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| |  |  | | --- | --- | | Module 5 | A white letter on a purple background  Description automatically generated | | A computer with a graph on the screen  Description automatically generated | A close-up of a science lab  Description automatically generated | |
| Challenge - Data Visualization  Student: Paola Moreno |

# **Observations from Data Analysis**

**1 - Tumor Volume Distribution**

Examining the box plot shows how tumor volumes are spread out among various treatment groups. While most treatments show consistent variability, there are a few unusual cases, especially in Infubinol, indicating some variability in treatment effectiveness or response.

A chart of a number of patients

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**2- Weight vs. Tumor Volume**

The scatter plot shows that as the weight of mice increases, their average tumor volume also tends to increase. This suggests a positive relationship between weight and tumor volume, indicating that heavier mice may have larger tumors. This implies that weight-related factors could play a role in tumor growth, influencing how tumors develop over time.

A graph of weight loss

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**A group of people in lab coats working on computers

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**3- Treatment Efficacy**

Analysis of the total number of observations for each drug regimen reveals that Capomulin and Ramicane have the highest number of observations, indicating their popularity or effectiveness in treating tumors. Further investigation into the average tumor volume for each treatment regimen can provide insights into the efficacy of different treatments in reducing tumor size over time. Additionally, evaluating the distribution of metastatic sites across different develop treatments can offer insights into the potential impact of treatments on metastasis and disease progression.

**A graph of rows of rows

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**A person in a lab coat and goggles looking at a test tube

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**4- Correlation Between Variables**

Calculating the correlation coefficient and performing linear regression analysis between mouse weight and tumor volume can provide quantitative insights into the strength and direction of their relationship. Understanding the relationship between these variables is crucial for identifying potential factors that influence tumor growth and for predicting tumor behavior based on mouse characteristics.

**A graph with a line and a line

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**5- Identification of Outliers:**

Calculating the correlation coefficient and performing linear regression analysis between mouse weight and tumor volume can provide quantitative insights into the strength and direction of their relationship.

Studying outliers in tumor volume across different treatment plans can help identify potential anomalies or uncommon reactions to treatment. These outliers might indicate special cases needing more research or could provide clues about factors affecting treatment results.

A screenshot of a computer screen

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This comprehensive analysis of the data offers researchers valuable insights into several key areas:

* Provides clarity on the effectiveness of various treatment regimens in managing tumors.
* Clarifies the relationship between mouse characteristics and the progression of tumors.
* Identifies potential outliers or exceptional cases that warrant further investigation.

These findings have significant implications for guiding future research efforts and facilitating the development of more effective strategies for cancer treatment.