

Lab XX – MATH 240 – Computational Statistics

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Abstract

This lab was split into two parts, one part taught me how to retrieve and process data by building a Batch file and the other part was about processing JSON files and working with their data.

Keywords: loops; conditionals; indexing, data

1 Introduction

The first question that I wanted to answer during this lab was: How can I simplify the act of processing data and evaluating that data to answer more important questions? The "more important" question in this lab was determining who, of the three bands, The Front Bottoms, Manchester Orchestra, and All Get Out, contributed the most to a famous song called "Allen Town" in which they all collaborated on.

1.1 Intro Subsection

You might need/want to discuss the topics in subsections. Or, you may have multiple questions.

2 Methods

The process of answering this question began with learning how to properly process data by building a Batch file. I was given fake music data to work with, but I need functions that would allow me to manipulate the titles of the files and directories in a way that allowed me to better organize the data for evaluation later on. Specifically, I needed an R package that would allow me to manipulate strings (directory names, file names, etc.) easily. I used the `stringr` package to gain access to the functions `str_sub()`, `str_count()` and `str_split()` which allowed me to work with the directory and file names to create the Batch file.

Later on, I had to work with a JSON file, which required me to download a package, `jsonlite`, that would allow me to read the data in the JSON file. This package gave me access to the `fromJSON()` function which I used to load the JSON file into my R script and then read the data within the file.

2.1 Methods Subsection

Much like the Introduction, subsections can be helpful for the Methods section. For example, you might describe data collection and the statistical analyses of the collected data in different subsections. Or, you may have different questions that require distinct methods.

3 Results

Tie together the Introduction – where you introduce the problem at hand – and the methods – what you propose to do to answer the question. Present your data, the results of your analyses, and how each reported aspect contributes to answering the question. This section should include table(s), statistic(s), and graphical displays. Make sure to put the results in a sensible order and that each result contributes a logical and developed solution. It should not just be a list. Avoid being repetitive.

3.1 Results Subsection

Subsections can be helpful for the Results section, too. This can be particularly helpful if you have different questions to answer.

4 Discussion

You should objectively evaluate the evidence you found in the data. Do not embellish or wish-terpet (my made-up phrase for making an interpretation you, or the researcher, wants to be true without the data *actually* supporting it). Connect your findings to the existing information you provided in the Introduction.

Finally, provide some concluding remarks that tie together the entire paper. Think of the last part of the results as abstract-like. Tell the reader what they just consumed – what's the takeaway message?

Bibliography: Note that when you add citations to your `bib.bib` file *and* you cite them in your document, the bibliography section will automatically populate here.

5 Appendix

If you have anything extra, you can add it here in the appendix. This can include images or tables that don't work well in the two-page setup, code snippets you might want to share, etc.