**# Pymaceuticals Inc. – Mouse Drug Trial Analysis   
Columbia University – \*\*Data Visualization Bootcamp\*\***---   
  
**## Author**   
\*\*Arisleyda Reyes\*\*   
📧 rlopezarisleyda@gmail.com   
  
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**## Overview**   
This project cleans, analyzes, and visualizes data from a pre‑clinical study of several anti‑cancer drug regimens tested on mice. The notebook answers key questions about drug efficacy and sample integrity using \*\*Pandas\*\*, \*\*Matplotlib\*\*, and \*\*SciPy\*\*.   
  
**## Repository Contents**  
| File / Folder | Description |  
|---------------|-------------|  
| `Pymaceuticals\_complete.ipynb` | Full Jupyter notebook with code, plots, and commentary. |  
| `data/` | Raw CSV files: `Mouse\_metadata.csv`, `Study\_results.csv`. |  
| `images/` | Automatically exported charts (bar, pie, box, line, scatter). |  
| `README.md` | \*You are here.\* Project description and run instructions. |  
  
**## How to Run**   
1. Clone or download this repo.   
2. Ensure Python 3.10+ with `pandas`, `matplotlib`, and `scipy` installed.   
3. Launch VS Code & open `Pymaceuticals\_complete.ipynb`.   
4. Select a kernel with the required libraries and \*\*Run All\*\*.   
  
**## Key Findings**   
\* \*\*Capomulin\*\* and \*\*Ramicane\*\* achieved the lowest median final tumor volumes with tight IQRs, showing strong and consistent efficacy.   
\* \*\*Infubinol\*\* displayed a wide volume spread and several high‑value outliers, indicating variable response and potential resistance.   
\* Tumor volume under Capomulin correlated positively with body weight (Pearson \_r\_ annotated in the scatterplot); heavier mice may need weight‑adjusted dosing.   
  
**## Technologies**   
\* Python 3.10+   
\* Pandas ≥ 2.2   
\* Matplotlib ≥ 3.8   
\* SciPy ≥ 1.12   
\* Jupyter Notebook / VS Code   
  
**## License**   
This project is released under the \*\*MIT License\*\* – see `LICENSE` for details.   
  
**## Contact**  
Questions or feedback? Please reach out at \*\*rlopezarisleyda@gmail.com\*\*.