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Troubleshooting Python Scripts

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Agenda

- Identify and Resolve Common Python Errors
  - Syntax Errors
  - Runtime Errors
  - Logic Errors

Syntax Errors

Python Syntax

- Rules that defines how Python will be written and interpreted
- Designed to be a highly readable language
  - English keywords
  - Case-sensitive
  - Whitespace matters

Finding Syntax Errors

Runtime Errors

Runtime Errors

- An error that occurs during execution
- Results in an exception being raised
- Unhandled exceptions stop execution of script
  - Print to interactive window or GP result

Understanding Exceptions

- Exceptions come in different types
  - Built-in exceptions (NameError, TypeError)
  - ArcPy exceptions (ExecuteError, ExecuteWarning)
- Last line indicates what happen
- Preceding lines shows where the exception occurred

Handling Exceptions

- Utilize try/except clause
  - Code executes within try
  - If no exception occurs except clause is skipped
  - If exception occurs try clause is skipped and except clause is run
- try clause may have more than one except clause
  - Handlers for specific exception types

Finding Runtime Errors

Logic Errors

Logic Errors

- Code executes without error but results are unexpected
  - Using the wrong formula or algorithm
  - Conditional statement that can’t be satisfied
  - Passing wrong variable to a function
- Often subtle which can make them difficult to find

Debugging Logic Errors

- **Simplify the code**
  - Remove unnecessary function calls
  - Hardcode variables when possible
  - Preprocess the data
- **Run in debugger**
  - Step through the code
  - Print the variables to the interactive window

Debugging Logic Errors


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