

CSC 4780
Fall 2022
Homework 10 - Mice Analysis

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1 Contingency Table

Gene	No Cancer	Has Cancer	Total
J	93	37	130
K	34	5	39
R	20	1	21
	147	43	190

2 Conditional Proportions

Gene	No Cancer	Has Cancer	Total
J	71.54%	28.46%	130
K	87.18%	12.82%	39
R	95.24%	4.76%	21
	77.37%	22.63%	190

3 Expected counts if the gene and cancer were independent

Gene	No Cancer	Has Cancer	Total
J	100.6	29.4	130
K	30.17	8.8	39
R	16.3	4.8	21
	147	43	190

4 Chi-Squared

$$X^2 = 8.497206532327557$$

5 Degrees of Freedom

$$\text{Degrees of Freedom} = 2$$

6 P-Value

$$p = 0.014284171167428195$$

7 Conclusion

Since the p-value is less than 0.05, it can be concluded that the gene and cancer are likely not independent.