**Group Introduction**

**Group Members:**

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**Overview:**

We are a team of database developers tasked with designing a database solution for winery management, supplier relationships, wine production tracking, sales reporting, and employee management to optimize operations.

**Brief Description of the Case Study**

The case study revolves around developing a database system for a winery, which requires efficient tracking and management of various entities such as:

* Suppliers
* Wine production and inventory
* Distribution and sales reports
* Employee hours and departmental management

The goal is to create a relational database that maintains data integrity while providing reports to aid operational decision-making.

**Finalized Entity-Relationship Diagram (ERD)**

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**ERD Highlights:**

* Entities include Supplier, Wine, Employee, Distributor, and SalesReport, each with defined relationships that help maintain data integrity across the database.
* The diagram illustrates how different tables interact, ensuring seamless retrieval and manipulation of information pertinent to winery management.

**Reports to Generate**

1. **Supplier Performance Report:**
   * This report tracks supplier performance by comparing expected vs. actual delivery dates.
2. **Wine Sales by Type and Distributor:**
   * This report shows the best and worst-selling wines, categorized by type and associated distributors.
3. **Employee Hours Report:**
   * This report summarizes the number of hours worked by each employee over the last four quarters.

**Example of Each Report Result**

1. **Supplier Performance Report:**

Supplier: Supplier A | Order Date: 2024-09-01 | Expected Delivery: 2024-09-10 | Actual Delivery: 2024-09-09 | Delivery Difference: -1 days

Supplier: Supplier B | Order Date: 2024-09-05 | Expected Delivery: 2024-09-12 | Actual Delivery: NULL | Delivery Difference: NULL

1. **Wine Sales by Type and Distributor:**

Wine: Merlot Reserve | Type: Red | Distributor: Distributor One | Total Sales: 1050

Wine: Chardonnay Classic | Type: White | Distributor: Distributor Four | Total Sales: 250

1. **Employee Hours Report:**

Employee: Janet Collins | Total Hours Worked: 160 hours

Employee: Henry Doyle | Total Hours Worked: 160 hours

**Assumptions Made About the Case Study**

1. **Data Integrity and Relations:**
   * All foreign keys will correctly relate to their respective primary keys.
2. **Data Completeness:**
   * All necessary tables, fields, and relationships required for the business functions are included and mapped correctly, such as employee roles, wine types, and distributor details.
3. **Version and Updates:**
   * Assumes the database will be updated regularly with new data entries and modifications, requiring query flexibility.
4. **Report Relevance:**
   * Regarding which reports would be crucial for the winery's operations, selecting those that would provide the most value in guiding business decisions regarding supply chain efficiency, sales performance, and workforce management.
5. **Security and Access Control:**
   * Assumes that user roles and access controls would be handled at the database administration level.

This case study has outlined the foundational elements required for managing a winery database effectively. A relational database management system enables optimal data organization, real-time reporting, and improved operational efficiency. This solution will significantly benefit the winery's management by maintaining a comprehensive overview of its various processes and entities.