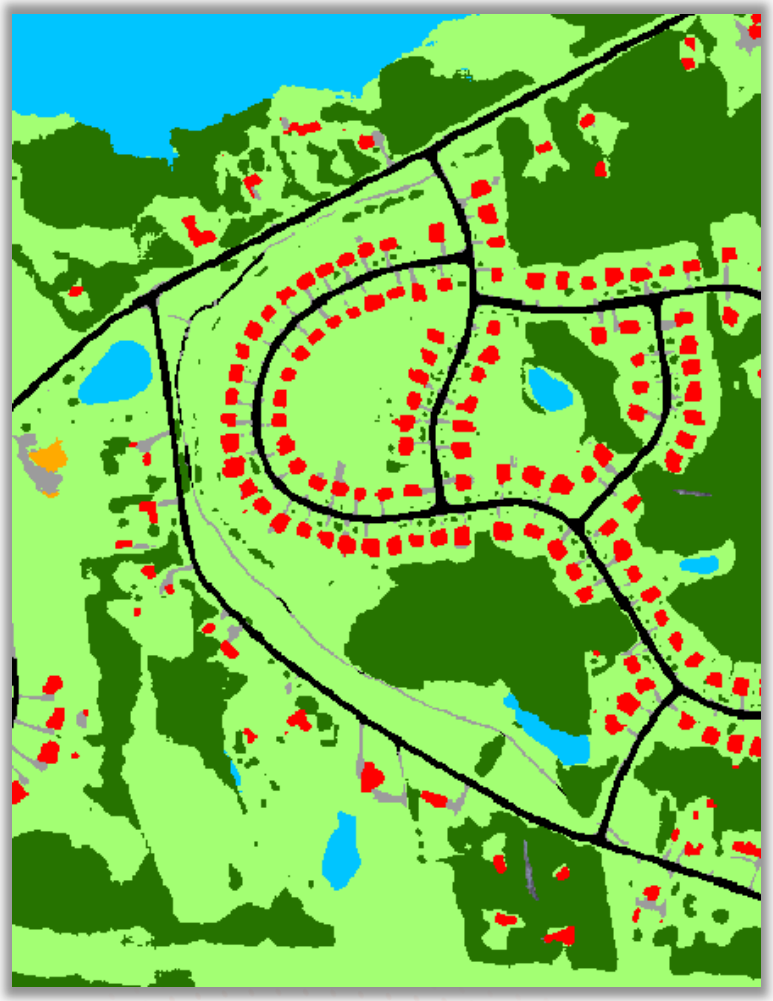
https://mixdyr.wordpress.com

https://www.youtube.com/user/mixdyr/videos

THANKS

Resources

- Modern GIS Tutorial Series
- Esri Academy
  - Labs,
- Esri Press
  - GIS 20
  - Getting to Know Web GIS
  - GIS Tutorial for ArcGIS Pro
  - Spatial Statistics Illustrated
- Esri Community – blogs, tips, tricks, etc.
- Higher Ed Chat – monthly webinars
- EdSummit / UC



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Thanks so much!

Any Questions?

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baldwinbrian

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