PG-DAC AUGUST 25
Assignment No- 1
Database & SQL Interview Questions

Explore & Read about MYSQL & RDBMS .

1. What is a database ,tuple & Records ?

2. What is the difference between a database and a DBMS?

3. What are the different types of database models?

4. What is normalization? Why is it important?

5. Explain the different normal forms (1NF, 2NF, 3NF, BCNF).

6. What is denormalization and when should we use it?

7. What is a primary key and a foreign key?

8. What are constraints in SQL?

9. What is an index? How does it improve performance?

10. What is a view in SQL?

11. What are DDL, DML, DCL, and TCL in SQL?

12. Write a SQL query to create a table.

13. How do you insert data into a table?

14. How do you update data in a table?

15. How do you delete data from a table?

16. What is the difference between DELETE and TRUNCATE & DROP ?

17. Explain the difference between WHERE and HAVING.

18. How do you select distinct records from a table?

19. Write a query to find the maximum salary from an employee table.

20. What is the Types of Joins & difference between INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN?

21. What is a subquery?

22. Explain correlated vs. non-correlated subqueries.

23. How does the GROUP BY clause work?

24. How can you prevent duplicate records from being inserted into a table?

25. What is a transaction in SQL?

26. Explain ACID properties in the context of a transaction.

27. What is the difference between UNION and UNION ALL?

28. How do you perform a self-join? Provide an example use case.

29. What is the use of the CASE statement in SQL?

30. How do you handle NULL values in queries?

31. What is a stored procedure?

32. What is a trigger? Give an example use case.

33. What is indexing? What are the different types of indexes?

34. What is the difference between clustered and non-clustered index?

35. Explain the concept of views.

36. What is a materialized view? How is it different from a regular view?

37. What is the difference between OLAP and OLTP databases?

38. How do you optimize a slow-running SQL query?

39. What is a deadlock in database systems? How do you prevent it?

40. What are foreign key constraints, and how do they help maintain referential integrity?

41. How would you design a database for an online bookstore?

42. How do you enforce uniqueness in a column?

43. What are the implications of using a composite primary key?

44. Explain how you would back up and restore a database.

45. How do you handle concurrent database access?

46. What is a database trigger, and when would you use one?

47. How do you manage user permissions in a database?

48. What is sharding in database systems?

49. What is the difference between horizontal scaling and vertical scaling in databases?

50. How would you approach migrating a database from MySQL to PostgreSQL?