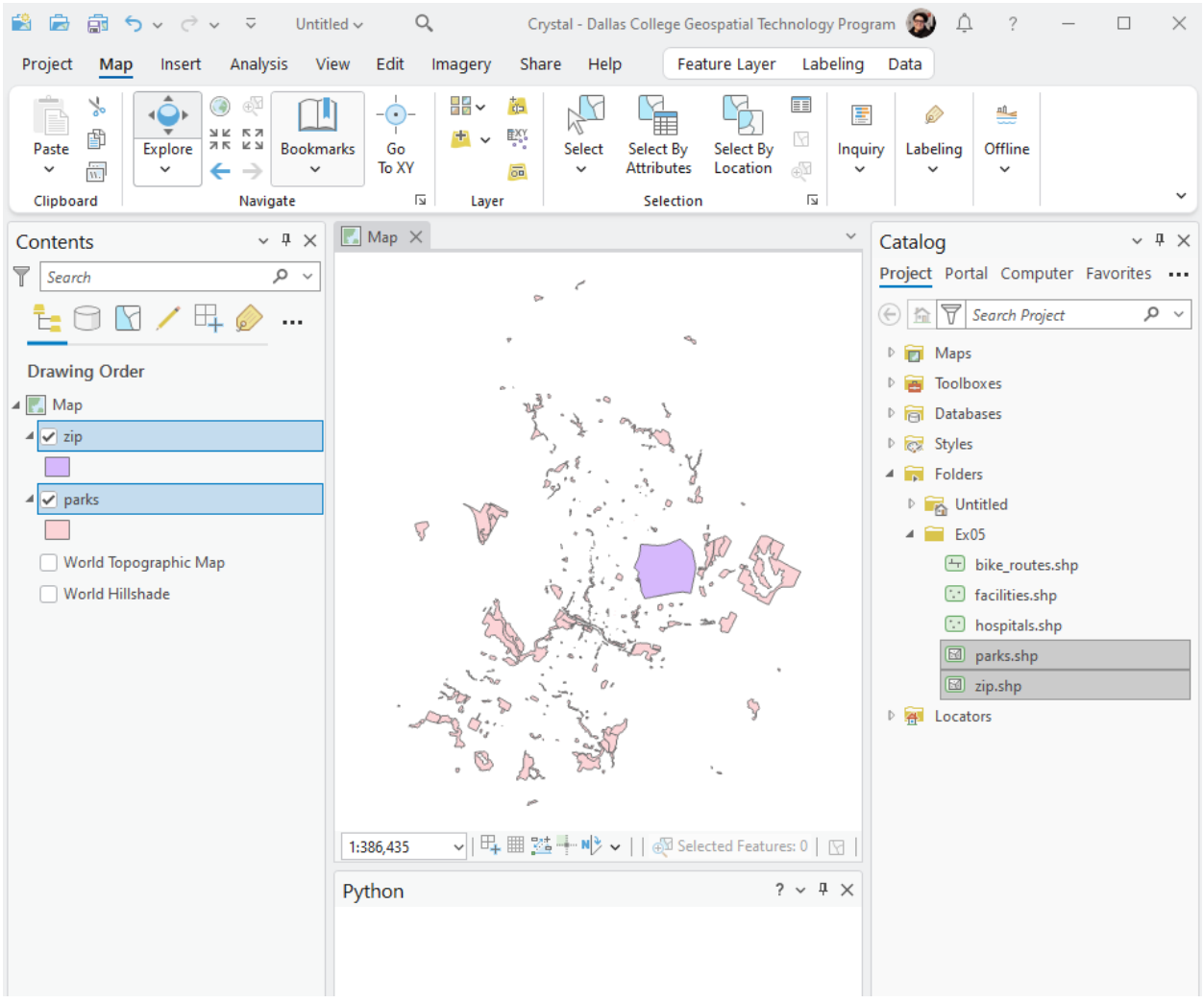
Week 6 Chapter 5

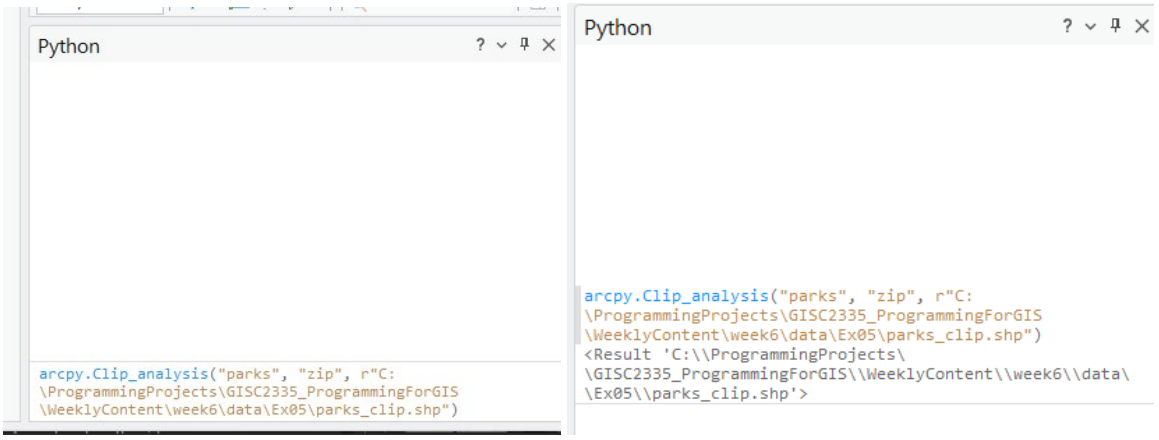
Lab materials saved on GitHub in GISC2335_ProgrammingForGIS/WeeklyContent/week6

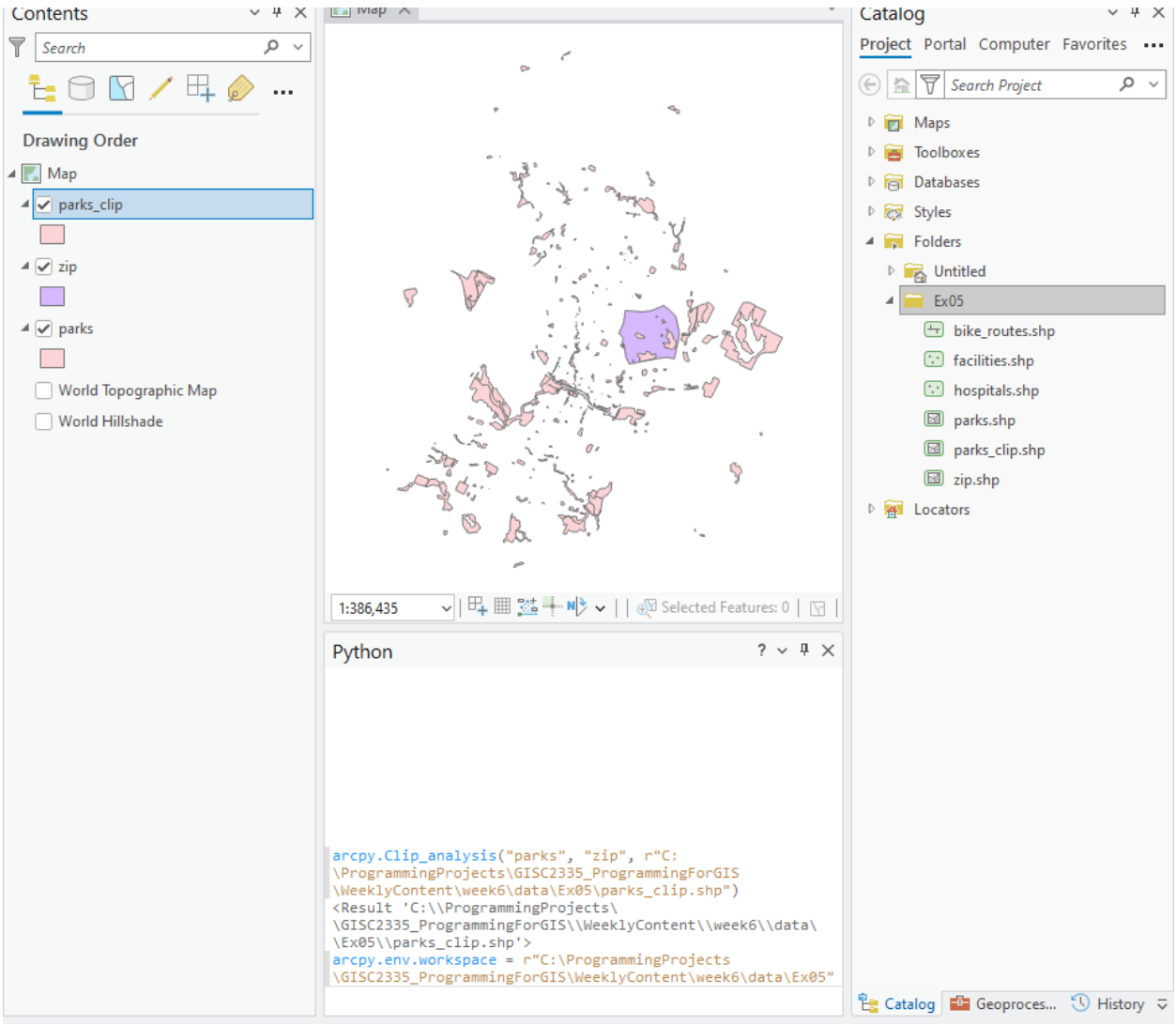
https://github.com/crystaljhollis/DallasCollege_Portfolio/tree/main/GISC2335_ProgrammingForGIS/WeeklyContent/week6

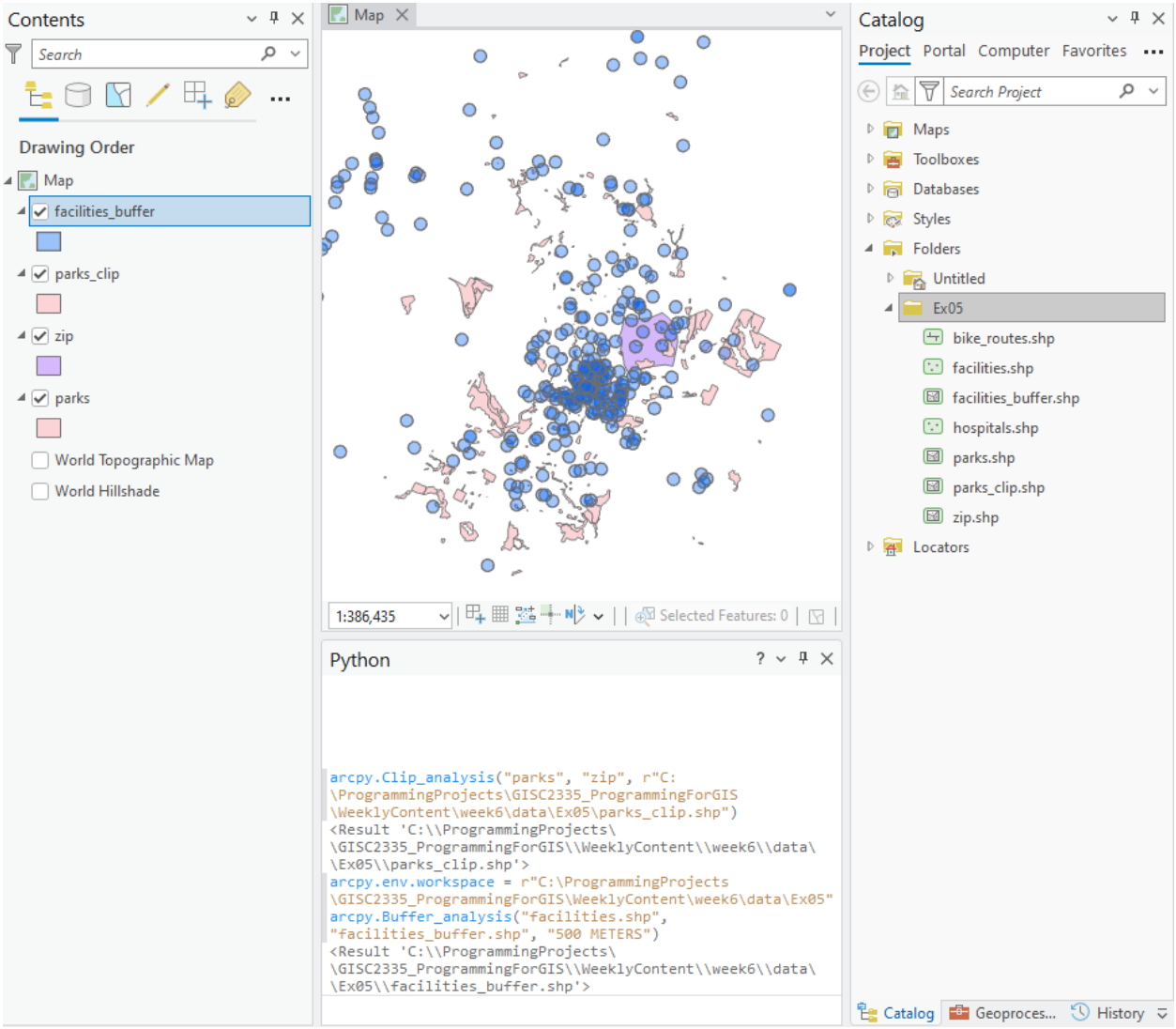
Lab 5: GEOPROCESSING USING PYTHON

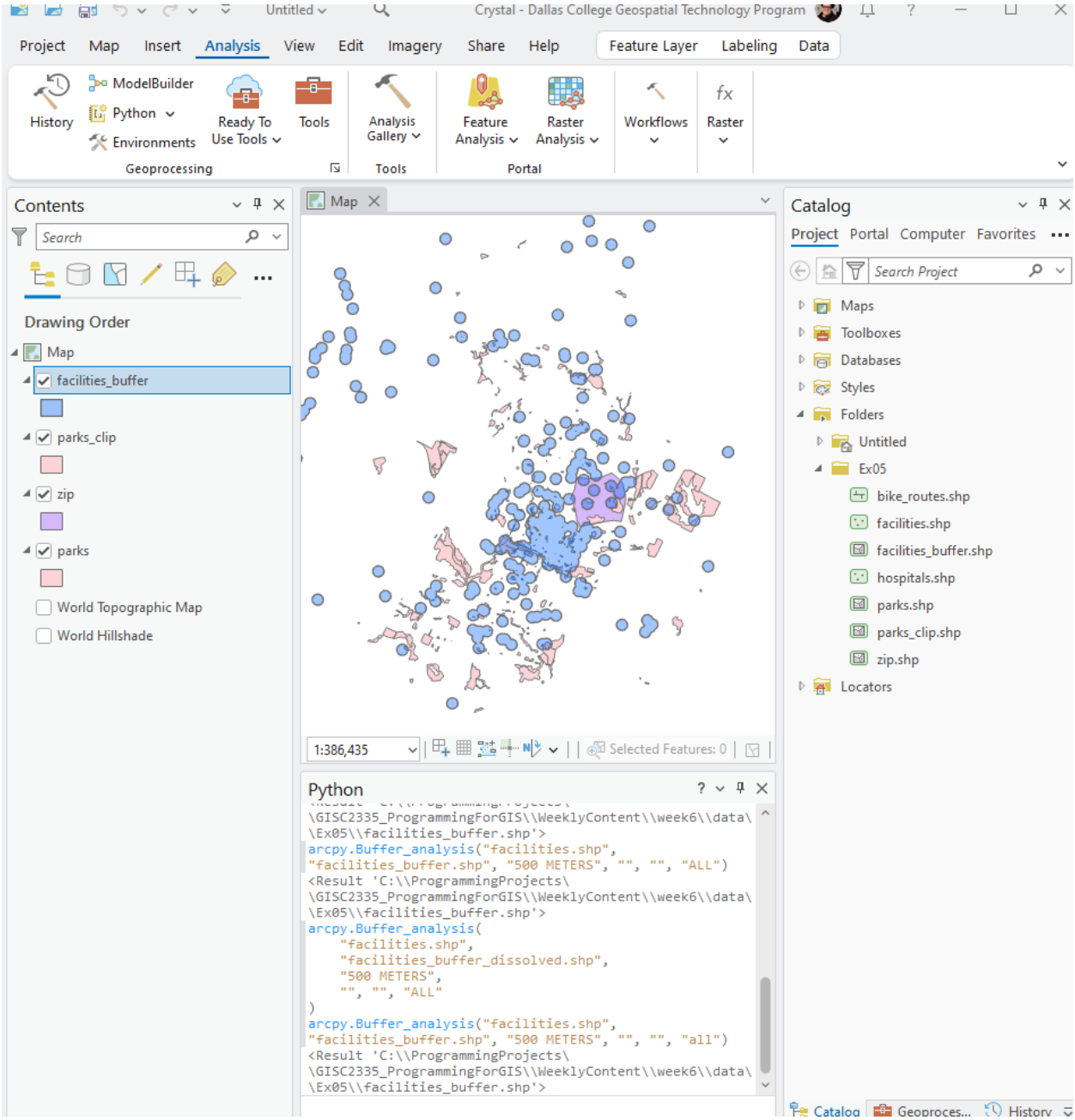
Use tools

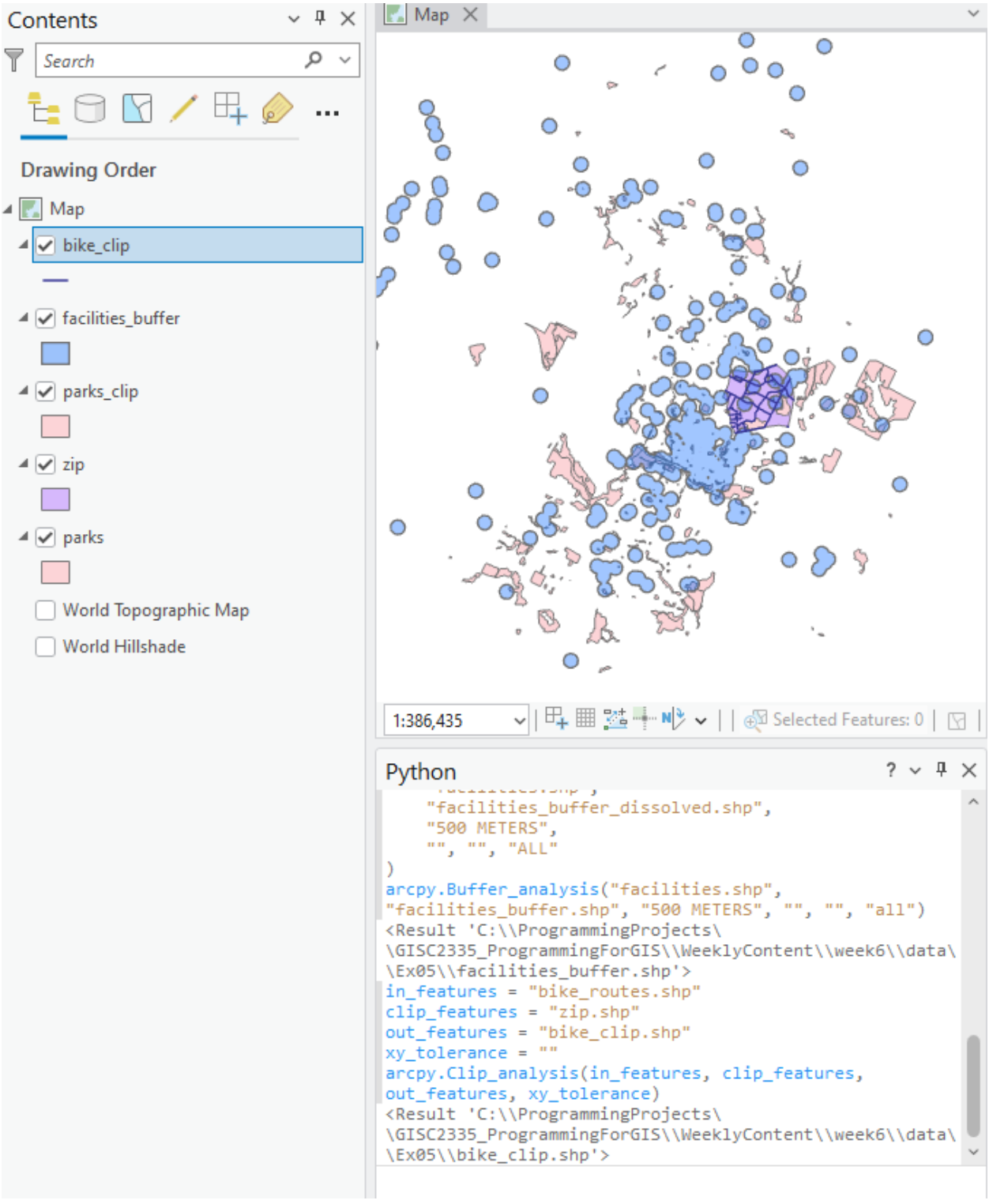



Python
arcpy.Clip_analysis("parks", "zip", r"C:
\ProgrammingProjects\GISC2335_ProgrammingForGIS
\WeeklyContent\week6\data\Ex05\parks_clip.shp")
Python
arcpy.Clip_analysis("parks", "zip", r"C:
\ProgrammingProjects\GISC2335_ProgrammingForGIS
\WeeklyContent\week6\data\Ex05\parks_clip.shp")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\parks_clip.shp'>

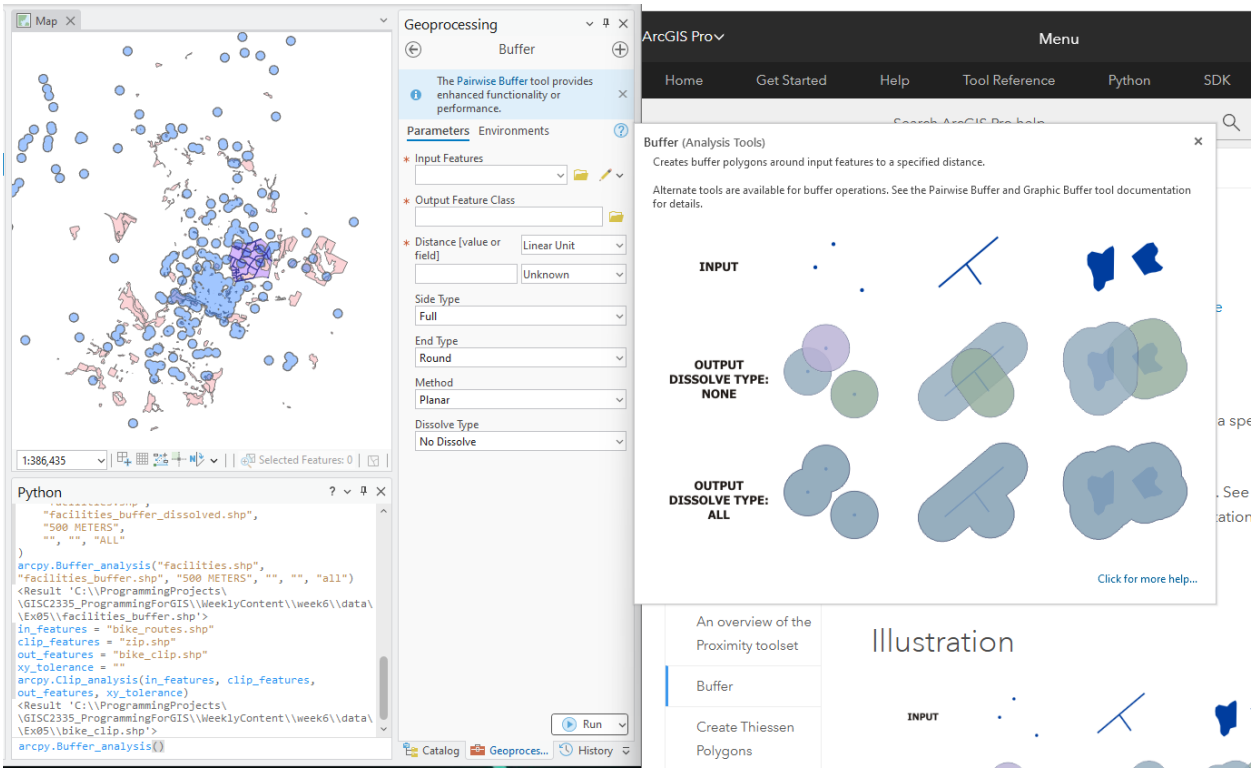

Contents
Search
Drawing Order
Map
parks_clip
zip
parks
World Topographic Map
World Hillshade
1:386,435
Selected Features: 0
Python
arcpy.Clip_analysis("parks", "zip", r"C:
\ProgrammingProjects\GISC2335_ProgrammingForGIS
\WeeklyContent\week6\data\Ex05\parks_clip.shp")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\parks_clip.shp'>
arcpy.env.workspace = r"C:\ProgrammingProjects
\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05"
Catalog
Project
Portal
Computer
Favorites
Search Project
Maps
Toolboxes
Databases
Styles
Folders
Untitled
Ex05
bike_routes.shp
facilities.shp
hospitals.shp
parks.shp
parks_clip.shp
zip.shp
Locators
Catalog
Geoproces...
History


Contents
Search
Drawing Order
Map
facilities_buffer
parks_clip
zip
parks
World Topographic Map
World Hillshade
Map
1:386,435
Selected Features: 0
Python
arcpy.Clip_analysis("parks", "zip", r"C:
\ProgrammingProjects\GISC2335_ProgrammingForGIS
\WeeklyContent\week6\data\Ex05\parks_clip.shp")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\parks_clip.shp'>
arcpy.env.workspace = r"C:\ProgrammingProjects
\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05"
arcpy.Buffer_analysis("facilities.shp",
"facilities_buffer.shp", "500 METERS")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\facilities_buffer.shp'>
Catalog
Project
Portal
Computer
Favorites
Search Project
Maps
Toolboxes
Databases
Styles
Folders
Untitled
Ex05
bike_routes.shp
facilities.shp
facilities_buffer.shp
hospitals.shp
parks.shp
parks_clip.shp
zip.shp
Locators
Catalog
Geoproces...
History


Untitled
Crystal - Dallas College Geospatial Technology Program
Project
Map
Insert
Analysis
View
Edit
Imagery
Share
Help
Feature Layer
Labeling
Data
History
ModelBuilder
Python
Environments
Ready To Use Tools
Tools
Analysis Gallery
Feature Analysis
Raster Analysis
Workflows
Raster
Geoprocessing
Tools
Portal
Contents
Search
Drawing Order
Map
facilities_buffer
parks_clip
zip
parks
World Topographic Map
World Hillshade
Map
1:386,435
Selected Features: 0
Python
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\facilities_buffer.shp'>
arcpy.Buffer_analysis("facilities.shp",
"facilities_buffer.shp", "500 METERS", "", "", "ALL")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\facilities_buffer.shp'>
arcpy.Buffer_analysis(
"facilities.shp",
"facilities_buffer_dissolved.shp",
"500 METERS",
"", "", "ALL"
)
arcpy.Buffer_analysis("facilities.shp",
"facilities_buffer.shp", "500 METERS", "", "", "all")
<Result 'C:\\ProgrammingProjects\
\GISC2335_ProgrammingForGIS\\WeeklyContent\\week6\\data\
\Ex05\\facilities_buffer.shp'>
Catalog
Project
Portal
Computer
Favorites
Search Project
Maps
Toolboxes
Databases
Styles
Folders
Untitled
Ex05
bike_routes.shp
facilities.shp
facilities_buffer.shp
hospitals.shp
parks.shp
parks_clip.shp
zip.shp
Locators
Catalog
Geoproces...
History



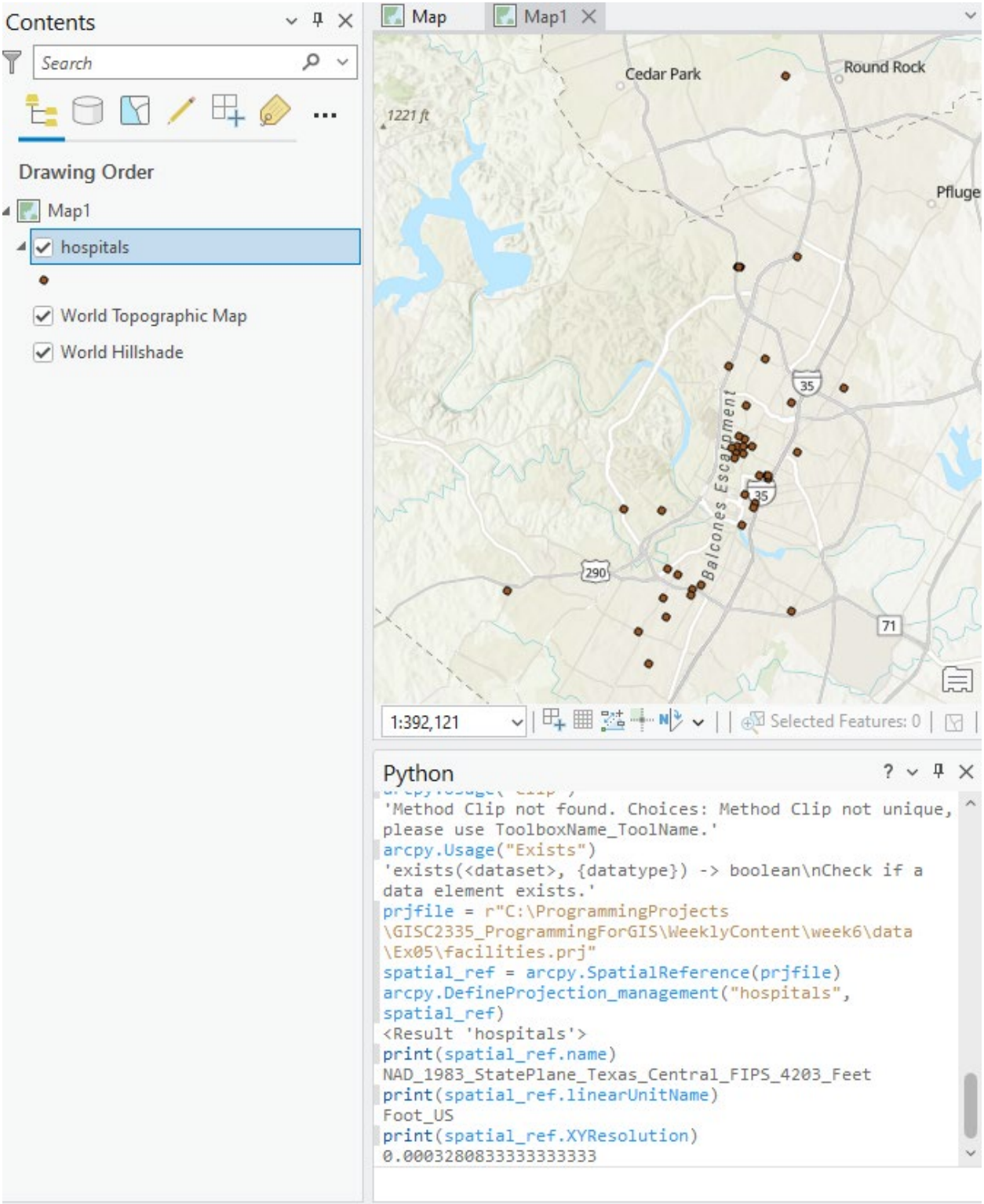
Get help with tool syntax



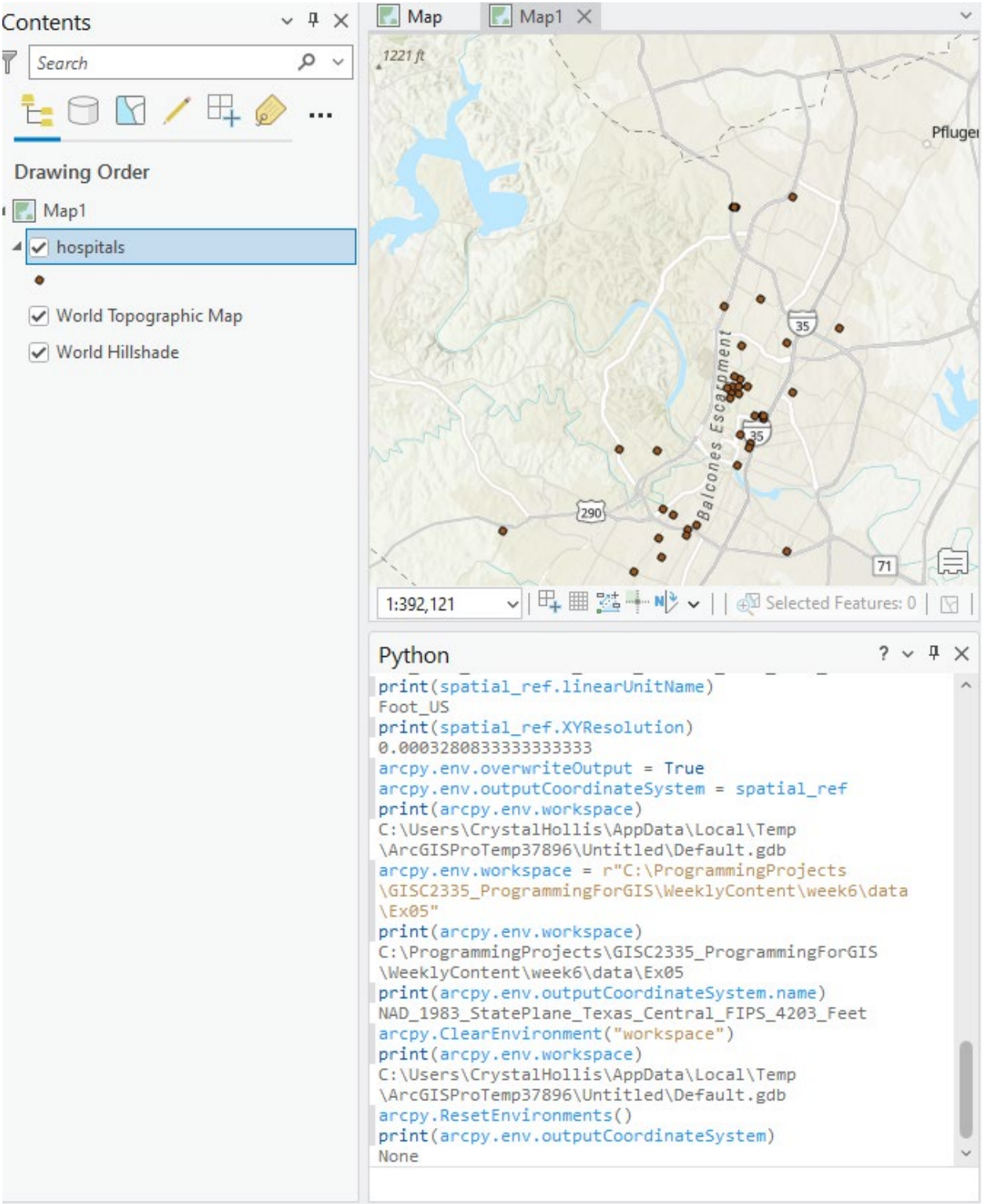
Explore ArcPy functions and classes

```
\Ex05\\bike_clip.shp'>
arcpy.Exists("hospitals.shp")
False
arcpy.env.workspace = r"C:\ProgrammingProjects
\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data
\Ex05"
arcpy.Exists("hospitals.shp")
True
```

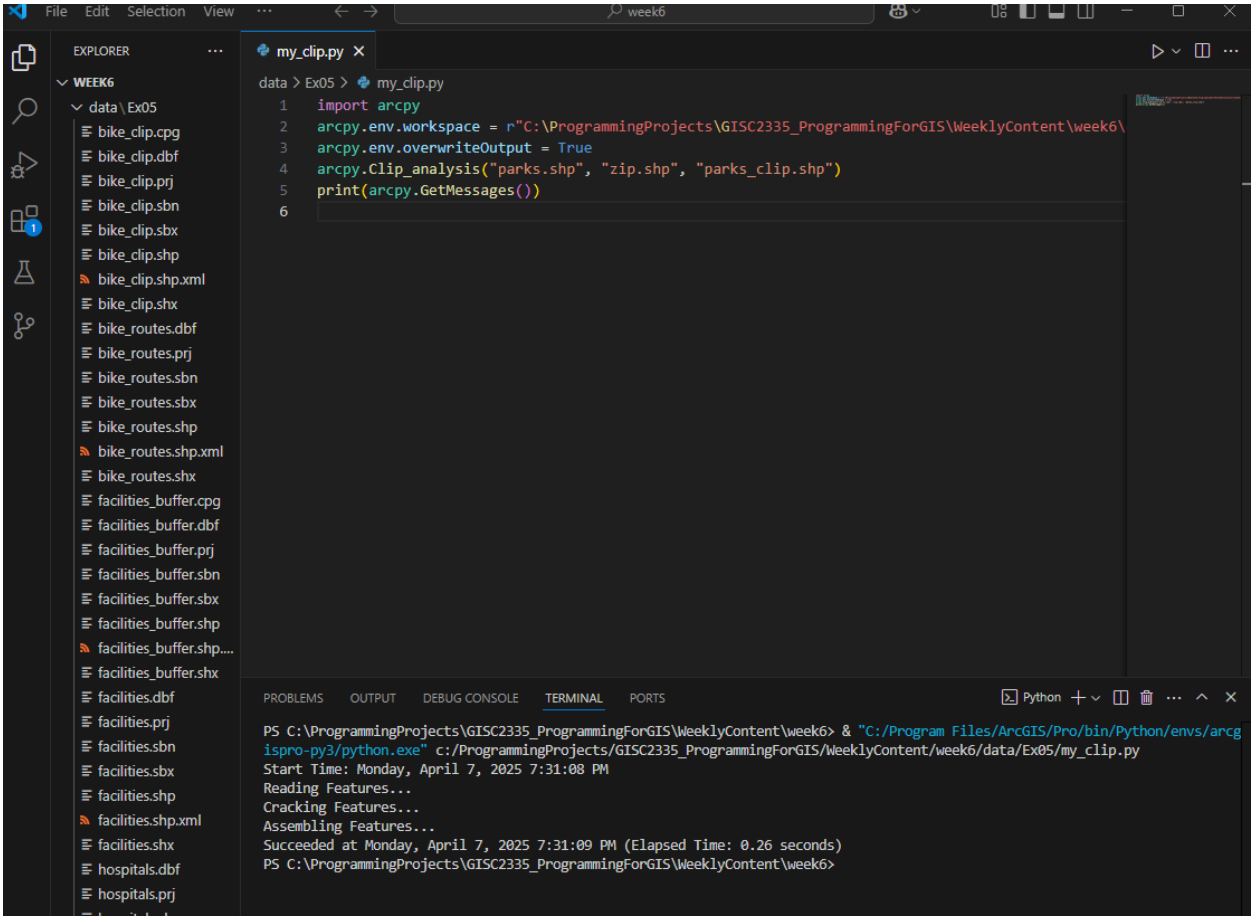
```
arcpy.Usage("Clip_analysis")
'Clip_analysis(in_features, clip_features,
out_feature_class, {cluster_tolerance})'
arcpy.Usage("Clip")
'Method Clip not found. Choices: Method Clip not unique,
please use ToolboxName_ToolName.'
arcpy.Usage("Exists")
'exists(<dataset>, {datatype}) -> boolean\nCheck if a
data element exists.'
```



Control the environment settings



Work with tool messages


File Edit Selection View
week6
EXPLORER
WEEK6
data \ Ex05
bike_clip.cpg
bike_clip.dbf
bike_clip.prj
bike_clip.sbn
bike_clip.sbx
bike_clip.shp
bike_clip.shp.xml
bike_clip.shx
bike_routes.dbf
bike_routes.prj
bike_routes.sbn
bike_routes.sbx
bike_routes.shp
bike_routes.shp.xml
bike_routes.shx
facilities_buffer.cpg
facilities_buffer.dbf
facilities_buffer.prj
facilities_buffer.sbn
facilities_buffer.sbx
facilities_buffer.shp
facilities_buffer.shp....
facilities_buffer.shx
facilities.dbf
facilities.prj
facilities.sbn
facilities.sbx
facilities.shp
facilities.shp.xml
facilities.shx
hospitals.dbf
hospitals.prj
my_clip.py
data > Ex05 > my_clip.py
1 import arcpy
2 arcpy.env.workspace = r"C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\
3 arcpy.env.overwriteOutput = True
4 arcpy.Clip_analysis("parks.shp", "zip.shp", "parks_clip.shp")
5 print(arcpy.GetMessages())
6
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/my_clip.py
Start Time: Monday, April 7, 2025 7:31:08 PM
Reading Features...
Cracking Features...
Assembling Features...
Succeeded at Monday, April 7, 2025 7:31:09 PM (Elapsed Time: 0.26 seconds)
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6>

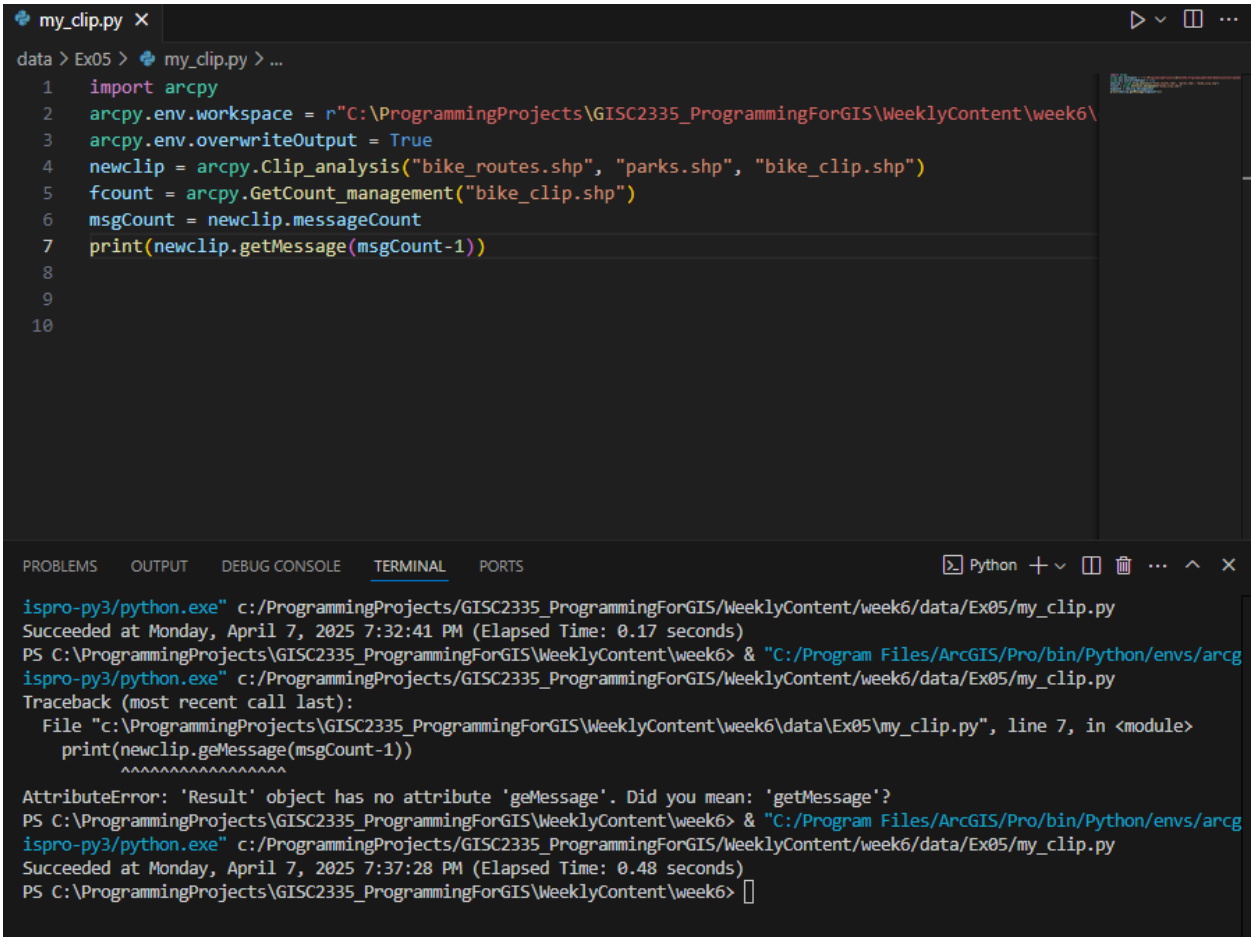
my_clip.py

data > Ex05 > my_clip.py > ...

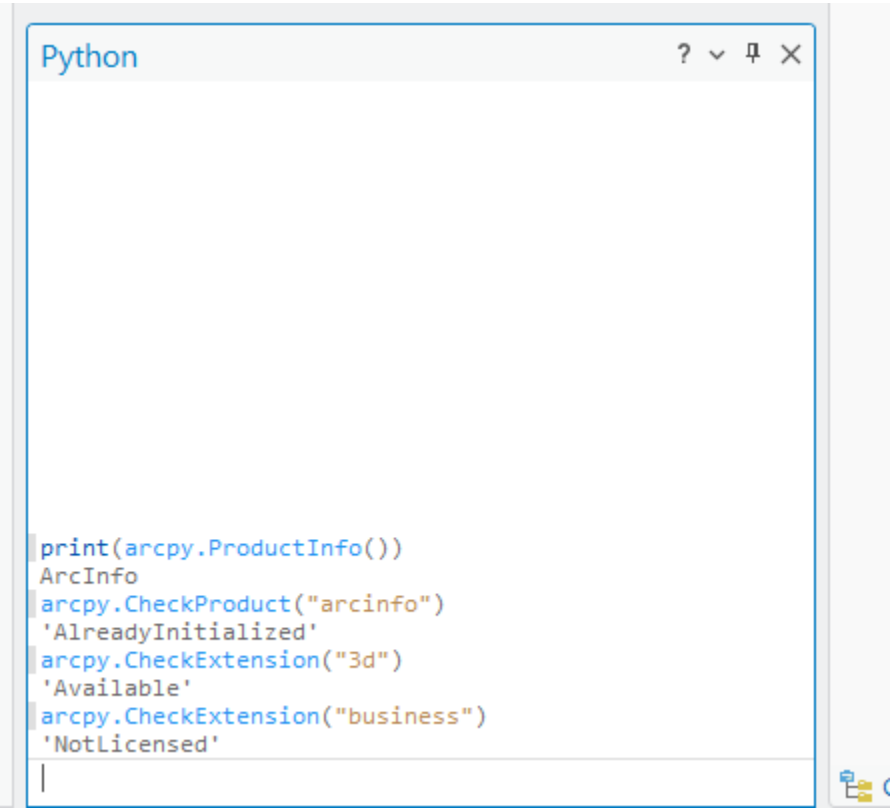
```
1  import arcpy
2  arcpy.env.workspace = r"C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\
3  arcpy.env.overwriteOutput = True
4  arcpy.Clip_analysis("parks.shp", "zip.shp", "parks_clip.shp")
5  msgCount = arcpy.GetMessageCount()
6  print(arcpy.GetMessage(msgCount-1))
7
8
```

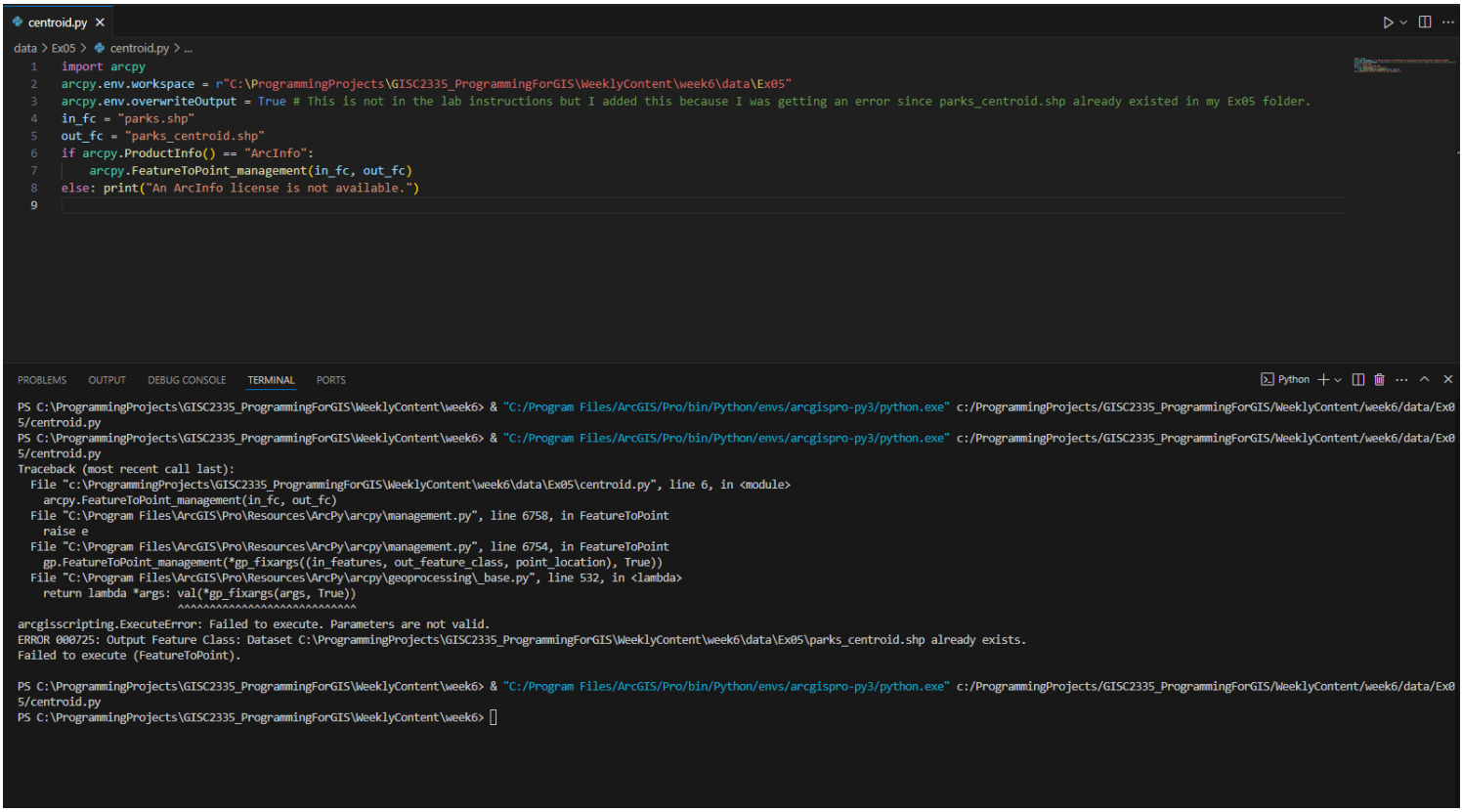
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcg
ispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/my_clip.py
Start Time: Monday, April 7, 2025 7:31:08 PM
Reading Features...
Cracking Features...
Assembling Features...
Succeeded at Monday, April 7, 2025 7:31:09 PM (Elapsed Time: 0.26 seconds)
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcg
ispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/my_clip.py
Succeeded at Monday, April 7, 2025 7:32:41 PM (Elapsed Time: 0.17 seconds)
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6>
```



Work with licenses


Python
print(arcpy.ProductInfo())
ArcInfo
arcpy.CheckProduct("arcinfo")
'AlreadyInitialized'
arcpy.CheckExtension("3d")
'Available'
arcpy.CheckExtension("business")
'NotLicensed'


centroid.py
data > Ex05 > centroid.py > ...
1 import arcpy
2 arcpy.env.workspace = r"C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05"
3 arcpy.env.overwriteOutput = True # This is not in the lab instructions but I added this because I was getting an error since parks_centroid.shp already existed in my Ex05 folder.
4 in_fc = "parks.shp"
5 out_fc = "parks_centroid.shp"
6 if arcpy.ProductInfo() == "ArcInfo":
7 arcpy.FeatureToPoint_management(in_fc, out_fc)
8 else: print("An ArcInfo license is not available.")
9
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/centroid.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/centroid.py
Traceback (most recent call last):
File "c:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05\centroid.py", line 6, in <module>
arcpy.FeatureToPoint_management(in_fc, out_fc)
File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\management.py", line 6758, in FeatureToPoint
raise e
File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\management.py", line 6754, in FeatureToPoint
gp.FeatureToPoint_management(*gp_fixargs((in_features, out_feature_class, point_location), True))
File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\geoprocessing_base.py", line 532, in <lambda>
return lambda *args: val(*gp_fixargs(args, True))
^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
arcgisscripting.ExecuteError: Failed to execute. Parameters are not valid.
ERROR 000725: Output Feature Class: Dataset C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05\parks_centroid.shp already exists.
Failed to execute (FeatureToPoint).
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex05/centroid.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6>

centroid.py

data > Ex05 > centroid.py > ...

```python
import arcpy
arcpy.env.workspace = r"C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05"
arcpy.env.overwriteOutput = True # This is not in the lab instructions but I added this because I was getting an error since parks_centroid.shp already existed in my Ex05 folder.
in_fc = "parks.shp"
out_fc = "parks_centroid.shp"
if arcpy.ProductInfo() == "ArcInfo":
    arcpy.FeatureToPoint_management(in_fc, out_fc)
    print("Your System has the correct ArcGIS license installed. The Centroid Clip is in the Ex05 folder.") # Prints message confirming License and Clip Output.
else: print("An ArcInfo license is not available.")

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Python

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex0
5/centroid.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex0
5/centroid.py
Traceback (most recent call last):
  File "c:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05\centroid.py", line 6, in <module>
    arcpy.FeatureToPoint_management(in_fc, out_fc)
  File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\management.py", line 6758, in FeatureToPoint
    raise e
  File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\management.py", line 6754, in FeatureToPoint
    gp.FeatureToPoint_management(*gp_fixargs((in_features, out_feature_class, point_location), True))
  File "C:\Program Files\ArcGIS\Pro\Resources\ArcPy\arcpy\geoprocessing\_base.py", line 532, in <lambda>
    return lambda *args: val(*gp_fixargs(args, True))
                         ^^^^^^^^^^^^^^^^^^^^^^^^^^^^
arcgisscripting.ExecuteError: Failed to execute. Parameters are not valid.
ERROR 000725: Output Feature Class: Dataset C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6\data\Ex05\parks_centroid.shp already exists.
Failed to execute (FeatureToPoint).

PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex0
5/centroid.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6> & "C:/Program Files/ArcGIS/Pro/bin/Python/envs/arcgispro-py3/python.exe" c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week6/data/Ex0
5/centroid.py
Your System has the correct ArcGIS license installed. The Centroid Clip is in the Ex05 folder.
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week6>
```