Final Reflection

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The first poster that captured my attention was focused on research related to the Galaxy Zoo. The study aimed to answer three research questions using statistical methods. The first research question was whether the size of a galaxy could be estimated given its redshift. The researchers used the radius of the galaxy to estimate its size and conducted a correlation analysis to establish the relationship between the two variables. They also used linear regression to plot a graph of the residuals and the predicted values. The study found a negative correlation between petro_theta and redshift. The second research question investigated whether the mean value of galaxy stars 50% light stars inside was the same as 90% inside light stars. The researchers used two-sample hypothesis testing and found a significant difference between the two groups, with a p-value of 0.035. The final research question aimed to determine whether noise had a significant impact on the effective temperature of the star. The researchers used a two-sample hypothesis testing approach and found no significant evidence to reject the null hypothesis.

The second poster that I reviewed was focused on transients and supernovae. The study aimed to answer two research questions related to binary and continuous variables. The first research question involved analyzing and predicting a binary variable based on a continuous variable using classification and decision trees. The researchers used box plots and histograms to visualize the distribution of flux values for detected_bool values and found a difference between the two distributions. They also created a tree where the response variable was detected_bool, and the explanatory variable was flux values. The study found precision, recall, and accuracy to be satisfactory. The second research question investigated the impact of passband categories on the relationship between flux and detected_bool. The researchers used a multivariate linear regression model and found that the passband category may have an impact on the relationship between the flux level and the probability of stars being detected.

Working on my Capstone Project was a challenging and rewarding experience that taught me several important lessons. One of the most significant challenges my group faced was selecting a research question. We had to change our topic several times before finally settling on one. However, this experience taught us the importance of patience and perseverance when conducting research. As we progressed, we encountered several challenges related to data collection and analysis. However, we were able to overcome them by working collaboratively and seeking feedback from our advisor.

The Capstone Project also taught me the importance of effective communication in a group setting. We had several disagreements and misunderstandings throughout the project, but we were able to resolve them by communicating openly and respectfully. Furthermore, I developed my academic writing and visual design skills while working on the project. We spent a lot of time crafting our research paper and poster, ensuring that they were well-written and visually appealing.

Overall, the Capstone Project provided me with an opportunity to develop my research, collaboration, communication, and academic writing skills. It was a challenging but rewarding experience that allowed me to gain practical experience in conducting research in a group setting. I am proud of what my group achieved and grateful for the knowledge and skills I acquired during the project.