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.