CSCI 5408 DATA MANAGEMENT AND WAREHOUSING

Group:

DBMS_Builder- 6

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Module 1: Explanation Summary

Data-Structure Selection:

- For the TinyDB project, we have chosen `Array and ArrayList` as the primary data structures for query and data processing.
- The String array is used to hold and process parts of the SQL query.
- Splitting the query into a String array allows the code to validate the query and extract the necessary information.

Custom File Structure:

For persistent storage, we designed a custom **text-based** file format.

- Each database is represented by a new **empty directory** within a folder named **databases**.
  - Inside each database directory, **multiple text files** store each table's data.
  - Each table file begins with a schema definition, where column names and their types are defined, separated by '~~'.
  - The subsequent lines in the file contain data records, with fields which are also separated by '~~'.
- This custom file format is simple and ensures flexibility and readability for efficient data management.
- Each database directory encapsulates all related tables, making the structure organized and straightforward to navigate.

This combination of `Array-ArrayList` and a custom text-based file format provides an efficient and easy-to-implement solution for the TinyDB project, meeting the requirements for both data processing and persistent storage.