Exercise

A study was conducted to compare gas mileage for three competing brands of gasoline. for different automobile models of varying sizes are randomly selected. The data in km per gallon are given below

Models	gasoline brand			
	1	2	3	Total
I	32.4	35.6	38.7	106.7
II	28.8	28.6	29.9	87.3
III	36.5	37.6	39.1	113.2
IV	34.4	36.2	37.9	108.2
Total	132.1	138.0	145.6	415.7

Determine if there are significant differences between the gasoline brands and the models.

LSD Example continuation

$$SS_{error} = SS_{total} - SS_{rows} - SS_{collumns} - SS_{treat} = 16.3750$$

ANOVA Table

Source	df	SS	MSS	F
Treatments	3	9.6875	3.2292	1.1832
Rows	3	84.6875	28.2292	10.3434*
Collumns	3	124.6875	41.5625	15.2288*
Error	6	16.3750	2.7292	
Total	15	235.4375		

To test:

$H_0 : \mu_A = \mu_B = \mu_C = \mu_D$

H_1 :at least two means are not equal

Test statistic $F = \frac{MS_{treat}}{MS_{error}} = 15.2288$. We reject H_0 if $F_{cal} > F_{0.01}(3,6) = 9.78$, Since 15.2288>9.78, we reject the null hypothesis and conclude that there are siginificant differences between the rations and in terms of dry matter digestibility.