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DSCI551: Foundations of Data Management

Project Midterm Progress Report

- Project: Firebase Emulator using Flask, WebSockets, and MongoDB
- Team: Solo Project

Midterm Progress Report:

- MongoDB Structure
    - Collection Data:
        - Each collection can contain multiple documents (similar to Firebase nodes)
        - Can be accessed using their unique identifier (similar to Firebase keys)
    - Nested documents for hierarchical data:
        - Each document contains other documents (represent nested nodes in Firebase)
        - Use a unique identifier for each document (represent a key in Firebase)
    - Arrays to store ordered data:
        - Array index to represent the order of the data (similar to how Firebase stores ordered data using arrays)
    - sub-collections for complex data:
        - sub-collection can contain documents (represent nested nodes in Firebase)
    - References for related data:
        - Can use references in MongoDB to link the data.
        - Use a unique identifier to link the documents (similar to how Firebase stores related data using references)
- Code Progress:
    - So far the functions GET, POST, PATCH, DELETE and PUT are complete and working.
    - Currently half filter functions of orderBy, limitToFirst/Last, equalTo, startAt/endAt are complete.
    - Therefore, CRUD to and from the MongoDB is working as normal with PyMongo library.
    - As far as setting up the RESTful server, I still need to develop that so it is constantly listening for commands to push and pull data from the MongoDB.
    - The next step of my development is setting up the proper indexing for my MongoDB to match Firebase.
    - And finally, the last thing I will complete is developing the command line interface to properly accept curl commands.
- As far as meeting milestones…

    - I believe I am on track, but I do wish I was little farther ahead on developing the filtering functions completely.
    - The server and setup and developing the CLI will be a very time-consuming part of the project.
- Difficulties:
    - The hardest parts I foresee is indexing, setting up server, and developing CLI.