



# **RDBMS Syllabus**

**DURATION – 2 MONTHS**

**MODE OF TRAINING – OFFLINE/ONLINE**

# RDBMS

- **Introduction to RDBMS**
- **What is a Database?**
- **What is DBMS and RDBMS?**
- **Advantages and disadvantages of DBMS/RDBMS**
- **Database Models: Hierarchical, Network, Relational**
- **RDBMS Terminologies: Tables, Tuples, Attributes, Keys, Relationships**

# RDBMS

- **Entity-Relationship (ER) Model**
- Entities and Attributes
- Entity Sets and Relationship Sets
- Types of Attributes (Simple, Composite, Derived, Multivalued)
- Keys (Primary, Foreign, Super, Candidate)
- ER Diagrams and Symbols
- Converting ER Diagram to Tables
- Generalization, Specialization, Aggregation

# RDBMS

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- **Relational Model**
- **Relational Schema**
- **Relational Algebra (Select, Project, Join, Union, Intersection, Difference, Cartesian Product)**
- **Relational Calculus**
- **Domain and Tuple Relational Calculus**

# RDBMS

- **SQL – Structured Query Language**
- **Introduction to SQL**
- **Data Definition Language (DDL): CREATE, ALTER, DROP**
- **Data Manipulation Language (DML): INSERT, UPDATE, DELETE**
- **Data Query Language (DQL): SELECT, WHERE, GROUP BY, HAVING, ORDER BY**
- **Data Control Language (DCL): GRANT, REVOKE**
- **Transaction Control Language (TCL): COMMIT, ROLLBACK, SAVEPOINT**
- **Joins: INNER, LEFT, RIGHT, FULL OUTER**
- **Subqueries and Nested Queries**
- **Views**
- **Indexes**

# RDBMS

- **Normalization**
- **Purpose of Normalization**
- **Anomalies (Insertion, Deletion, Update)**
- **Functional Dependencies**
- **1NF (First Normal Form)**
- **2NF, 3NF, BCNF (Boyce-Codd Normal Form)**
- **4NF and 5NF (Advanced - Optional)**
- **De-normalization**

# RDBMS

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- **Transaction Management & Concurrency Control**
- Transactions and ACID Properties
- States of a Transaction
- Serializability
- Concurrency Problems: Lost Update, Dirty Read, Non-repeatable Read, Phantom Read
- Locking Mechanisms (Shared, Exclusive, Two-Phase Locking)
- Deadlock and Prevention

# RDBMS

- **Database Security & Integrity**
- Integrity Constraints: NOT NULL, UNIQUE, CHECK, DEFAULT, PRIMARY KEY, FOREIGN KEY
- Access Control
- Authentication and Authorization
- Backup and Recovery

# RDBMS

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- **Tools and Platforms**
- MySQL
- SQL Server
- Oracle
- PostgreSQL
- SQLite

# Key Feature

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- Trainer with 12+ Years of Experience
- 200 hours of high-quality course
- Best Quality Training
- Live Project Experience
- Demo Lectures are available
- In-depth Course Contents
- 100 % Placement Assistance
- Internship support



# Orange Itech Offer You



INTERNSHIP





# THANK YOU

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