[Yarmouk Unversity -Department of Statistics]

[The Effect of Advertisement Type and Gender on Click Rate Using a Randomized Block Design]

[Randomized Block Design]

LOGO.ADAM96.COM

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1. **ANOVA table :Effect of AD Type and gender on**

Df	Sum Sq	Mean Sq	F value	Pr(>F)
interest	39	245305	6290	2.056 0.000172 ***
gender	1	79639	79639	26.031 3.95e-07 ***
Residuals	1102	3371424	3059	

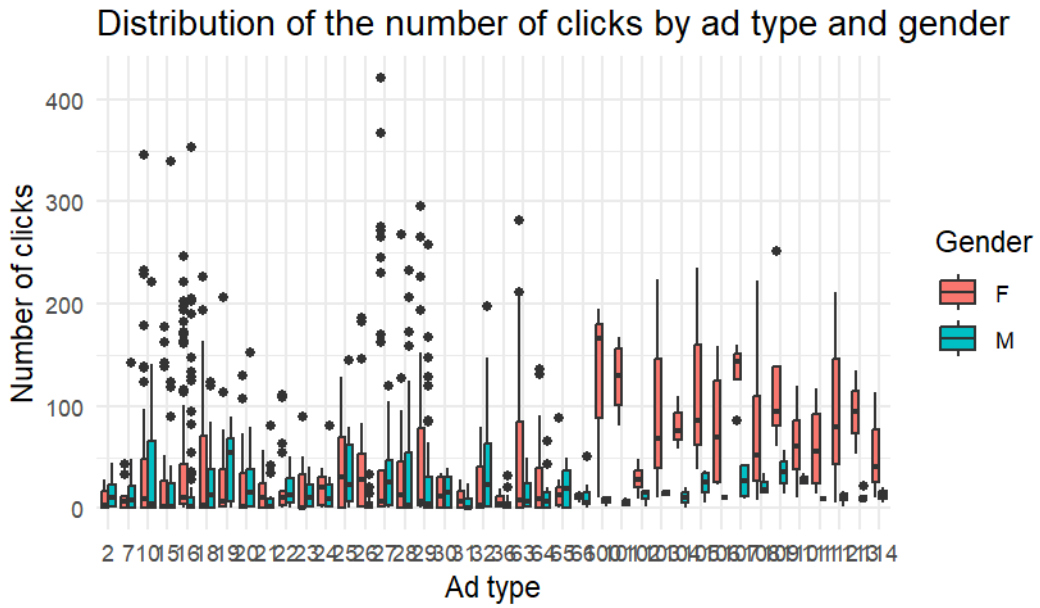
Signif. codes:	0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1			

a) Do the data present sufficient evidence to indicate significant differences among intrest Clicks means? Use $\alpha = 0.05$.
H_0:$\mu 1 = \mu_2 = \ldots\ldots = \mu_{1044}$ & H_1:at least one the means is defferent than others
p-value<?0.05
0.000172<?0.05,yes we reject H_0
ased on the ANOVA results, the null hypothesis stating that the advertisement type has no effect on the number of clicks was rejected at the 5% significance level.
This indicates that there is a **statistically significant difference in click rates** between at least two advertisement categories.
In other words, **the type of ad shown to users plays a significant role in determining their engagement**, as measured by the number of click

b) Do the data present sufficient evidence to indicate significant differences among gender clicks means? Use $\alpha = 0.05$. (Hypotheses, decision and conclusion).
H_0:$\mu 1 = \mu_2 = \ldots\ldots = \mu_{1044}$ & H_1:at least one the means is defferent than others
p-value<?0.05

$3.95e^{-07}$<0.05,yes we reject H_0,
The ANOVA results also led to the rejection of the null hypothesis concerning gender This implies that **there is a statistically significant difference in the number of clicks between male and female users n practical terms, gender influences how users respond to advertisements, which suggests that ad performance varies based on the viewer's gender.**

2- Box Plot: Comparison of Click Rates by Ad Type and Gender



This box plot illustrates the distribution of click counts across different advertisement types, separated by gender t highlights differences in user engagement between males and females for each ad category.