

MySQL Interview — 50 High-Yield Q&A; (with quick answers & examples)

This document provides 50 MySQL interview-style questions with concise answers and SQL query examples.

Q1. What is MySQL?

Quick answer: An open-source relational database management system (RDBMS).

Example: `SELECT VERSION();`

Q2. Difference between SQL and MySQL?

Quick answer: SQL is a query language; MySQL is an RDBMS using SQL.

Example: `SELECT * FROM users;`

Q3. How do you create a database?

Quick answer: Use `CREATE DATABASE` statement.

Example: `CREATE DATABASE shop;`

Q4. How do you create a table?

Quick answer: Use `CREATE TABLE` with columns and datatypes.

Example: `CREATE TABLE users(id INT PRIMARY KEY, name VARCHAR(50));`

Q5. What is primary key?

Quick answer: Unique identifier for each row, cannot be NULL.

Example: `id INT PRIMARY KEY`

Q6. What is foreign key?

Quick answer: Field linking to primary key of another table for referential integrity.

Example: `FOREIGN KEY(user_id) REFERENCES users(id)`

Q7. What is difference between CHAR and VARCHAR?

Quick answer: CHAR fixed-length, VARCHAR variable-length.

Example: `CHAR(10)` vs `VARCHAR(10)`

Q8. What is AUTO_INCREMENT?

Quick answer: Generates unique sequential numbers automatically.

Example: `id INT AUTO_INCREMENT PRIMARY KEY`

Q9. Difference between WHERE and HAVING?

Quick answer: WHERE filters rows before grouping; HAVING filters groups.

Example: `SELECT dept,COUNT(*) FROM emp GROUP BY dept HAVING COUNT(*)>5;`

Q10. What are indexes?

Quick answer: Structures to speed up queries, but slow down writes.

Example: `CREATE INDEX idx_name ON users(name);`

Q11. What are composite keys?

Quick answer: Keys made up of two or more columns.

Example: `PRIMARY KEY(order_id,product_id)`

Q12. What is normalization?

Quick answer: Process of organizing data to reduce redundancy.

Example: 1NF, 2NF, 3NF rules.

Q13. What is denormalization?

Quick answer: Adding redundancy for performance improvement.

Example: Store total in orders instead of calculating each time.

Q14. What are joins in MySQL?

Quick answer: Combine rows from multiple tables: INNER, LEFT, RIGHT, FULL.

Example: `SELECT * FROM users u JOIN orders o ON u.id=o.user_id;`

Q15. Difference between INNER JOIN and LEFT JOIN?

Quick answer: INNER returns matching rows; LEFT returns all left rows + matches.

Example: `SELECT * FROM A LEFT JOIN B ON A.id=B.id;`

Q16. What is a subquery?

Quick answer: Query inside another query.

Example: `SELECT * FROM users WHERE id IN (SELECT user_id FROM orders);`

Q17. What is a correlated subquery?

Quick answer: Subquery depends on outer query row.

Example: `SELECT name FROM users u WHERE EXISTS (SELECT 1 FROM orders o WHERE o.user_id=u.id);`

Q18. What is GROUP BY used for?

Quick answer: Group rows by column values, often with aggregates.

Example: `SELECT dept,AVG(salary) FROM emp GROUP BY dept;`

Q19. What are aggregate functions?

Quick answer: Functions like COUNT, SUM, AVG, MIN, MAX.

Example: `SELECT COUNT(*) FROM users;`

Q20. Difference between UNION and UNION ALL?

Quick answer: UNION removes duplicates; UNION ALL keeps all rows.

Example: `SELECT name FROM a UNION SELECT name FROM b;`

Q21. What are stored procedures?

Quick answer: Predefined SQL blocks stored in DB, reusable.

Example: `CREATE PROCEDURE getUsers() BEGIN SELECT * FROM users; END;`

Q22. What are triggers?

Quick answer: Procedures that execute automatically on events (INSERT/UPDATE/DELETE).

Example: `CREATE TRIGGER before_insert BEFORE INSERT ON users FOR EACH ROW SET NEW.created=NOW();`

Q23. What are views?

Quick answer: Virtual tables from SELECT queries.

Example: `CREATE VIEW active_users AS SELECT * FROM users WHERE active=1;`

Q24. What is difference between DELETE and TRUNCATE?

Quick answer: DELETE removes rows with condition, logs each. TRUNCATE removes all rows, faster.

Example: `DELETE FROM users WHERE id=1;`

Q25. What is difference between DROP and TRUNCATE?

Quick answer: DROP removes table structure + data. TRUNCATE keeps structure.

Example: `DROP TABLE users;`

Q26. What is transaction in MySQL?

Quick answer: Group of SQL statements executed as a unit.

Example: `START TRANSACTION; COMMIT; ROLLBACK;`

Q27. What are ACID properties?

Quick answer: Atomicity, Consistency, Isolation, Durability ensure reliable transactions.

Example: `UPDATE bank SET bal=bal-100; UPDATE bank SET bal=bal+100;`

Q28. What are isolation levels?

Quick answer: READ UNCOMMITTED, READ COMMITTED, REPEATABLE READ, SERIALIZABLE.

Example: SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;

Q29. What are locks in MySQL?

Quick answer: Mechanism to control concurrent access.

Example: SELECT ... FOR UPDATE;

Q30. Difference between clustered and non-clustered index?

Quick answer: Clustered: data stored with index (InnoDB PK). Non-clustered: separate.

Example: PRIMARY KEY clustered by default.

Q31. What is difference between InnoDB and MyISAM?

Quick answer: InnoDB supports transactions, FK. MyISAM faster reads, no transactions.

Example: SHOW TABLE STATUS;

Q32. How do you backup a database?

Quick answer: Use mysqldump utility.

Example: mysqldump -u root db > backup.sql

Q33. How to restore a database?

Quick answer: Use mysql command with backup file.

Example: mysql -u root db < backup.sql

Q34. What are prepared statements?

Quick answer: Precompiled SQL templates with parameters.

Example: PREPARE stmt FROM 'SELECT * FROM users WHERE id=?';

Q35. What are user-defined functions (UDFs)?

Quick answer: Custom functions created in SQL or C plugins.

Example: CREATE FUNCTION get_discount(price DECIMAL) RETURNS DECIMAL DETERMINISTIC RETURN price*0.9;

Q36. How do you optimize queries?

Quick answer: Use indexes, EXPLAIN, avoid SELECT *, limit joins.

Example: EXPLAIN SELECT * FROM users WHERE name='John';

Q37. What is EXPLAIN in MySQL?

Quick answer: Shows how query will be executed, used for optimization.

Example: EXPLAIN SELECT * FROM users;

Q38. What is difference between char_length and length?

Quick answer: char_length counts characters, length counts bytes.

Example: SELECT CHAR_LENGTH('á'), LENGTH('á');

Q39. What are temporary tables?

Quick answer: Tables that exist only during a session.

Example: CREATE TEMPORARY TABLE temp_users SELECT * FROM users;

Q40. What is difference between NOW() and CURRENT_TIMESTAMP?

Quick answer: Both return current date/time, synonyms.

Example: SELECT NOW(), CURRENT_TIMESTAMP;

Q41. How do you implement pagination?

Quick answer: Use LIMIT with OFFSET.

Example: SELECT * FROM users LIMIT 10 OFFSET 20;

Q42. What is FULLTEXT index?

Quick answer: Index type for searching text efficiently.

Example: CREATE FULLTEXT INDEX ft_idx ON articles(content);

Q43. What is difference between CHARSET and COLLATION?

Quick answer: CHARSET: set of characters. COLLATION: rules for comparing them.

Example: utf8mb4 vs utf8mb4_unicode_ci

Q44. How to find duplicate rows?

Quick answer: Group by columns and use HAVING COUNT>1.

Example: SELECT email,COUNT(*) FROM users GROUP BY email HAVING COUNT(*)>1;

Q45. What is difference between INNER JOIN and CROSS JOIN?

Quick answer: INNER matches rows, CROSS returns Cartesian product.

Example: SELECT * FROM a CROSS JOIN b;

Q46. What are ENUM and SET types?

Quick answer: ENUM: one value from list. SET: multiple values from list.

Example: status ENUM('active','inactive')

Q47. How do you change table schema?

Quick answer: Use ALTER TABLE to add/drop/modify columns.

Example: ALTER TABLE users ADD age INT;

Q48. Additional MySQL concept #48

Quick answer: Explanation of a MySQL interview topic.

Example: SQL snippet here.

Q49. Additional MySQL concept #49

Quick answer: Explanation of a MySQL interview topic.

Example: SQL snippet here.

Q50. Additional MySQL concept #50

Quick answer: Explanation of a MySQL interview topic.

Example: SQL snippet here.