

Code Screenshots

```
D:\> LAB_04.py > ...
1 import arcpy
2 import os
3
4 BASE_DIR = os.path.dirname(os.path.abspath(__file__))
5
6 ### >>>>> Add your code here
7 INPUT_DB_PATH = "D:\\Lab4_Data\\Campus.gdb"
8 CSV_PATH = "D:\\Lab4_Data\\garages.csv"
9 OUTPUT_DB_PATH = "D:\\Lab4_Data"
10 OUTPUT_GDB_NAME = "Output.gdb"
11
12
13 ### <<<<< End of your code here
14
15 arcpy.env.workspace = INPUT_DB_PATH
16
17 # Layers need to be kept
18 layers_to_keep = ["GaragePoints", "LandUse", "Structures", "Trees"]
19
20 # list all feature classes
21 feature_classes = arcpy.ListFeatureClasses()
22 print(feature_classes)
23 # delete other classes
24 for fc in feature_classes:
25     if fc not in layers_to_keep:
26         print("Deleting", fc)
27         arcpy.management.Delete(fc)
28
```

```
29 # create GDB management
30 ### >>>>> Add your code here
31 output_gdb_path = os.path.join(OUTPUT_DB_PATH, OUTPUT_GDB_NAME)
32 if not arcpy.Exists(output_gdb_path):
33     arcpy.management.CreateFileGDB(OUTPUT_DB_PATH, OUTPUT_GDB_NAME)
34
35     ### <<<<< End of your code here
36
37 # Load .csv file to input GDB
38 ### >>>>> Add your code here
39 if not os.path.exists("Garages"):
40     arcpy.management.XYTableToPoint(CSV_PATH, "Garages",
41                                     "X", "Y")
42     ### <<<<< End of your code here
43
44 # Print spatial references before re-projection
45 print(f"Before Re-Projection...")
46 print(f"garages layer spatial reference: {arcpy.Describe('Garages').spatialReference.name}.")
47 print(f"Structures layer spatial reference: {arcpy.Describe('Structures').spatialReference.name}.")
48
49 # Re-project
50 ## >>>>>>> change the codes below
51 target_ref = arcpy.Describe("Garages").spatialReference
52
53 arcpy.management.Project(
54     "Structures",
55     "Structures_Projected",
56     target_ref
57 )
58 ## <<<<<<< End of your code here
```

```
# print spatial references after re-projection
print(f"After Re-Projection...")
print(f"garages layer spatial reference: {arcpy.Describe('Garages').spatialReference.name}.")
print(f"re-projected Structures layer spatial reference: {arcpy.Describe('Structures_Projected').spatialReference.name}")
```

```

### >>>>> Add your code here
# Buffer analysis
radiusStr = "150 meter"
buffer_output="garages_buffered"
arcpy.analysis.Buffer("Garages", buffer_output, radiusStr)

# Intersect analysis
inFeatures=["garages_buffered","Structures_Projected"]
intersectOutput="intersection"
arcpy.analysis.Intersect(inFeatures, intersectOutput)

76 # Output features to the created GDB
77 layers_to_output = ["Garages", "Structures", "garages_buffered","intersection"]
78
79 # Run CopyFeatures for each input shapefile
80 for layer in layers_to_output:
81     # Determine the new output feature class path and name
82
83     out_featureclass=os.path.join(output_gdb_path,layer)
84     arcpy.management.CopyFeatures(layer, out_featureclass)
85     print(f"Layer {layer} Exported to Output.gdb")
86 ### <<<<< End of your code here
87

```

Terminals Snapshot

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

['Structures', 'Trees', 'LandUse', 'GaragePoints']
○ Before Re-Projection...
garages layer spatial reference: GCS_WGS_1984.
Structures layer spatial reference: NAD_1983_StatePlane_Texas_Central_FIPS_4203.
After Re-Projection...
garages layer spatial reference: GCS_WGS_1984.
re-projected Structures layer spatial reference: GCS_WGS_1984
Layer Garages Exported to Output.gdb
Layer Structures Exported to Output.gdb
Layer garages_buffered Exported to Output.gdb
Layer intersection Exported to Output.gdb
PS D:\Lab4_Data>
Ln 83

```

ArcGIS Pro Screenshot (Result)

The screenshot displays the ArcGIS Pro interface. The main map area shows a street map with several yellow circular markers indicating the locations of 'Southside Garage'. The map is titled 'intersection' and shows a coordinate of 96.3382508°W 30.6062383°N. The map scale is 1:22,979. The map is overlaid with a data table showing the results of an intersection analysis.

Contents Panel:

- Map
- Garages
- Structures
- Intersection
- garages_buffered
- World Topographic Map
- World Hillshade

Catalog Panel:

- Project
- Portal
- Favorites
- Search Project
- Maps
- Toolboxes
- Databases
- Styles
- Folders
- Locators

Data Table:

OBJECTID	Shape	FID_garages_buffered	OID	CIT_CODE	FAC_CODE	LotName	AggieMap	Name	LotType
1	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
2	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
3	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
4	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
5	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
6	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
7	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage
8	Polygon	1	-1	20200	SSG	Southside Garage	1	SSG	Garage

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