UNIVERSITY OF LAY ADVENTIST OF KIGALI (UNILAK)
Faculty of Economic Sciences and Management [1]

Group Assignment 1 of Business Statistics [2]

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Instructions

- Attempt all the questions

- The order of the questions does matter

Problems

1. The radio music listener market is diverse. Listener formats might include adult contemporary, album rock, top 40, oldies, rap, country and western, classical, and jazz. In targeting audiences, market researchers need to be concerned about the ages of the listeners attracted to particular formats. Suppose a market researcher surveyed a sample of 170 listeners of country music radio stations and obtained the following age distribution

Table 1. (Age Distribution)

Age	Frequency
15-under 20	5
20-under 25	15
25-under 30	25
30-under 35	40
35-under 40	35
40-under 45	20
45-under 50	18
50-under 55	12

   i. Draw Histogram to represent these data

   ii. Compute the mean, median, and mode for this distribution.

   iii. Find an estimate of the sample standard deviation and the coefficient of variation for these data

   iv. Compute the coefficient of skewness and kurtosis measures and conclude about the form of this distribution

2. Netvalley.com compiled a list of the top 100 banks in the United States according to total assets. Leading the list was Bank of America, followed by JP Morgan Chase and Citibank. Following is an Excel analysis of total assets ($ billions) of these banks using the descriptive statistics feature. Study the output and describe in your own words what you can learn about the assets of these top 100 banks. What is the overall conclusion?

Table 2. (Top 100 Banks in USA)

Characteristic	Value
Mean	76.5411
Median	21.97
Mode	13.01
Sample variance	32161.9
Standard deviation	179.3374
Kurtosis	22.2632
Skewness	4.586275
Range	1096.01
Minimum	8.99
Maximum	1105
Sum	7654.11

3. Shown here is a list of the top five industrial and farm equipment companies in the United States, along with their annual sales ($ millions). Construct a pie chart and a bar graph to represent these data, and label the slices with the appropriate percentages. Comment on the effectiveness of using a pie chart to display the revenue of these top industrial and farm equipment companies.

Table 3. (Distribution of Annual Sales)

Firm	Revenue ($ million)
Caterpilar	30,251
Deere	19,986
Illinois Tool Works	11,731
Eaton	39,817
American Standard	9,509

4. In a manufacturing plant, machine A produces 18% of a certain product, machine B produces 49% of this product, and machine C produces 33% of this product. Five percent of machine A products are defective, 12% of machine B products are defective, and 8% of machine C products are defective. The company inspector has just sampled a product from this plant and has found it to be defective. Determine the revised probabilities that the sampled product was produced by machine A, machine B, or machine C.

END