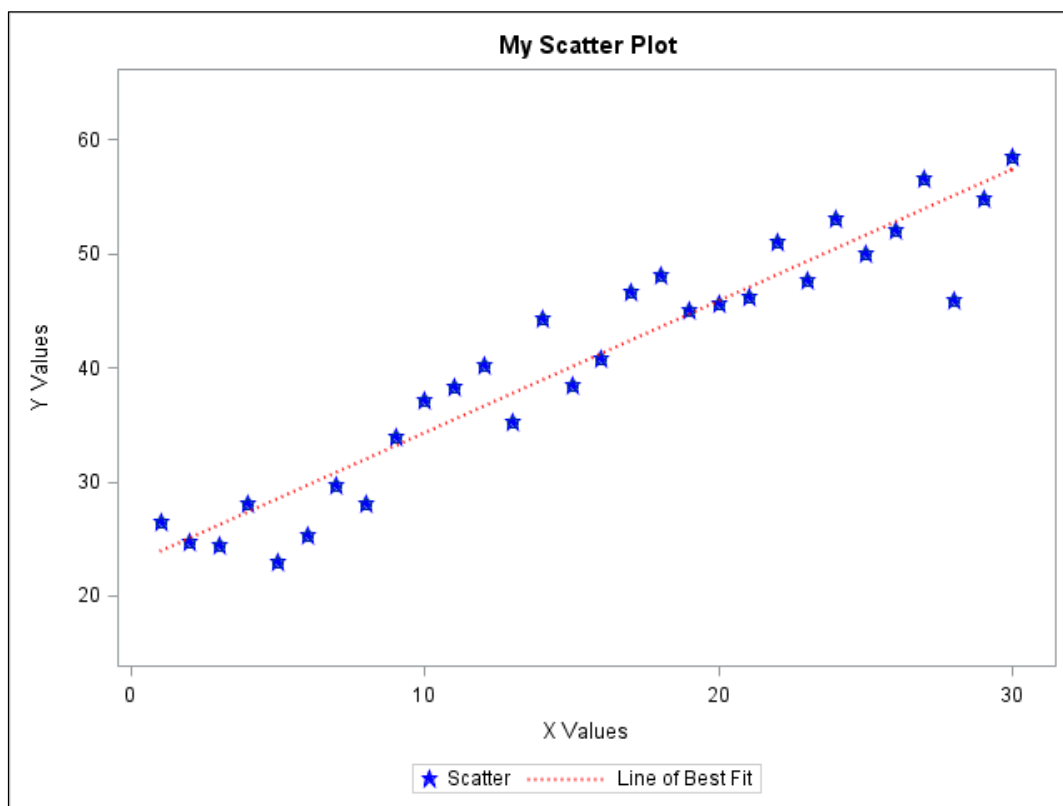


Exercise

1. Plotting Simple Linear Regression Data

- a. Create a data table with $Y = \beta_0 + \beta_1 X + \varepsilon$ where X ranges from 1 to 30, $\beta_0 = 25$, $\beta_1 = 1$, and $\varepsilon \sim N(\mu = 0, \sigma = 5)$. Keep only the variables X and Y .
- b. Use PROC SGPLOT and the REG statement to plot the line of best fit for the data. Create a plot of the data. Use both the SCATTER and REG statement to plot the points and a line of best fit.
 - 1) Enhance the plot by coloring the points blue and using the symbol STARFILLED
 - 2) Color the regression line red and use the pattern DOT.
 - 3) Add a title of your choosing to the X-axis, Y-axis, and the main title.
 - 4) Use the X-axis limits from 0 to 31, and the Y-axis limits from 15 to 65.
 - 5) Name the legend 'Scatter' and 'Line of Best Fit' for both plot types.



- c. Alter the previous plot by changing the SCATTER statement to NEEDLE and the REG statement to PBSPLINE. (This demonstrates the ease in which plot types can be altered.)

