Department of Information Technology
Faculty of Computing
Sri Lanka Institute of Information Technology

IT2140 : Database Design and Development

Year 2 Semester 1

2025

Assignment Title	Relational Schema Design, SQL Implementation, Queries, and Advanced SQL Features
Learning outcomes covered	LO 1: Design conceptual and logical database schema for a data intensive application LO 2: Create a relational database after removing its anomalies and redundancies LO 3: Create SQL and relational algebra queries with a strong understanding of execution plans LO 4: Create database programs for efficient server-side data management queries and constraints
Assignment Mode	Group
Maximum Marks	100
Contribution to the Final Grade	15%
Date published	29th September 2025
Deadline for submissions	Submission - 12th October 2025 Viva – 13th October – 19th October
Mode of Submission	Git submission

Description of the Assignment – Part 02

Your assignment consists of six sub parts:

1. Map EER → Relational schema. Refine the schema if applicable (based on anomalies, feedback, or improvements)
2. Implement SQL DDL
3. Insert sample data
4. Write & test SQL queries (with outputs)
5. Implement a stored function/procedure
6. Implement a trigger

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Part A – Mapping EER to Relational Schema (10%)

Instructions

1. Convert your EER into a relational schema.
2. Show PKs, FKs, and constraints.
3. Explain mapping choices for ISA.
4. Refine the schema if applicable.

Part B – SQL DDL Implementation (20%)

Instructions

1. Write CREATE TABLE statements for all tables.
2. Define PK, FK, and constraints.
3. Ensure schema reflects refinement.

Part C – Insert Sample Data (10%)

Instructions

1. Insert at least 5 records per table.
2. Ensure valid data that respects constraints.
3. Provide screenshots of inserted data (SELECT *).

Part D – SQL Queries & Outputs (20%)

Instructions

1. Write at least 5 queries:
    - Simple SELECT
    - JOIN
    - Aggregation
    - GROUP BY / HAVING
    - Subquery
2. Provide screenshots of query + output with explanations.

Part E – Stored Function/Procedure (15%)

Instructions

1. Write one stored function or procedure relevant to your system.
2. Execute with sample input.
3. Provide code + output screenshots.

Part F – Trigger (15%)

Instructions

1. Write a trigger that updates/validates/audits data.
2. Demonstrate its execution.
3. Provide code + screenshots.

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Part G – Viva and Demonstration (10%)

Instructions

1. Each group will face a short viva (10-15 minutes per group) session after submission.
2. All group members must attend and participate.

Final Submission

Submit **one PDF file**:

📌 File naming convention:

- GroupID_Assignment01_Part02.pdf

📌 Deadline: *12th October 2025*

Viva and Demonstration

13th October – 19th October