2. Entities and Attributes Below are the primary entities identified in the manufacturing plant's operational structure: 2.1 Plant Plant_ID (Primary Key) Name Location Area Establishment_Year 2.2 Department Dept_ID (Primary Key) Name • Function • Plant_ID (Foreign Key) (Links to the Plant entity) 2.3 Employee Employee_ID (Primary Key) Name Designation Salary • Dept_ID (Foreign Key) (Links to the Department entity) 2.4 Production Line • Line_ID (Primary Key) Name Capacity Plant_ID (Foreign Key) 2.5 Machine Machine_ID (Primary Key) Name Type • Line_ID (Foreign Key) (Links to Production Line) 2.6 Product Product_ID (Primary Key) Category (e.g., AC, HVAC, Refrigerators) Price Production_Date 2.7 Supplier • Supplier_ID (Primary Key) Name Contact Materials_Supplied 2.8 Material Material_ID (Primary Key) Name Supplier_ID (Foreign Key) Quantity 2.9 Inventory Inventory_ID (Primary Key) Material_ID (Foreign Key) Quantity • Storage_Location 2.10 Orders • Order_ID (Primary Key) Product_ID (Foreign Key) Quantity Order_Date Delivery_Date 2.11 Customer Customer_ID (Primary Key) Name Address Contact 3. Relationships The relationships between these entities are crucial for maintaining data integrity and operational efficiency. Below are the relationships illustrated in the ERD: **1. Plant - Department** (1:N) \rightarrow One plant has multiple departments. **2.Department - Employee** (1:N) \rightarrow A department employs multiple employees. **3.Plant - Production Line** (1:N) \rightarrow A plant operates multiple production lines. **4.Production Line - Machine** (1:N) \rightarrow A production line has multiple machines. **5.Plant - Product** (1:N) \rightarrow A plant manufactures multiple products. **6.Supplier - Material** (1:N) \rightarrow A supplier provides multiple materials. **7. Material - Inventory** (1:N) \rightarrow Inventory stores multiple materials. **8.Product - Orders** (1:N) \rightarrow A product is included in multiple orders. **9.Orders - Customer** (N:1) \rightarrow A customer places multiple orders. 4. Entity-Relationship Diagram (ERD) The ERD for the Daikin Manufacturing Plant in Neemrana visually represents the above entities and relationships. The diagram provides insights into how different elements interact within the manufacturing ecosystem, aiding in decision-making and process optimization. Entity Relationship Diagram(ERD): DAIKIN Manufacturing Supplier **Plant** Supplier_ID PK Plant_ID PK int int Name string Name string Contact string Location string "1:N" "1:N" Material Material_ID PK int string Name Supplier_ID FK int **Product** ProductionLine Department Product_ID PK int Dept_ID PK Line_ID PK int int string Name Name string Name string Category string Capacity string Function string "1:N" "1:N" "1:N" "1:N" Inventory Inventory_ID PK int Material_ID FK int Quantity number Machine **Employee** Orders Order_ID PK int Machine_ID Employee_ID int int PΚ PΚ Product_ID FK int Name Name string string Quantity number Type string Designation string "N:1" Customer Customer_ID PΚ Name string

Entity-Relationship Diagram (ERD) Report for Daikin Manufacturing Plant, Neemrana

1. Introduction

This report provides a detailed overview of the Entity-Relationship Diagram (ERD) for the Daikin Manufacturing Plant in Neemrana, Rajasthan. The ERD represents key entities, attributes, and relationships that define the manufacturing ecosystem, aiding in effective database design and process optimization.