Project Final Report Format

08 - Nov - 2024	Project Report
IT615, Introduction to Database Management, Autumn 2024; Instructor: minal_bhise@daiict	

Objectives: Generate Final Report of the Project

Submission: Each team needs to upload a **single .pdf (Group ID_Project_name_Report.pdf)** file, which will contain the following things

Project Final Report Format

Title Page

- **Project Title**
- **Group ID, Student ID and Student's Name**
- **Institution**
- **Date of Submission**

Table of Contents

- Include all chapters and subchapters with page numbers for easy navigation.

Chapter 1: Software Requirements Specification (SRS)

1. **Problem Description**
    - Detailed explanation of the case study.
2. **Requirement Collection**
    - **Background Reading**
        - Summary of domain research, including resources (books, journals, documents, websites).
    - **Interviews**
        - Key insights from interviews with authorized personnel.
    - **Questionnaires/Surveys**
        - Summary of questions asked, common issues identified, and responses received.
    - **Observation**
        - Real-world observations of processes in the domain.
3. **Fact-Finding Chart**
    - Table/chart of findings from the above requirement collection techniques.
4. **Requirements List**

    - Consolidated list of overall requirements identified for the domain.
5. **User Privileges**
    - Description of different user roles and privileges within the system.

Chapter 2: Database Design

1. **Noun Analysis**
    - Identification of entities and relationships for ER Diagram design.
2. **Schema and ER Diagram Design**
    - Explanation of the initial ER Diagram and schema.
3. **ER Diagram Improvement**
    - **Identify Entity Types**
    - **Identify Relationship Types**
    - **ER Diagram Analysis**
        - Additional refinements and corrections in the ER Diagram based on analysis.
4. **Mapping ER Model to Relational Model**
    - Mapping process following discussed class rules:
        - Each entity and relationship mapped to a relational schema.
        - Schemas written in format R1(A1,A2,...,An)R1(A1, A2, ..., An)R1(A1,A2,...,An) with primary keys underlined.
5. **Create DDL Scripts**
    - Scripts including:
        - **Domain Constraints**
        - **Key Constraints**
        - **Referential Integrity Constraints**
        - **Other Constraints** (if applicable)

Chapter 3: Normalization of Database

1. **Normalization and Schema Refinement**
    - **Original Design of Database**
        - List of initial relations and schemas with details.
    - **Dependency Analysis**
        - Identification of primary keys, foreign keys, and functional dependencies.
2. **Redundancy and Anomalies Documentation**
    - **Redundancies**
        - List existing redundancies for each schema.
    - **Anomalies**
        - Document update, delete, and insert anomalies.
3. **Normalization Process**
    - **1NF** – Enforcing scalar values.

- **2NF** – Eliminating partial dependencies.
- **Redundancy Analysis for 2NF**
  - Document any redundancies in 2NF.
- **3NF/BCNF** – Removing transitive dependencies.

Chapter 4: Implementation of Database

1. **Revised DDL Scripts**
   - Updated scripts accommodating the normalized database design (3NF/BCNF).
   - Ensure domain, primary key, foreign key, and referential integrity constraints.
2. **Database Population**
   - **INSERT Statements**
     - Populate tables with at least 80-100 tuples per table.
3. **SQL Queries**
   - **Query List**
     - Approximately **40** queries ranging from simple to complex:
       - Simple queries (no joins)
       - Complex queries (multiple joins, sub-queries)

Chapter 5: Interface Implementation

1. **Setup JDBC and Basic GUI**
   - Documentation of JDBC setup and basic graphical user interface.
2. **CRUD Operations in GUI**
   - Explanation and demonstration of:
     - Create, Read, Update, Delete operations using GUI.

Chapter 6: Technical Issues and Solution

1. **Technical Issues**
   - List all technical challenges encountered during project development.
   - Provide a detailed description of each issue, including its impact on the project and why it was a challenge.
2. **Solution**
   - Describe the approach taken to resolve each issue.
   - Include specific steps, techniques, or tools used to address the problem.
   - If applicable, mention alternative solutions considered and why the chosen solution was selected.