MySQL Architecture

- Use MySQL client programs to interface with the MySQL Server interactively and in batch
- Describe SQL Modes and their impact on behavior of MySQL
- Identify characteristics which have session scope

General MySQL Syntax

- Explain MySQL implementation of identifiers including case sensitivity, qualified names, aliases and use of reserved words
- Identify MySQL data type properties and appropriate usage
- Recognize and use common functions and expressions for all MySQL data types
- Identify and use comment syntax
- Describe and utilize prepared statements
- Describe transactions and transaction isolation levels and the impact they have on database behavior

Creation and Design of MySQL Schema Objects

- Design and create normalized databases
- Create and modify tables using appropriate data types and indexing
- Describe and create table constraints enforcing data integrity
- Creating and modifying views
- Identify and use various methods to obtain metadata for MySQL database objects

Creation, Design and Use of MySQL Stored Programs

- Describe and use triggers
- Create and execute stored procedures
- Create and use stored functions
- Implement error handling within stored procedures

Querying for Data

- Execute a basic SELECT statement
- Limit rows returned by a SELECT statement
- Limit columns returned by a SELECT statement
- Apply sorting to SELECT statement results
- Execute SELECT statements which aggregate and group data

Modifying Data

- Describe and execute INSERT statements
- Describe and execute REPLACE statements
- Describe and execute UPDATE statements
- Describe and execute TRUNCATE statements
- Describe and execute LOAD DATA statements
- Describe and execute DELETE statements

Joins, subqueries and UNION

- Identify, describe and use JOINs in MySQL commands
- Describe and utilize subqueries in MySQL commands
- Perform operations using UNION clause

MySQL Application Development

- Identify key characteristics, features and options for PHP, Java and .NET development using MySQL standard drivers
- Write a basic Java application that uses MySQL
- Write a basic PHP application that uses MySQL
- Write a basic .NET application that uses MySQL
- Interpret MySQL error messages
- Collect available diagnostic information
- Describe and use NoSQL and memcached API

Basic Optimizations

- Identify statements requiring optimization
- Recognize and create optimal indexes for query optimization
- Recognize and fix sub-optimal SQL commands
- Identify appropriate optimization strategies for InnoDB usage
- Optimize performance through data normalization