

MODEL	INPUT
<p><b>Newsvendor Problem</b> Given prices, maximize profit</p> <p>Type 1 service level: in stock probability Type 2 service level: fill rate</p>	<p><b>Costs</b></p> <p>Purchase price per unit <math>C = </math> <input type="text" value="20"/></p> <p>Selling price per unit before the season <math>r = </math> <input type="text" value="28"/></p> <p>Selling price per unit after the season <math>s = </math> <input type="text" value="10"/></p>
	<p><b>Demand</b></p> <p>Demand mean <math>\mu = </math> <input type="text" value="100"/></p> <p>Demand standard deviation <math>\sigma = </math> <input type="text" value="42"/></p>

OUTPUT 1 Optimize profit, find optimal Q and Service Level	OUTPUT 2 Given Service Level, find Q and expected profit	OUTPUT 3 Given Q, find Service Level and expected profit
<p>Optimal order quantity <math>Q^* = 94.13</math></p> <p>Type 1 service level <math>SL1 = 0.444</math></p> <p>Type 2 service level <math>SL2 = 0.801</math></p> <p>Total expected profit <math>TP^* = 501.33</math></p>	<p>Please enter a type of service level <b>Type=</b> <input type="text" value="1"/></p> <p>(Note: enter 1 for type 1 SL, enter 2 for type 2 SL)</p> <p>Please enter a service level of the chosen type <b>SL=</b> <input type="text" value="0.90"/></p> <p>Order quantity <math>Q = 153.83</math></p> <p>Total expected profit <math>TP = 225.96</math></p>	<p>Please enter the new purchase price <b>C=</b> <input type="text" value="18.00"/></p> <p>Please enter an order quantity <b>Q=</b> <input type="text" value="100.00"/></p> <p>Type 1 service level <math>SL1 = 0.500</math></p> <p>Type 2 service level <math>SL2 = 0.832</math></p> <p>Total expected profit <math>TP = 698.40</math></p>
<input type="button" value="Compute"/>	<input type="button" value="Compute"/>	<input type="button" value="Compute"/>

MODEL	INPUT	
Economic Order Quantity (EOQ) Policy	Costs	Price per item C = 250
		Fixed cost per order S = 2200
		Annual holding cost as a percentage of price (h+r) = 20%
	Demand	Annual demand R = 3077
	Lead time	Lead time (in years) L = 0.03835616

OUTPUT 1 Minimize total cost, find Optimal Q and ROP	OUTPUT 2 Given Q, find Costs
Optimal order quantity Q* = 520.36	Enter order Quantity Q = 2500.00
Optimal reorder point ROP* = 118.02	Reorder point ROP = 118.02
Number of orders in a year = 5.91	Number of orders in a year = 1.23
Time between two orders (in years) T = 0.17	Time between two orders (in years) T = 0.81
Cost details Annual Holding Cost = 13009.04 Annual Setup Cost = 13009.04 Annual Purchase Cost = 769250.00 Annual TOTAL Cost = 795268.07	Cost details Annual Holding Cost = 62500.00 Annual Setup Cost = 2707.76 Annual Purchase Cost = 769250.00 Annual TOTAL Cost = 834457.76

OUTPUT 3 Forward Buying, finding the Order Quantity for Trade Promotion	
Enter the new discounted purchase price C =	220.00
The One-Time Order Quantity for the Discounte Q =	2689.27

MODEL	INPUT
(Q,ROP) Policy with Lost sales	<b>Costs</b> Price per item $c =$ 5 Fixed cost per order $K_s =$ 100 Holding cost per unit time as a percentage of price $h =$ 1% Backlog cost per item per unit time $p =$ 2
	<b>Demand</b> Average demand per unit time $R =$ 2000 Standard deviation of demand per unit time $\sigma(R) =$ 100
	<b>Lead time</b> Average lead time $L =$ 10 Standard deviation of lead time $\sigma(L) =$ 0
	<b>Demand during lead time</b> Average demand during lead time $LTD =$ 20000 Standard deviation of demand during lead time $\sigma(LTD) =$ 316.228
	<b>Choose below</b> <input checked="" type="checkbox"/> Click here if you want to use LTD information directly. Otherwise, please make sure to provide information for both demand and lead time.

OUTPUT 1 Minimize total cost, find Q and ROP	OUTPUT 2 Given SL, minimize total cost, find Q and ROP	OUTPUT 3 Given SL and Q, calculate ROP and total cost
Optimal order quantity $Q =$ 2952.02 Optimal reorder point $ROP =$ 20570.6 Expected cycle length $T =$ 1.47601 Service level $SL =$ 0.96441 Total cost $TC =$ 10176.4 <hr/> Cost details Holding costs 102.553 Setup costs 67.7503 Purchase costs 10000 Shortage costs 6.05007	<b>Please enter a service level</b> $SL =$ 0.964413 Reorder point $ROP =$ 20570.53053 Optimal order quantity $Q =$ 2952.015441 Expected cycle length $T =$ 1.47600772 Total cost $TC =$ 10176.35355 <hr/> Cost details Holding costs 102.5531603 Setup costs 67.75032314 Purchase costs 10000 Shortage costs 6.050062876	<b>Please enter the new order quantity</b> $Q =$ 5 <b>Please enter a service level</b> $SL =$ 0.364 <b>Please enter an order quantity</b> $Q =$ 2952 Reorder point $ROP =$ 20570.6 Expected cycle length $T =$ 1.47601 Total cost $TC =$ 10176.4 <hr/> Cost details Holding costs 102.553 Setup costs 67.7503 Purchase costs 10000 Shortage costs 6.05006
<input type="button" value="Compute"/>	<input type="button" value="Compute"/>	<input type="button" value="Compute"/>

<input type="button" value="Draw optimal TC-SL curve"/>	<input type="button" value="Draw TC-SL curve given Q"/>
	<input type="text" value="Q = 10"/>

