

STAT 495, Fall 2008

Homework Assignment #2

1. This problem assumes that you are familiar with airline travel. If you are not, you should contact me for assistance.
 - a) Construct a logical flow chart for the process of taking an airline flight from the time you arrive at the airport till the time you sit down in your seat on the airplane. Be sure to operationally define what “arrival at the airport” is.
 - b) Below are hypothetical data on the frequency of complaints from airline passengers. Construct a Pareto chart from this information.

Complaint	Frequency
Bumped	11
Canceled Flight	37
Checked Baggage	26
Missed Connection	57
On-time Performance	122
Seat Assignment	14
Other	8

- c) Most complaints of airline passengers’ concern disruption in the flight schedule (canceled flight, missed connection, and on-time performance). Construct a Cause-and-Effect diagram where the effect is a disruption in the flight schedule and the causes are those that lead to such disruptions. This may or may not fit into the pattern where major causes can be classified by Method, Material, Machine, People, etc. Note: You may construct the Flow Chart, Pareto chart and Cause-and-Effect diagram by hand or with the aid of a computer.
2. Because of expansion and contraction, the temperature of parts can have an effect on the measurement process. Below are two scenarios for collecting data on the effects of temperature on a measurement system. For each of the scenarios indicate whether it is an observational study or an experiment. Explain briefly your choice. Which do you think will give you a better understanding of the effects of temperature on the measurement process?
 - a) Before a diameter measurement is made on an engine part, the part is chilled or warmed to a specified temperature. There are 10 temperatures (in degrees Celsius) used: -10, -5, 0, 5, 10, 15, 20, 25, 30, 35. Forty parts are measured, four parts at each of the ten temperatures.
 - b) Whenever a diameter measurement is made on an engine part, the temperature of the part is also taken. Forty parts are measured and their corresponding temperatures are recorded.
3. Come up with an example of a flow chart, Pareto chart or Cause-and-Effect diagram from your work or personal experience. Make sure that the chart is not proprietary. If you can’t find one from work or your personal experience, look in books or on the internet for an example of one of the charts. In this latter case, be sure to include a full reference to where you found the chart.