# Project Specification

## Data Scientist Capstone

### Project Definition

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Project Overview | Student provides a high-level overview of the project. Background information such as the problem domain, the project origin, and related data sets or input data is provided. | Starbucks_Challenge Jupyter notebook section 1. Introduction. |
| Problem Statement | The problem which needs to be solved is clearly defined. A strategy for solving the problem, including discussion of the expected solution, has been made. | Starbucks_Challenge Jupyter notebook section 1. Introduction. |
| Metrics | Metrics used to measure performance of a model or result are clearly defined. Metrics are justified based on the characteristics of the problem. | Starbucks_Challenge Jupyter notebook section 6. Modeling. |

### Analysis

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Data Exploration | Features and calculated statistics relevant to the problem have been reported and discussed related to the dataset, and a thorough description of the input space or input data has been made. Abnormalities or characteristics about the data or input that need to be addressed have been identified. | Starbucks_Challenge Jupyter notebook/ html section 5.2. Data Analysis. |
| Data Visualization | Build data visualizations to further convey the information associated with your data exploration journey. Ensure that visualizations are appropriate for the data values you are plotting. | Starbucks_Challenge Jupyter notebook/ html section 5.2. Data Analysis. |

### Methodology

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Data Preprocessing | All preprocessing steps have been clearly documented. Abnormalities or characteristics about the data or input that needed to be addressed have been corrected. If no data preprocessing is necessary, it has been clearly justified. | Starbucks_Challenge Jupyter notebook/ html section 5.1. Data Wrangling. |

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| Implementation | The process for which metrics, algorithms, and techniques were implemented with the given datasets or input data has been thoroughly documented. Complications that occurred during the coding process are discussed. | Starbucks_Challenge Jupyter notebook/ html section 5.1. Data Wrangling. |
| Refinement | The process of improving upon the algorithms and techniques used is clearly documented. Both the initial and final solutions are reported, along with intermediate solutions, if necessary. | Starbucks_Challenge Jupyter notebook/ html section 5.1. Data Wrangling. |

## Results

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Model Evaluation and Validation | If a model is used, the following should hold: The final model's qualities — such as parameters — are evaluated in detail. Some type of analysis is used to validate the robustness of the model's solution.<br><br>Alternatively, a student may choose to answer questions with data visualizations or other means that don't involve machine learning if a different approach best helps them address their question(s) of interest. | Starbucks_Challenge Jupyter notebook/ html section 6. Modeling. |
| Justification | The final results are discussed in detail. Exploration as to why some techniques worked better than others, or how improvements were made are documented. | Starbucks_Challenge Jupyter notebook/ html section 7. Evaluation. |

## Conclusion

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Reflection | Student adequately summarizes the end-to-end problem solution and discusses one or two particular aspects of the project they found interesting or difficult. | 7. Evaluation. |
| Improvement | Discussion is made as to how at least one aspect of the implementation could be improved. Potential solutions resulting from these improvements are considered and compared/contrasted to the current solution. | 7. Evaluation. |

Deliverables

| Criteria | Meets Specifications | Modules |
|---|---|---|
| Write-up or Application | If the student chooses to provide a blog post the following must hold: Project report follows a well-organized structure and would be readily understood by a technical audience. Each section is written in a clear, concise and specific manner. Few grammatical and spelling mistakes are present. All resources used to complete the project are cited and referenced.<br><br>If the student chooses to submit a web-application, the following holds: There is a web application that utilizes data to inform how the web application works. The application does not need to be hosted, but directions for how to run the application on a local machine should be documented. | Flask web application was created.<br><br>Web application source code is under app folder. Complete file list is mentioned in README.MD file.<br><br>Instructions:<br><br>Run the following command in the app's directory to run your web app:<br><br>python run.py<br><br>Go to http://0.0.0.0:3001/ |
| Github Repository | Student must have a Github repository of their project. The repository must have a README.md file that communicates the libraries used, the motivation for the project, the files in the repository with a small description of each, a summary of the results of the analysis, and necessary acknowledgements. If the student submits a web app rather than a blog post, then the Project Definition, Analysis, and Conclusion should be included in the README file, or in their Jupyter Notebook. Students should not use another student's code to complete the project, but they may use other references on the web including StackOverflow and Kaggle to complete the project. | https://github.com/ramsaran-vuppuluri/Starbucks-Challenge |
| Best Practices | Code is formatted neatly with comments and uses DRY principles. A README file is provided that provides. PEP8 is used as a guideline for best coding practices.<br><br>Best practices from software engineering and communication lessons are used to create a phenomenal end product that students can be proud to showcase! | https://github.com/ramsaran-vuppuluri/Starbucks-Challenge |