MAT5007 – Applied Statistical Methods

Embedded Lab – *R* Statistical Software

FALL SEMESTER –
20222023L25+L26
SLOT

E-RECORD

Experiment No.: 10

Submitted By

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SITE

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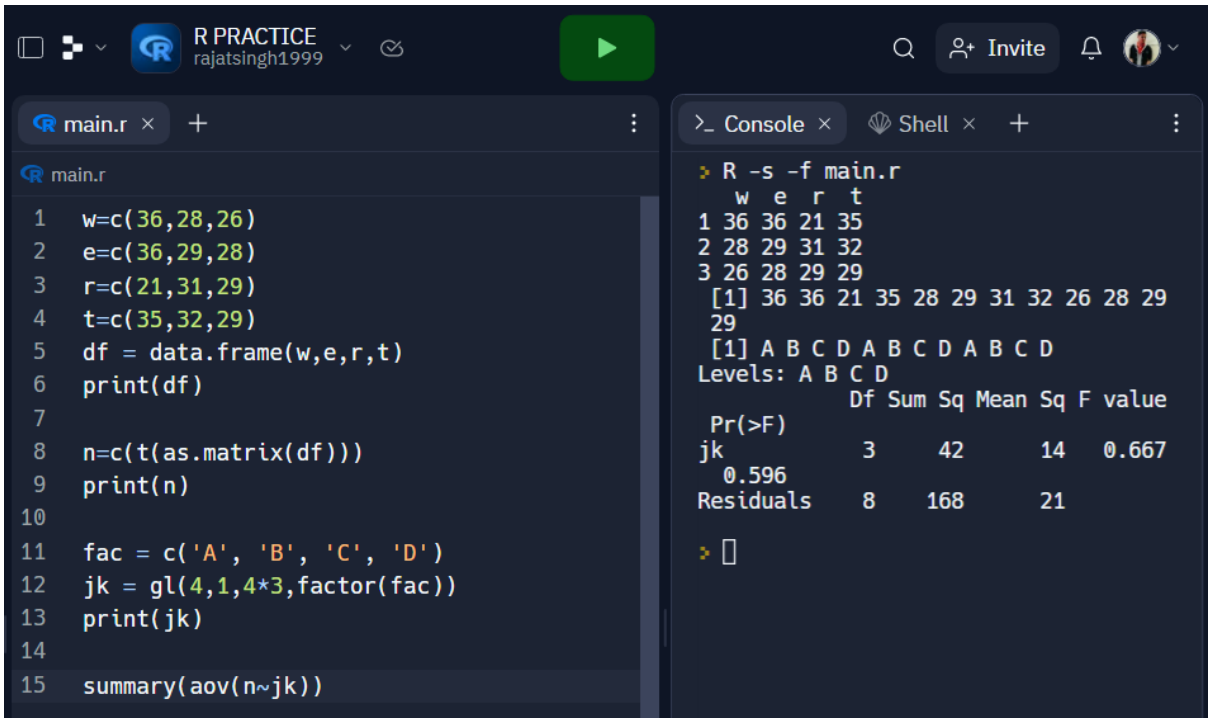
Note:The codes are done in "repl it" environment because I was facing errors in Rstudio due to my laptop data being corrupted. Thank You for the considerations.

1. A company appoints 4 salesman (A, B, C & D) and observes their sales in 3 seasons (Summer, Winter & Monsoon). The figures (Rs. in Lakhs) are given in the following table.

	Treatments			
Seasons	A	B	C	D
Summer	36	36	21	35
Winter	28	29	31	32
Monsoon	26	28	29	29

Write down the R programming code to perform an analysis of variance at 5% level of significance.

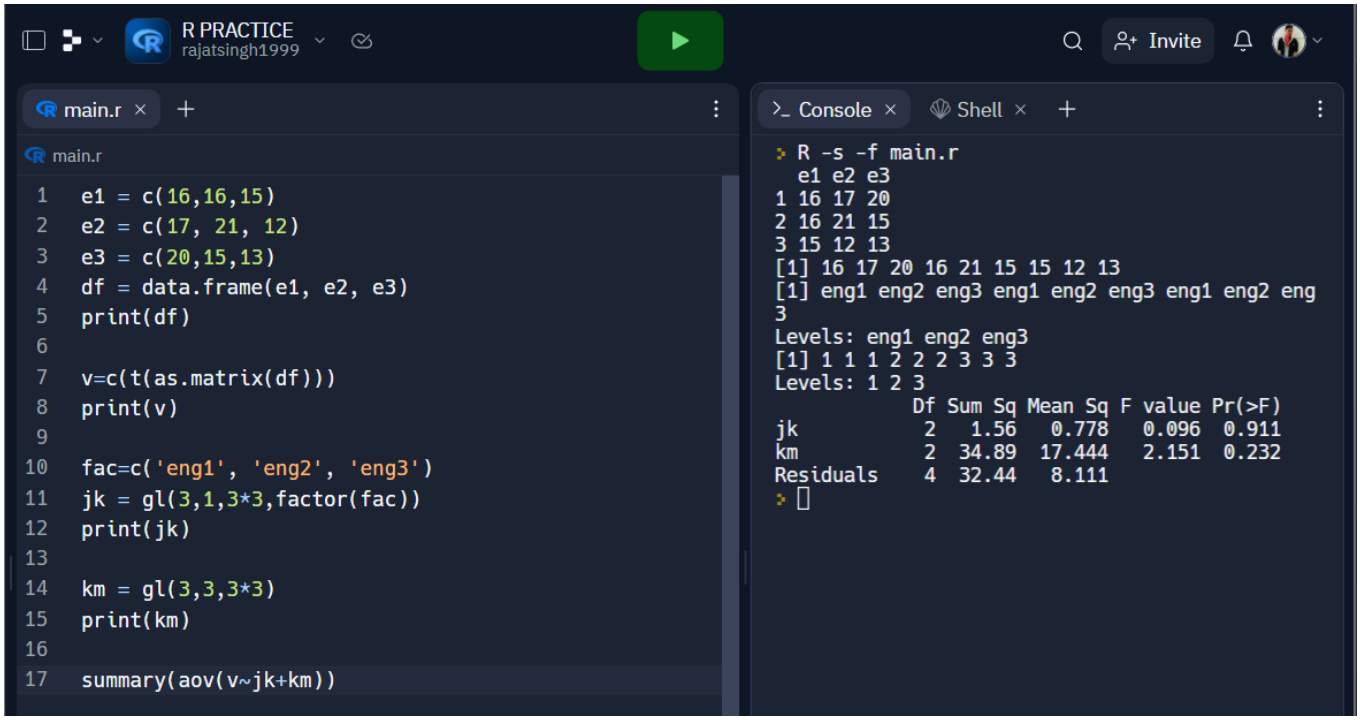


The p-value is 0.596(>0.05). So, at 5% significance level, we fail to reject the null hypothesis that the treatment effects are alike.

2. The following data resulted from an experiment to compare three burners (B1, B2 & B3). A Latin square design was used as the tests were made on 3 engines and were spread over 3 days.

	Engines		
Days	Engine 1	Engine 2	Engine 3
Day 1	B1 – 16	B2 – 17	B3 – 20
Day 2	B2 – 16	B3 – 21	B1 – 15
Day 3	B3 – 15	B1 – 12	B2 – 13

Write down the R programming code to test the hypothesis that there is no difference between (i). days, (ii). engines and (iii). burners at 5% level of significance.



The p-value is 0.911(>0.05). Hence, at 5% significance level, we fail to reject the null hypothesis that there is no significant difference between the engines.

The p-value is 0.232(0.05). Hence, at 5% significance level, we fail to reject the null hypothesis that there is no significant difference between the days