
BUSN 340 Business Statistics
Minor Project

Please solve the following problems using the baseball data file located in the resources folder of Blackboard. A summary of your responses should be uploaded in Blackboard using the link in the week 3 minor project folder.

1. Refer to the baseball data in the resources folder in Blackboard. Consider the following variables:

1. Number of wins
2. Payroll
3. Season attendance
4. Whether the team is in the American or National League
5. The number of home runs hit

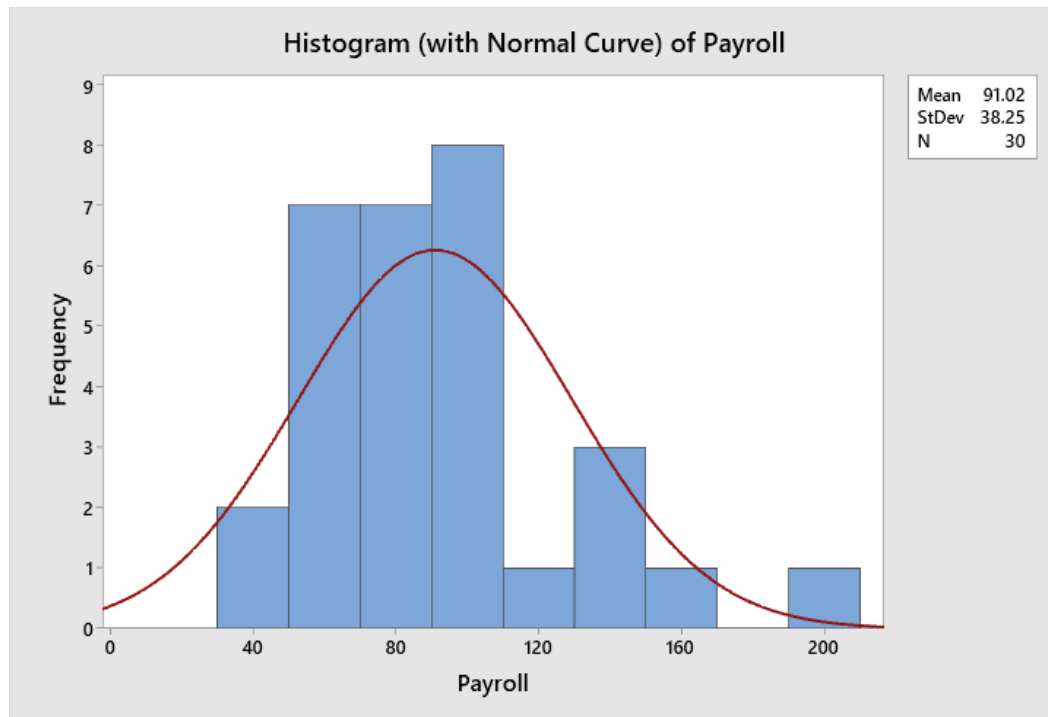
A.) Which of these variables listed above (1-5) are quantitative and which are qualitative?

- **The quantitative data is (1) Number of wins, (2) Payroll, (3) Season attendance, and (5) the number of home runs hit. The qualitative data is (4) Whether the team is in the American or National League.**

B.) Determine the level of measurement (nominal, ordinal, interval, or ratio) for each of the variables listed above (1-5).

- **Nominal: (4) Whether the team is in the American or National League**
Interval: (1) Number of wins, (5) Number of home runs hit
Ratio: (2) Payroll, (3) Season attendance

2. Refer to the baseball data that reports information on the 30 Major League Baseball teams for the 2010 season. Create a frequency distribution for the team payroll variable and answer the following questions.



Minitab: Stat – Basic Statistics – Display Descriptive Statistics – Variables: Payroll, then click the Statistics button: select mean, minimum, maximum, & range, ok, then select the Graphs button: Histogram of data with normal curve, ok, ok

Minitab: Stat – Tables – Tally Individual Variables, Add the Payroll to the variables area, Display: Cumulative percents, ok

SPSS: Analyze – Descriptive Statistics – Frequencies – Variables: Payroll, then click the Statistics button: select mean, minimum, maximum, & range, Continue, ok

SPSS: Graphs – Graphboard Template Chooser – Select Payroll – Select histogram with Normal Distribution, ok

A.) What is the average payroll for the team? What is the range (minimum and maximum) of the payroll?

- **Average: 91.02**
Minimum: 34.90
Maximum: 206.30
Range: 171.40

B.) Comment on the skewed shape of the distribution. Is the distribution positively or negatively skewed? Does it appear that any of the teams have a payroll that is out of line with the others? Which teams are classified as outliers?

- **Yes, the New York Yankees have significantly higher payroll.**

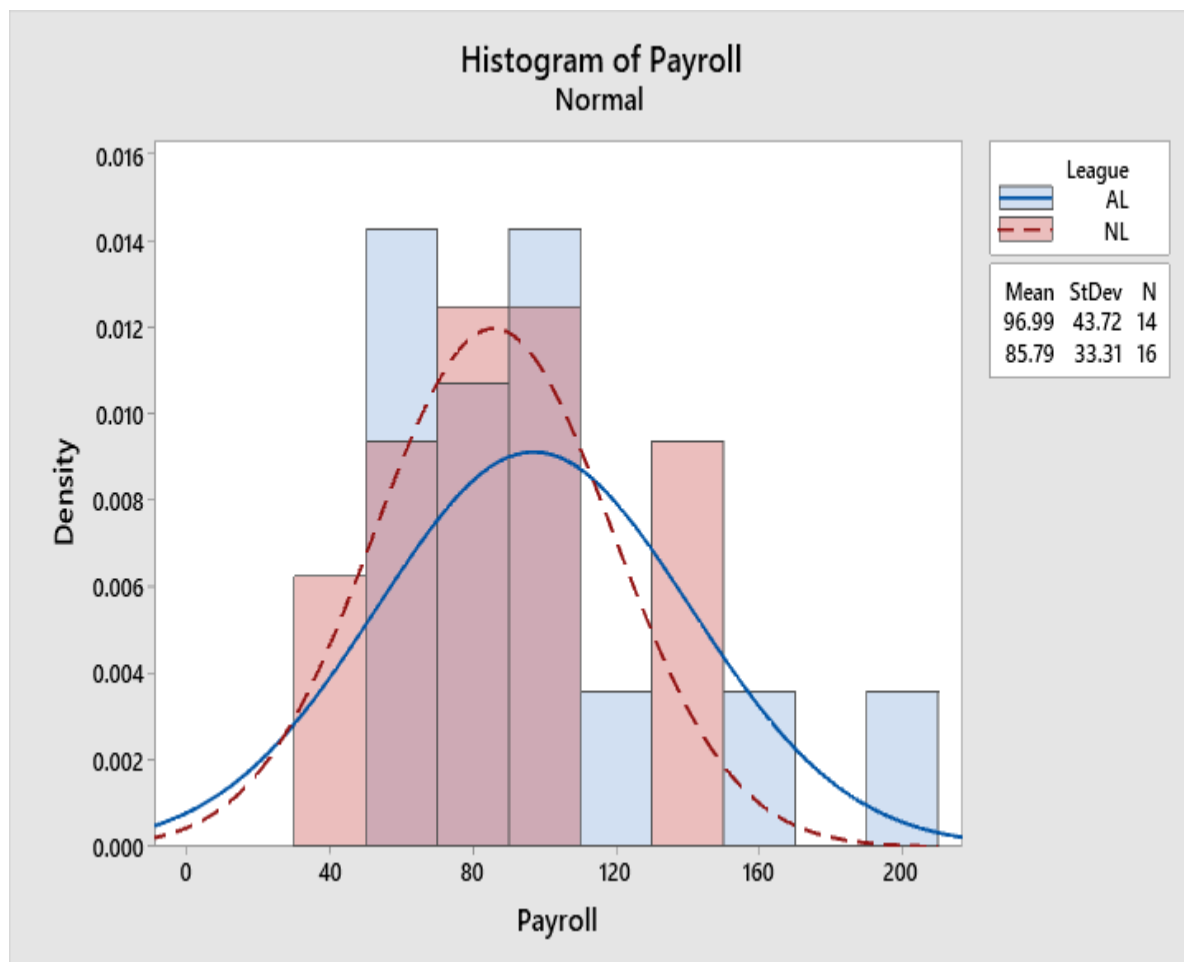
C.) Create a cumulative frequency distribution table. Thirty percent of the teams have a payroll of less than what amount? About how many teams have total payroll of less than \$100,000,000?

- **30% of teams have a payroll of less than 62,000,000 and 23 teams make less than 100,000,000.**

3. Find the mean and standard deviation of team payroll for the 14 American League and the 16 National League teams. Does there appear to be a difference in the means? Is there a difference in the dispersion for team payroll between the two leagues?

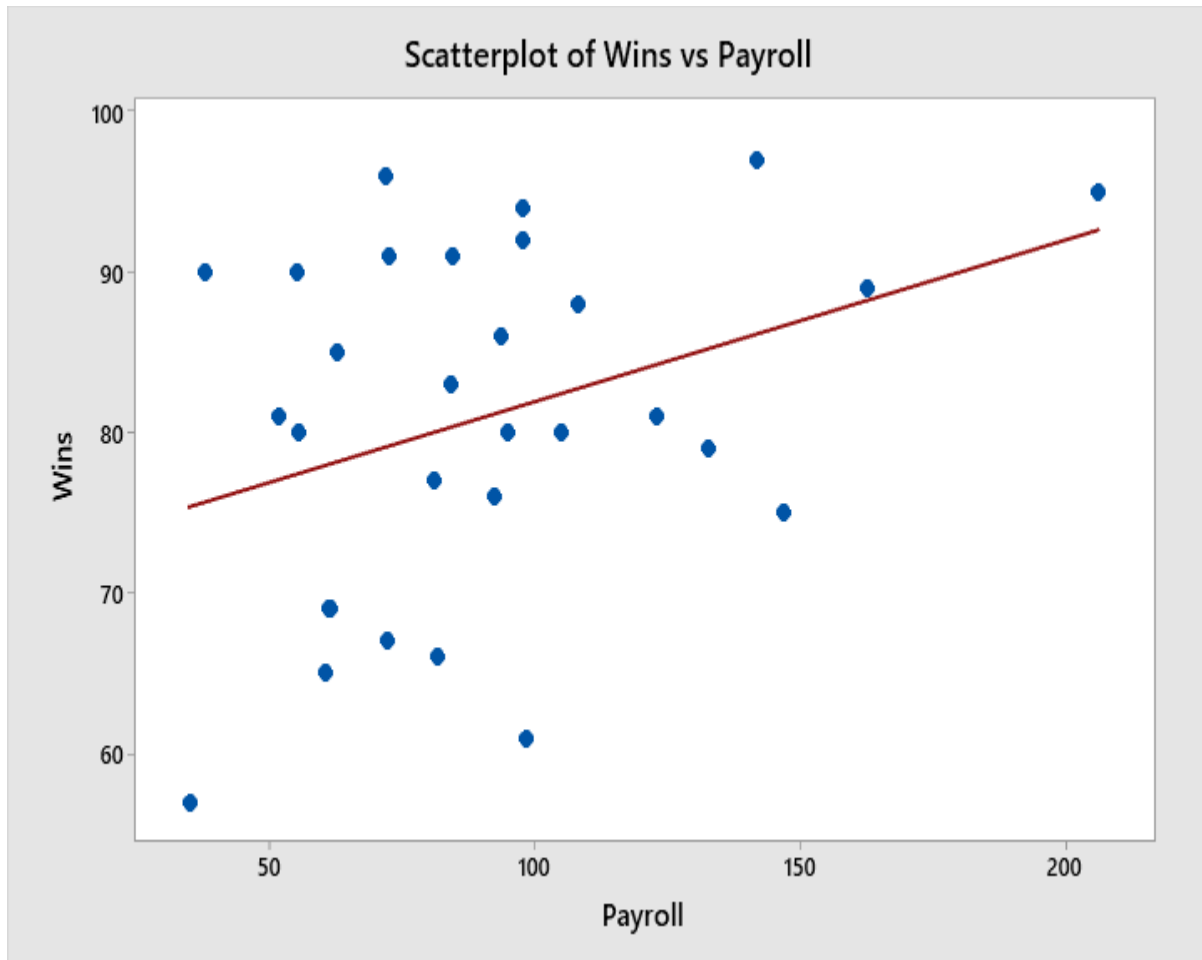
Minitab: Graph, Histogram, With Fit and Groups, ok, Graph variable: Payroll, Categorical variables for grouping (0-3): League, check “Graph variables form groups”, ok

SPSS: Analyze – Compare Means – Means – Dependent List: Payroll, Layer 1 of 1: League



- **NL: Mean is 85.8, Standard Deviation is 33.3**
AL: Mean is 96.99, Standard Deviation is 43.72

4. Draw a scatter diagram with the variable Wins on the vertical axis and Payroll on the horizontal axis. What are your conclusions?



- **My conclusion is that there is a little correlation between the number of wins and how much the team makes. However, there are some teams that make more than 150 and have 89 or more wins.**

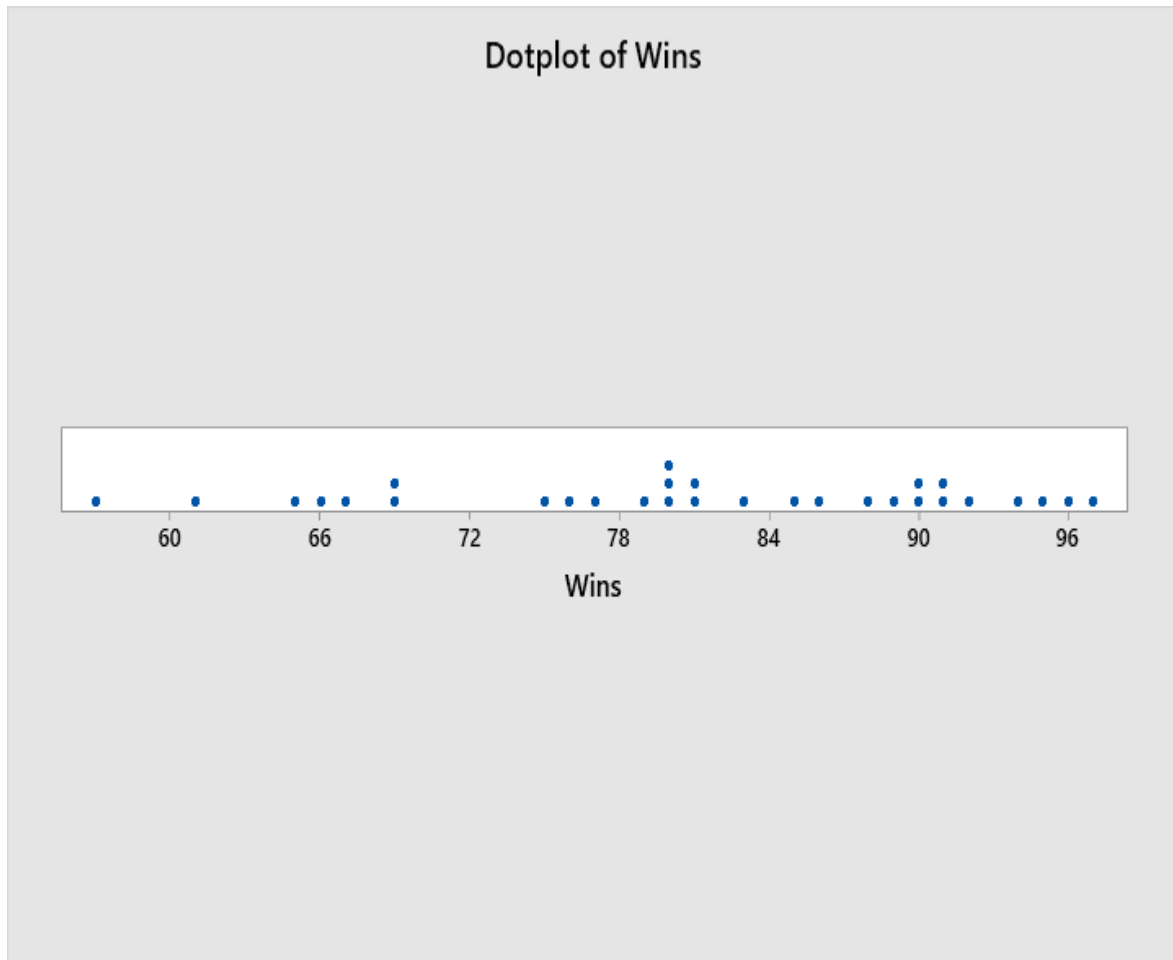
Minitab: Graph – Scatterplot: With Regression, ok, y variables = wins, x-variables = payroll, ok

SPSS: Graphs – ChartBuilder – ok, Choose from: Scatter/Dot: select first option “Simple Scatter” and drag to chart preview area, drag payroll to x-axis and wins to y-axis, select ok to publish chart

5. Using the variable Wins, draw a dot plot. What can you conclude from this plot?

Minitab: Graph – Dotplot: Simple, ok, Graph variables = wins, ok

SPSS: Graphs – ChartBuilder – ok, Choose from: Scatter/Dot select the “Simple Dot Plot” option and drag to the chart preview area: then drag the wins variable to the x-axis, select ok to publish chart



- What I can conclude is that most teams have at least 78 wins.