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|  | **Asian Institute of Technology**  **AT82.02 DMM**  *Group Work #2*  *NoSQL Data Model Design & Management Project* |

**Goals**

* Work in a team of 3-4 members (same team) to develop collaboration, team working, communication, time management, project management skills to some extent.
* Apply NoSQL’s document modeling and graph modeling design concepts to your previous Relational Modeling project.
* Write up and present your results.

**NOTE**: Self-evaluation, peer-evaluation and whole-team-evaluation technique will be used, along with project rubric.

**Milestones**

* **Fri 16 Oct: Revisiting Project Scope and Defining Work Plan among members:**
  + Project description and scope definition;
  + Specifying data to be maintained, data constraints and business rules;
  + Identifying important insert, update, delete operations and transactions (minimum of 4 operations per each project member);
  + Identifying important data inquiries (minimum of 5 inquiries per each project member, a combination of simple and advanced useful business queries are preferable);

**Document Database Modeling**

* **16 - 23 Oct: Document Database Modeling**
  + Analyze the queries (queries drive design!)
  + Perform document database design:
    - Collection and Documents
    - Proper usage of embedded or referencing mechanism (should we avoid using join to obtain better performance)
    - Schemaless?
  + Data Population
    - Make sure to have enough data inserted into the data store
  + Implement a set of queries, transactions and updates for your database
* **Wed 21 Oct: In-class Team-time and Consultation Time** 
  + Document Design Suggestions
* **Fri 23 Oct before 9PM: Presentation File and Project Submission**
  + Submission (before 9PM):
    - Presentation file
      * Short project description,
      * Recap: relational model design (from previous project),
      * Document model design (embedding vs. referencing, normalization vs. denormalization)
      * Implementations and results of each operation/query (by each project member)
    - Link to the online implemented Document Store
    - A text file containing all defined queries (for testing the queries)
    - Check List, Work Distribution and Team Member Contribution Form

**Graph Database Modeling**

* **24 - 29 Oct: Graph Database Modeling**
  + Analyze the queries (queries drive design!)
  + Perform graph database design:
    - Identifying nodes and edges (directed or undirected)
    - Identifying properties of nodes and edges
    - Schemaless?
  + Data Population
    - Make sure to have enough data inserted into the data store
  + Implement a set of queries, transactions and updates for your database
* **Wed 28 Oct: In-class Team-time and Consultation Time** 
  + Graph Design Suggestions
* **Fri 30 Oct before NOON: Presentation File and Project Submission**
  + Submission (before NOON):
    - Presentation file
      * Short project description,
      * Relational model design (from previous project),
      * Document model design and implementation
      * Graph model design and implementation
      * Conclusion
    - Links to the online implemented Graph Model and a text file containing all Cypher commands to create graph.
    - A text file containing all defined queries (for testing the queries)
    - Check List, Work Distribution and Team Member Contribution Form

**Presentation: NoSQL Database Design and Implementation**

* **Fri 30 Oct: Online Presentation (During Lab hours)**
  + Everyone will be assigned to be in an online ZOOM meeting room and should make a presentation / demonstration of your NoSQL design and implementation (Max 20 minutes presentation + MAX 5 minutes Q&A).
  + Every presentation will be recorded.
  + Peer review / peer feedback will be used.