**INT206 Lab 1**

**Storage Engines in MySQL**

**Objectives:**

* Describe the effect of storage engine assignment on MySQL performance
* List the most common storage engines available
* Differentiate between the features of each storage engine

**Storage Engine and MySQL**

* When you create a table using MySQL, you can choose what storage engine to use.
* Typically, this choice is made according to which storage engine offers feature the best fit the need of your application.
* Each storage engine has a particular set of operational characteristics such as, locking, transactional capabilities, backup and recovery, or query processing performance.

**The most common storage engines:**

* MyISAM
* InnoDB
* MEMORY

**View Available Storage Engines**

* To see what storage engines are compiled into your server, use the SHOW ENGINES statement.

mysql> SHOW ENGINES ;

**Setting the Storage Engine**

* To specify a storage engine explicitly in a CREATE TABLE statement, use an ENGINE option.
* If you create a table without using an ENGINE option explicitly, the MySQL server creates the table using the default engine (the storage\_engine system variable).
* To specify the default engine, use SHOW VARIABLES LIKE '%engine%';

mysql> CREATE TABLE mytab ( n INT ) ENGINE = InnoDB ;

The storage engine of a table can be changed with ALTER TABLE:

mysql> ALTER TABLE mytab ENGINE = MEMORY ;

**Displaying Storage Engine Information**

* To determine which storage engine is used for a given table, you can use the SHOW CREATE TABLE or the SHOW TABLE STATUS statement:

mysql> SHOW CREATE TABLE mytab;

mysql> SHOW TABLE STATUS LIKE 'mytab';

**MyISAM Storage Engine**

* Is primarily used in Web, data warehousing (substantially more reads than writes) , and other application environments
* Each table is stored on disk in three files (.frm {table definition}, .MYD {data file}, and .MYI {index file} )
* MyISAM tables take up very little space.
* Supports FULLTEXT searching and spatial data types
* Flexible AUTO\_INCREMENT
* Compressed, read-only tables save space.
* Table-level locking – not as good as page or row for concurrency.
* Can improve performance by limiting table size to a certain number of rows.

**InnoDB storage Engine**

* Is the default storage engine for MySQL
* Provide high reliability and high performance
* Transaction-safe (ACID compliant)
* InnoDB row-level locking
* Foreign key referential integrity constraint support (Includes cascaded deletes and updates)
* Maximum performance on large data volumes
* Fast auto-recovery after crash

**Memory Storage Engine**

* Creates tables with contents that are stored in memory.
* Represented by .frm file
* Table data and indexes stored in memory
* In-memory storage results in very fast performance.
* Fixed-length row storage format
* Table contents do not survive restart.
* Table-level locking
* Cannot contain TEXT or BLOB columns

**Storage Engine Summary**

Table

Description automatically generated

Reference:

<https://dev.mysql.com/doc/refman/8.0/en/storage-engines.html>

**Practice: write a statement and capture your statement with the output from the statement.**

1. Use multiple means to acquire storage engine information from tables
   1. Type command in order to use the **classicmodels** database

Ans. use classicmodels;

* 1. Execute the table creating statement (SHOW CREATE TABLE) for the customers table and determine the storage engine.

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* 1. Execute the table status statement (SHOW TABLE STATUS) for the customers table and determine the storage engine.

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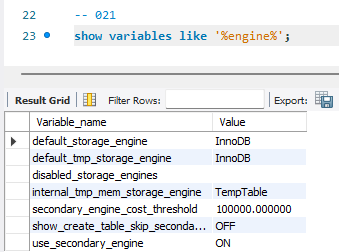
* 1. Execute the SELECT statement to acquire the storage engine setting from the TABLES table in the INFORMATION\_SCHEMA database. Show only table name (TABLE\_NAME) and storage engine (ENGINE) for the customers table.

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1. Type a command to display a list of all storage engines installed in your MySQL server.รูปภาพประกอบด้วย ข้อความ, ภาพหน้าจอ, จำนวน, ซอฟต์แวร์

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2. Type a command to display the default storage engine in your MySQL server.



1. Create a new table and name as myproductlines by cloning definition and data from the productlines table. (Hint: use CREATE TABLE destable AS SELECT \* FROM srctables ;)
   1. Type command to show the storage engine of the myproductlines table.

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* 1. Change the current setting of the myproductlines table storage engine to be MyISAM.

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* 1. Type command to show the current storage engine of the myproductlines table.

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