

Due: Monday, Sept. 10. (Due to the previous Labor Day break, the due date is moved to Monday)

Instructions:

- We will work on part of this assignment in class on Thursday, Sept. 6. Please do the following before Thursday's class.
 - (1) Review/Read *Handout1_SLR_a.pdf* and *Handout2_SLR_b.pdf* (p.1-3).
 - (2) Read the assigned problems from the textbook.
 - (3) Use *Lab1_SLR.R* (for R users) or *Lab1_SLR.pdf* (for SPSS users) as reference, load the data set to the software and try to answer some of the homework problems.
- The data sets are available both on Blackboard and the CD that comes with the book. In many cases, the first column in the data file is the y variable. After you load the data set to the software, be sure to compare it with the table in the textbook and check whether it is loaded correctly.
- Use statistical software to solve the problems. Some questions may require plugging software output into formulas for additional computation. You can use a calculator if needed.
- You can either type or hand-write your answers. Your answers do not have to be long (conciseness is a plus!), but should use complete sentences to discuss the problem and draw appropriate conclusions in the context of the problem (i.e., more than a numerical result). Include supporting work (plots, output, etc.) with your solutions. But only include what is relevant to your conclusion.
- To find the t-distribution critical value for confidence interval, refer to the t-distribution Table (*ips6e_table_d_t.pdf*), or use the software. To use the table, from the left panel of the table, locate the desired degrees of freedom (df) to determine a row. If the desired df is not in the table, use the closest one. Then, find the desired confidence level from the bottom of the table to determine the column. Then, the cross point of the selected row and column gives you critical value. For example, in a simple linear regression with $n=30$ observations, the degrees of freedom is $30-2=28$. At 95% confidence level, the critical value is 2.048.

The following problems are based on the Copier Maintenance Data in Problem 1.20 (p.24).

1. 1.20, ~~1.24(b)~~ (p. 35, 36)

2. 2.5 (a, b, c, d) (p. 90. Hint: In part d, test $H_a: \beta_I > 14$.)

Remark for part e: The intercept in this model could mean the "start-up" time. However, for this data set, it does not give any relevant information because 1. it is negative, and 2. it is not (statistically) significantly different from 0.

Update, 9/6: 1.24(b) will be moved to HW 2.

This is the end of HW 1.