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**Denver University Data Analytics Bootcamp**

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**Module 4 Challenge**

**Module 4 Challenge Background**

* What good is data without a good plot to tell the story? In this assignment, you’ll apply what you've learned about Matplotlib to a real-world situation and dataset.
* You've just joined Pymaceuticals, Inc., a new pharmaceutical company that specializes in anti-cancer medications. Recently, it began screening for potential treatments for squamous cell carcinoma (SCC), a commonly occurring form of skin cancer.
* As a senior data analyst at the company, you've been given access to the complete data from their most recent animal study. In this study, 249 mice who were identified with SCC tumors received treatment with a range of drug regimens. Over the course of 45 days, tumor development was observed and measured. The purpose of this study was to compare the performance of Pymaceuticals’ drug of interest, Capomulin, against the other treatment regimens.
* The executive team has tasked you with generating all of the tables and figures needed for the technical report of the clinical study. They have also asked you for a top-level summary of the study results.

**Analysis**

**Review all the figures and tables that you generated in this assignment. Write at least three observations or inferences that can be made from the data. Include these observations at the top of your notebook.**

* **Mouse l509 saw a the greatest reduction in tumor volume at the the 35 day timepoint measurement while undergoing the Capomulin treatment.**
* **Mice undergoing the Capomulin treatment generally had a strong correlation between weight and tumor volme, with the correlation coefficient between weight and tumor volume being 0.84, which is considered high.**
* **Mice undergoing the Ramicane treatment saw the lowest variance in tumor volume, suggesting the treatment had the smallest impact on tumor volume over the course of time.**
* **Mice undergoing Ketapril treatments saw the highest standard deviation in tumor volume at 8.27, suggesting there is a high variability in the effectiveness of the treatment.**
* **The dataset did contain duplicate data which had to be omitted (Mouse ID “g989”) but the effects of omitting the duplicate ID are objectively negligible.**
* **Infubinol contained one potential outlier in the tumor volume dataset.**