The Effect of Advertisement Type and Gender on Click Rates Using a Randomized Block Design

1. Introduction:

Brief background about online advertising. importance of understanding user engagement, and motivation for using statistical design to analyze behaviors.

2. Objective

The main objective of this study is to examine the type of advertisement, and the the gender of the user significantly influences the number of clicks on ads.

3. Dataset Description

variables

- Interest: Type of advertisement (**Treatment**)
- Gender: User gander (**Block)**
- Click: Number of clicks (**response variable**)

4. Methodology:

- A **Randomized Block Design** (**RBD**) was used to control the variability due to gender (block), while analyzing the effects of ad interest (treatment) on the number of clicks.
- The analysis was carried out using **R programming** and the aov() function.
- Assumption of Anova was checked and deemed acceptable

5. Result and Analysis:

- The Anova result showed a statistically significant effect of both advertisement type and gander on the number of clicks (p-value <0.05)
- This suggests that both factors play a role in influencing user behavior.

6. Visualization:

- A **box plot** was used to visualize the distribution of click rates across different ad types and genders.
- The plot revealed that certain ad types perform better for specific gander.

7. Conclusion and Recommendations:

The analysis supports targeted advertising based on gender and content type can improve engagement .

It is recommended that digital marketers consider both factors when designing campaigns.

8. Appendix

- Code used in R
- Visualizations