**INDIVIDUAL ASSIGNMENT 2 (PREDICTIVE SKILLS AND VISUALIZATION)**

**Instructions**

1. This assignment covers chapter 5
2. Answer questions 1, 2 and 3 either in Word, PDF or Excel (Choose 1 only for each question)
3. Study the dataset given carefully to answer question 4.
4. Use the given data to complete question 4 using Excel.
5. Submit your answer for question 4 in ONE SINGLE excel file with MULTIPLE TABS / SHEETS for each question (4a, 4b, 4c).

**Question 1:**

In a study, the opinions of adolescents and adults towards censorship of the internet was compared.

a) Identify the variable under consideration (5 marks)

b) Identify the populations (5 marks)

c) Suppose that you want to perform a hypothesis test to decide whether the mean scores of adolescents is less than the mean scores of adults. [Note: The higher the score the greater is the desire to censor the internet]. State the null and alternative hypotheses for the hypothesis test. (15 marks)

**Question 2:Time Management Skills**

You conducted a study to determine if there is a difference in time management skills between male and female students. Your sample consists of 40 males and 42 female students. You administer a 30 item time management test to the sample and the results showed that mean scores for males is 23.4 and females is 24.1.

a) Based on the information above, construct the null and alternative hypotheses for this study.

(5 marks)

b) Using significance level at 5% and t-test for independent means, you obtained a t-value of 1.50 while the critical value is 1.990. Find out whether the data provide sufficient evidence or not to conclude that the mean scores on time management of females is superior to that to males. (20 marks)

**Question 3: Magazine Article**

According to a magazine article, people read an average of more than three books in a month. A survey of 20 random individuals found that the mean number of books they read was 2.9 with standard deviation of 1.23.

a) To test the magazine’s claim, what should the appropriate hypotheses be? (5 marks)

b) Compute the t-test statistics. (5 marks)

c) Using a level of significance of 0.05, what is the critical value? (5 marks)

d) Find the p-value for the test. (5 marks)

e) What is your conclusion based on the result above? (5 marks)

**Question 4: College Data**

Using the data in the Excel file *“College Data”,*

1. Use ANOVA to determine whether significant differences exist in the mean retention rate for the different colleges over the four-year period. (9 marks)
2. Use ANOVA to determine if significant differences exist in the mean ACT scores among the different colleges. (8 marks)

c) Use ANOVA to determine if significant differences exist in the mean SAT scores among the different colleges (8 marks)