

Episode 9 Homework

Another file is available for you in the `Data_Files` folder from the `uva-python-video-materials` Github repository, called `BBSCo.csv`. Download that file to the same program folder you've been using. Take a look at the file. It's similar to the `BBSVa.csv` but for Colorado. Notice that it doesn't cover the years 1966 and 1967 but starts at 1968, because there were no data in 1966 or 1967 for Colorado. We were careful in writing our program not to assume any particular stretch of years; we got that from the data file itself.

1. Change your program to read this file and write a new file called `DecliningCoBirds.csv`. Notice that we created variable names for the input and output files so you can easily change those lines for different data. Just run the code you already have with only those changes.
2. Let's write a header onto our output file. We'll have to create a string and write it at the top, before any data. Construct a string with the words "Species", "Year Interval", and "Trend" separated by commas. Don't forget the end-of-line marker `\n`. Write the string to your output file before you start the loop that writes the lines of data.
3. Change your program to write files of increasing birds. You'll need to change the name of the output file and you'll need to change the condition it uses to decide whether to write a line for a given bird. Do this for both the Virginia and Colorado birds.
4. Many of the birds' populations are essentially stable; that is, the trend is very small whether it's positive or negative. Introduce a new variable called `stable`. For purposes of the exercise, set it to `.001`. Change your program so that a bird will be regarded as decreasing if the trend is less than or equal to `-stable`, and print declining birds as before (for either or both states). Now change it so that you write out birds that are increasing if their trend is greater than or equal to `stable`.