PRISM SpatioTemporal ETL
(Lab 2 - Part 1.3)

GIS 5571: ArcGIS I
University of Minnesota

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Downloading PRISM Data (Part 1.3.A)

In [1]:
```
# Import Libraries
import requests
import os
from zipfile import ZipFile
```

In [2]:
```
# Setting File Paths for Outputs
zip_path = os.path.join(os.getcwd(), "data/PRISM")
file_name = os.path.join(zip_path, "PRISM_ppt_30yr_normal_4kmM3_all_bil.zip")

# Check if Path Exists
if os.path.exists(zip_path) == False:
    os.mkdir(zip_path)

# Send Request
base_url = "https://ftp.prism.oregonstate.edu/normals_4km/ppt/PRISM_ppt_30yr_normal_4kmM3_all_bil.zip"

resp = requests.get(base_url)

# Write Response to ZIP File
if os.path.exists(file_name) == False:
    with open(file_name, "wb") as z:
        z.write(resp.content)
else:
    print("ZIP file already exists.")

# Unzipping File
if os.path.exists(file_name[:-3]) == False:
    with ZipFile(file_name, "r") as zipped:
        zipped.extractall(file_name[:-3])
else:
    print("File has already been unzipped.")
```

```
ZIP file already exists.
File has already been unzipped.
```

Converting to Spacetime Cube (Part 1.3.B)

In [3]:
```
# Create Empty Mosaic
sr = arcpy.SpatialReference(3857)
empty_mosaic = arcpy.management.CreateMosaicDataset(r"C:\gitFiles\GIS5571\Lab2\Lab2_APRX\Lab2_APRX.gdb", "prism_mosaic", sr)
```

In [4]:
```
# Add Rasters to Mosaic
mosaic = arcpy.management.AddRastersToMosaicDataset(empty_mosaic, "Raster Dataset", r"C:\gitFiles\GIS5571\Lab2\data\PRISM\PRISM_ppt_30yr_normal_4kmM3_all_bil")
```

In [5]:
```
# Add Necessary Fields
arcpy.management.CalculateField(r"prism_mosaic\Footprint", "Variable", '"Precip"', "PYTHON3", '', "TEXT", "NO_ENFORCE_DOMAINS")
arcpy.management.CalculateField(r"prism_mosaic\Footprint", "Timestamp", 'DateAdd(Date(2022, 0, 1), $feature.OBJECTID-1, "month")', "ARCADE", '', "DATE", "NO_ENFORCE_DOM
```

Out[5]:
Messages

In [6]:
```
# Build Multidimensional Info
arcpy.md.BuildMultidimensionalInfo("prism_mosaic", "Variable", "Timestamp # #", None, "NO_DELETE_MULTIDIMENSIONAL_INFO")
```

Out[6]:
Messages

In [7]:
```
# Create Multidimensional Raster
md = arcpy.md.MakeMultidimensionalRasterLayer("prism_mosaic", r"C:\gitFiles\GIS5571\Lab2\data\PRISM\prism_md", ["Precip"], "ALL")
```

In [8]:
```
# Create Space Time Cube
stc = arcpy.stpm.CreateSpaceTimeCubeMDRasterLayer(md, r"C:\gitFiles\GIS5571\Lab2\data\PRISM\prism_stc.nc", "ZEROS")
```