IE 375 Comments on Mini-Homework #3

General Comments

To receive full points, I strongly recommend that you write the formulae before making the calculations since it is very likely that you make errors while dealing with the numbers. Unless you write the formulae at the beginning, incorrect numbers will indicate that you use an incorrect formula, thereby reducing your points from the homework.

Homework 2 (out of 2) – Statistics: Average**:** 1.52 and Standard Deviation: 0.64

Grade (G)	**1.9<=G<2**	**1.5<=G<1.9**	**1<=G<1.5**	**G<1**	**Not Submitted**
# of students	21	15	9	1	6

Question 1

Comments regarding your performance:

1. In *part b*, some stated that *z* value is equal to critical ratio. Please read the material again.
2. In *part b*, some found μ and σ values by using the formulae $\frac{1}{n}\sum x_i$ and $\frac{1}{n-1}\sum(x_i-\mu)^2$ respectively. Please note that the x_i values in those formulae correspond to observed demand values. However, in the question, distribution of the demand is given in the table.
3. In *part b*, some found the *z* value by using the table in the appendix of our textbook whereas some used the table provided with the homework. Both versions are accepted.
4. In *part b*, almost all of you did not use interpolation while finding *z* value from the tables. Please be more careful next time.

Question 2

This is a classics newsvendor question which requires you to find optimal order quantity for a one period demand. In part a you were asked to find overage and underage cost which should be simply found from the formulations c_u*=price-cost,* c_o*=cost-salvage value.*

In part b) you were expected to use the critical ratio of the newsboy problem which is

$$F(Y^*) = \frac{c_u}{c_u + c_0}, \quad Q^* = \mu + \sigma * z$$

To solve this, you need to find z values from the table at the end of the book. We strongly recommend you to learn how to read z-table given at the back of your text-book before the exam, as those tables will be distributed in the exam in case you need to make such computations.

In part c) you are asked to find number of unsold items which can be found by *E[max(Q-D,0)]*. Pay attention to the fact that *E[max(Q-D,0)]* IS NOT EQUAL to *E[Q-D]*. You were expected to express *E[max(Q-D,0)]* in terms of the loss function and compute the expected number of unsold items with the formulation:

$$Q\text{-}E[X] + E[max(D\text{-}Q,0)]$$

In part d) expected number of backorders were asked which should be found by the loss function from the following formula:

$$E[max(D\text{-}Q),0)] = \sigma\, L(z)$$

You are expected to compute those values using tables for normal distribution or for uniform distribution by deriving explicit formulas as the functional form of uniform distribution allows for explicit representation. Any other distribution can be computed either explicitly or numerically.

Comments regarding your performance:

1. In *part b*, almost all of you did not use interpolation while finding *z* value from the tables. Please be more careful next time.
2. In *parts c and d*, some wrote exactly the opposite of what is asked. That is, they found that excess demand is 361 and expected number of unsold shirts is 19.
3. In *parts c and d*, some created a discrepancy between the lost sales found in *part c* and the excess demand found in *part d*. However, those should be same.
4. In *part c*, almost all of you first calculated "expected sales = expected demand (μ) - lost sales ($n(Q)$)". Then, you calculated "number of not sold = Q^* - expected sales". This formula is true, you may check the key for the derivation of this formula.
5. In *part c*, some calculated *E[Q-D]*. Please see the comments above and the key.
6. In *part d*, some calculated *E[D-Q]*. Please see the comments above and the key.