Introduction to GIS with ArcGIS Pro

Spatial Analysis:
Performing Overlay Analysis

Session 18

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Lecture Outline

- Introduction & Recap (5 minutes)
- Performing Overlay Analysis (45 minutes)
- Guided Exercise & Q&A (10 minutes)

Week 7: Working with Tabular Data

- **Class 13:** Creating Features from Tabular Data
- **Class 14:** Associating Tabular Data (Joins and Relates)

Week 8: Editing Features and Attributes

- **Class 15:** Creating Features by Digitizing
- **Class 16:** Modifying Existing Features

Week 9: Spatial Analysis

- **Class 17:** Answering Questions with Analysis Tools (Buffer, Extract)
- **Class 18:** Performing Overlay Analysis (Intersect, Spatial Join)

Week 10: Page Layouts and Sharing

- **Class 19:** Creating a Page Layout
- **Class 20:** Sharing with ArcGIS Pro & Course Wrap-up
- **Milestone:** Assignment 2 (Mini-Project) will be assigned.

Recap of Season 17

- Answering Questions with Analysis Tools
  - Spatial Analysis
  - Geoprocessing
  - Buffer Analysis
  - Analysis toolbox
  - Performing Spatial Analysis using Python Script

Performing Overlay Analysis

in ArcGIS Pro

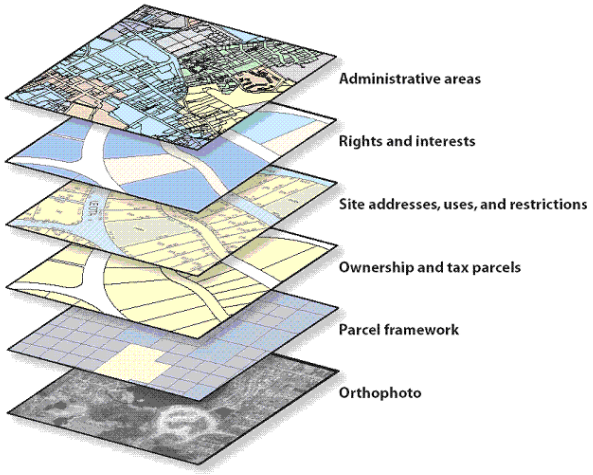
Overlay Analysis

One of the most basic questions asked of a GIS is "What's on top of what?" For example:

- What land use is on top of what soil type?
- What parcels are within the 100-year floodplain? ("Within" is just another way of saying "on top of.")
- What roads are within what counties?
- What wells are within abandoned military bases?

These types of questions are answered with the use of overlay analysis.

It is a process that combines multiple spatial layers to answer questions about the relationships between features in the same geographic space.



https://geospatialhistorian.wordpress.com/lessons/arcgis-lesson-5-overlay-analysis/

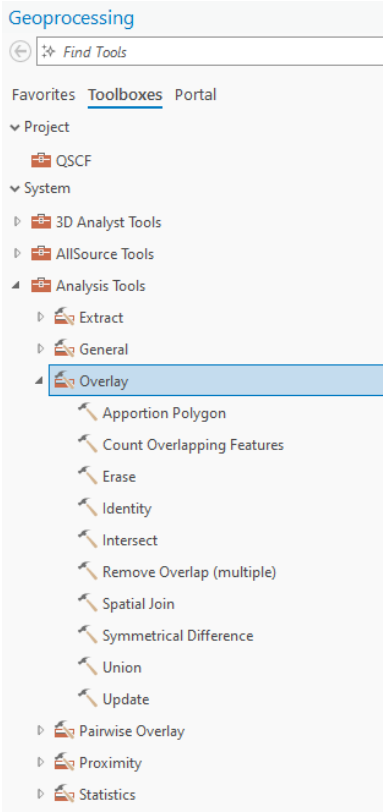
https://pro.arcgis.com/en/pro-app/latest/tool-reference/analysis/an-overview-of-the-overlay-toolset.htm

Overlay Tools in ArcGIS Pro

The Overlay toolset contains tools to overlay multiple feature classes to combine, erase, modify, or update spatial features, resulting in a new feature class.

New information is created when overlaying one set of features with another.

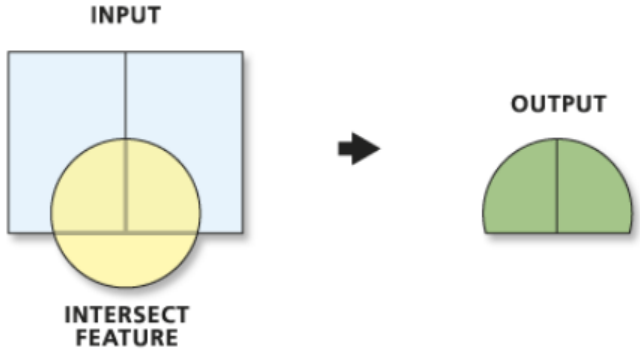
All of the overlay operations involve joining two sets of features into a single set of features to identify spatial relationships between the input features.



https://pro.arcgis.com/en/pro-app/latest/tool-reference/analysis/an-overview-of-the-overlay-toolset.htm

Intersect (Analysis)

Computes a geometric intersection of the input features. Features or portions of features that overlap in all layers or feature classes will be written to the output feature class.



https://pro.arcgis.com/en/pro-app/latest/tool-reference/analysis/intersect.htm

Spatial Join (Analysis)

Joins attributes from one feature to another based on the spatial relationship.

The target features and the joined attributes from the join features are written to the output feature class.

https://pro.arcgis.com/en/pro-app/latest/tool-reference/analysis/spatial-join.htm

Exercise

Exercise

1. Select the populated placed of your preferred district (download the data for whole country from the link below) and then perform a spatial join between the populated places and union/wards (downloaded earlier).

   https://data.humdata.org/dataset/hotosm_bgd_populated_places

   (hotosm_bgd_populated_places_points_shp.zip)

Preview for Season 19

Page Layouts and Sharing: Creating a Page Layout