MRP Simulation

MRP System

Input

1. Finished Goods Demand
2. On-Hand Inventory
3. BOM
4. Lead Time for Components
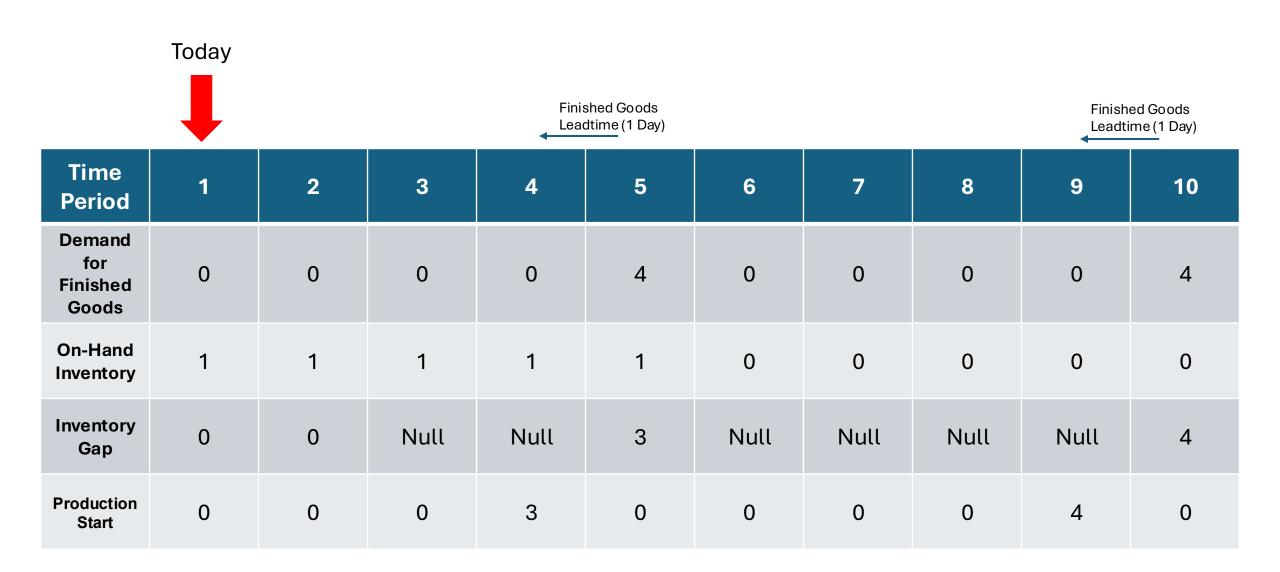5. Supplier of Component

Simulation Output

1. Finished Goods Gap (Demand – On-Hand Inventory)
2. Suppliers to Order (Based on Component's Supplier)
3. Order Quantity (Based on BOM Structure)
4. Time Period to Trigger The Order (Based on Leadtime wrf to BOM)

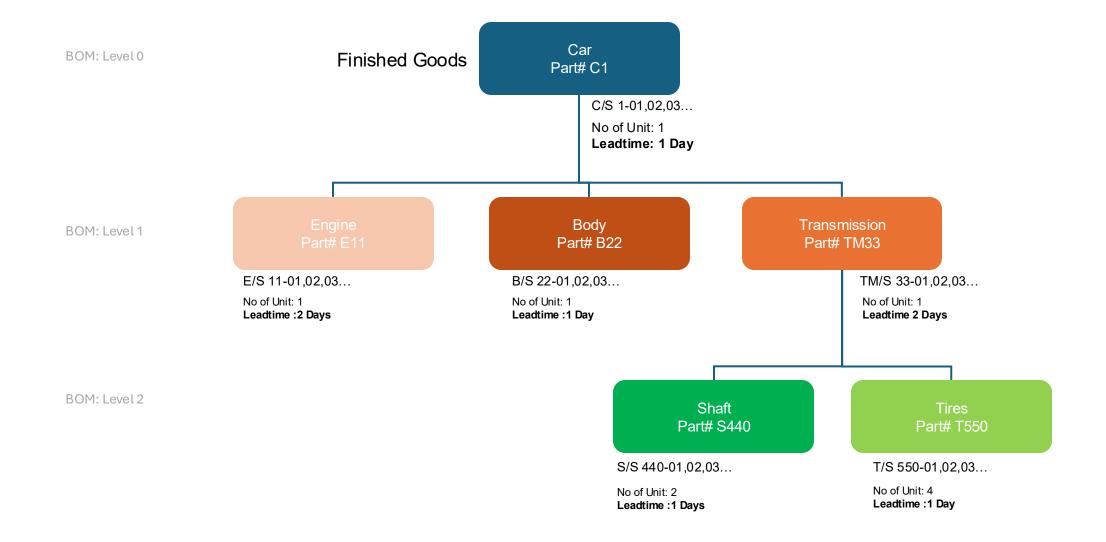**Simulation**

1. Move Time Period from 1 to 2 …3…4…
2. At each time period, the MRP engine based on the Finished Goods Demand must be able to generate:
   a) The demand for production
   b) The number of units each sub assembly or component need to produce by respective suppliers

MRP Engine: Finished Goods Demand

Today

Finished Goods Leadtime (1 Day)

Finished Goods Leadtime (1 Day)

Time Period	1	2	3	4	5	6	7	8	9	10
Demand for Finished Goods	0	0	0	0	4	0	0	0	0	4
On-Hand Inventory	1	1	1	1	1	0	0	0	0	0
Inventory Gap	0	0	Null	Null	3	Null	Null	Null	Null	4
Production Start	0	0	0	3	0	0	0	0	4	0

BOM

BOM: Level 0

Finished Goods

Car
Part# C1

C/S 1-01,02,03…

No of Unit: 1
Leadtime: 1 Day

BOM: Level 1

Engine
Part# E11

E/S 11-01,02,03…

No of Unit: 1
Leadtime :2 Days

Body
Part# B22

B/S 22-01,02,03…

No of Unit: 1
Leadtime :1 Day

Transmission
Part# TM33

TM/S 33-01,02,03…

No of Unit: 1
Leadtime 2 Days

BOM: Level 2

Shaft
Part# S440

S/S 440-01,02,03…

No of Unit: 2
Leadtime :1 Days

Tires
Part# T550

T/S 550-01,02,03…

No of Unit: 4
Leadtime :1 Day

PO to Supplier

Today

Time Period	Supplier Name	1	2	3	4	5	6	7	8	9	10
Production Start	Null	0	0	0	3	0	0	0	0	4	0
Engine LT	A	Null	Null	Null	-2 Day	Null	Null	Null	Null	-2 Day	Null
Engine Qty (X1)		0	3	0	0	0	0	4	0	0	0
Body LT	B	Null	Null	Null	-1 Day	Null	Null	Null	Null	-1 Day	Null
Body Qty (X1)		0	0	3	0	0	0	0	4	0	0
Transmission LT	C	Null	Null	Null	-2 Day	Null	Null	Null	Null	-2 Day	Null
Transmission Qty (X1)		0	3	0	0	0	0	4	0	0	0
Shaft LT	D	Null	-1 Day	Null	Null	Null	Null	-1 Day	Null	Null	Null
Shaft Qty (X2)		6	0	0	0	0	8	0	0	0	0
Tires LT	E	Null	-1 Day	Null	Null	Null	Null	-1 Day	Null	Null	Null
Wheel Qty (X4)		12	0	0	0	0	16	0	0	0	0

Simulator (Time Period)

Time Period	← **1** →	…….	**3**
Production Demand	0		0
Supplier A Demand	0		0
Supplier B Demand	0		3
Supplier C Demand	0		0
Supplier D Demand	6		0
Supplier E Demand	12		0

Example