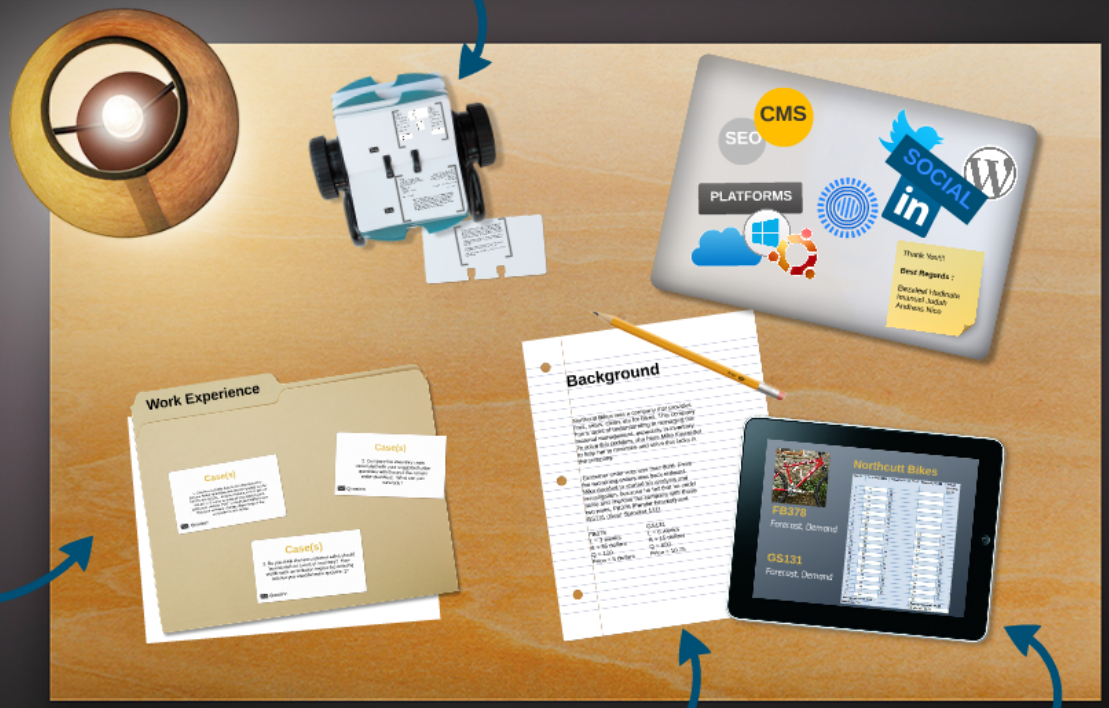
Answers



Questions

Background

Data Analysis

Northcutt Bikes The Service Department Harvard Case Solution & Analysis

TheCaseSolutions.com

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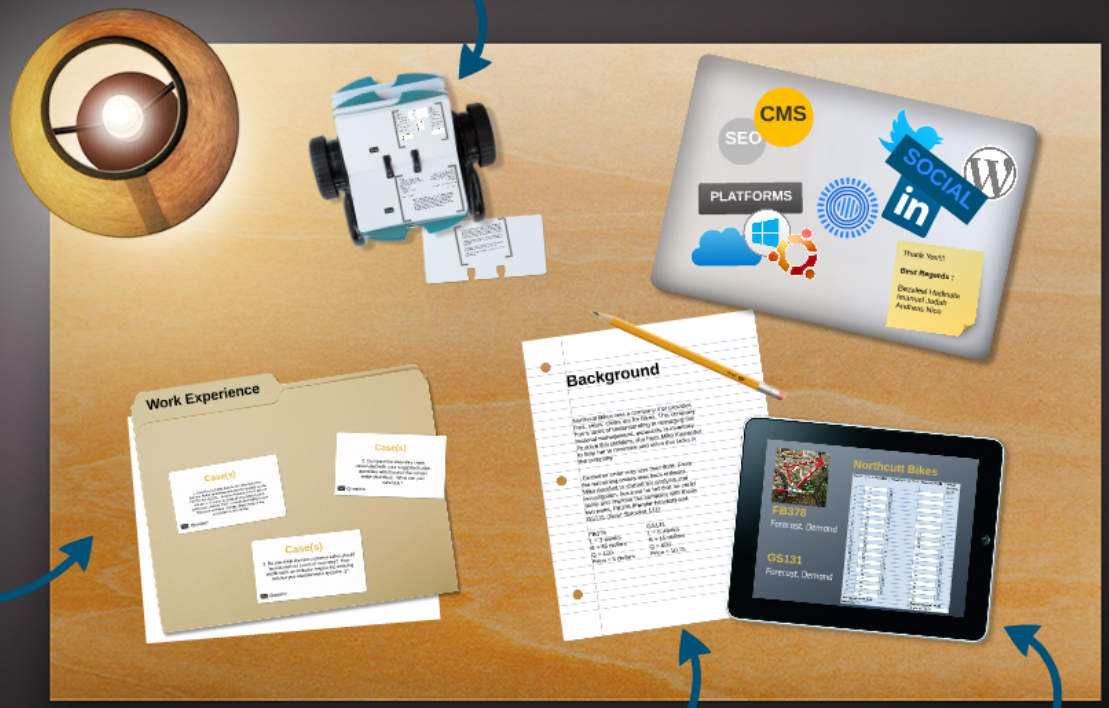
Answers



Questions

Background

Data Analysis

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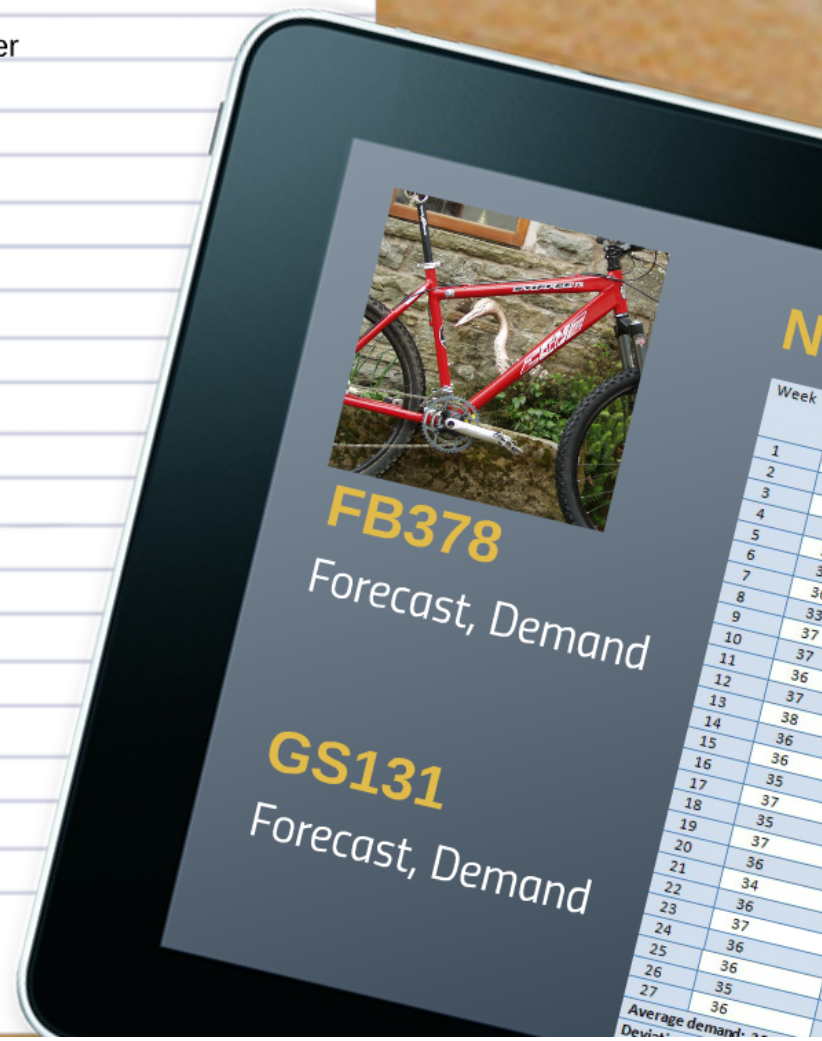
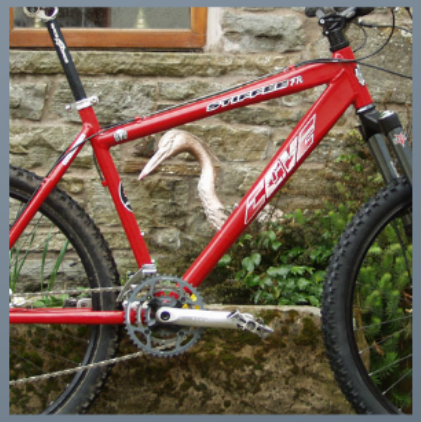
Background

Northcutt Bikes was a company that provides tires, seats, chain, etc for bikes. This company has a lacks of understanding in managing the material management, especially in inventory. To solve this problem, she hires Mike Alexander to help her to minimize and solve this lacks in the company.

Customer order was less than 80%. From the remaining orders was back ordered. Mike decided to started his analysis and investigation, because he felt that he could solve and improve the company with those two parts, FB378 (Fender Bracket) and GS131 (Gear Sprocket 131).

FB378	GS131
L = 3 weeks	L = 6 weeks
S = 35 dollars	S = 15 dollars
Q = 120	Q = 850
Price = 5 dollars	Price = 10,75





Northcutt Bikes

FB378

Forecast, Demand

GS131

Forecast, Demand

Week	Forecast, **FB378**	Actual Demand, FB378	**Forecast, GS131**	Actual Demand, GS131
1	30	34		
2	32	44		
3	35	33		
4	34	39		
5	35	48		
6	38	30		
7	36	26		
8	33	45		
9	37	33		
10	37	30		
11	36	47	10	16
12	37	40	18	27
13	38	31	30	35
14	36	38	42	52
15	36	32	55	51
16	35	49	54	44
17	37	24	52	57
18	35	41	53	59
19	37	34	53	46
20	36	24	52	62
21	34	52	53	51
22	36	41	53	60
23	37	30	54	46
24	36	37	53	58
25	36	31	54	42
26	35	45	53	57
27	36		53	
Average demand: 36.85			**Average demand: 46.85**	
Deviation: 7.91			**Deviation: 12.78**	

Work Experience

Case(s)

1. Use the available data to develop inventory policies (order quantities and reorder points) for the FB378 and GS131. Assume holding cost is 20% of unit price. Be sure to state all assumptions and justify your choices (HINT: it might be helpful to see how your answers change, depending on the assumptions you make).

Question

Case(s)

2. Compare the inventory costs associated with your suggested order quantities with those of the current order quantities. What can you conclude?

Question

Case(s)

3. Do you think the lost customer sales should be included as a cost of inventory? How would such an inclusion impact the ordering policies you established in question 1?

Question

Case(s)

1. Use the available data to develop inventory policies (order quantities and reorder points) for the FB378 and GS131. Assume holding cost is 20% of unit price. Be sure to state all assumptions and justify your choices (HINT: it might be helpful to see how your answers change, depending on the assumptions you make).

 Question

FB378
L = 3 weeks
S = 35 dollars
Q = 120
Price = 5 dollars
H = 20% x 5 = 1 dollars

Z = 1,65 (95% service level)

There's no deviation of lead time.

Average demand : 36,85

Q= 91.6
Rounded up = 92

$$ROP = \bar{d}\bar{L} + z\sqrt{\bar{L}\sigma_d^2 + \bar{d}\sigma_L^2} \quad \text{..... (2)}$$

Where

$\bar{d}$ = The average demand per time period

$\bar{L}$ = The average lead time

σ_d^2 = The variance of demand per time period

σ_L^2 = The variance of lead time

z = The number of standard deviations above the average demand during lead time

$$Q = \sqrt{\frac{2DS}{H}} = EOQ \quad \text{.....}$$

Where

Q = Order quantity

H = Annual holding cost

D = Annual demand

S = Ordering cost

$$\begin{aligned} ROP &= 37(3) + 1.65\sqrt{3(6) + 37(0)} \\ &= 111 + 1.65\sqrt{18} \\ &= 111 + 7 \\ &= 118 \end{aligned}$$

GS131
L = 6 weeks
S = 15 dollars
Q = 850
Price = 10,75
H = 20% 10,75 = 2,15

Z = 1,65 (95% service level)

There's no deviation of lead time

Average demand: 46,59

Q= 108.90 rounded up 109

$$\begin{aligned} ROP &= 47(6) + 1.65\sqrt{6(13) + 26(0)} \\ &= 282 + 1.65\sqrt{78} \\ &= 282 + 14.57 \\ &= 296.57 \end{aligned}$$