Lab 02 – MATH 240 – Computational Statistics

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Abstract

In this lab, we analyzed musical characteristics of JSON files and started considering automated processing of audio. We want to analyze bands' contributions to the song "'Allen town', so we created a batch file containing 181 commands to avoid repetitive calling of an executable file. We traversed structured directory of music files to extract relevant data for creating commands. We also practiced traversing a JSON file to extract key features of a song in preparation to analyze bands' contributions to "'Allen town'.

Keywords: Installing and using libraries; data extraction; looping structure; vectors and lists operations.

1 Introduction

Allen Town is a song released in 2018 by collaboration of The Front Bottoms and Manchester Orchestra. Therefore, we would like to inspect what band made the most contribution to the song. To achieve correct analysis, we purchased all releases before Allen Town, which consists of 180 tracks, or 181 including Allen Town itself.

We use Essentia to analyze, synthesize, and describe data about 181 songs to determine the musician who makes the mos contribution to Allen Town. We analyze the style and characteristics of tracks belonging to each band.

We wnat to automate the process of generating the command-line prompts to speed up the process of executing the data. By creating a batch file that contains multiple commands for analysis of all given track.

During Lab 02, we practices creating a batch file with command lines of un-copyrighted songs to practice task automation. Moreover, we learned how to analyse one JSON file for track characteristcics, such as tempo in beats and average loudness. This knowledge will aid us in processing larger set of tracks by The Front Bottoms and Manchester Orchestra.

You want to provide enough background to understand the context of the work. Specifically, what is the question you are addressing? If it applies, describe what information currently exists about this problem, including citations, and explain how the question you're answering complements this work.

Provide a roadmap of the structure of the paper.

1.1 Paper Structure

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

2 Methods

Describe the data you are working with, if applicable. Describe the specific process you will follow to answer the question at hand. This does not mean you should write something like this.

> *I did this and then I did that and then I did this other thing and then..., and then..., and then...*

Instead, it should provide a clear and concise narrative that flows from the problem specification in the Introduction to how you will approach answering it. This is where I would expect to see some citations for `R` packages you will use to conduct the statistical analysis reported in the Results section.

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 phase 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.