Preface

You know... this would be a lot faster with a script!

Imagine... You've just begun a new job as a GIS specialist for the National Park Service. Your supervisor has asked you to analyze some wildlife data. She gives you a specific example to start with: One data table (Bird Species) contains a list of over 600 bird species known to be native to North Carolina. Another data table (Bird Inventory) contains over 5,000 records, each corresponding to a sighting of a particular bird. Your task is to clean the data, reformat the file for GIS compatibility, and summarize the data by determining what percent of the native Bird Species appear in the inventory and map the results. Once you complete this, she would like

you to repeat this process for historical datasets for the last 10 years of monthly records. After that, the next assignment will be to answer the same question based on monthly species inventory datasets for fish and invertebrates.

Performing this process manually for one dataset could be time consuming and error prone. Performing this manually for numerous datasets is completely impractical. Common GIS tasks such as this provide a strong motivation for learning how to automate workflows.

Python programming to the rescue! This analysis can be performed in single Python script. You could even use Python to automatically add the sighting locations to ArcMap® and create a report with the results. You could also add a graphical user interface (GUI) so that colleagues can run the analysis themselves on other datasets. This book will equip you to do all of these things and more.

This book is aimed primarily at teaching GIS Python scripting to GIS users who have little or no Python programming experience. Topics are organized to build upon each other, so for this audience, reading the chapters sequentially is recommended. Computer programmers who are not familiar with ArcGIS can also use this book to learn to automate GIS analyses with the ArcGIS Python API, accessible through the arcpy package. These readers can quickly peruse the general Python concepts and focus mainly on the sections describing arcpy package functionality.

The book comes with hundreds of example Python scripts. Download these along with the sample datasets so that you can run the examples and modify them to experiment as you follow the text. Where and how to download the supplementary material is explained in the first chapter. Rolling your sleeves up and trying things yourself will really boost your understanding as you use this book. Remember, the goal is to become empowered to save time by using Python and be more efficient in your work. Enjoy!

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