

# MYSQL BASICS

mysql or mysqld?



# MYSQL COMPONENTS

- MySQL is comprised of several components:
  - `mysqld`: The server process, providing most of the functionality expected from an RDBMS.
  - `mysql`: Important command line interface client, connecting to MySQL servers locally or remotely.
  - Libraries/Connectors: There are several MySQL libraries which can be used by developers to connect custom source code to the MySQL system, allowing full access to databases managed by a local or remote `mysqld`.



# COMMAND LINE UTILITIES

- `mysql`: Important command line interface client, connecting to MySQL servers locally or remotely.
- `mysqladmin`: Administration tool
- `mysqldump`: Backup tool
- `mysqlcheck`: Table maintenance and repair tool
- `myisamchk`: MyISAM maintenance tool
- `mysqlshow`: View databases, tables and column information



# SERVER CONTROL

- Shutting down a database properly is one of the most important steps in avoiding corruption. Consider:
  - Open files, database caches, ongoing transactions, operating system caches, hardware caches
- If the database is not given a chance to flush out caches, write out log messages and close out all operations, any number of nasty corruption issues can spring up.
- Exercising proper startup and shutdown procedures is a must:



# SERVER CONTROL

- On Linux systems, a control script should have been included in the package:
  - `/etc/init.d/mysqld`
- To start up or shut down the database, simply run this script with an argument of “start” or “stop”
- Additionally, the `mysqladmin` command can be used by a properly privileged user to shutdown the database.
- In dire cases, sending `SIGTERM` to `mysqld` will also provide MySQL with notice and the time to shut down cleanly.



# CONNECTING TO MYSQL

- In a later lecture, we will discuss users and access control within MySQL. For the time being, we will be logging in to MySQL with the default root account.
- To attach to the MySQL database, simply run:
  - `mysql -p -u root`
- This tells the `mysql` command line client to connect to the locally running `mysqld` process as the root user ( `-u` ), and prompt for the password ( `-p` ).



# SENDING A QUERY

- Once a connection is established to the server, queries can be sent in for processing. Examples:
  - `SELECT NOW( ) ;`
  - `SHOW DATABASES ;`
  - `SELECT USER( ) \G`



# LAB

- 1) Start up your database, connect as root and try out the examples mentioned previously. What is the difference between ending a query with a semicolon or backslash G?
- 2) Try running “\h” or “\?”. Figure out how to exit from the `mysql` client, then shutdown your database. Verify you can no longer connect via the `mysql` client. Read the documentation for `mysqladmin`, then run “`mysqladmin ping`” and verify your server is shut down.
- 3) Start up your database once more and check that it's running both with `mysql` and `mysqladmin`.



```
slideshow.end();
```