BUS 310, Quiz #2, Fall 2018

Name KEY

Section

Instructions: This quiz is to be completed entirely in class. You may not use cell phones, and you may only access internet resources you are specifically directed to use. Go to Blackboard and open the data file posted under Quiz #2. Use it to answer the following questions. **Place your answers to the bolded questions directly on this page.** You must submit the Excel file you used to perform calculations into the Quiz #2 folder in Blackboard, and submit the paper version of the quiz to the instructor to be eligible to receive full credit.

1. The amount of car value and dwelling type is sampled. Conduct an ANOVA test to determine if the type of home one lives in affects the value of one's car. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.** Create a comparative boxplot to confirm your results.

Ho: all means the same
Ha: at least one mean different
$F = 0.814$
p-value = $0.443 > 0.05$

fail to reject.
the means are about the same
box plots agree

2. The data set on sheet #2 contains measurements of whether a person lives alone and the neighborhood they reside in. Construct a pivot table to compare the categories. Use the pivot table to conduct a χ^2 test for independence, **state the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.**

Ho: the variables are independent
Ha: the variables are dependent
$\chi^2 = 7.53$
p-value = $0.023 < 0.05$ reject null

There is sufficient evidence to think the variables are dependent

3. The data set on sheet #3 contains credit card debt and whether or not they have tried a product. Conduct a two-sample *t*-test to determine if there is a difference in credit card debt between those that have tried, and those that have not tried the product. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test. Is the data dependent or independent?**

Ho: $\mu_1 = \mu_2$
Ha: $\mu_1 \neq \mu_2$
$t = 9.458$

p-value = 2.94×10^{-20}
reject null
There is sufficient evidence to conclude means are different

independent

4. On sheet #4 of the data file is data on cuts made, number of birdies, and amount of money earned in a season of golf. Predict the amount of money using the other two variables. Run your regression analysis using both variables with and without the constant. **Write the best fit regression equation of the two models and the Multiple R^2 value. Which model is better? Give more than one reason.**

$Y = 221{,}443.9 X_1 - 6721.98 X_2$
(X_1 = cuts, X_2 = birdies)

$R^2 = 0.703$

intercept = 0 model best; p-values all under 0.05 & R^2 higher

Submit your completed Excel file to Blackboard, and submit your paper quiz to your instructor in class.