Management of a soft-drink botling company wishes to develop a method for alocating delivery

coststo customers. Although part of total cost clearly relates to travel time within a particular oute,

another variable reflects the time required to unload the cases of soft drink athe delivery point. A

sample of 20 customers was selected from routes within a particular sales teritory and the delivery

time (in minutes) and the number of cases delivered were measured and recorded in the data set.

Develop a regresion model to help alocate delivery costs by predicting unloading time based on

the number of cases delivered.

1) Begin with a brief description of the problem in your own words. Prepare a

report using headings that reflecthe tasks you are asked to complete in (4).

You are expected to folow the report format guidelines document provided

in D2L. You should cut-and-paste al Minitab output- tabular and/or

graphical-that isrelevanto your analysis,from Minitab into your document.

4) Use your Minitab software to generate the numerical and graphical output

used in your analysis. The file containing the problem data,

<DELIVERY.MTW>, is available to you from the D2L anouncement for

this asignment. Complete the folowing tasks and discus each, excluding

(b) which does not require discusion:

-1-

Computer Project #3

a) Set up a scater diagram.

b) Use Minitab’s least squares method to obtain the regresion output. Show the entire

tabluar output for this problem here (you may wish to copy and paste pieces of it into

other sections of your eport for discusion) .

c) State the regresion equation and interpret (justify if necesary) the values for b0 and

b1 as aplicable for this problem.

d) State the coeficient of determination r2 and interpret its meaning for this problem.

e) Predicthe deliverytime with both confidence and prediction intervalsfor a customer

that is receiving 20 cases of soft drink.

f) Would it be apropriate to use this model to predict delivery time for a customer who

is receiving 50 cases of soft drink? Explain.

g) Discus evidence of a linearelationship betwen the model variables using both the

F-test and t-test statistics. Discus the t-test for the y-intercept. Asume an α = .05

level of significance for al tests.

h) Perform a residual analysis. Using the standardized residuals, generate a histogram,

normal probabilty plot, and residuals vs. fits. Discus each in terms of the

apropriate asumptions of linear egresion.

i) Summarize your findings above in determining the adequacy of the fit of the model

and your confidence in its abilty to alocate delivery costs to customers.