New York University
Computer Science Department
Courant Institute of Mathematical Sciences

Assignment #7 – Database Systems Project – Physical Database Design, Query Execution, and Database Programming

Due Date: 05/15/16

Course Title: Database Systems
Course Number: CSCI-GA.2433-001
Instructor: Jean-Claude Franchitti
Session: 8

1. Ongoing Project Background

Many businesses have the goal to establish an Enterprise Data Architecture (EDA) and to promote subsequent activities related to the integration of existing and new projects with the EDA. There are typically three separate efforts that are part of the creation of an EDA.

- Modeling – Creation of a diagram and/or blueprint that support(s) the design of enterprise storage systems
- Operational Data Store (ODS) – Creation of physical database(s) that conform to the model.
- Roadmap – Means to move applications / operations to integrate with the ODS

The first part of the project focused on conceptual modeling and led to the creation of a documented entity-relationship diagram using a mainstream software tool. The resulting model was partially validated against a set of business requirements and rules and amended as needed. This next portion of the project focuses on the creation/generation and optimization of a logical database schema for the conceptual model created earlier.

2. EDA Physical Database Design, Query Execution, and Database Programming Questions

1. Perform and document physical database design for the database system and infrastructure selected as part of Part II of your project.

2. Identify appropriate business use cases to support a simple workflow-based application that enables a customer to obtain an insurance quote and a policy. Document the corresponding business use cases and the processes used by your application using a modeling notation of your choice.

3. Using database programming techniques of your choice, implement the workflow-based application described above. Please document your application and explain how you optimized the various queries.
3. Deliverables

Please provide an electronic copy of your homework submission as one zip archive by sending it to the course TA by the assignment deadline as noted. The archive should include your homework report (in word or text format). You should name your archive using the following convention for the homework archives: lastname1_lastname2_hw7_sp16.zip. You are also required to provide a hard copy of your homework report at the beginning of the class session on the date the homework is due.

4. Grading

All project assignments are graded on a maximum scale of 10 points. Your grade will be based equally on:

a. The overall quality of your documentation.
b. The understanding and appropriate use of database systems related technologies.
c. Your ability to submit well documented solutions.
d. Extra credit may be granted for solutions that are particularly creative.

5. Additional Information

If you have not already done so, please let the TA know as soon as possible about teaming arrangements (only two people per team). You will need to stay with the same team for the duration of the course. You should only submit one report/archive per team for each assignment. To balance things out, the final grading for the course project will take into account the fact that you are working as a team instead of individually, so you should feel free to work individually as well.