**Optimizing Supply Chain for Urban Decay Makeup Product Line**

**Background:**

Urban Decay is a fast-growing fashion and beauty startup that specializes in makeup products such as skincare and haircare. As the brand scales its distribution across multiple cities in the United States, its operations have become more complex, relying on diverse suppliers, varied transportation modes, and fluctuating demand. The company recently collected internal supply chain data to identify inefficiencies in its inventory, shipping, and production processes.

**The Problem:**

Despite high product demand, Urban Decay has faced issues such as frequent stockouts, rising shipping and manufacturing costs, and customer dissatisfaction due to delivery delays and defective items. Their leadership wants to understand where the bottlenecks are happening, from supplier performance to route choices, so they can improve operational efficiency and reduce costs.

**Key Business Questions Urban Decay Needs to Answer:**

**1. Which SKUs are at risk of stockouts based on low availability and high order quantities?**

This will help ensure the most in-demand items are always available, especially for top-selling makeup products

**2. Which suppliers or transportation routes are causing the most delays or high costs?**

Some suppliers might be slower or more expensive depending on their location, lead times, or transportation methods used.

**3. Are high defect rates linked to specific suppliers or manufacturing lead times?**

Quality control is essential in beauty products. Identifying poor-performing suppliers early helps reduce returns and protect brand reputation.

**4. What is the profitability per product considering revenue, shipping, and manufacturing costs?**

This shows which makeup SKUs generate the most net value after operational expenses.

**5. Is there a correlation between transportation mode and shipping cost?**

Choosing between Air, Road, or Rail impacts cost. This helps balance efficiency and expense.