**IMPLEMENTING AND DESIGNING DATABASE FOR TT\_HOLDING**

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**List of Abbreviations**

* **DBMS**: Database Management System
* **UML**: Unified Modeling Language
* **SQL**: Structured Query Language
* **HR**: Human Resources
* **HRIS**: Human Resource Information System

**Abstract**

The TT\_Holding Database Management System (DBMS) is designed to enhance the efficiency, accuracy, and accessibility of employee and organizational data. The system integrates database elements such as views, triggers, functions, and stored procedures to optimize HR operations. The project aims to overcome the inefficiencies of traditional employee data management through centralized storage and automated processing.

**Chapter 1: Introduction**

**1.1 Problem Statement**

Organizations face significant challenges in managing and retrieving employee data due to fragmented storage systems. This often leads to inefficiencies, inaccuracies, and delays in human resource decision-making, ultimately impacting organizational productivity (Kavanagh, Thite and Johnson, 2020).

**1.2 Problem Solving**

These challenges can be resolved through the adoption of a robust DBMS. TT\_Holding's database centralizes employee and organizational data, automates key functions, and minimizes human errors. Views, triggers, and stored procedures support efficient data handling and faster decision-making.

**1.3 Objective**

* To create an efficient, scalable, and secure database system.
* To enable easy retrieval of accurate employee records.
* To automate repetitive HR tasks for operational efficiency.

**1.4 Scope & Constraints**

The system focuses on employee and organizational data management, including positions, employment types, and associated records. Constraints include legal compliance with data protection laws and ensuring system scalability.

**Chapter 2: Literature Review**

**2.1 Introduction**

This section reviews literature on database systems and their application in human resource management (HRM), focusing on design considerations, benefits, and challenges.

**2.2 Reviewing the Literature**

Modern HRM increasingly relies on robust database systems for accuracy and strategic decision-making (Armstrong, 2022). Properly structured databases reduce redundancy and enable faster queries.

Stone and Deadrick (2015) emphasize the importance of data integrity and compliance with privacy regulations. They argue that poor database design can expose organizations to risks.

Cloud-based solutions are also gaining popularity due to their flexibility and scalability (Johnson and Brown, 2021). Such systems facilitate remote access while maintaining security.

**2.3 Findings & Discussion**

Literature highlights that efficient database systems improve HR operations by centralizing data, minimizing errors, and providing real-time access to information (Armstrong, 2022). The integration of triggers and stored procedures enhances data integrity and operational efficiency.

**Chapter 3: Methodology**

**3.1 Requirement Analysis**

Stakeholder interviews and surveys identified the need for:

* Centralized employee data storage
* Access control based on user roles
* Automation of repetitive HR tasks
* Compliance with data privacy standards

**3.2 System Design**   
**3.2.1 Architectural Design**

The system adopts a three-tier architecture:

* **Presentation Layer:** User Interface
* **Application Layer:** Business Logic and Data Processing
* **Database Layer:** Data Storage, Retrieval, and Security

**3.2.2 UML Diagrams**

The following UML Class Diagram illustrates the relationship between the key database entities such as Person, Organization, Employment, and Position.

**3.3 System Implementation / Prototyping**

MySQL was used to implement the database schema, triggers, procedures, views, and user roles. Sample data was inserted to test system behavior.

**3.4 Testing**

Testing involved:

* Unit testing for procedures and triggers
* Integration testing to check table relationships
* Performance testing for concurrent access handling

**Chapter 4: System Initiation and Planning**

**4.1 Assessing Project Feasibility**

The project is technically and financially feasible. It aligns with organizational goals of improving HR data management.

**4.2 Project Plan**

* **Phase 1:** Requirement Gathering
* **Phase 2:** Design & Modeling
* **Phase 3:** Implementation
* **Phase 4:** Testing & Deployment

**Chapter 5: System Analysis**

**5.1 Determining System Requirements**

Requirements were divided into:

* **Functional:** Data entry, retrieval, updating, and reporting
* **Non-functional:** Security, performance, and usability

**5.2 Structuring System Requirements**

System requirements were documented for easy developer and stakeholder reference. Priorities were assigned based on business impact.

**Chapter 6: Conclusion**

**6.1 Advantages of the System**

* Centralized and efficient data handling
* Improved data accuracy and reduced errors
* Automated HR tasks enhancing productivity

**6.2 Future Enhancements**

* Integration of predictive analytics and AI
* Mobile platform support for HR tasks
* Advanced reporting and dashboard features

**6.3 Potential Benefits**

The system ensures reliable data access for HR decision-making, reduces processing time, and enhances compliance with regulations.

**6.4 Conclusion**

The TT\_Holding database system offers a comprehensive solution to manage employee and organizational data efficiently. It lays the groundwork for future technological upgrades in HR management.

**References (Harvard Style)**

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* Stone, D.L. and Deadrick, D.L., 2015. *Challenges and Opportunities Affecting the Future of Human Resource Management*. *Human Resource Management Review*, 25(2), pp.139-145.

**Appendices**

* **Appendix A:** Database Schema Diagrams
* **Appendix B:** Sample SQL Queries (INSERT, UPDATE, TRIGGERS, VIEWS)
* **Appendix C:** User Manual for Database Access and Use

**Student Details:**

**Name:** Mantlobo Matsutsu  
**Student Number:** 901017400  
**Course:** BSC IT Y2S2  
**Assignment:** Individual Assignment