

CS 6460 Project Milestone #1

Benjamin Wang

bwang421@gatech.edu

1 OVERVIEW

For the project, I selected a content track and wanted to create educational videos on YouTube providing guidance on how to accomplish data analysis tasks in Python and Excel.

In this milestone, I will provide a high level overview of my lesson plan, the general framework each video will follow, and a sample of a video which I have completed editing.

2 LESSON PLAN

1. Installing Anaconda - This will be a hands-on walk-through to get the user familiar with Anaconda and Jupyter Notebook.
2. Excel vs Python for Data Analysis - A high level review of the pros and cons for approaching data analysis with Excel versus Python
3. VBA Excel: Intro - A short video highlighting useful commands in VBA Excel for selecting data, examples of if-statements and loops, and some useful internal variables.
4. VBA Excel: Graphs - How to automatically generate graphs with VBA
5. VBA Excel: Strings and ReGex - Intro on how to manipulate strings and use ReGex in Excel.
6. Python: Intro - Similar to the Excel video highlighting useful commands when working with CSV-format data.
7. Python: Graphs - How to generate graphs using matplotlib and seaborn
8. Python: Strings and Regex - Examples of string manipulation and ReGex using both pandas and the native ReGex library.

Other topics I would like to cover if there is time is accomplishing PCA, clustering, and basic simulation in both Excel and Python, understand how PCA works, some basic SQL to write queries, and any user-requested topics or subjects.

3 VIDEO FORMAT

Based on research by (Guo, Kim, and Rubin, 2014) and (Kim et al., 2014), I will incorporate several mixes of media and methods maximize the engagement of these videos.

1. Webcam to personalize each video
2. Transition between PowerPoint, drawing, screencast, and animations to prevent the user from feeling disengaged or bored.
3. Exude a level of excitement and promise to achieve in the videos' title, banner, and marketing to keep a viewer's attention.
4. Keep videos to a short target length (< 6 minutes) through lesson planning and editing to reduce viewer dropout.

The start of every video, I will introduce the topic, then lead into a powerpoint slide covering the outline, and depending on the topic being covered, either provide a screen-cast demo, hand-drawn notes, or both.

4 INITIAL DELIVERABLES

Thus far, I have completed the editing for my first video, I have recorded the materials for 4 other videos so far, but editing has been the most time-consuming process thus far.

The majority of the time spent thus far was familiarizing myself with:

1. Davinci Resolve Video Editing Software
2. Paint Net Drawing software to incorporate tablet drawing notes
3. OBS Studio to create the video recordings
4. Lesson planning

My first video covering Anaconda can be found [here](#).

I would love to hear any class feedback on the general 'feel' of the video.

I would like to hear your opinion on how engaging it felt, if the information and methodology covered felt sufficient for a beginner, and any thoughts you might have for improvement which I have not considered.

5 LESSON MATERIALS

Thus far, I have been using github to manage all of my scripts and powerpoints, the raw videos are stored locally on my computer due to size restrictions, but the final production videos will be uploaded to my repo by the end of my project.

The scripts I am using are located [here](#)

6 REFERENCES

- [1] Guo, Philip, Kim, Juho, and Rubin, Rob (2014). “How video production affects student engagement: An empirical study of MOOC videos”. In: pp. 41–50. DOI: [10.1145/2556325.2566239](https://doi.org/10.1145/2556325.2566239).
- [2] Kim, Juho, Guo, Philip J, Seaton, Daniel T, Mitros, Piotr, Gajos, Krzysztof Z, and Miller, Robert C (2014). “Understanding In-Video Dropouts and Interaction Peaks In online Lecture Videos”. In: *Proceedings of the First ACM Conference on Learning @ Scale Conference*. L@S ’14. New York, NY, USA: Association for Computing Machinery, pp. 31–40. ISBN: 9781450326698. DOI: [10.1145/2556325.2566237](https://doi.org/10.1145/2556325.2566237). URL: <https://doi.org/10.1145/2556325.2566237>.