VECTOR ANALYSIS

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UNM CONTINUING EDUCATION
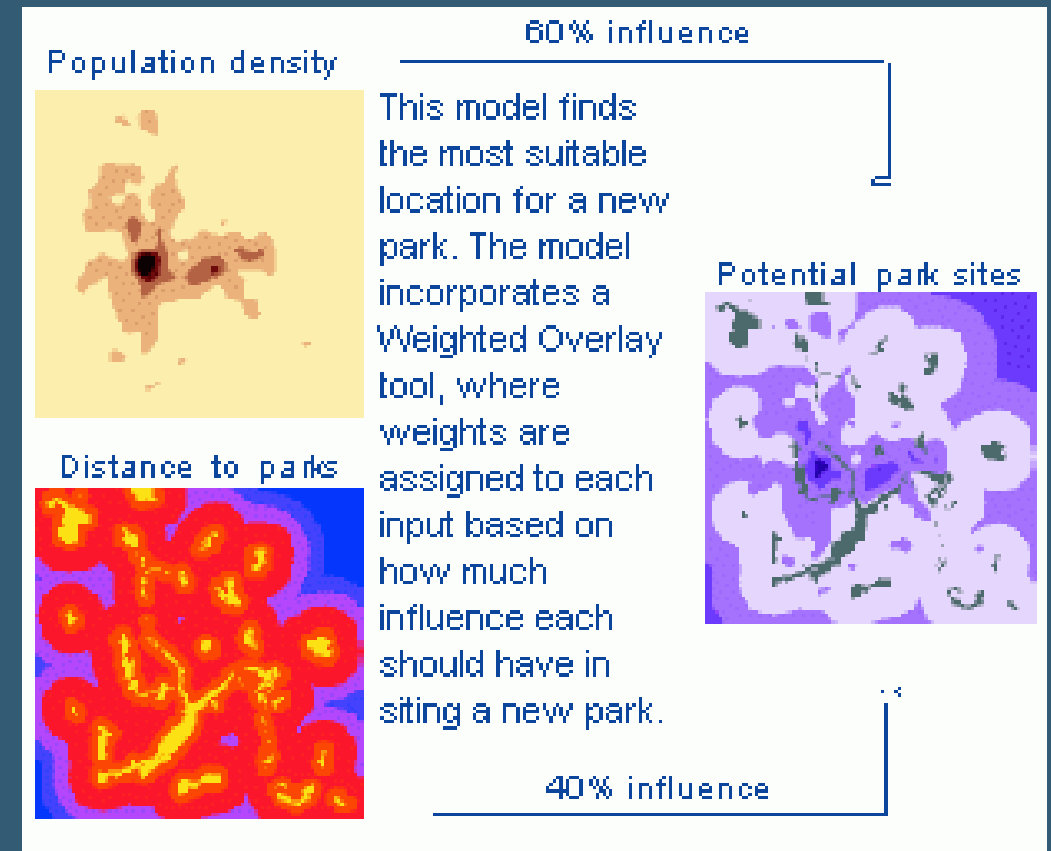
SPATIAL ANALYSIS

- Combine information to derive new information

- Identify patterns and understand relationships in the data

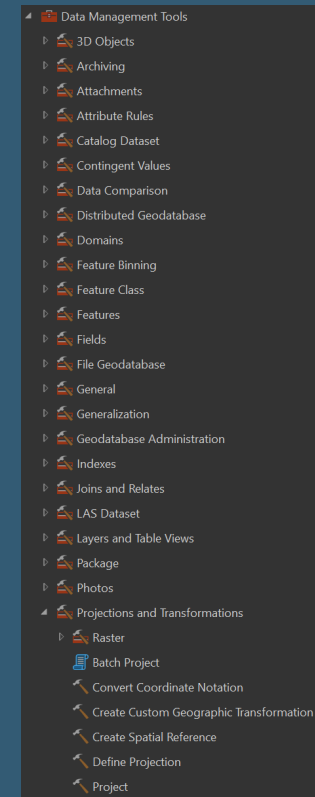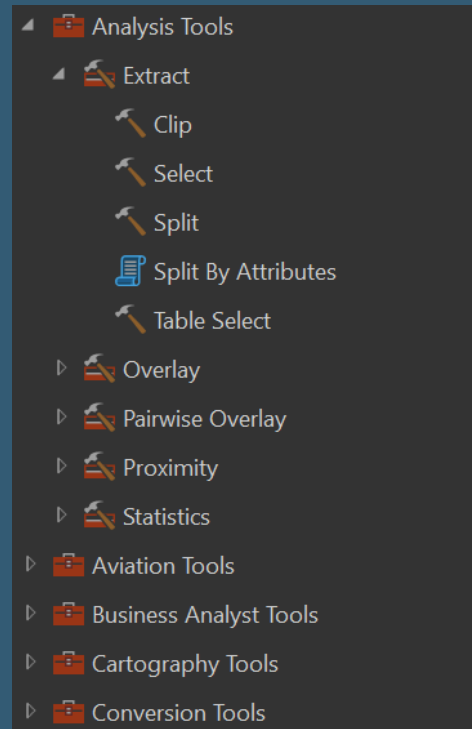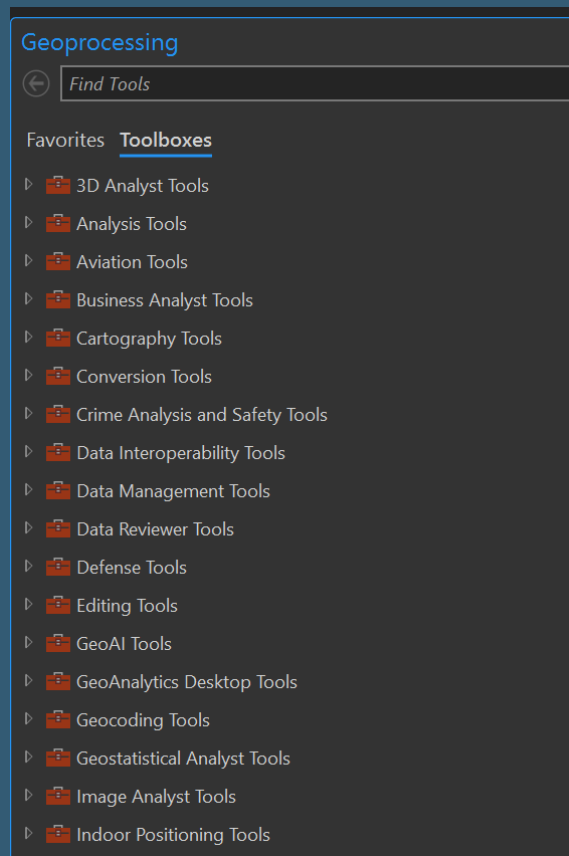- ArcGIS offers a suite of geoprocessing tools

ANALYSIS WORKFLOW

- What is the question?

- Choose the appropriate data

- Choose an appropriate analysis method

- Perform analysis

- Review results

- Presentation

GEOPROCESSING TOOLS

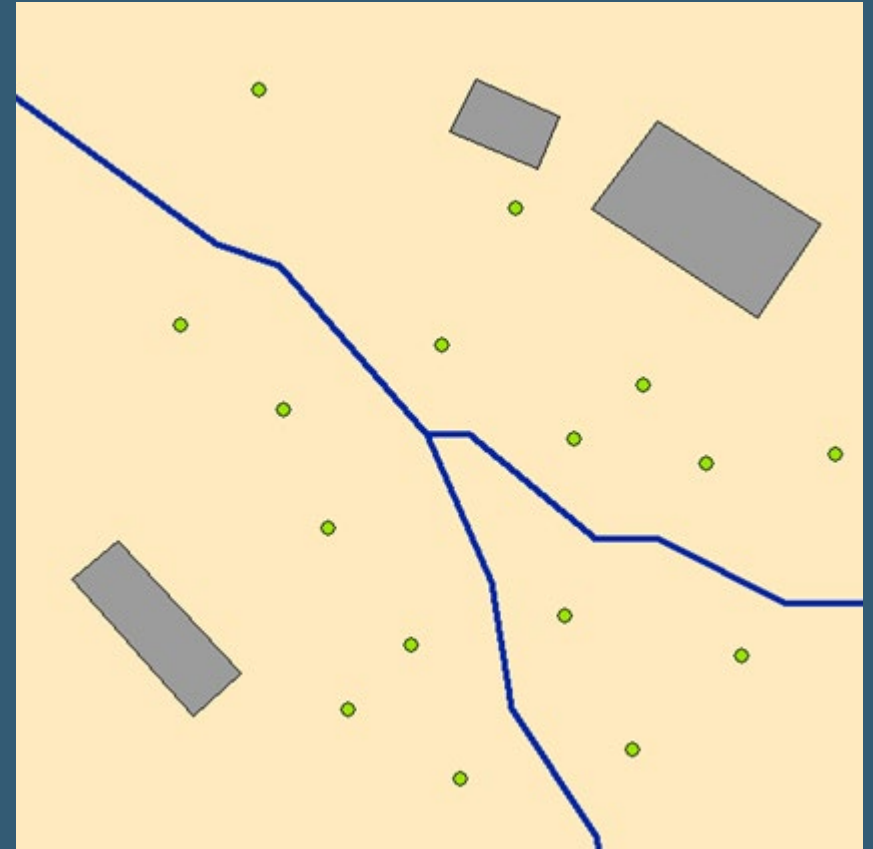## *Some tools may require additional licensing

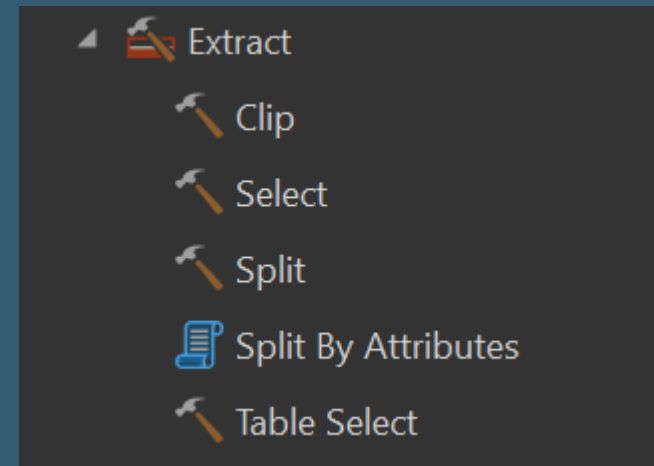# VECTOR ANALYSIS

- Using vector data to conduct a series of analyses

- Well-established tools in any standard GIS software packages
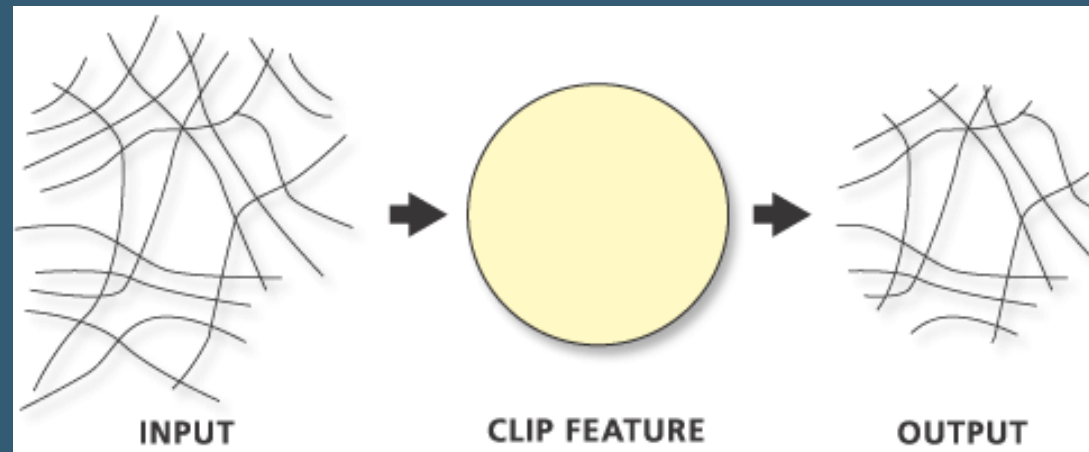

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EXTRACT TOOLS

- Select features and attributes in a feature class or a table and extract as feature classes or tables

- Tools in ArcGIS
  - Clip
  - Select
  - Split
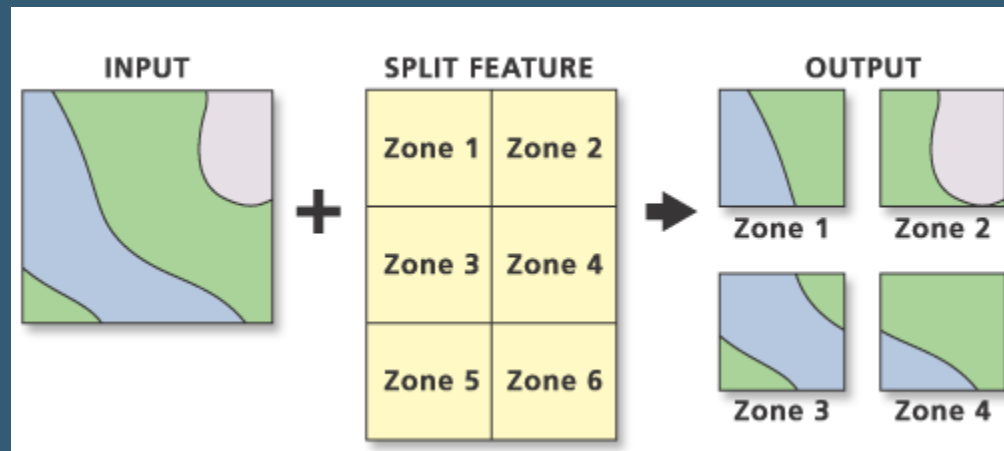 - Split By Attributes
  - Table Select

CLIP

- Extracts input features that overlay the clip features
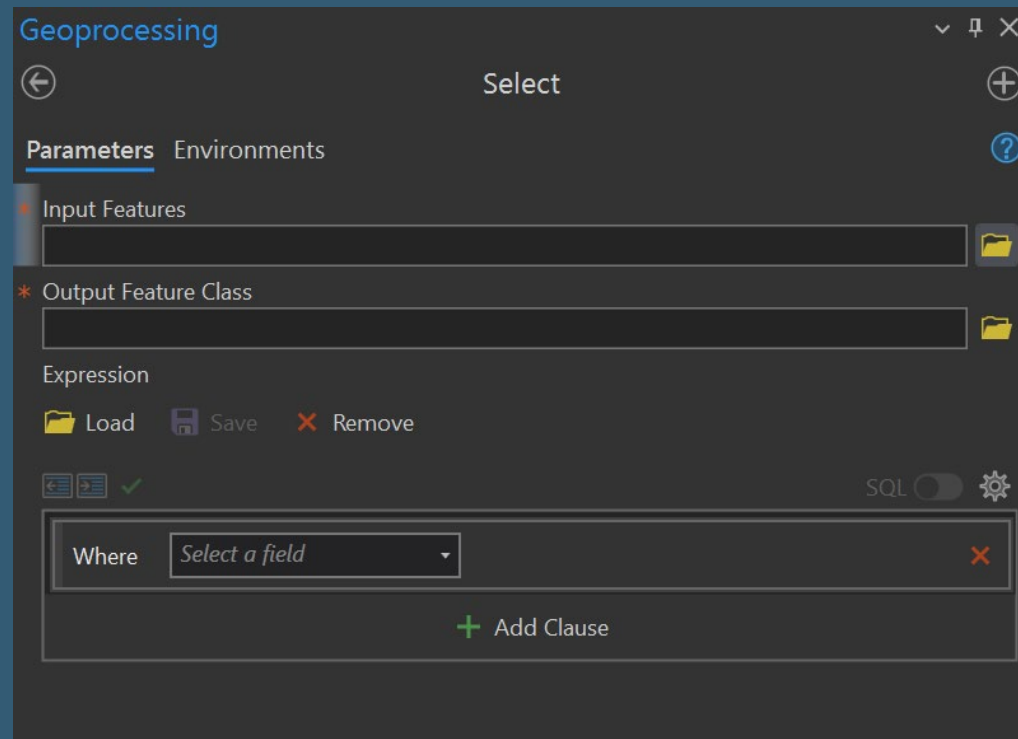

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SPLIT

- Splits an input with overlaying features to create a subset of output feature classes

- Split By Attributes Tool – split data by unique attributes
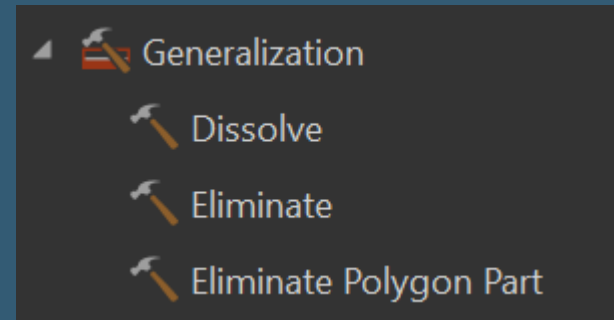

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SELECT

- Extracting features from an input feature class using a select or SQL expression.

- Table Select: selects table records matching a Structured Query Language (SQL) expression and writes them to an output table.
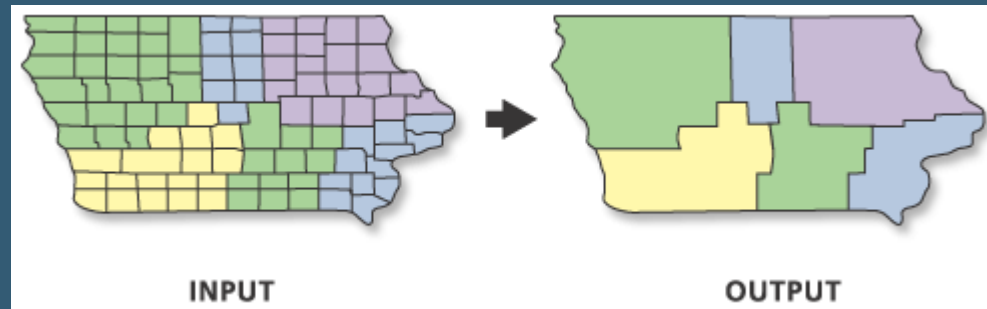
GENERALIZATION TOOLS

- To aggregate or eliminate features

- Tools in ArcGIS
  - Dissolve
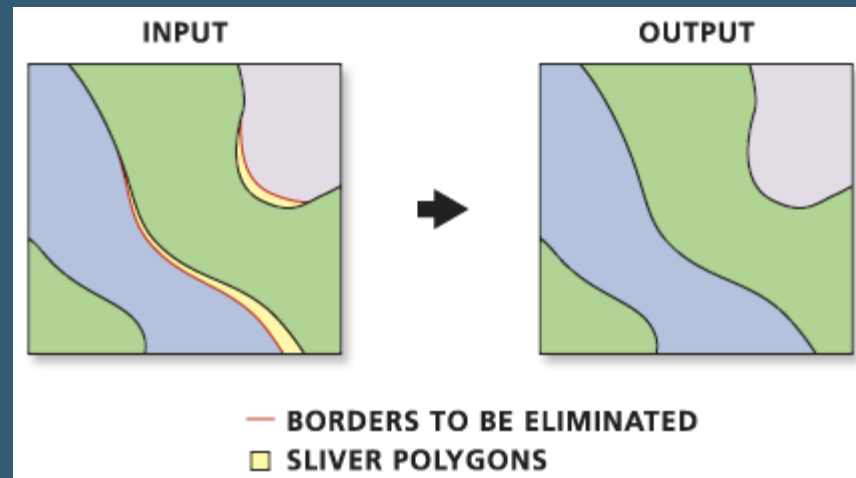 - Eliminate
  - Eliminate Polygon Part

DISSOLVE

- Aggregates features based on specified attributes

- Can create Multipart features
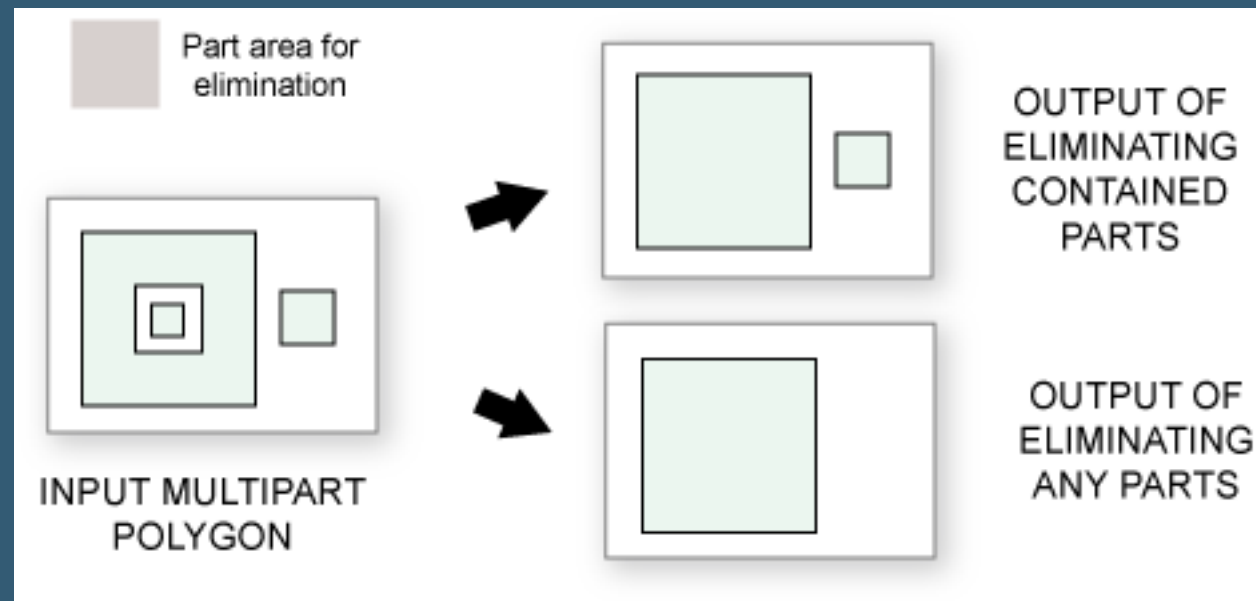

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ELIMINATE

- Eliminates polygons by merging them with neighboring polygons that have the largest area or the longest shared border.

- Eliminate is often used to remove small sliver polygons that are the result of overlay operations, such as Intersect or Union.
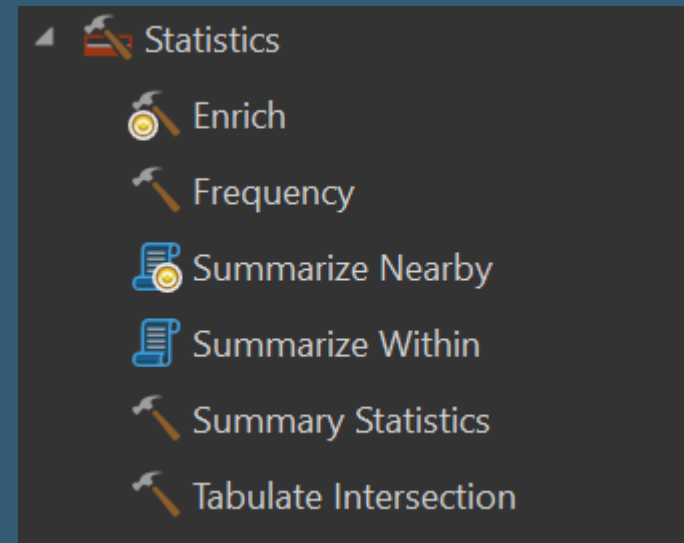

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ELIMINATE POLYGON PART

- Creates a new output feature class containing the features from the input polygons with some parts or holes of a specified size deleted.

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STATISTICS TOOLS

- Performs standard statistical analysis

- Tools in ArcGIS
  - Enrich
  - Frequency
  - Summarize
  - Tabulate Intersection

- Spatial Statistics Tools
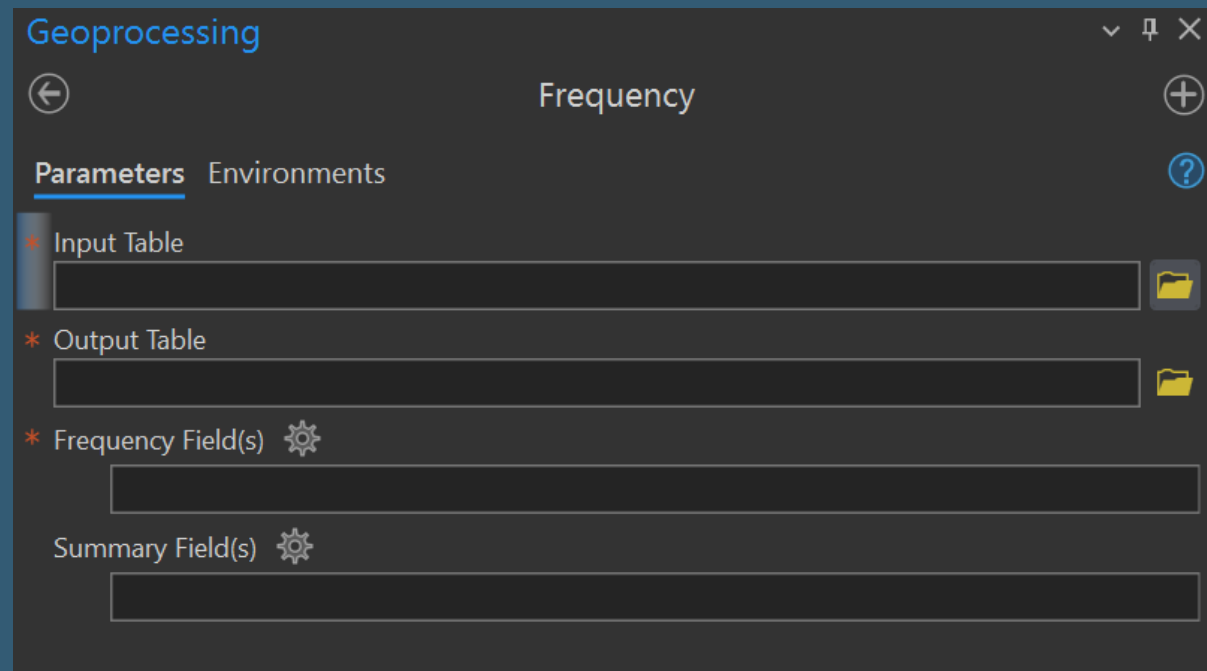
- Geostatistical Analyst Tools

ENRICH

- Enriches data by adding demographic and landscape facts that surround or are inside data locations.

- This tool requires an ArcGIS Online organizational account or a locally installed Business Analyst dataset.

FREQUENCY

- Reads a table and a set of fields and creates a new table containing unique field values and the number of occurrences of each unique field value
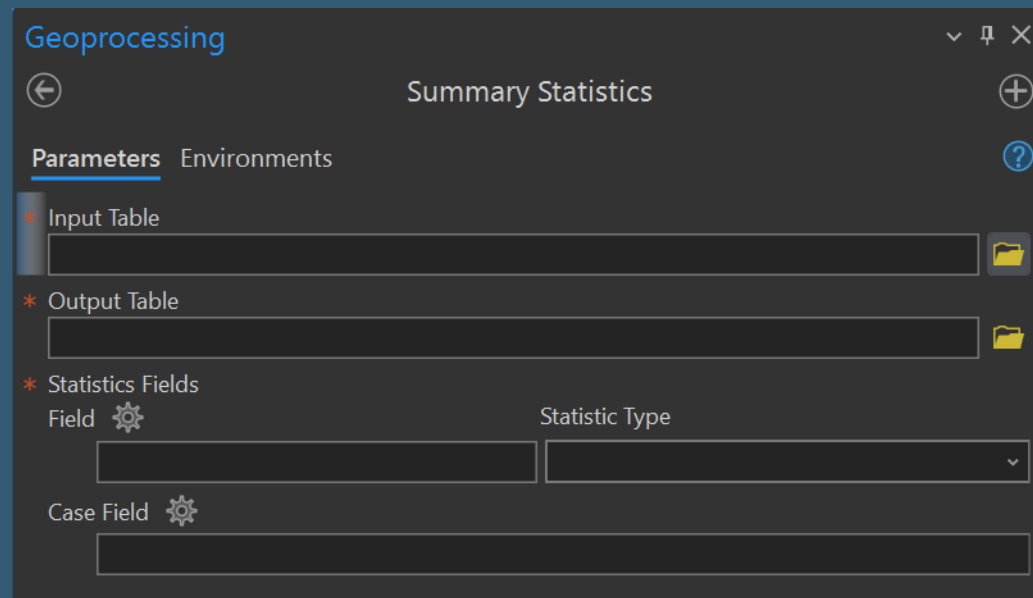
SUMMARIZE WITHIN

- Overlays a polygon layer with another layer to summarize the number of points, length of the lines, or area of the polygons within each polygon, and calculate attribute field statistics about the features within the polygons.
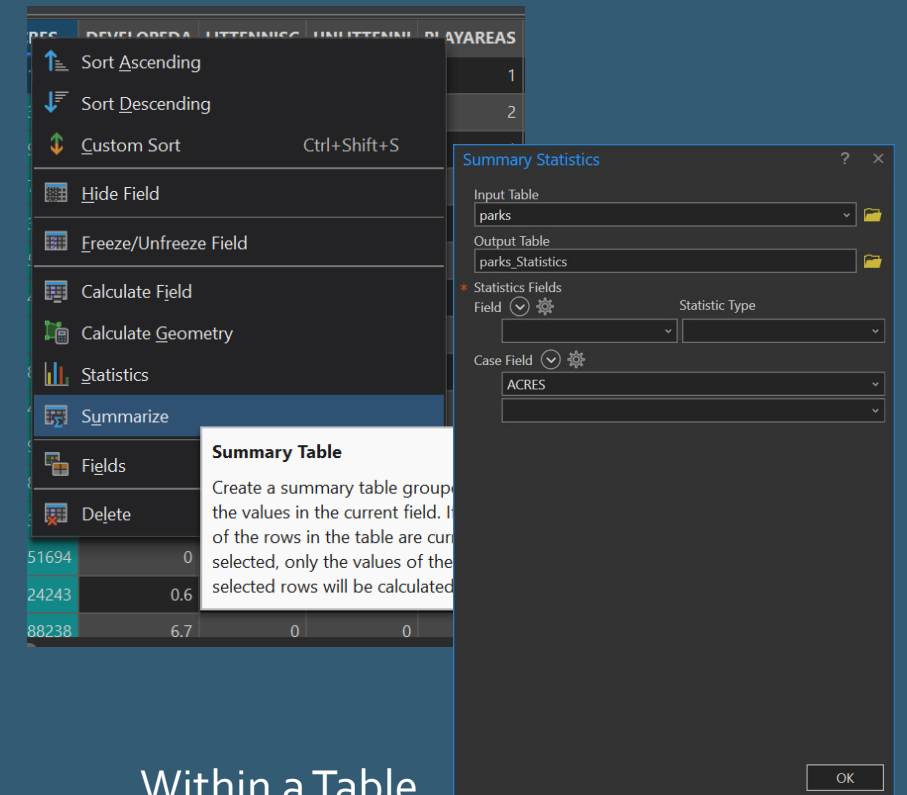
SUMMARIZE NEARBY

- Finds features that are within a specified distance of features in the input layer and calculates statistics for the nearby features.

- Distance measurements: straight line distance, drive time distance, drive distance

- This tool requires ArcGIS Online organizational account with Network Analysis privileges.

SUMMARY STATISTICS

- Calculates summary statistics for field(s) in a table

- Also available in attribute table

Standalone Tool

Within a Table

TABULATE INTERSECTION

- Computes the intersection between two feature classes and cross-tabulates the area, length, or count of the intersecting features

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