

Assignment #1 (10%)

(Due on June 20, 2020)

1. **(6 marks)** The following table lists the number of trips (in thousands) made by Canadian residents in Canada by trip purpose, third quarter of 2019.

Trip Purpose	Number of Trips (in thousands)
Business	5500
Pleasure	41100
Visiting friends/relatives	33800
Other	11100

- a. Find relative frequency for each category. What information can you withdraw from the data? [\[4 marks\]](#)
- b. Which statistical graphs can be used to represent this data set? Why? [\[2 marks\]](#)
2. **(12 marks)** A large interior design company wants to review the distribution of the salaries of its junior (0 - 3 years experienced) and intermediate (over 3 - 7 years experienced) designers. The firm believes that this information can be useful in developing plans to recruit new designers. The annual salaries (in thousands of dollars) of 16 designers are shown here:

34 45 53 49 60 75 61 47
55 76 67 58 56 69 80 86

- a. Find frequency and relative frequency for each class by completing the table below:

[\[3 marks\]](#)

Class	Frequency	Relative frequency
30 to under 40		
40 to under 50		
50 to under 60		
60 to under 70		
70 to under 80		
80 to under 90		

- b. Now use your BAI plus calculator or the formula provided in module 3 to determine the mean, median, and standard deviation for these data; and give some comments about the distribution of the data based on all the statistics you obtained. [8 marks]
- c. Which statistical graphs can be used to represent this data set? Why? [1 mark]
3. (12 marks) The manager of Showtime Movie Theaters, Inc., would like to predict weekly gross revenue as a function of advertising expenditures. Historical data for a sample of ten weeks follows.

Advertising (\$1000s), X	Weekly Gross Revenue (\$1000s), Y
6.9	98.5
4.4	89.3
5.3	95.4
5	92.2
6.7	95.6
5.7	94.4
6.6	95.9
5.2	94.7
6.9	95.8
5.8	94.2

- a. What kind of statistical graph should be used to explore the relationship between **Advertising, X**, and **Weekly Gross Revenue, Y**? Why? [1 mark]
- b. Determine the linear regression equation with Advertising as the independent variable. Interpret the meaning of the slope of this regression equation. (You can use the formula or BAI Plus calculator or use Excel to find the regression coefficients **a** and **b**). [4 marks]
- c. Determine the coefficient of determination and the correlation coefficient of these two variables. Interpret the meaning of these two results. (You can use the formula or BAI Plus calculator or use Excel to find these values). [4 marks]
- d. Estimate the weekly gross revenue for a week when \$6,200 is spent on advertising using the regression equation you have found in part b). [3 marks]

Note:

For decimal answers, keep **two** decimal places; for percentages, round to the nearest percent. You should submit only one file either your Excel file or your Word document. The Excel Instructions file is posted with the Assignment.