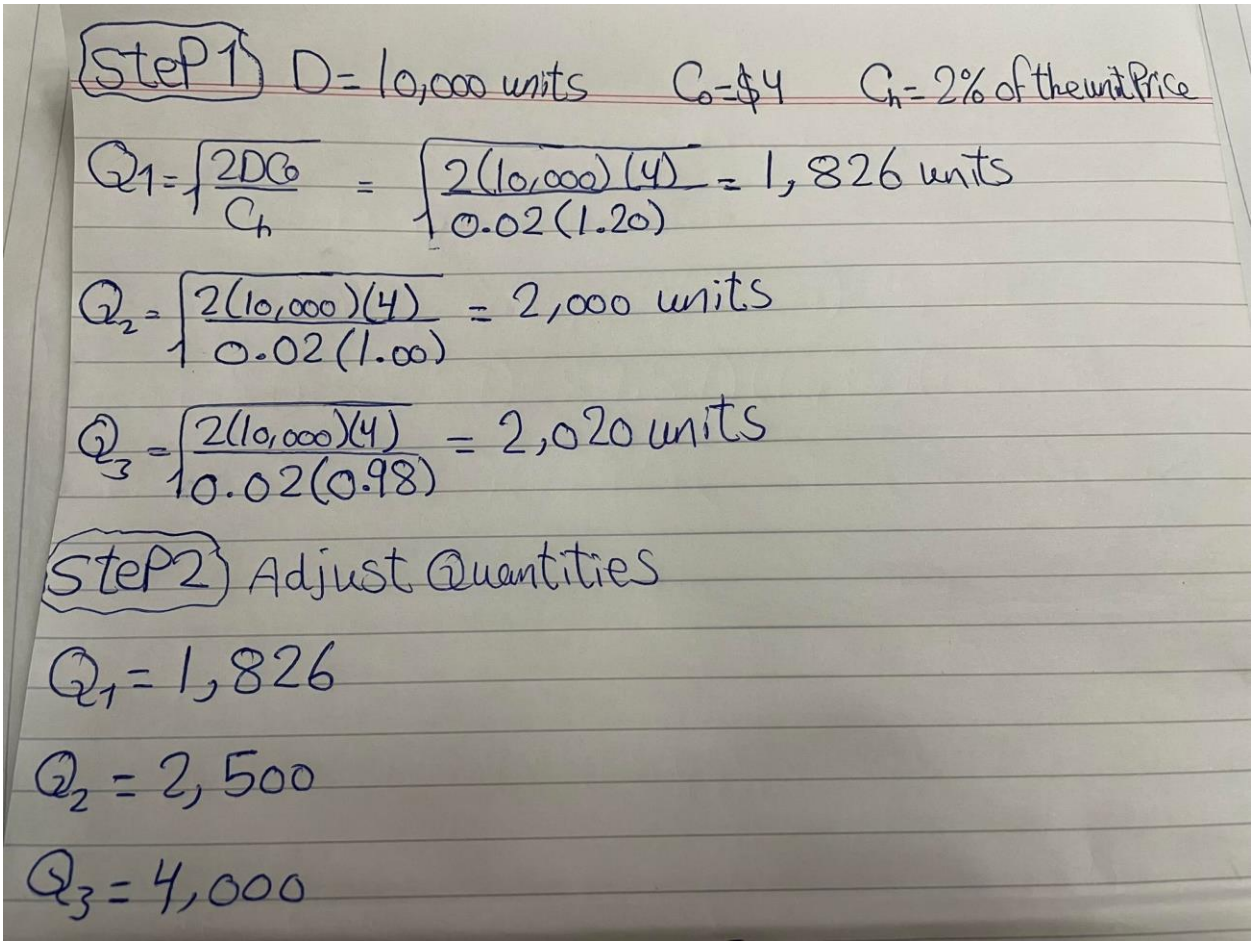
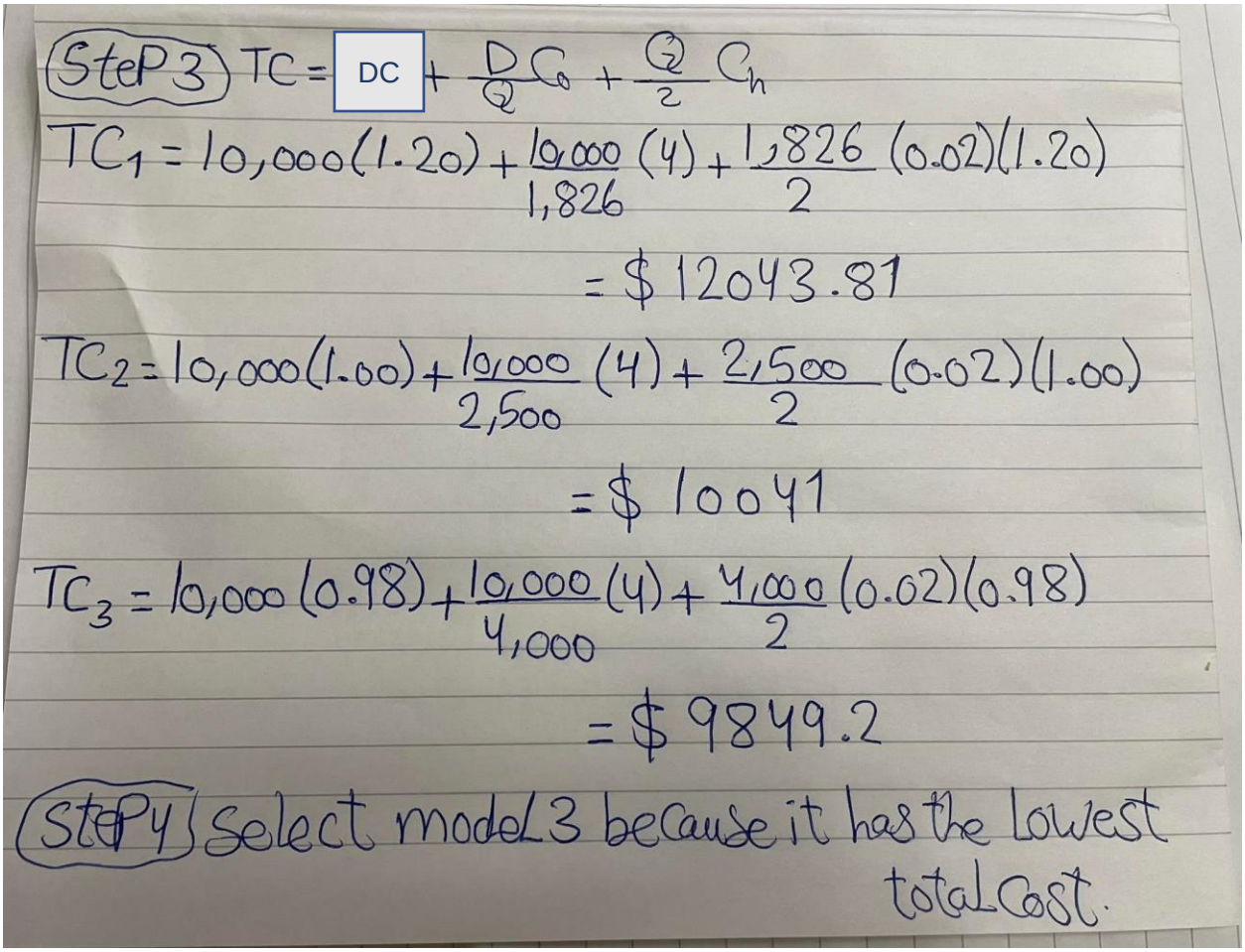
Question:

A company has a chance to reduce its inventory ordering costs by placing larger quantity orders using the price-break order quantity schedule below. What should their optimal order quantity be if this company purchases this single inventory item with an e-mail ordering cost of $4, a carrying cost with a rate of 2% of the unit price, and an annual demand of 10,000 units?

	Order Quantity (units)	Price/unit ($)
Model1	0 to 2,499	1.20
Model2	2,500 to 3,999	1.00
Model3	4,000 or more	0.98

Solution





- Order Quantities of 4,000 is the optimal Order Quantity that would lower the total annual cost for the company.

Steps:

1) Calculate EOQ for each model.
2) Adjust quantities according to the ranges of each model.
3) Calculate The total annual cost for each model.
4) Select the discount model that gives the lowest total cost.

Question:

Apply the EOQ model to the following quantity discount situation in which D = 470 units per year, C_o = \$35, and the annual holding cost rate is 30%.

Discount Category	Order Size	Unit Cost
1	0 to 99	\$12.00
2	100 or more	\$11.52

Solution

Step1:

EOQ1= $\sqrt{\frac{2\,(470)\,(35)}{0.3\,(12.00)}} = 95.5$

EOQ2= $\sqrt{\frac{2\,(470)\,(35)}{0.3\,(11.52)}} = 97.5$

Step2:

Q1= 95.5

Q2= 100

Step3:

Total Cost1= $470\,(12.00) + \frac{470}{95.5}\,(35) + \frac{95.5}{2}(0.3)\,(12.00) = \$\ 5984.15$

Total Cost2= $470\,(11.52) + \frac{470}{100}\,(35) + \frac{100}{2}(0.3)\,(11.52) = \$\ 5751.7$

Step4

Select the second discount model because it has the lowest total cost of \$ 5751.7