Lesson 6: Working with and Creating Geometries

Download the Lesson6.zip file from the course webpage. Unzip the folder to begin.

Assignment 6a: Access Geometry Properties

- Take a look at the datasets by opening the map document lesson6.mxd.
- Open the script lesson6a_view.py in PythonWin, and run it for the shapefiles in the Lesson6 folder (i.e. NewTrails.shp, nests1990.shp and HmRange1990.shp. You will have to change the path, and note that it requires a dataset name as an argument. The dataset name has to be exactly as it is in the folder.
- Start with the script lesson6a.py and write a script that finds which polygon in the shape file HmRange1990.shp has a centroid that is different from its true centroid (i.e. center of area vs. center of gravity).

Assignment 6b: Access Geometry with GetPart() Method

- Start with the script lesson6b.py.
- Write a script that accesses the geometry objects for the polyline shapefile NewTriails.shp, and writes the vertices to a single textfile. Because this is not a point feature class, you will have to use array objects in addition to point objects to access the x,y properties.
- Hint: First get a script working that prints the row.id, x and y coordinates, then get it to work so that it writes to the text file. It should be formatted as below.

```
1,437059,4518316
1,437288,4518485
1,437438,4518774
1,437537,4518964
.
.
.
```

Assignment 6c: Creating New Features with Geometry Objects

- Start with the script lesson6c.py.
- Write a script that:
  - Creates a new shapefile called nests2007.shp
  - Reads in the coordinates from the textfile 2007nests_coords.txt to create pnt objects from which point features are inserted into the new shapefile (i.e. nests2007.shp)
- Suggestions: Most of the structure (i.e. pseudo code) is provided in the script you will start with. Think about what the code is doing (even where it is given) and use the handout (slides) to help you with writing the code. Add additional comments where necessary.