Project Submission

Choose one of Udacity's curated datasets and investigate it using NumPy and pandas. Go through the entire data analysis process, starting by posing a question and finishing by sharing your findings.

**Evaluation**

Use the [**Project Rubric**](https://review.udacity.com/#!/projects/3176718735/rubric) to review your project. If you are happy with your submission, then you are ready to submit! If you see room for improvement in **any** category in which you do not meet specifications, keep working!

Your project will be evaluated by a Udacity reviewer according to the same [**Project Rubric**](https://review.udacity.com/#!/projects/3176718735/rubric). Your project must "meet specifications" or "exceed specifications" in each category in order for your submission to pass.

**Submission**

**What to include in your submission**

1. A PDF or HTML file containing your analysis. This file should include:
   * A note specifying which dataset you analyzed
   * A statement of the question(s) you posed
   * A description of what you did to investigate those questions
   * Documentation of any data wrangling you did
   * Summary statistics and plots communicating your final results
2. Code you used to perform your analysis. If you used a Jupyter notebook, you can submit your .ipynb. Otherwise, you should submit the code separately in .py file(s).
3. A list of Web sites, books, forums, blog posts, github repositories, etc. that you referred to or used in creating your submission (add N/A if you did not use any such resources).

**Jupyter notebook instructions**

If you used a Jupyter notebook on your computer to create your project, you can include all your code and analysis in the notebook and do not need to create additional files for your analysis. You will still need to export your work in a PDF or HTML format also (see point 1 above), and include this in your submission as well. To download your notebook as an HTML file, click on File -> Download.As -> HTML (.html) within the notebook. If you get an error about "No module name", then open a terminal and try installing the missing module using pip install <module\_name> (don't include the "<" or ">" or any words following a period in the module name).

**Ready to submit your project?**

Click on the "Submit Project" button and follow the instructions to submit!

It can take us up to a week to grade the project, but in most cases it is much faster. You will get an email when your submission has been reviewed.

If you are having any problems submitting your project or wish to check on the status of your submission, please email us at [review-support@udacity.com](mailto:review-support@udacity.com).

 Congratulations! You've completed this project

Meets Specifications

Good job. Thanks for the fixes suggested in the last review. Keep it up. 

**Code Functionality**

**All code is functional and produces no errors when run. The code given is sufficient to reproduce the results described.**

**The project uses NumPy arrays and Pandas Series and DataFrames where appropriate rather than Python lists and dictionaries. Where possible, vectorized operations and built-in functions are used instead of loops.**

**The code makes use of functions to avoid repetitive code. The code contains good comments and variable names, making it easy to read.**

**Quality of Analysis**

**The project clearly states one or more questions, then addresses those questions in the rest of the analysis.**

**Data Wrangling Phase**

**The project documents any changes that were made to clean the data, such as merging multiple files, handling missing values, etc.**

**Exploration Phase**

**The project investigates the stated question(s) from multiple angles. At least three variables are investigated using both single-variable (1d) and multiple-variable (2d) explorations.**

**The project's visualizations are varied and show multiple comparisons and trends. Relevant statistics are computed throughout the analysis when an inference is made about the data.**

**At least two kinds of plots should be created as part of the explorations.**

**Conclusions Phase**

**The results of the analysis are presented such that any limitations are clear. The analysis does not state or imply that one change causes another based solely on a correlation.**

**Communication**

**Reasoning is provided for each analysis decision, plot, and statistical summary.**

**Visualizations made in the project depict the data in an appropriate manner that allows plots to be readily interpreted.**