**Business Rules**

**Production Line**

Unique Line Numbers: Each production line must have a unique identifier. This ensures clear tracking of production activities and accountability for each line.

Realistic Line Capacities: The capacity of each line (items/hour) must reflect actual production capabilities. Regular updates are necessary to keep this information current and reliable.

Accurate Contact Information: Contact details for each production line, including phone numbers and addresses, must be verified and kept current, facilitating effective communication and emergency response.

Each LineNumber should be unique and not duplicated across records.

LineCapacity (items/hour) must be within a realistic range based on the production capabilities of the line (e.g., 100 to 500 items/hour).

PhoneNumber of the production line should be in a valid format and correspond to an active line.

The Address of the production line must be a valid physical location.

**Warehouse**

Unique Warehouse Identifiers: Every warehouse in the system must be uniquely identified, ensuring precise tracking of inventory and material movements.

Capacity and Stock Level Tracking: The system must maintain accurate information about warehouse capacities and current stock levels to optimize inventory management and prevent shortages or overstocking.

WarehouseNumber must be unique for each warehouse.

The Address must be valid and should not overlap with other operational addresses in the database.

Phone Number should be in a standard format and unique to each warehouse.

**Vendor**

Unique Vendor Identification: Vendors must have unique identifiers with comprehensive details, including contact information and service offerings, to facilitate effective vendor management.

Vendor Performance Tracking: Regular assessment of vendor performance, focusing on delivery timeliness and material quality, is crucial for maintaining supply chain integrity.

VendorNumber should be unique for each vendor.

VendorName should not contain any special characters or numbers.

PhoneNumber must follow a standard telephone format.

Address should be complete and valid.

**Supply Schedule**

Alignment with Production Needs: Supply schedules should be closely aligned with production requirements to ensure no delays in the manufacturing process due to material shortages.

Discrepancy Tracking: The system should automatically flag discrepancies between scheduled supplies and actual deliveries, prompting immediate investigation and resolution.

SupplyCode must be unique for each supply entry.

ProductNumber in the supply schedule should correspond to an existing product in the Product table.

RawmaterialName should be listed in the RawMaterial table.

WarehouseNumber should match an existing warehouse in the Warehouse table.

VendorID should correspond to an existing vendor in the Vendor table.

Date should be within the operational period of the project.

**Employee**

Unique Employee Identification: Each employee must have a unique identifier, with clear definitions of their roles, responsibilities, and departmental assignments.

Performance and Training Tracking: The system should monitor employee performance, qualifications, and training needs, supporting optimal workforce deployment and development.

EmployeeID must be unique for each employee.

FirstName and LastName should not contain numbers or special characters.

Position should be one of the predefined roles in the organization.

Salary should be within the pay scale range for the respective position.

DepartmentID must correspond to an existing department.

WorkCategory should be among the predefined categories in the organization.

**Department**

Clear Department Objectives: Each department should have defined objectives, staffing needs, and performance metrics to ensure effective operation and contribution to company goals.

Workflow and Dependency Clarity: The system should clearly define and regularly review inter-departmental dependencies and workflows, ensuring smooth operations across the company.

DepartmentID should be unique.

DepartmentName must not have numerical values.

Location must be a valid physical address.

NumberOfEmployees should reflect the actual number of staff in the department.

**Invoice**

Unique Invoice Identification: Invoices must be uniquely identifiable and linked to relevant vendors, purchase orders, and received materials or services.

Timely Processing and Discrepancy Flagging: The system should facilitate prompt invoice processing and payment, with automated flagging of any discrepancies for further investigation.

InvoiceNumber should be unique.

Total Amount ($) must be within a realistic range for the type of transaction.

VendorNumber must correspond to an existing vendor.

VendorPaymentType should be one of the accepted payment methods.

**Product**

Unique Product Identification: Products must have unique identifiers with detailed information covering their entire lifecycle from design to production.

Product Performance Tracking: Tracking product performance metrics, including sales data, returns, and customer feedback, is essential for continuous product improvement.

ProductNumber must be unique.

ProductName should not contain special characters or numbers.

DesignerID should correspond to an employee or external designer recognized by the company.

Price and Cost must be realistic and align with the market rates.

**Raw Material**

Procurement to Usage Tracking: The system must track raw materials from procurement through to usage in production, ensuring quality standards and timely availability.

Low Stock and Quality Alerts: Automated alerts for low raw material stocks or quality issues are crucial for preventing production delays and maintaining product quality.

ProductNumber must match an existing product in the Product table.

RawmaterialName should be an existing raw material in the inventory.

LineNumber must correspond to an existing production line.