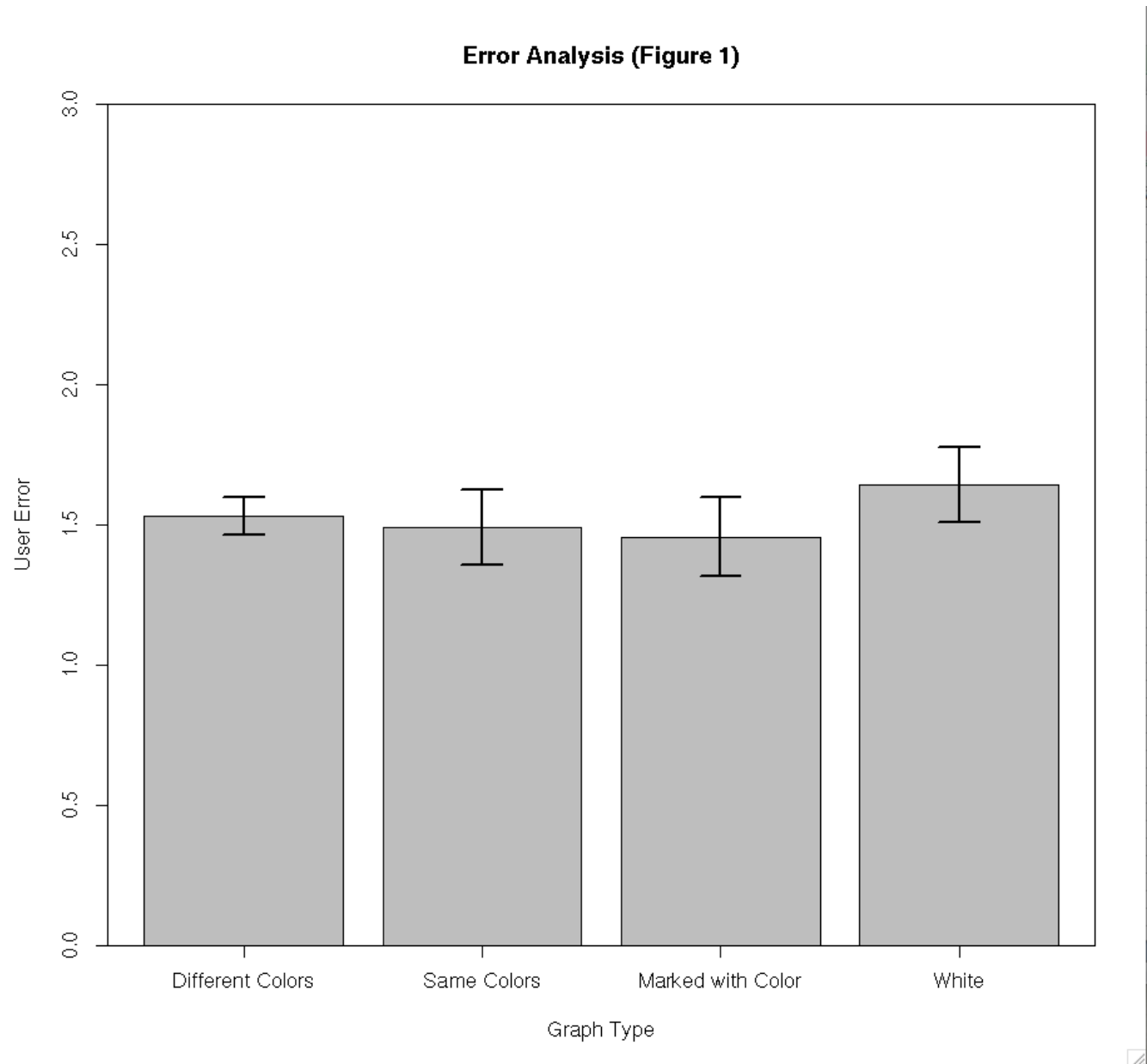


□ report.md

Comp 150 - Visualization, Assignment 5

- Ben deButts
- Susie Kharraz-Post
- Tyler Lubeck

Results



To calculate the Confidence Intervals, we relied on the power that is 'R'. We loaded our data in to an excel file, then loaded the excel file in to 'R'. 'R' allowed us to easily parse the columns of this file, and we used the built in 'qt' function to perform the analysis.

This analysis showed that white bars were by far the worst, and bars with the same colors were best. This disproves our hypothesis, where we thought that bars with all different colors would allow for the easiest user experience.

Normal Distributions

Running Shapiro tests over all of the data showed that none of it was normally distributed. Yet again, 'R' made this easy. We used the built in Shapiro-Wilk test. You can find the results in the table below.

Statistically Significant Differences

Because the data was not normally distributed, and we tested multiple conditions, we had to perform a manual Kruskal-Wallis test. The Kruskal-Wallis test showed that even after modifying the p-value to account for the multiple test factors, we still don't have any statistically significant data. Taking a look at the Bonferroni Correction shows that this is likely, because it tells us that there is only a 14.26% chance of there being a statistically significant value in our tests.

Tables

Shapiro-Wilk Test Results

Test	Mean	P Value
Different Colors	1.53	6.44×10^{-16}
Same Colors	1.49	3.88×10^{-05}
Marked with Color	1.46	5.48×10^{-7}
White	1.64	1.58×10^{-7}

Since the P Values for these tests are significantly lower than the critical value of 0.05, we know that the results are not normally distributed

Kruskal-Wallis Test Results

Pair	X ²	P Value
Different Colors & Same Colors	297.55	0.50
Different Colors & Marked with Color	299.00	0.47
Different Colors & White	302.57	0.46
Same Colors & Marked with Color	297.23	0.50
Same Colors & White	296.55	0.50
Marked With Color & White	295.56	0.51

This test tells us that there is no statistically significant differences in our population.