Phase VII: Advanced Programming and Auditing

Objective:
Phase VII focuses on **advanced PL/SQL programming** to enforce **business rules and auditing** within the CustoVision system. This ensures operational compliance while maintaining a full record of all employee interactions with the database.

Business Rule Enforcement:

Employees cannot insert, update, or delete records during **weekdays** or on **public holidays**.Rule enforcement is critical to maintaining **data integrity and operational compliance**.

Audit Logging:
The audit_log table records all attempts, successful or denied, including:
Employee username,Timestamp,Table and operation,Status (ALLOWED/DENIED),Error messages

Audit logging ensures **accountability** and supports **internal review or MIS audits**.

PL/SQL Implementation:

Restriction Check Function: Determines if an operation is permitted based on date.
Audit Logging Function: Inserts detailed logs into audit_log.
Simple Triggers: Enforce rules at row level, call the functions for validation and logging.
Compound Trigger: Optimizes multi-row DML operations and ensures consistent auditing.

Testing & Validation:
All triggers and functions tested for weekdays, weekends, and public holidays.
Audit log verified to capture **all attempted operations**, including denied actions.
Error messages designed to be **user-friendly**, indicating the restriction cause.
Multi-row operations verified with compound triggers for efficiency.

Outcome & MIS Relevance:
Ensures **compliance with operational rules**, protecting the business from unauthorized data changes.
Supports **management oversight** through detailed audit trails.
Strengthens **MIS governance**, providing a secure, accountable, and traceable database environment.Lays the foundation for **future regulatory or audit compliance** in reporting and decision-making.