EXPERIMENT-1

1. Introduction to MySQL Workbench.

MySQL Workbench is a graphical tool for working with MySQL servers and databases. MySQL

Workbench fully supports MySQL server versions 5.5 and higher. It is also compatible with older

MySQL server 5.x versions, except in certain situations (like displaying the process list) due to changed system tables.

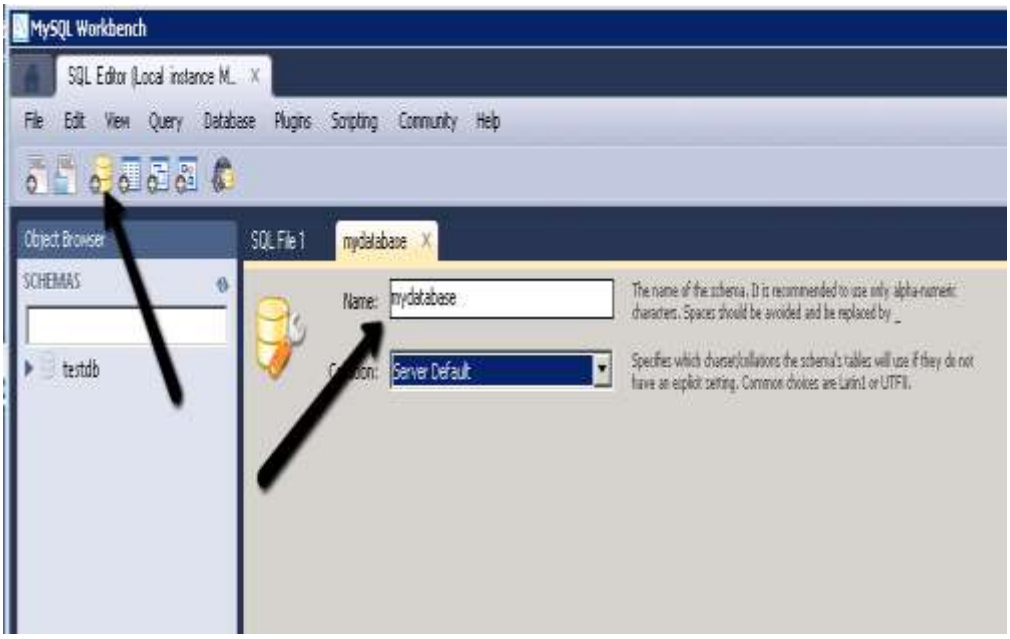
- MySQL Workbench functionality covers five main topics:
- **SQL Development**: Enables you to create and manage connections to database servers. Along with enabling you to configure connection parameters, MySQL Workbench provides the capability to execute SQL queries on the database connections using the built-in SQL Editor.
- **Data Modelling (Design):** Enables you to create models of your database schema graphically, reverse and forward engineer between a schema and a live database, and edit all aspects of your database using the comprehensive Table Editor. The Table Editor provides easy-to-use facilities for editing Tables, Columns, Indexes, Triggers, Partitioning, Options, Inserts and Privileges, Routines and Views.
- **Server Administration:** Enables you to administer MySQL server instances by administering users, performing backup and recovery, inspecting audit data, viewing database health, and monitoring the MySQL server performance.
- **Data Migration**: Allows you to migrate from Microsoft SQL Server, Microsoft Access, Sybase ASE, SQLite, SQL Anywhere, PostreSQL, and other RDBMS tables, objects and data to MySQL. Migration also supports migrating from earlier versions of MySQL to the latest releases.
- **MySQL Enterprise Support**: Support for Enterprise products such as MySQL Enterprise Backup, MySQL Firewall, and MySQL Audit.
- **MySQL Workbench is available in two editions**: the Community Edition and the Commercial Edition.

- The Community Edition is available free of charge. The Commercial Edition provides additional Enterprise features, such as access to MySQL Enterprise Backup, MySQL Firewall, and MySQL Audit.
- MySQL workbench supports creation of multiple models in the same environment.
- It supports all objects such as tables, views, stored procedures, triggers, etc. that make up a database.
- MySQL workbench has a built in model validating utility that reports any issues that might be found to the data modeler.
- It also allows for different modeling notations and can be extended by using LUA a scripting language.

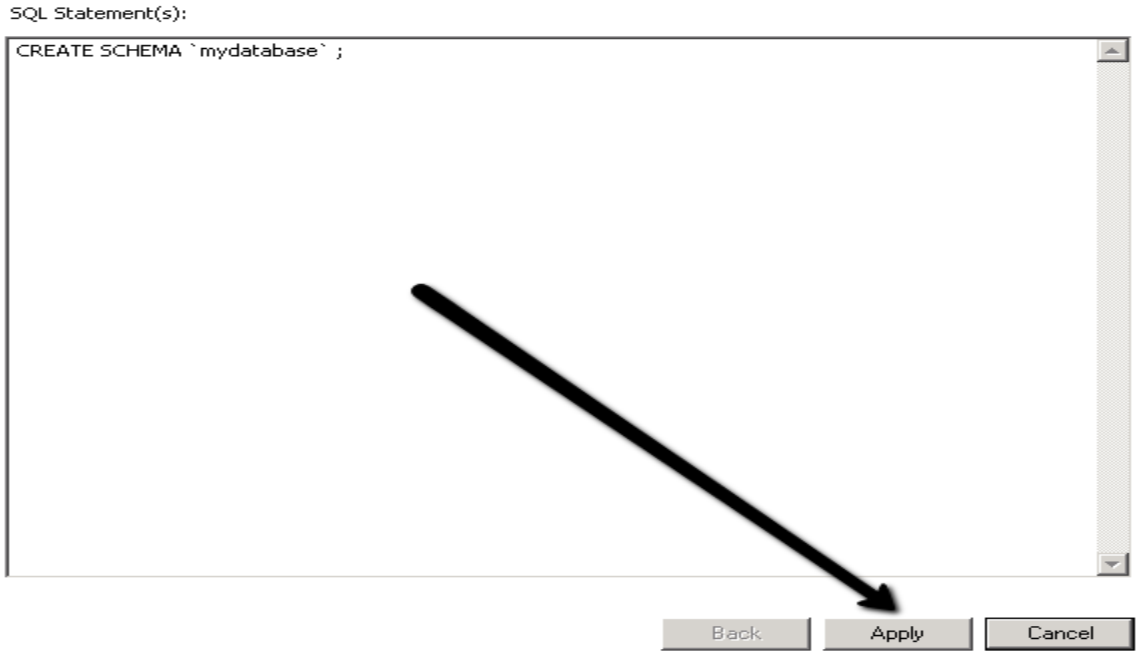
2. How to use MySQL Workbench to work with a database.

- MySQL workbench may require a login to your MySQL server. Enter your root or user and password that has been assigned dba server privileges.

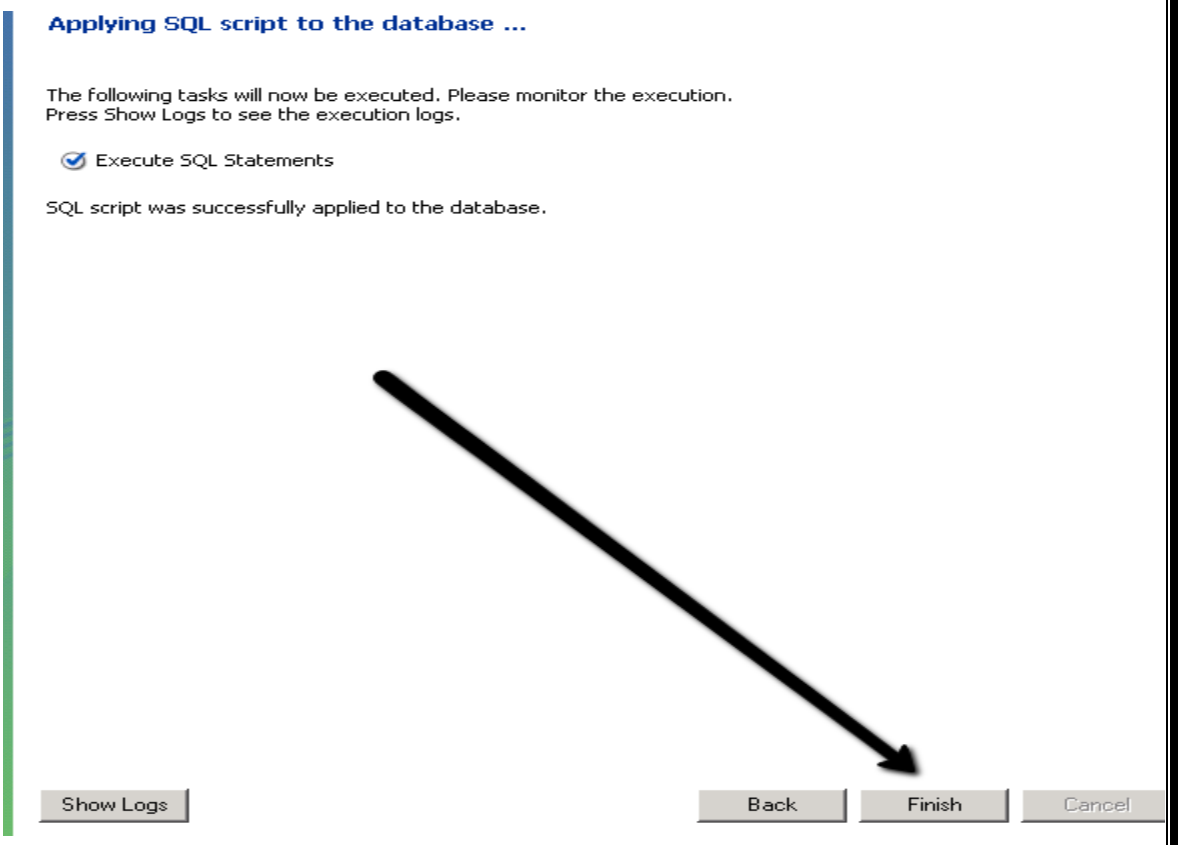
Click on the **New Schema** icon in the menu, and then enter a **name** for your new database in the field as shown. Click the **Apply** button to generate the SQL script.



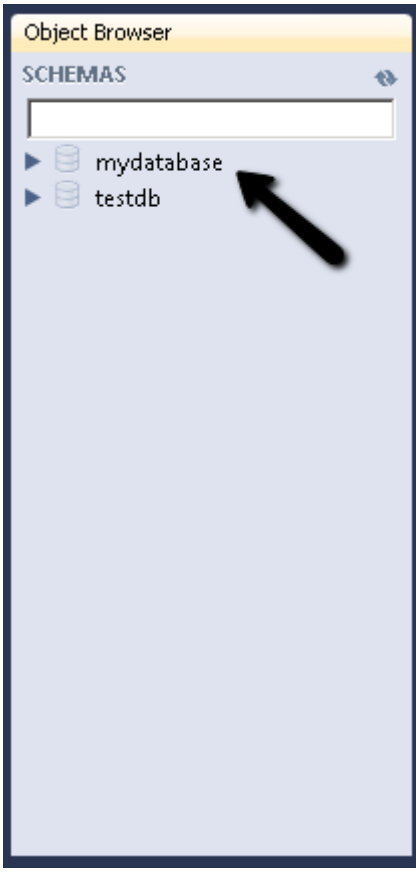
- Click the **Apply** button again to execute the create database statement, and create your new database.



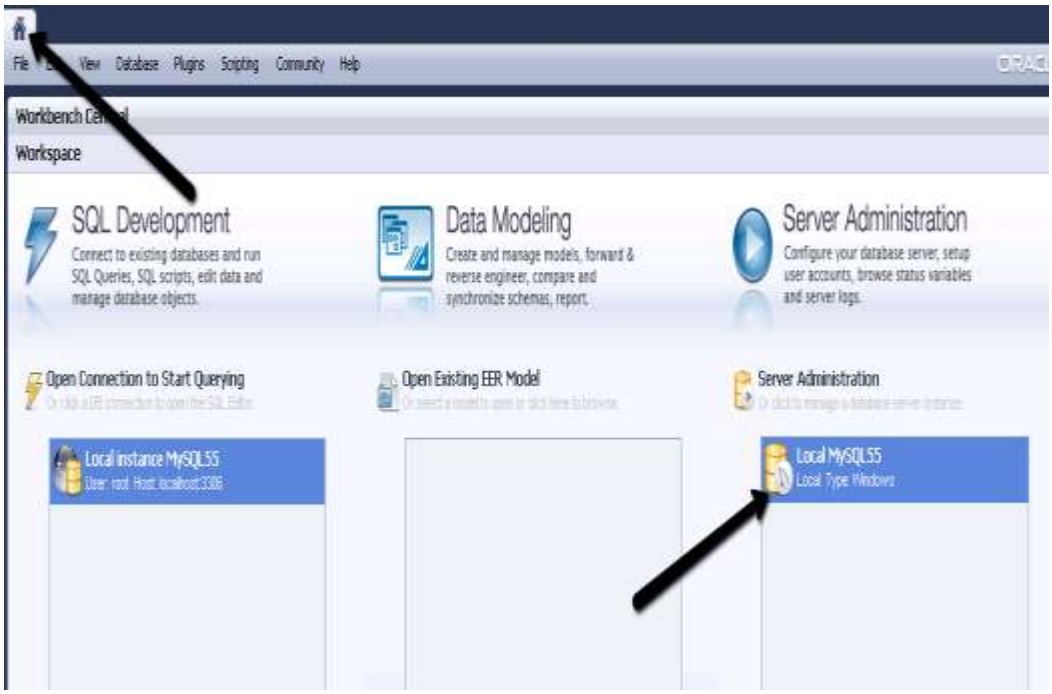
- Click **Finish**.



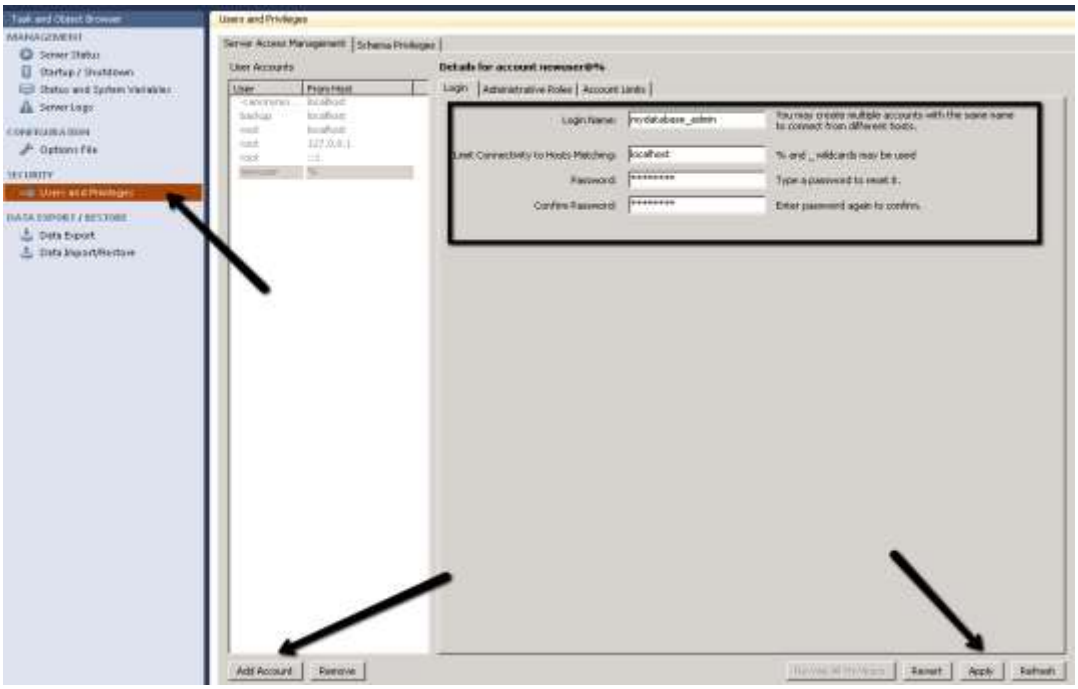
- Your database should now be listed on the left with your other database schemas.



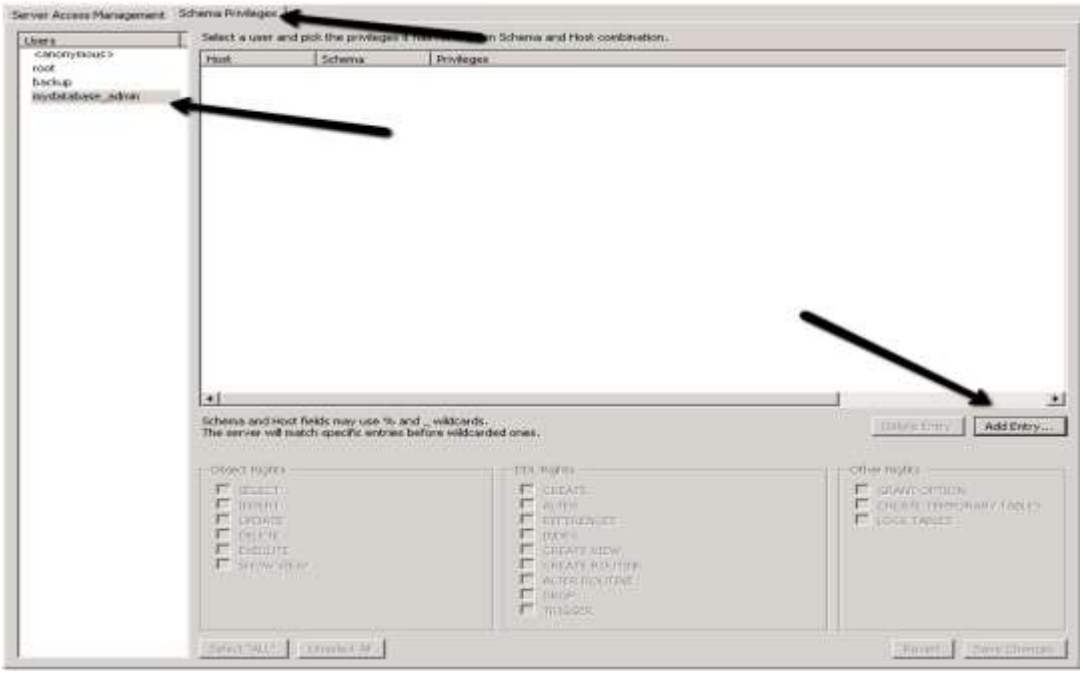
- Click the **Home** icon in the top left corner to return to the Workbench Central screen. Click on your MySQL server instance under the **Server Administrator** section of MySQL workbench to create a new database user and assign privileges to your new database.



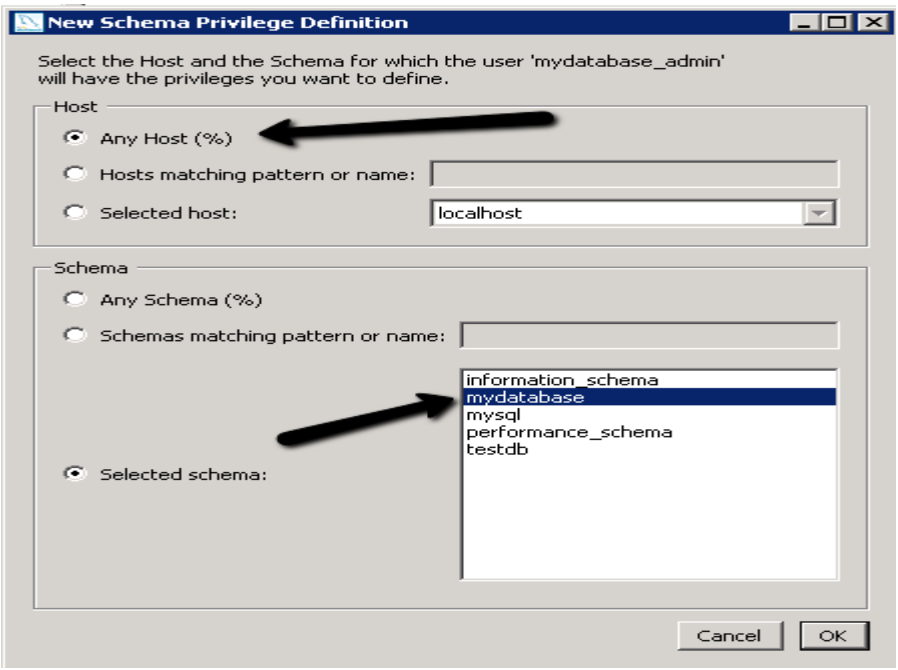
- Click on **Users and Privileges**. Then click on **Add Account**. Enter a **login name** for the new user, type **localhost** and a new **password** as shown. Click **Apply** to create the new user account.



- To assign privileges for this user to access a specific database, click on the **Schema Privileges** tab. **Click the user account** from the list of users on the left. Click the **Add Entry** button.

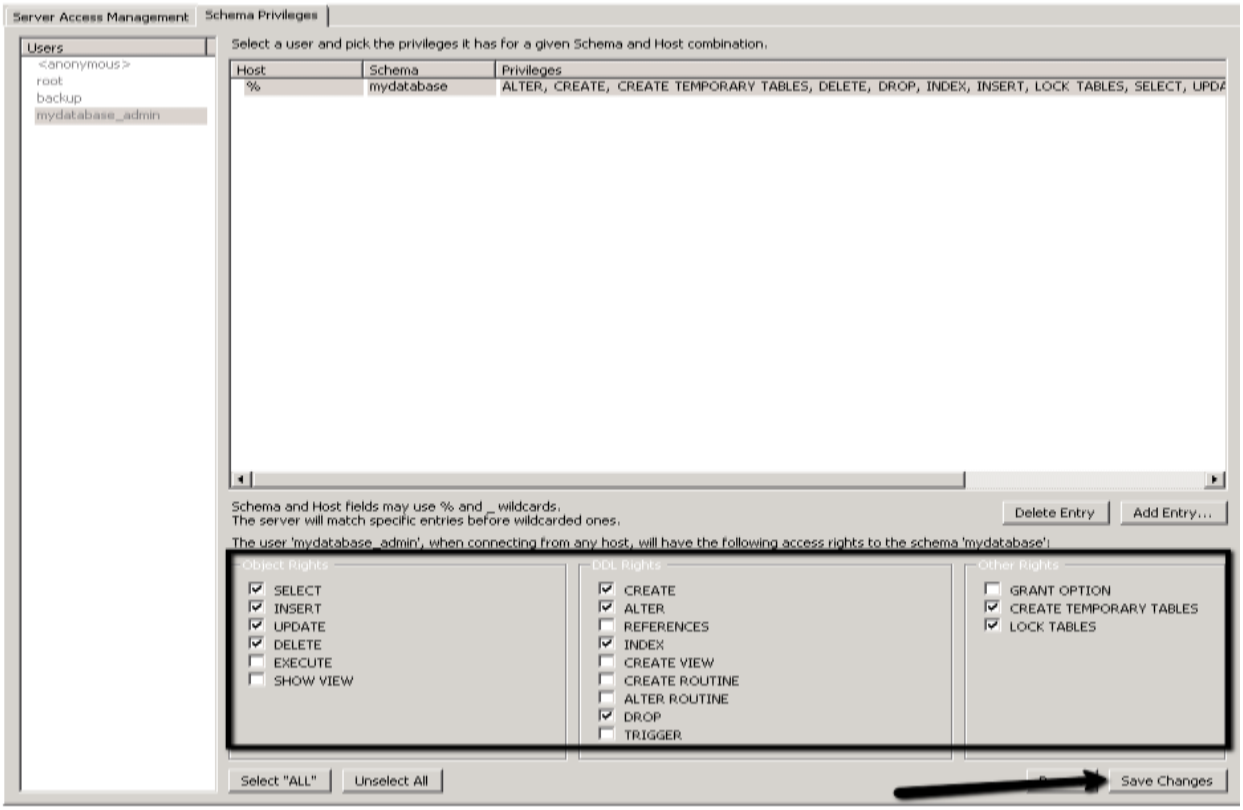


- Select the **Selected Schema** radio option, and choose your database schema from the list.



- Select the appropriate privileges to allow the user access to the selected database. Most modern website software will only require the permissions listed below. Click Save Changes to complete your new user setup.

Select, Insert, Update, Delete, Create, Alter, Index, Drop, Create Temporary Tables, Lock Tables



3. How to use MySQL Workbench to run SQL Statements.

SQL Query Tab

The SQL query secondary tab opens by default when you make a connection to a server from the Home screen. It includes a query editor area and a toolbar. You can enter SQL statements directly into the query editor area. The statements entered can

be saved to a file or snippet for later use. At any point, you can also execute the statements you have entered.

The SQL query toolbar provides actions that enable you to create and manage queries.

4. Introduction to Data Types in MySQL.

(Character, Integer, Fixed,Floating,Date, Time,ENUM,SET,Large Objects).

Once you have identified all of the tables and columns that the database will need, you should determine each field's MySQL data type. When creating the database, as you will do in the next chapter, MySQL requires that you define what sort of information each field will contain. There are three primary categories, which is true for almost every database software:

- Text
- Numbers
- Dates and times

Within each of these, there are a number of variants—some of which are MySQL-specific—you can use. Choosing your column types correctly not only dictates what information can be stored and how, but also affects the database's overall performance. **Table 3.2** lists most of the available types for MySQL, how much space they take up, and a brief description.

Here are most of the available column types for use with MySQL databases.

MYSQL DATATYPES		
Type	**Size**	**Description**
CHAR[Length]	Length bytes	A fixed-length field from 0 to 255 characters long.
VARCHAR(Length)	String length + 1 bytes	A fixed-length field from 0 to 255 characters long.
TINYTEXT	String length + 1 bytes	A string with a maximum length of 255 characters.
TEXT	String length + 2 bytes	A string with a maximum length of 65,535 characters.

MEDIUMTEXT	String length + 3 bytes	A string with a maximum length of 16,777,215 characters.
LONGTEXT	String length + 4 bytes	A string with a maximum length of 4,294,967,295 characters.
TINYINT[Length]	1 byte	Range of -128 to 127 or 0 to 255 unsigned.
SMALLINT[Length]	2 bytes	Range of -32,768 to 32,767 or 0 to 65535 unsigned.
MEDIUMINT[Length]	3 bytes	Range of -8,388,608 to 8,388,607 or 0 to 16,777,215 unsigned.
INT[Length]	4 bytes	Range of -2,147,483,648 to 2,147,483,647 or 0 to 4,294,967,295 unsigned.
BIGINT[Length]	8 bytes	Range of -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 or 0 to 18,446,744,073,709,551,615 unsigned.
FLOAT	4 bytes	A small number with a floating decimal point.
DOUBLE[Length, Decimals]	8 bytes	A large number with a floating decimal point.
DECIMAL[Length, ecimals]	Length + 1 or Length + 2 bytes	A DOUBLE stored as a string, allowing for a fixed decimal point.
DATE	3 bytes	In the format of YYYY-MM-DD.
DATETIME	8 bytes	In the format of YYYY-MM-DD HH:MM:SS.
TIMESTAMP	4 bytes	In the format of YYYYMMDDHHMMSS; acceptable range ends in the year 2037.
TIME	3 bytes	In the format of HH:MM:SS
ENUM	1 or 2 bytes	Short for enumeration, which means that each column can have one of several possible values.
SET	1, 2, 3, 4, or 8 bytes	Like ENUM except that each column can have more than one of several possible values.