

# MySQL Database Overview

## MySQL Database Overview

Instructor: Rick Palmer, SCWCD

[rick@online-ettraining.com](mailto:rick@online-ettraining.com)

# Topics Covered

- ❑ Database Concepts
- ❑ Standard CRUD Operations using MySQL

# Database Concepts Refresher

- ❑ Entity: an object, concept, or event.
- ❑ Field (column): describes a single characteristic of an entity.
- ❑ Record (row): collection of fields (characteristics) describing each entity.
- ❑ Table: collection of records for a specific entity.
- ❑ Database: collection of tables.

# MySQL

- ❑ Open Source relational database management system: [www.mysql.com](http://www.mysql.com)
- ❑ Supports Structured Query Language (SQL) – a standardized way to communicate with databases.
- ❑ Very popular (NASA, Yahoo, Powell's Books, Novell, U.S. Census Bureau, etc)

# Navigating in MySQL

- ❑ Get a list of existing databases:

```
mysql> show databases;
```

- ❑ Specify the database to use:

```
mysql> use mysql;
```

- ❑ Get a list of tables in the database:

```
mysql> show tables;
```

- ❑ Describe a table:

```
mysql> describe user;
```

# MySQL CRUD Operations

## ❑ Create a new database:

```
mysql> CREATE DATABASE cis;
```

## ❑ Create a new table:

```
mysql> use cis;  
-> CREATE TABLE vehicles  
-> (VIN varchar(17), Year int(4), Make varchar(20),  
-> Model varchar(20), Mileage int(10));
```

## ❑ Insert data into the table:

```
mysql> INSERT INTO vehicles (VIN, Year, Make, Model, Mileage)  
-> VALUES ('8YTR754', 2002, 'Ford', 'Mustang', 21000);
```

## ❑ Create a SQL script describing the database:

```
C:\mysql\bin> mysqldump -u root -p cis > cis.sql
```

## ❑ Create a database and data using a SQL script:

```
mysql> source C:\mysql\bin\cis.sql (NOTE: no semi-colon)
```

# MySQL CRUD Operations

## ❑ Retrieving all data from a table:

```
mysql> SELECT * FROM vehicles;
```

```
+-----+-----+-----+-----+-----+
| VIN      | Year  | Make      | Model    | Mileage  |
+-----+-----+-----+-----+-----+
| 8YTR754  | 2002  | Ford      | Mustang  | 21000    |
| 4GKU390  | 2001  | Chevrolet | Corvette | 35000    |
| 92A84UJ  | 1998  | Dodge     | Viper    | 89256    |
+-----+-----+-----+-----+-----+
```

## ❑ Selecting a specific row of data:

```
mysql> SELECT * FROM vehicles WHERE VIN = '8YTR754';
```

```
+-----+-----+-----+-----+-----+
| VIN      | Year  | Make      | Model    | Mileage  |
+-----+-----+-----+-----+-----+
| 8YTR754  | 2002  | Ford      | Mustang  | 21000    |
+-----+-----+-----+-----+-----+
```

# MySQL CRUD Operations

## ❑ Update all records in a table

```
mysql> UPDATE vehicles SET Mileage = 25000;
```

## ❑ Update specific records

```
mysql> UPDATE vehicles SET Mileage = 25000  
-> WHERE VIN = '8YTR754';
```

## ❑ Update multiple columns of a specific record

```
mysql> UPDATE vehicles  
-> SET Mileage = 25000, LastServiceDate = '08/30/2003'  
-> WHERE VIN = '8YTR754';
```

# MySQL CRUD Operations

- ❑ Delete all rows in a table (does not delete table)

```
mysql> DELETE FROM vehicles;
```

- ❑ Delete specific rows in a table

```
mysql> DELETE FROM vehicles  
-> WHERE VIN = '8YTR754';
```

- ❑ Delete the entire table (remove from database)

```
mysql> DROP TABLE vehicles;
```