**1. Class 1: Setting Up Reproducible Markdown Files Across Platforms**

* **Description**: This class introduces markdown files for reproducibility across RStudio, Jupyter, Google Colab, and MATLAB, with the goal of integrating code, text, and outputs.
* **Resources**:
  + [R Markdown Guide](http://www.bookdown.org/yihui/rmarkdown)
  + [Google Colab Markdown Guide](http://www.colab.research.google.com/notebooks/markdown_guide.ipynb)
  + [Jupyter Notebook Markdown](http://www.jupyter-notebook.readthedocs.io/)
  + [MATLAB Live Scripts Documentation](http://www.mathworks.com/help/matlab/matlab_prog/create-live-scripts.html):

**Importance of Markdown (especially Notebook in R) Files for Reproducibility in Data Analysis and Visualization**

Markdown files allow for a integration of code, text, and output, which is important for ensuring reproducibility in data analysis and visualization. By using markdown, analysts and researchers can create documents that are not only readable but also executable, meaning that anyone can recreate the analysis and obtain the same results.

**Using Markdown Files for Reproducible Data Analysis & Visualization**

1. **Document Workflow Clearly**
   * Integrate explanations with code for a clear step-by-step analysis.
2. **Embed Code & Outputs Together**
   * Code and visualizations appear inline, linking outputs directly to the code.
3. **Work Across Platforms**
   * Markdown works in RStudio, Jupyter, Google Colab, and MATLAB, enhancing flexibility.
4. **Facilitate Version Control & Collaboration**
   * Track changes over time with Git, enabling smooth teamwork and transparency.
5. **Support Reproducible Research**
   * Entire analysis can be rerun, ensuring consistent and verifiable results.
6. **Easy Sharing with Stakeholders**
   * Render as HTML/PDF for non-technical audiences, combining narrative and visuals.
7. **Practical Example: Survey Analysis**
   * Document data cleaning, analysis, and visualizations in one file for easy replication.