

Professional MySQL Developer Checklist

(Software House Level)

Student Name: _____ **Instructor Name:** _____

(Industry / Software House Standard)

1 Basics & Setup

- [] MySQL installation & configuration
 - [] Understanding database, table, row, column
 - [] MySQL Workbench / phpMyAdmin usage
 - [] SQL syntax basics
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2 Data Types

- [] Numeric types (INT, FLOAT, DOUBLE, DECIMAL)
 - [] String types (CHAR, VARCHAR, TEXT)
 - [] Date & Time types (DATE, DATETIME, TIMESTAMP, TIME, YEAR)
 - [] Boolean types
 - [] Choosing correct data type for storage & performance
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3 DDL – Data Definition Language

- [] CREATE DATABASE / TABLE
 - [] ALTER TABLE (add, modify, drop columns)
 - [] DROP TABLE / DATABASE
 - [] TRUNCATE TABLE
 - [] Primary key & auto_increment
 - [] Foreign key & constraints
 - [] Unique, Not Null, Default constraints
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4 DML – Data Manipulation Language

- [] INSERT INTO single & multiple rows
 - [] UPDATE rows
 - [] DELETE rows
 - [] REPLACE INTO
 - [] UPSERT / ON DUPLICATE KEY UPDATE
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5 DQL – Data Query Language

- [] SELECT basics
 - [] SELECT DISTINCT
 - [] WHERE clause with conditions
 - [] Logical operators (AND, OR, NOT)
 - [] Comparison operators (=, !=, >, <, >=, <=)
 - [] LIKE & pattern matching
 - [] IN, BETWEEN, IS NULL
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6 Joins & Relationships

- [] INNER JOIN
 - [] LEFT JOIN / RIGHT JOIN
 - [] FULL OUTER JOIN
 - [] CROSS JOIN (Cartesian product)
 - [] Self JOIN
 - [] Understanding relational mapping
 - [] ON clause & join conditions
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7 Aggregations & Grouping

- [] COUNT, SUM, AVG, MIN, MAX
 - [] GROUP BY
 - [] HAVING clause
 - [] Combining WHERE with GROUP BY
 - [] DISTINCT with aggregation
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8 Subqueries & Nested Queries

- [] Simple subqueries in SELECT
 - [] Subqueries in WHERE clause
 - [] Correlated subqueries
 - [] EXISTS / NOT EXISTS
 - [] IN vs JOIN comparison
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9 Indexing & Performance

- [] Primary key indexing
 - [] Unique index
 - [] Composite index
 - [] Fulltext index
 - [] Index impact on SELECT vs INSERT/UPDATE
 - [] Using EXPLAIN to optimize queries
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10 Transactions & ACID

- [] START TRANSACTION / BEGIN
 - [] COMMIT
 - [] ROLLBACK
 - [] SAVEPOINT
 - [] Isolation levels (READ UNCOMMITTED, READ COMMITTED, REPEATABLE READ, SERIALIZABLE)
 - [] Understanding atomicity, consistency, isolation, durability
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11 Views & Stored Programs

- [] CREATE VIEW / DROP VIEW
 - [] Advantages of views
 - [] Stored procedures
 - [] Stored functions
 - [] Triggers
 - [] Event scheduling
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12 Security & Permissions

- GRANT / REVOKE
 - User management
 - Role-based access control
 - Preventing SQL injection (prepared statements)
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13 Backup & Restore

- mysqldump basics
 - Importing .sql files
 - Database versioning & migration
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14 Advanced Topics

- Normalization (1NF, 2NF, 3NF, BCNF)
 - Denormalization scenarios
 - Foreign key cascading (ON DELETE / ON UPDATE CASCADE)
 - Stored indexes & query optimization
 - Partitioning tables
 - Handling NULL values efficiently
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15 Real-world Project Practice

- Design a Student Management System
 - Design an E-commerce product & order database
 - Dashboard with joins & aggregations
 - Reporting queries (sales, marks, inventory)
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Course Completion Statement

By completing all items above, the student has demonstrated proficiency in MySQL concepts, queries, and database design.

Student Signature: _____ Date: _____

