ExamSoft

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Strengths and Improvement Opportunities

BT1101-AY2223S1 - Online Assessment

Course: 2210 BT1101 • Instructor: Mr - NUS CIT • 10/18/2022 • Questions: 18

My Score
(24/30)

QUESTION CORRECT INCORRECT PARTIAL CREDIT	POINTS
2 **BT1101-OA-MCQ9** **X** A: A time series is stationary if it has no trend or seasonality but cyclicality only. **X** B: Single exponential smoothing model is able to make meaningful predictions of multiple periods into the future. **X** C: In a regression model of two time series is statistically significant. We can conclude that one unit increase of X at time t causes 2.08 decrease of Y at time t, on average. **>** D: A time series is weakly dependent if the correlation becomes zero between and for all h>= 2. **X** E: *Linear regression models on time series and cross-sectional data share a same set of assumptions.*	**0/1**
4 **BT1101-OA-MCQ2** **>** A: 0.23 **X** B: *0.48* **X** C: 0.52 **X** D: 0.18 **X** E: 0.77	**0/1**
5 **BT1101-OA-MCQ3** **>** A: Country: Barplot; Expenditure: Histogram **X** B: Country: Histogram; Expenditure: Pie chart **X** C: Country: Line chart; Expenditure: Line chart **X** D: Country: Histogram; Expenditure: Histogram **X** E: *Country: Barplot; Expenditure: Barplot*	**0/1**
11 **BT1101-OA-SQ11** A: Distribution: Based on the shapiro-walk normality test, p-value = 0.002423 (<0.05). From this test, the results show that spending score is not normally distributed. However from visual inspection, from the density plot and the histrogram, it can be seen the the spending score follows a normal distribution. As coefficient of skewness is -0.0465143, it also suggests relative symmetry. Coefficient of kurtosis < 0 shows that it is somewhat flat with wide degree of dispersion. Therefore, the conclusion is that data is normally distributed. Presence of outliers: Based on the boxplot, there is no outliers seen. Therefore, it can be concluded that there are no outliers. **Grader Feedback:** - more details for visual inspection required	**2.50/3**
12 **BT1101-OA-SQ12** A: mean +- qt(0.05, df = 199*20.32906*sqrt(1 + 1/200) lower bound of prediction interval : 40.97045 + qt(0.05, df = 199*20.32906*sqrt(1 + 1/200) = 39.32522 upper bound of prediction interval : 40.97045 - qt(0.05, df = 199*20.32906*sqrt(1 + 1/200) = 42.615568 I will use the transformed value of Spending_Score for the computation of the interval as transformTukey will be able to "force" Spending_Score into a normal distribution. This is because prediction interval requires a normal distribution. **Grader Feedback:** there should be a closed bracket after 199; It's not "forcing", its just transform the data to as close as normal distribution as possible; inverse transformation eqn?	**1.50/3**
13 **BT1101-OA-SQ13** A: i. Age and Annual_Income: Since p-value = 0.86 (> 0.01), correlation is not significant at 1% level of significance Age and Spending_Score: Since p-value = 0.00 (<0.01), correlation is significant at 1% level of significance Annual_Income and Spending_Score: Since p-value = 0.89 (>0.01) , correlation is not significant at 1% level of significance. ii. Age and Spending_score is significant at 1% level of significance. The correlation matrix result of -0.33 indicates a weak negative linear relationship between age and spending score. **Grader:** Faculty **Points:** 3/3 **Comments:** good	**3/3**

14 **BT1101-OA-SQ14** A: i) H0: Mean spending score of females - mean spending score of males <= 0. H1: Mean spending score of females - mean spending score of males > 0. ii) The t and p-value is able to help come to my conclusion for the hypothesis test. Since the t-value = 0.80488 and the p-value = 0.211 (>0.05), we do not have enough evidence to reject H0 and that the mean spending score of females - mean spending score of males <=0. Therefore, we can conclude that we able to continue assuming that mean spending score of females is less than or equal to mean spending score of males. **Grader:** Faculty **Points:** 3/3 **Comments:** good	**3/3**
15 **BT1101-OA-SQ15** A: The fitted line is avgprice = -9.881e+04 + 1.576e+02*monthrent + 4.980e+03*vacrte -3.176e+02*empgrowth - 3.081e +00*aptcomp + 1.308e+00*(empgrowth*aptcomp) **Grader:** Faculty **Points:** 2/2 **Comments:**	**2/2**
16 **BT1101-OA-SQ16** A: The estimated coefficient for monthrent is 1.576e+02. This means that for every unit increase of monthly rent, the mean average price per unit will increase by 1.675e+02 on average keeping all other predictors constant. Moreover, p-value <0.05, thus we have sufficient evidence to reject the null hypothesis that the intercept is 0 and conclude that the slope parameter is statistically significant at the 5% level of significance. **Grader:** Faculty **Points:** 2/2 **Comments:** Well done.	**2/2**
17 **BT1101-OA-SQ17** A: Marginal effect = direct effect + moderate effect marginal effect = -3.176e+02 + 1.308e+00*(aptcomp) = -321.629948 **Grader:** Faculty **Points:** 1.5/2 **Comments:** Deduct 0.5 point for inserting value to aptcomp, which is not given in question. The right answer is -317.6 + 1.308*aptcomp.	**1.50/2**
18 **BT1101-OA-SQ18** A: Hypothesis system for f test is to check if linear model has any predictive power. H0: all slope parameter beta are zero, beta 0 = beta 1 = beta k = 0 H1: at least one of the beta are non zero. Conclusion: Since p-value = 2.2e-16 (<0.05), we have sufficient evidence to reject the null hypothesis and conclude that at least one of the beta are non-zero, that our linear model has predictive power. **Grader:** Faculty **Points:** 1.5/2 **Comments:** Intercept shouldn't be included in the hypotheses. Deduct 0.5 point because intercept is included in the hypotheses.	**1.50/2**