Supply Chain Management

Predict and Optimize Product Backorders

Sales, customer service, supply chain and logistics, manufacturing… no matter which department you're in, you more than likely care about backorders. Backorders are products that are temporarily out of stock, but a customer is permitted to place an order against future inventory. : Strong demand can drive back orders, but it need suboptimal planning. **The problem is when a product is not immediately available, customers may not have the luxury or patience to wait. This translates into lost sales and low customer satisfaction.** `

Potential issue in Operation research & supply chain Management:

- **OR regression in supply chain management**
- **OR and clustering in supply chain management**
- **OR and classification in supply chain management**
- **OR and outlier detection in supply chain management**

Problem statement: -

Predict and Optimize Product Backorders

What are backorders?

An order placed for a product that is temporarily out of stock with the supplier. A backorder indicates that the demand for the particular product or a service is more than its supply.

All the features and their descriptions are listed below:

1. sku: Stock Keeping Unit
2. national_inv: Current inventory level of component
3. lead_time: Registered transit time
4. in_transit_qty: In transit quantity
5. forecast_3_month: Forecast sales for the next 3 months
6. forecast_6_month: Forecast sales for the next 6 months
7. forecast_9_month: Forecast sales for the next 9 months
8. sales_1_month: Sales quantity for the prior 1 month
9. sales_3_month: Sales quantity for the prior 3 months
10. sales_6_month: Sales quantity for the prior 6 months
11. sales_9_month: Sales quantity for the prior 9 months
12. min_bank: Minimum recommended amount in stock
13. potential_issue: Indictor variable noting potential issue with item
14. perf_12_month_avg: Source performance in last 12 months
15. local_bo_qty: Amount of stock orders overdue
16. deck_risk: General risk flag
17. oe_constraint: General risk flag
18. ppap_risk: General risk flag
19. stop_auto_buy: General risk flag
20. rev_stop: General risk flag
21. went_on_backorder: Product went on backorder