**CS-1103 Project Proposal**

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**UNB ID: 3770228**University Database Management System Project

Project Overview:

I propose to create a University Database Management System (DBMS) in order to efficiently manage the academic and administrative data of a university. The system will provide functionalities for storing student, instructor, course, and department information, managing enrolments, calculating income tax for instructors, and generating reports such as the highest-grade student for each semester. The project will be implemented using Java and JDBC for database connectivity.

Objectives:

1. Design and implement a database schema based on an Entity-Relationship (ER) diagram that accurately represents the university's data model.

2. Develop Data Definition Language (DDL) statements to create tables for each entity and relationships between them.

3. Fill the database with sample data for testing and demonstration.

4. Implement JDBC connectivity to establish a connection between the Java application and the database.

5. Create application functions to perform CRUD operations, calculate income tax for instructors, and generate reports based on user queries.

6. Develop a user-friendly interface for interacting with the database, allowing users to input data and execute queries easily.

7. Provide documentation explaining the system architecture, database schema, application functionalities, and usage instructions.

Deliverables:

1. An ER diagram for the University
2. DDL statements for each entity
3. DDL statements for each relationship
4. Explanation of each DDL statement in relation to ER diagram
5. Sample insert statements for each table (both entity and the relationship)
6. Connection of the database using JDBC
7. Database schema using JDBC
8. Insertion of records to all tables
9. Assuming that income tax rate is 10%, printed the tax amount for each instructor
10. Printed the student with the highest grade for each semester.
11. Writing of an application program (Write application functions, Explain the interface, Show the DML statements, Write Java Program)
12. Writing of Example functions (Insert/delete new students using JDBC, Insert/delete new instructor, Change a student’s department)

Conclusion:

The University DBMS project aims to streamline data management processes for academic institutions, enhancing efficiency and facilitating informed decision-making. By leveraging Java and JDBC technologies, delivery of a user-friendly solution to meet the specific needs of universities can be created.

I look forward to the opportunity to complete this project and deliver a high-quality solution that meets your requirements and expectations. Thank you for considering my proposal.