COSC6323 - Homework 5

April 2021

Instructions

Please compile your report as a pdf. Submit both: FirstName_LastName.rmd (if used) and FirstName_LastName.pdf files to the black board.

1 Task 1

Two each of 40 samples of canned meat were stored at 2, 4.5, 21, and 38C for periods of 1,2,4,8, and 13 months, respectively. The two samples from each factor combination were randomly given to two taste panels who rated the samples on a continuous scale from 1 (excellent) to 8 (unacceptable). The data are given in Table 1; the two numbers in each combination are the ratings of panels 1 and 2, respectively. Analyze the data to ascertain the relationship of the quality of meat and temperature. Note that both factors have numeric levels.

TIME	TEMPERATURE			
	2	4.5	21	38
1	2.38	2.67	2.93	3.81
	2.19	2.39	2.72	3.07
2	2.74	2.81	2.97	4.14
	2.50	2.64	2.88	3.14
4	2.75	3.00	3.05	4.78
	2.74	2.79	3.21	3.45
8	3.28	3.58	3.68	5.78
	2.83	3.23	3.25	5.28
13	3.81	3.67	4.04	6.05
	3.05	3.61	4.23	7.14

Table 1. Data for exercise 1

2 Task 2

An agriculture experiment was conducted to compare four varieties of sweet potatoes. The experiment was conducted in a completely randomized design with varieties as the treatment. The response variable was yield in tons per acre. The data are given in Table 2. Test for a difference in distributions of yields using the Kruskal-Wallis test. (Use $\alpha = 0.01$.)

Variety A	Variety B	Variety C	Variety D
8.3	9.1	10.1	7.8
9.4	9.0	10.0	8.2
9.1	8.1	9.6	8.1
9.1	8.2	9.3	7.9
9.0	8.8	9.8	7.7
8.9	8.4	9.5	8.0
8.9	8.3	9.4	8.1

Table 2. Data for Exercise 2