Exploring spatial data

- Checking for the existence of data:
  - arcpy.Exists(“c/data/streams.shp”)
  - Two types of path in Python
    1. System path: recognized by Windows OS
    2. Catalog path: only ArcGIS recognize (e.g. “c:/data/study.gdb/final”—context specific)
       - .gdb: a file geodatabse
       - .mdb: a personal geodatabase
       - .sde: an enterpresis geodatabase

- Describing data:
  - Describe function can be used to determine the properties of the input feature class, including the feature type (point, polyline, polygon, and others)

```
import arcpy
desc=arcpy.Describe("c:/data/stream.shp")
print desc.shapeType
```

  - The properties of Describe function are dynamic depending on the data type being described
  - shapeType; datasetType

Describe demo here

- Listing data:
  - ArcPy listing functions include ListFields, ListIndexes, ListDatasets, ListFeatureClasses, ListFiles, ListRasters, ListTables, ListWorkspaces, ListVersions (see ArcPy help for details)
  - Using lists in for loops

Demo here

- Working with tuples:
  - Tuples are sequences of elements, just like lists, but tuples are immutable.
  - (element1,element2,..) ---elements in tuple are separated by comma.
  - List operations like deleting, appending, removing and others are not supported by tuples. The only methods that work on tuples are count and index

- Working with dictionaries:
  - Dictionaries consist of pairs of keys and their corresponding values, surrounded by curly brackets { }
  - Dictionary is like a lookup table

  statelookup= {“Austin”: “Texas”, “Baltimore”: “Maryland”, “Cleveland”: “Ohio”}

  statelookup[“Cleveland”] (the result is “Ohio”)
  - zoning={ }---create a new empty dictionary

  zoing[“RES”]=“Residential”---add an item

  del zoning[“RES”]-----delete an item

  zoning.keys()----return a list of all the keys

  zoning.values()----return a list of all the values

  zoning.items()---return a list of all key-value paris

  [(‘IND’, ‘Industrial’), (‘RES’, ‘Residential’)]